

**Terms of reference for the
Baralaba South Project
environmental impact statement (EIS)**
Proposed by Wonbindi Coal Pty Ltd
July 2017

© State of Queensland, 2017.

The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons Attribution 3.0 Australia (CC BY) licence.



Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms.

You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

For more information on this licence, visit <http://creativecommons.org/licenses/by/3.0/au/deed.en>

If you need to access this document in a language other than English, please call the Translating and Interpreting Service (TIS National) on 131 450 and ask them to telephone Library Services on +61 7 3170 5470.

This publication can be made available in an alternative format (e.g. large print or audiotape) on request for people with vision impairment; phone +61 7 3170 5470 or email library@ehp.qld.gov.au.

July 2017

Contents

Part A	About these terms of reference	1
1	Statutory basis	1
2	Accredited process for controlled actions under Commonwealth legislation	2
3	EIS guidelines.....	2
Part B	Content of the EIS.....	2
1	General approach.....	2
2	Mandatory requirements of an EIS.....	3
3	Further requirements of an EIS	3
4	Executive summary	4
5	Introduction	4
5.1	Project proponent.....	4
5.2	The environmental impact assessment process	4
5.3	Project approvals process	4
6	Project description	5
6.1	Proposed development.....	5
6.2	Site description	5
6.3	Climate	6
6.4	Proposed construction and operations	6
7	Identification of critical matters	6
8	Assessment of critical and routine matters.....	7
8.1	Flora and fauna (critical matter).....	7
8.2	Water quality (critical matter)	9
8.3	Water resources (critical matter).....	10
8.4	Flooding and regulated dams (critical matter)	11
8.5	Air quality (critical matter)	12
8.6	Noise and vibration (critical matter)	13
8.7	Transport (critical matter).....	13
8.8	Land (Critical matter)	14
8.9	Biosecurity	15
8.10	Waste management.....	15
8.11	Cultural heritage.....	16
8.12	Social and economic.....	17
8.13	Hazards and safety	17
9	Appendices to the EIS.....	18
	Acronyms and abbreviations	19
Appendix 1	Policies and guidelines	20
Appendix 2	Matters of national environmental significance.....	21
	Approved by	25

Part A About these terms of reference

1 Statutory basis

On 10 August 2011 Wonbindi Coal Pty Ltd (Wonbindi Coal) applied under sections 70 and 71 of the *Environmental Protection Act 1994* (EP Act) for approval to voluntarily prepare an environmental impact statement (EIS). Under section 72 of the EP Act, the Department of Environment and Heritage Protection (EHP) approved the application on 16 August 2011.

An Initial Advice Statement was submitted to EHP in September 2012 outlining the resource, operations and infrastructure of the proposed Baralaba South Project. In October 2012, Wonbindi Coal made application to the Department of Natural Resources and Mines (DNRM) for a new mining lease over the Project area (MLA80193).

On 18 October 2012, the former Australian Government Department of the Environment (DOE) determined the proposed project to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). Refer to Section 2 below for further information about the Commonwealth assessment and approval process.

The terms of reference (TOR) for the Baralaba South Project were finalised on 2 April 2013, however ceased to have effect on 2 April 2015 as an EIS for the proposed project was not submitted by this date. In order to progress the proposed project it is necessary to comply with chapter 3, part 1, division 2 (TOR stage) of the EP Act, before an EIS may be submitted. Consequently, these draft TOR, once finalised, replace and supersede the previous TOR finalised for the Baralaba South Project on 2 April 2013.

This section draws attention to the project assessment information requirements of the *Environmental Protection Act 1994* administered by EHP. While these TOR aim to seek information corresponding to these requirements, proponents should confirm that the EIS addresses all statutory requirements, and also meets the relevant information requirements of other Commonwealth and State regulatory authorities.

These TOR outline the information requirements for the resource project being assessed under the EIS process in chapter 3, part 1, of the EP Act.

The key information requirements of the EP Act that must be addressed in an 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 and 126 which set out the general information requirements for applications for an environmental authority;
- section 126A which sets out the information requirements for a project involving the exercise of underground water rights; and
- the environmental objectives and performance outcomes specified in schedule 5, part 3, table 1 of the Environmental Protection Regulation 2008 (EP Regulation).

Section 139 of the EP Act states that the information stage of the environmental authority (EA) process does not apply if the EIS process under the EP Act is complete (unless there has been a subsequent change).

Consequently, if the project is to proceed, it is particularly important that the EIS provide all the information needed to enable the issuing of an EA for the project as set out in these TOR.

Chapter 4 of the EP Regulation prescribes the regulatory requirements with which the administering authority is required to comply for making environmental management decisions—including the issuing of an EA. To facilitate this, EHP has developed a set of model conditions for resource projects, which should form the basis for proposed draft EA conditions and general environmental protection commitments in the EIS. For the proposed project, the Guideline – Resource activity – mining – Model mining conditions, is relevant. The EIS should describe impact mitigation measures in the context of these model conditions.

2 Accredited process for controlled actions under Commonwealth legislation

The project is a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which requires assessment by an EIS process accredited under the environmental assessment Bilateral Agreement (section 45 of the EPBC Act). As such, the EIS must address the 'controlling provisions' and all matters relating to them. The controlling provisions for the project, with regard to its potential impacts on matters of national environmental significance (MNES) are:

- listed threatened species and communities (sections 18 and 18A);
- listed migratory species (Sections 20 and 20A); and
- water resources (24D and 24E).

The EIS will be prepared pursuant to the bilateral agreement between the Commonwealth and Queensland governments for the purposes of the Commonwealth Government's assessment under part 8 of the EPBC Act.

The assessment of the potential impacts, mitigation measures and any offsets for residual 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 2 of the TOR.

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

3 EIS guidelines

To support the TOR, EHP has developed an information guideline for an EIS under the EP Act and is available from EHP's website¹. The guideline is a compilation of relevant technical guidance material, arranged following the subject headings in the generic TOR. The guideline is intended for use as a companion to the generic TOR and to help EIS project proponents to anticipate and plan the investigative work needed to successfully prepare an EIS under the EP Act. Additional subject-specific guidelines are referenced throughout the TOR and a list of these policies and guidelines provided in Appendix 1.

Part B Content of the EIS

1 General approach

- 1.1 For the purposes of the EIS process, 'environment' is defined in section 8 of the EP Act.
- 1.2 The EIS should give priority to the critical matters associated with the project (specified in section 7 of the TOR).
- 1.3 The detail in which the EIS deals with matters relevant to the project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider its intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offsets provisions.

¹ <http://www.ehp.qld.gov.au/management/impact-assessment/eis-processes/eis-tor-support-guidelines>

2 Mandatory requirements of an EIS

- 2.1 Describe the project including all aspects subject to this assessment. Provide details of the proponent of the project, including details of any joint venture partners. 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.
- 2.2 For all the relevant matters, the EIS must identify and describe the environmental values² that must be protected. Environmental values are specified in the EP Act, the Environmental Protection Regulation 2008 (EP Regulation), environmental protection policies (EPPs) and relevant guidelines.³
- 2.3 The assessment should cover both the short and long-term scenarios and state whether any relevant impacts are likely to be irreversible.
- 2.4 Provide all available baseline information relevant to the environmental risks of the project. Provide details about the quality of the information provided, in particular: the source of the information; how recent the information is; how the reliability of the information was tested; and any uncertainties in the information.
- 2.5 Demonstrate how the construction, operation and decommissioning (to the extent known) of the project would be consistent with best practice environmental management. In general, the preferred hierarchy for managing likely impacts is: (a) to avoid; (b) to minimise or mitigate; and (c) if necessary, and possible, to offset. Where relevant, mitigation strategies should be described in the context of EHP model conditions.
- 2.6 Provide detailed strategies in regard to all critical matters for the protection, or enhancement as desirable, of all relevant environmental values in terms of outcomes and possible conditions that can be measured and audited.
- 2.7 Impact minimisation measures should include ongoing monitoring and proposals for an adaptive management approach, as relevant, based on monitoring. The proposed measures should give confidence that, based on current technologies, the impacts can be effectively minimised over the long-term.
- 2.8 Present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes. Discuss the consequences of not proceeding with the project.
- 2.9 For unproven elements of a resource extraction or processing process, technology or activity, identify and describe any global leading practice environmental management, where available.

3 Further requirements of an EIS

- 3.1 The assessment and supporting information should be sufficient for the administering authority to decide whether an approval should be granted. Where applicable, sufficient information should be included to enable approval conditions, such as the existing model EA conditions, to be utilised.
- 3.2 To the extent of the information available, the assessment should endeavour to predict the cumulative impact⁴ of the project on environmental values over time and in combination with impacts created by the activities of other adjacent and upstream and downstream developments and landholders—as detected by baseline monitoring. The EIS should also outline ways in which the cumulative impact assessment and management could subsequently be progressed further on a collective basis.
- 3.3 Include a consolidated description of all the proponent's commitments to implement management measures (including monitoring programs). Should the project proceed, these should be able to be carried over into the approval conditions as relevant.

² Defined in section 125(l)(i)(A) of the EP Act.

³ For example, the Queensland Water Quality Guidelines and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (refer to Appendix 1 Policies and guidelines for details).

⁴ Cumulative impact is defined as 'combined impacts from all relevant sources (developments and other activities in the area)'.

- 3.4 Provide all geographical coordinates throughout the EIS in latitude and longitude against the Geocentric Datum of Australia 1994 (GDA94).
- 3.5 Maps provided in the EIS should be accompanied with the relevant geospatial data.
- 3.6 An appropriate public consultation program is essential to the impact assessment process. The proponent should consult with local, Queensland and Australian government authorities, and potentially affected local communities.
- 3.7 The EIS should describe the consultation that has taken place and how the responses from the community and agencies have been considered, and where possible, incorporated into the design and outcomes of the project. Requirements for the public consultation plan are listed in the document 'Preparing an environmental impact statement: Guideline for proponents'⁵.
- 3.8 Include, as an appendix, a public consultation report. The report should detail how the public consultation plan was implemented including the results.

4 Executive summary

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

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

Describe the proponent's experience, including:

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

5.2 The environmental impact assessment process

- 5.2.1 The EIS should provide an outline of the environmental impact assessment process, including the role of the administering authority in the decision making process for the EIS. The information in this section is required to ensure readers are informed of the process to be followed and are aware of any opportunities for input and participation.
- 5.2.2 Inform the reader how and when properly made public submissions on the EIS will be addressed and taken into account in the decision-making process.

5.3 Project approvals process

- 5.3.1 Provide an outline of the approvals required to enable the project to be constructed and operated. Explain how the environmental impact assessment process (and the EIS itself) informs the issue of the leases/licences/permits/consents required by the proponent before construction can commence. Provide a

⁵ <https://www.statedevelopment.qld.gov.au/resources/guideline/cg/preparing-an-eis-guideline-for-proponents.pdf>

flow chart indicating the key approvals and opportunities for public comment. Guidance on typical associated approvals can be accessed from the Coordinator-General's website.⁶

6 Project description

6.1 Proposed development

The EIS must describe and illustrate at least the following specific information about the proposed project:

- the project's title;
- the project, its objectives, mine life (up to final landform design) and expected capital expenditure;
- rationale for the project;
- a description of the coal/mineral resource base, including the key geological attributes of the coal seams and the extent of identified resources of coal estimated for the seams;
- the location and extent of any identified coal/mineral resources potentially sterilised by the planned activities;
- the nature and scale of activities to be undertaken and whether it is a greenfield or brownfield site;
- the regional and local context of the project's footprint (with maps at suitable scales);
- relationship to other coordinated projects and other major projects (of which the proponent should reasonably be aware);
- the workforce numbers to be employed by the project during its various phases, where personnel would be accommodated and, where relevant, the likely recruitment and rostering arrangements to be adopted; and
- the proposed construction staging and likely schedule of operational works for the recovery of the identified coal/mineral resources, including the annual tonnage(s) of coal/mineral to be mined.

6.2 Site description

- 6.2.1 Provide real property descriptions of the project land and adjacent properties; any easements; any land tenure under the *Land Act 1994*, *Stock Route Management Act 2002* and the *Land Title Act 1994*; state lands including roads, unallocated state land, state leases, reserves and state forests; any underlying resource tenures; and identification number of any resource activity lease for the project land that is subject to application. Key transport, state-controlled roads, rail, air, port/sea and other infrastructure in the region relevant to the project and to the site should be described and mapped.
- 6.2.2 Describe and illustrate the topography of the project site and surrounding area, and highlight any significant features shown on the maps. Maps should have contours at suitable increments relevant to the scale, location, potential impacts and type of project, shown with respect to Australian Height Datum (AHD) and drafted to GDA94.
- 6.2.3 Where appropriate, describe and map in plan and cross-sections the surficial and solid geology and landforms, including catchments, of the project area. Show geological structures, such as aquifers, faults and economic resources that could have an influence on, or be influenced by, the project's activities.
- 6.2.4 Where appropriate, describe, map and illustrate soil types and profiles of the project area at a scale relevant to the proposed project. Describe the method(s) used for soil characterisation. Identify soils that would require particular management due to wetness, erosivity, depth, acidity, salinity or other feature.

⁶ www.dsdp.qld.gov.au/coordinator-general

6.3 Climate

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

6.4 Proposed construction and operations

Describe the following information about the proposal:

- existing infrastructure and easements on the potentially affected land, including overlapping tenure(s);
- existing exploration works or disturbance within the underlying pre-requisite exploration tenure(s);
- proposed extractive and processing methods, associated equipment and techniques;
- sequencing and staging of activities, including rehabilitation activities;
- capacity of high-impact plant and equipment, their chemical and physical processes, and chemicals or hazardous materials to be used;
- known locations of new or altered works and structures and infrastructure (including upgrades or relocation) necessary for the project at all stages of its development, whether on or off the project lease(s) or rights of way;
- all environmentally relevant activities proposed to be undertaken, as described in schedule 2 and schedule 2A of the EP Regulation; and
- the off-site location and volume of any quarry materials and screening operations required to service the construction and operation of the project.

7 Identification of critical matters

- 7.1 This section sets out the scope of critical matters that should be given detailed treatment in the EIS. A critical matter is an aspect of the proposal that has one or more of the following characteristics:
- a high or medium probability of causing serious or material environmental harm or a high probability of causing an environmental nuisance⁷;
 - 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; and
 - identified (in a referral decision) as a specific controlling provision under the EPBC Act.
- 7.2 The following critical matters have been identified for the proposed Baralaba South Project:
- Flora and fauna (Section 8.1);
 - Water quality (Section 8.2);
 - Water resources (Section 8.3);
 - Flooding and regulated dams (Section 8.4);
 - Air quality (Section 8.5);
 - Noise and vibration (Section 8.6);
 - Transport (Section 8.7);
 - Land (Section 8.8); and
 - Matters of National Environmental Significance (MNES) (Appendix 2).

In the course of preparing and assessing the EIS, information may become available that warrants a change of scope of critical matters, or identifies additional critical matters.

⁷ 'Material environmental harm', 'serious environmental harm' and 'environmental nuisance' are defined in Part 3, sections 15, 16 and 17 of the *Environmental Protection Act 1994*.

8 Assessment of critical and routine matters

The following subsections list the critical and routine matters for resource projects, with (where applicable) a reference to the objectives defined in the EP Regulation. In some cases, not all the matters may be relevant, while in others the list may not be exhaustive. Where applicable, refer to the objective of the EP Regulation (section 3) to ensure ecologically sustainable development is achieved.

For each matter identified below, the level of detail should be proportional to the scale of impacts. As a minimum, the proponent should supply sufficient information that confirms the risks/impacts are not significant.

8.1 Flora and fauna (critical matter)

Objectives and performance outcomes

The environmental objectives to be met under the EP Act are that the:

- activity is operated in a way that protects the environmental values of flora and fauna;
- choice of the site, at which the activity is to be carried out, minimises serious environmental harm on areas of high conservation value and special significance;
- location for the activity on a site protects all environmental values relevant to adjacent sensitive use; and
- 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.

The performance outcomes corresponding to these objectives are in Schedule 5, Tables 1 and 2 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements—Rehabilitation

- 8.1.1 The EIS should provide information based on relevant guidelines, current best practice approaches and legislative requirements about the strategies and methods for progressive and final rehabilitation of the environment disturbed by the project and decommissioning.
- 8.1.2 Develop a preferred rehabilitation strategy (supported by examples of successfully implemented rehabilitation methods at existing operations) that would minimise the residual loss of land and water bodies with ecological or productive value. For key intervals throughout the planned mine life (at minimum, every 5 years), and for mine closure, show the expected topography of the site with any excavations, waste areas and dam sites on suitably scaled maps. Illustrate the proposed final land uses.
- 8.1.3 Describe the topsoil resource on site and the quantity and quality of topsoil that would be available for rehabilitation. Describe how topsoil will be managed to minimise topsoil loss. The EIS must describe how topsoil will be stripped, salvaged and stockpiled and used for progressive and final rehabilitation.
- 8.1.4 Describe and illustrate where mined areas and uncompacted overburden and workings at the end of operations would lie in relation to flood levels up to and including the 'probable maximum flood level' based on the Bureau of Meteorology's 'probable maximum precipitation' forecast for the locality. Demonstrate that any proposed final voids would be located outside areas affected by flood levels up to and including the 'probable maximum flood level'.
- 8.1.5 Describe rehabilitation success criteria that would be used to measure progress and completion. Link the success criteria to the preferred rehabilitation strategy.
- 8.1.6 Notwithstanding that management techniques may improve over the life of the project, and legislative requirements may change, the EIS needs to give confidence that all potential high-impact elements of the project (e.g. spoil dumps, voids, tailings and water management dams, creek diversions/crossings, subsidence areas, etc.) are capable of being managed and rehabilitated to achieve acceptable land use capabilities/suitability, to be stable and self-sustaining and to prevent upstream and downstream surface and groundwater contamination.

Information requirements—Flora and fauna

- 8.1.7 Describe the likely impacts on the biodiversity and natural environmental values of affected areas arising from the construction, operation and eventual decommissioning of the project (where known). Take into account any proposed avoidance and/or mitigation measures. The assessment should include, but not be limited to, the following key elements:
- Matters of State Environmental Significance (MSES) and MNES;
 - terrestrial and aquatic ecosystems (including groundwater-dependent ecosystems) and their interaction;
 - biological diversity including listed flora and fauna species and regional ecosystems;
 - the integrity of ecological processes, including habitats of threatened, near-threatened or special least-concern species;
 - connectivity of habitats and ecosystems, including impact of waterway barriers (e.g. diversions) on fish passage in all relevant waterways mapped on the Queensland Waterways for Waterway Barrier Works spatial data layer;
 - 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 on terrestrial and aquatic ecosystems and associated native fauna due to wastes at the site, particularly those related to any form of toxicants in supernatant water of any tailings storage facility; and
 - impacts of dust from coal and overburden stockpiles and any additional coal haulage above already approved volumes on the growth and productivity of threatened species habitat, crops, grazing pastures and cattle.
- 8.1.8 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*⁸, the *Fisheries Act 1994* and the *Planning Act 2016*.
- 8.1.9 Propose practical measures for protecting or enhancing natural values, and assess how the nominated quantitative indicators and standards may be achieved for nature conservation management. In particular, address measures to protect or preserve any listed threatened, near-threatened or special least concern species.
- 8.1.10 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.
- 8.1.11 Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors, and propose measures that would avoid the need for waterway barriers, or propose measures to mitigate the impacts of their construction and operation. The measures proposed for the progressive rehabilitation of disturbed areas should include rehabilitation success criteria in relation to natural values that would be used to measure the progress.
- 8.1.12 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, where appropriate, provision of nest hollows and ground litter.
- 8.1.13 Assess the role of buffer zones in maintaining and enhancing riparian vegetation to enhance water quality and habitat connectivity.

Information requirements—Offsets

Propose offsets that are consistent with the requirements set out in any applicable State and Commonwealth legislation or policy, for example:

⁸ 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/management/>

- 8.1.14 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 Policy⁹.
- 8.1.15 Where the Commonwealth offset policy requires an offset for residual 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 guidelines¹⁰ (also refer to Appendix 2 of this TOR).

8.2 Water quality (critical matter)

Objective and performance outcomes

The environmental objectives to be met under the EP Act are that the activity (project) be operated in a way that:

- protects the environmental values of waters;
- protects the environmental values of wetlands (including soaks and springs) and groundwater dependent ecosystems; and
- protects the environmental values of groundwater and any associated surface ecological systems.

The performance outcomes corresponding to this objective are in Schedule 5, Table 1 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.2.1 Identify the environmental values of surface waters within the project area and immediately downstream that may be affected by the project with reference to the Environmental Protection (Water) Policy 2009 and section 9 of the EP Act, including any human uses (e.g. domestic, agricultural, horticultural, industrial and recreational) of the water and any cultural values.
- 8.2.2 Define the relevant water quality objectives applicable to the environmental values and demonstrate how these will be met by the project during construction, operation and following completion.
- 8.2.3 Detail the chemical, physical and biological characteristics of surface waters and groundwater within the area that may be affected by the project during construction, operation and following completion. The information should be based on statistically robust baseline surface water and groundwater quality data.
- 8.2.4 Identify the quantity, quality, location and timing¹¹ of all potential and/or proposed releases of contaminants (such as controlled water releases to surface water streams) from water and waste water from the project, whether as point sources (including controlled or uncontrolled discharges, stormwater run-off from regulated structures or other dams and sediment basins) or diffuse sources (such as seepage from waste rock dumps or irrigation to land of treated sewage effluent).
- 8.2.5 Assess the impact of any releases on all relevant environmental values of the receiving environment and the quality and quantity of receiving waters, and the assimilative capacity of the receiving environment.
- 8.2.6 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions (if required) would be managed. For example, provide measurable 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 if objectives cannot be met.

⁹ <https://www.qld.gov.au/environment/pollution/management/offsets/>

¹⁰ <http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>

¹¹ Duration and timing are important aspects of the risk characteristics that affect the impacts of mine water releases; e.g. for how long will water be released in total and when will it occur with respect to existing 'natural' flows.

8.3 Water resources (critical matter)

Objectives

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

- equitable, sustainable and efficient use of water resources;
- maintenance of environmental flows, water quality, in-stream habitat diversity, and naturally occurring inputs from riparian zones (including groundwater dependent ecosystems) support the long term maintenance of the ecology of aquatic biotic communities (including stygofauna); and
- the condition and natural functions of water bodies (e.g. lakes, springs, watercourses and wetlands) are maintained—including the stability of beds and banks of watercourses.

Information requirements

- 8.3.1 Provide details of any proposed impoundment, extraction, discharge, injection, use or loss of surface water or groundwater. Address the information requirements outlined in section 126A of the EP Act¹². Identify any approval, allocation or other requirement that would be needed under the *Water Act 2000*.
- 8.3.2 Detail any significant temporary or permanent diversion or interception of overland flow, including any staging of works. Include maps of suitable scale showing the location of diversions and other water-related infrastructure in relation to mining infrastructure.
- 8.3.3 Describe the options for supplying water to the project, and assess any potential consequential impacts in relation to the objectives of any water plans, resource operations plan and wild river declaration that may apply.
- 8.3.4 Describe present and potential users and uses of water in areas potentially affected by the project, including municipal, agricultural¹³, industrial, recreational and environmental uses of water.
- 8.3.5 Undertake a landholder bore survey to identify the location and source aquifer(s) of groundwater extraction in the area potentially affected by the project.
- 8.3.6 Develop a monitoring bore network to inform the development of a groundwater model and form the basis of an ongoing network to monitor the full impacts of the project.
- 8.3.7 Provide statistically robust baseline seasonal surface water quality and flow volumes in watercourses, and groundwater quality and levels in aquifers in the area potentially affected by the project.
- 8.3.8 Develop hydrological and hydraulic models as necessary to describe the inputs, movements, exchanges and outputs of all significant quantities and resources of surface water and groundwater that may be affected by the project. The models should address the range of climatic conditions that may be experienced at the site, and adequately assess the potential impacts of the project (during key stages of mining and after the implementation of the rehabilitated landform) on water resources. The models should include a site water balance and be peer reviewed. This should enable a description of the project's impacts at the local scale and in a regional context including proposed:
- changes in flow regimes from diversions, water take and discharges;
 - alterations to riparian vegetation and bank and channel morphology; and
 - direct and indirect impacts arising from the development.

The Independent Expert Scientific Committee (IESC)

- 8.3.6 The EIS must include a specific section responding to the information requirements contained in the IESC's information guidelines for proposals relating to the development of a large coal mine where there is a significant impact on water resources (Commonwealth of Australia, 2015¹⁴).

¹² EHP guideline available at: <https://www.ehp.qld.gov.au/assets/documents/regulation/rs-gl-requirements-underground-water-rights.pdf>

¹³ <https://publications.qld.gov.au/dataset/daff-environmental-impact-assessment-companion-guide>

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

8.4 Flooding and regulated dams (critical matter)

Objective

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.

Protecting human life and the environment requires that the standards used for the design, construction, operation, modification and decommissioning of regulated structures mitigate the consequences arising from potential failure or collapse of those structures.

The performance outcomes and critical design requirements corresponding to regulated structures are listed in schedule 5, table 2 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) to show these performance outcomes can be achieved.

Information requirements—Flooding

- 8.4.1 Describe current flood risk for a range of annual exceedance probabilities up to the probable maximum flood, for the project site. Assess (through flood modelling) how the project may potentially change flooding (including flood flow velocities, afflux, rate of rise, time to peak, extent and duration) and run-off characteristics (upstream and downstream of the site, where applicable). Consultation with local landholders and business owners regarding the scale and magnitude of historical flood events is recommended, prior to conducting flood modelling. The assessment should consider levee banks already constructed for the existing Baralaba mining operation, as well as all infrastructure associated with all stages (including decommissioning) of the Baralaba South project including levees, waste rock dumps, roads and linear infrastructure. Propose mitigation measures to avoid or minimise impacts, including upstream impacts on adjoining and adjacent landholders and associated infrastructure. The flood modelling should be used to develop flood mapping which identifies areas of planned disturbance that would be affected by flooding at key time intervals (at minimum, every 5 years) throughout the planned mine life. This should include identification of mining pits and mine affected water storages that would be inundated.
- 8.4.2 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.
- 8.4.3 Assess the project's vulnerabilities to climate change (e.g. changing patterns of rainfall, hydrology, temperature and extreme weather events). Include assessment of key risk areas, such as effects of hydrologic changes on risk of flooding of mining voids. Describe possible adaptation strategies (preferred and alternative) based on climate change projections for the project.

Information requirements—Dams

- 8.4.4 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 activities¹⁵, and EHP's Manual for assessing hazard categories and hydraulic performance of structures¹⁶.
- 8.4.5 Where project infrastructure comprises dams or other structures for storing potentially hazardous materials, 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.
- 8.4.6 Describe the purpose of all dams, levees, clean water diversions, water transfer and piping systems proposed on the project site. Show their locations on appropriately scaled plans, maximum embankment heights, and for dams, their maximum volumes. Describe how storage structures and other infrastructure would be sited to avoid or minimise risks from flooding.
- 8.4.7 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. Undertake a

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

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

consequence category assessment for each dam or levee, according to the criteria outlined in this manual. The assessments must be undertaken for the three different failure event scenarios described in EHP's manual, i.e. for seepage, overtopping and dam break.

- 8.4.8 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.
- 8.4.9 List hazards and safety risks associated with flooding, including safety risks to persons, and impacts of flooding on dams, levees and/or associated infrastructure located within or outside the project area.

8.5 Air quality (critical matter)

Objectives and performance outcomes

The environmental objective to be met under the EP Act is that the activity will be operated in a way that protects the environmental values of air.

The performance outcomes corresponding to this objective are in Schedule 5, Table 1 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.5.1 Fully describe the characteristics (through an emissions inventory) of the contaminants or materials released when carrying out the activity (point source and fugitive emissions). Provide an estimate of the greenhouse gas (direct) scope 1 and (indirect) scopes 2 and 3 emission factors during construction, commissioning, upset conditions, operation and closure in accordance with the Australian Government National Greenhouse Accounts Factors¹⁷.
- 8.5.2 Predict the impacts of the releases from the activity on environmental values of the receiving environment using recognised quality assured methods. The description of impacts should take into consideration the assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts. The impact prediction must:
- address residual impacts on the environmental values (including appropriate indicators and air quality objectives) of the air receiving environment, with reference to sensitive receptors¹⁸, using recognised quality assured methods. This should include all relevant values potentially impacted by the activity, under the EP Act, EP Regulation and Environmental Protection (Air) Policy 2008 (EPP (Air));
 - address the cumulative impact of the release with other known releases of contaminants, materials or wastes associated with existing development (including the existing Baralaba mine and haul road) and possible future development (as described by approved plans and existing project approvals); and
 - 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).
- 8.5.3 Describe the proposed mitigation measures and how the proposed activity will be consistent with best practice environmental management. Where a government plan is relevant to the activity or site where the activity is proposed, describe the activity's consistency with that plan.
- 8.5.4 Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed.

¹⁷ <http://www.environment.gov.au/climate-change/greenhouse-gas-measurement/publications/national-greenhouse-accounts-factors-aug-2016>

¹⁸ For example, the locations of existing residences, places of work, schools, etc, agricultural or ecologically significant areas/species that could be impacted.

8.6 Noise and vibration (critical matter)

Objective and performance outcomes

The environmental objective to be met under the EP Act is that the activity will be operated in a way that protects the environmental values of the acoustic environment.

The performance outcomes corresponding to these objectives are in Schedule 5, Table 1 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.6.1 Fully describe the characteristics of the noise and vibration sources that would be emitted when carrying out the activity (point source and general emissions). Noise and vibration emissions (including fugitive sources) that may occur during construction, commissioning, upset conditions, operation and closure should be described.
- 8.6.2 Predict the impacts of the noise emissions from the activity on the environmental values of the receiving environment, with reference to sensitive receptors¹⁰, using recognised quality assured methods. Taking into account the practices and procedures that would be used to avoid or minimise impacts, the impact prediction must address the:
- activity's consistency with the objectives;
 - cumulative impact of the noise with other emissions of noise associated with existing development and possible future development (as described by approved plans); and
 - potential impacts of any low-frequency (<200 Hz) noise emissions.
- 8.6.3 Describe how the proposed activity would be managed to be consistent with best practice environmental management for the activity. Where a government plan is relevant to the activity, or the site where the activity is proposed, describe the activity's consistency with that plan.
- 8.6.4 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

8.7 Transport (critical matter)

Objectives

The construction and operation of the project should aim to:

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

Information requirements

- 8.7.1 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, noting any components of transport that are already approved (e.g. off-site coal haulage of up to 3.5 million tonnes per year of product coal along the Baralaba Mine Haul Route) and any proposed increase in approved volumes. The proponent should make appropriate modal choices to ensure transport efficiency and minimise impacts on land uses and the community.
- 8.7.2 Present the transport assessment in separate sections 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 infrastructure will be affected by project transport at the local and regional level (e.g. local roads and state-controlled roads).
- 8.7.3 Include details of the adopted assessment methodology for:

- impacts on roads: the road impact assessment report in accordance with the Guide to Traffic Impact Assessment (Department of Main Roads, 2017¹⁹), with traffic data provided in formats acceptable to DTMR; and
- impacts on rail level crossings: the Australian Level Crossing Assessment Model.

8.7.4 Discuss and recommend how identified impacts will be mitigated so as to meet the above objectives for each transport mode. Mitigation strategies may include works, contributions, management plans or strategies that can be documented in a Road-use Management Plan²⁰ and are to be prepared in close consultation with relevant transport authorities (including local government). Strategies should consider those transport authorities' works program and forward planning, and be in accordance with the relevant methodologies, guidelines and design manuals.

8.8 Land (Critical matter)

Objectives and performance outcomes

The environmental objectives to be met under the EP Act are that the:

- activity is operated in a way that protects the environmental values of land including soils, subsoils and landforms;
- choice of the site, at which the activity is to be carried out, minimises serious environmental harm on areas of high conservation value and special significance and sensitive land uses at adjacent places;
- location for the activity on a site protects all environmental values relevant to adjacent sensitive use; and
- 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.

The performance outcomes corresponding to these objectives are in Schedule 5, Tables 1 and 2 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements—Land use

8.8.1 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:

- landscape (including visual amenity) and land uses (including any site-specific accreditations e.g. organic, bio-dynamic, European union cattle accreditation scheme (EUCAS) accreditation) in and around the project area, referring to regional plans and local government planning schemes;
- any existing mining, petroleum, geothermal and greenhouse gas storage tenures overlying or adjacent to the project site, and any to be applied for as part of this project;
- regional cumulative (reversible and irreversible) impacts of existing and possible future resource developments (as described by approved plans and approvals, and other projects currently at referral stages of a related assessment under the *State Development and Public Works Organisation Act 1971*, SPA, EP Act, *Mineral Resources Act 1989* and the *Petroleum and Gas (Production and Safety) Act 2004*) on:
 - a. Agricultural Land Classification Class A and B land
 - b. land used for a priority agricultural land use in the priority agricultural area
 - c. areas within the Dawson River Valley Important Agricultural Area used for an agricultural use
 - d. areas of land mapped as strategic cropping land on a strategic cropping land trigger map; and
- any infrastructure proposed to be located within, or which may have impacts on, the Stock Route Network.

¹⁹ <https://www.wip.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment>

²⁰ Contact the Department of Transport and Main Road on MDP@tmr.qld.gov.au

- 8.8.2 Address the requirements of the *Regional Planning Interests Act 2014*²¹, including the requirements of the Central Queensland Regional Plan (October 2013).
- 8.8.3 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.
- 8.8.4 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.

8.9 Biosecurity

Objective

The construction, operation and decommissioning of the project should aim to ensure:

- the introduction and spread of weeds, pests and disease, pathogens and contaminants are avoided and minimised;
- existing weeds and pests are controlled, including biosecurity threats and their management; and
- the performance outcomes correspond to the relevant policies, legislation and guidelines and that sufficient evidence is supplied (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.9.1 Propose detailed measures to remove, control and limit the spread of pests, weeds and disease, pathogens and contaminants on the project site and adjacent areas, particularly declared plants and animals under Queensland's *Biosecurity Act 2014*, the Commonwealth *Biosecurity Act 2015* and weeds of national significance (WONS).
- 8.9.2 Weed and pest animal management measures should be aligned with local government pest management priorities.
- 8.9.3 Detail a monitoring program (including properties adjoining the mine and, where coal haulage above already approved volumes is proposed along the haul route) 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 Waste management

Objective and performance outcomes

The environmental objective to be met under the EP Act is that any waste transported, generated, or received as part of carrying out the activity is managed in a way that protects all environmental values.

The performance outcomes corresponding to these objectives are in Schedule 5, Table 1 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.10.1 Describe all the expected significant waste streams from the proposed project activities (typically these would include waste rock, tailings and coarse rejects from mining activities, during the construction, operational, rehabilitation and decommissioning phases of the project).
- 8.10.2 Provide maps showing the location and design of all potential waste disposal structures including, spoil dumps, tailings dams, coarse rejects and landfills.

²¹ <http://www.dilgp.qld.gov.au/planning/regional-planning/regional-planning-interests-act.html>

- 8.10.3 Describe the quantity, form (liquid, solid, gas), hazard, and toxicity of each significant waste, as well as any attributes that may affect its likelihood of dispersal in the environment, as well as the associated risk of causing environmental harm.
- 8.10.4 Define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes.
- 8.10.5 Assess the proposed management measures against the preferred waste management hierarchy, namely: avoid waste generation; reduce waste generation; cleaner production; recycle; reuse; reprocess and reclaim; waste to energy; treatment; disposal. This includes the generation and storage of waste.
- 8.10.6 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.
- 8.10.7 Detail waste management planning for the proposed project especially how these concepts have been applied to prevent or minimise environmental impacts due to waste at each stage of the project.
- 8.10.8 Develop a spoil placement plan based on results of characterisation of waste rock (overburden and interburden), and rejects and tailings from coal processing, if applicable. Describe how spoil, coal rejects and tailings placement during the life of the project would achieve the objectives of the preferred rehabilitation strategy outlined in Section 8.1 of the TOR. Geospatial data used to generate any maps presented in the spoil placement plan should also be provided, in a form accepted by the administering authority.
- 8.10.9 Provide details on natural resource use efficiency (such as energy and water), integrated processing design, and any co-generation of power and by-product reuse as shown in a material/energy flow analysis.

8.11 Cultural heritage

Objective

The construction and operation of the project should aim to ensure that the nature and scale of the project does not compromise the cultural heritage significance of a heritage place or heritage area.

Information requirements

- 8.11.1 Undertake research/studies as required under the *Aboriginal Cultural Heritage Act 2003* (ACH Act) and describe impacts on Indigenous cultural heritage, taking into account the practices and procedures that would be used to avoid or minimise impacts. Develop a Cultural Heritage Management Plan in accordance with the requirements of Part 7 of the ACH Act.
- 8.11.2 For non-Indigenous historical heritage, undertake a study of, and describe, the known and potential historical cultural and landscape heritage values of the area potentially affected by the project. Any such study should be conducted by an appropriately qualified cultural heritage practitioner. Provide strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts.

8.12 Social and economic

Objectives

The construction and operation of the project should aim to:

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

Information requirements

- 8.12.1 In accordance with the Coordinator-General's guideline Social impact assessment guideline²², describe the likely social impacts (positive and negative) on affected communities and the proposed mitigation measures to be implemented.
- 8.12.2 Describe the likely impacts (positive and negative) of the project on the economies materially impacted by the project and any mitigation measures to be implemented. The analysis should describe both the potential and direct economic impacts including estimated costs, if material, on industry and the community (including impacts on land productivity and property values).
- 8.12.3 Discuss the potential impact on the normal supply/demand of extractive resource availability in the region both during and after construction and any economic consequences and proposed mitigation measures (if required) for the region.
- 8.12.4 The assessment should identify opportunities to capture the social and economic benefits of the project, including:
- strategies for ensuring local suppliers of goods and services 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 development and training strategies and implementation plans for local residents, including members of Indigenous communities, women and people with a disability;
 - opportunities to support the agricultural²³ and tourism industries and other local small businesses;
 - any recruitment and training programs to be offered;
 - 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; and
 - a description of estimated proportions, use and characteristics of 457 visa, FIFO, drive-in, drive-out and local workers during the construction and operational phases of the project.

8.13 Hazards and safety

Objectives

The construction and operation of the project should aim to ensure:

- the risk of, and the adverse impacts from, natural and man-made hazards are avoided, minimised or mitigated to protect people and property; and
- the community's resilience to natural hazards is maintained or enhanced; and
- 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.

²² <http://statedevelopment.qld.gov.au/assessments-and-approvals/social-impact-assessment.html> or latest version

²³ <https://publications.qld.gov.au/dataset/daff-environmental-impact-assessment-companion-guide>

Information requirements

- 8.13.1 Describe the potential risks to people and property that may be associated with the project in the form of a preliminary risk assessment for all components of the project and in accordance with relevant standards. The assessment should include:
- potential hazards, accidents, spillages, fire and abnormal events that may occur during all stages of the project, including estimated probabilities of occurrence;
 - 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;
 - identifying all hazardous substances to be used, stored, processed or produced and the rate of usage;
 - potential wildlife hazards, natural events (e.g. cyclone, storm tide inundation, flooding, bushfire) and implications related to climate change;
 - a description of natural hazards that may affect the site and at a minimum the 1% annual exceedance probability (AEP) of 100 year average reoccurrence interval (ARI) level, including mapping of the potential hazard areas at the site;
 - how development will avoid or mitigate the risks and how the development siting and layout responds to these hazards to minimise risks to personal safety and assets; and
 - how the project may potentially affect hazards away from the project site (e.g. changing flooding characteristics).
- 8.13.2 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.
- 8.13.3 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.
- 8.13.4 Outline any consultation undertaken with the relevant emergency management authorities, including the Local Disaster Management Group.

9 Appendices to the EIS

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

Acronyms and abbreviations

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

Acronym/abbreviation	Definition
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i>
AHD	Australian height datum
AEP	annual exceedance probability
ARI	average reoccurrence interval
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
CQCA	Central Queensland Coal Associates
Cwlth	Commonwealth
EA	environmental authority
EIS	environmental impact statement
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> (Cth)
EPP	Environmental Protection Policy (under the EP Act)
GDA94	Geocentric Datum of Australia 1994
Hz	hertz
IESC	Independent Expert Scientific Committee
MNES	matters of national environmental significance (under the EPBC Act)
MSES	matters of state environmental significance (under the <i>Environmental Offsets Act 2014</i>)
TOR	terms of reference

Appendix 1 Policies and guidelines

- Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand 2000, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian Water Association (Artarmon) and NZ Water and Wastes Association (Auckland), viewed 18 June 2013, www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html
- Australian Level Crossing Assessment Model (ALCAM), www.tmr.qld.gov.au/Travel-and-transport/Rail/Level-crossings/ALCAM.aspx
- Commonwealth of Australia 2013, *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*, Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development, Canberra, viewed 18 June 2013, www.environment.gov.au/coal-seam-gas-mining/publications.html
- The Coordinator-General, 2013, Preparing an environmental impact statement: *Guideline for proponents*, Department of State Development, Infrastructure and Planning, Brisbane, viewed 18 June 2013, www.dsdiq.qld.gov.au/fact-sheets-and-guidelines/coordinated-projects.html
- The Coordinator-General, October 2016, Draft *Social impact assessment guideline*, Department of State Development, Infrastructure and Planning, Brisbane.
- Department of Agriculture, Fisheries and Forestry, *Waterway Barrier Works Development Approvals: Fish Habitat Management Operational Policy FHMOP 008*, April 2013, Department of Primary Industries, Brisbane, 2013, viewed 23 July 2013, www.daff.qld.gov.au/__data/assets/pdf_file/0016/51415/FHMOP008.pdf
- Department of Environment and Heritage Protection 2012, *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*, February 2012, Department of Environment and Heritage Protection, Brisbane, viewed 17 June 2013, www.ehp.qld.gov.au/land/mining/pdf/mn-mi-assess-haz-cat-hyd-perf-dams-em635.pdf
- Department of Environment and Heritage Protection model conditions:
www.ehp.qld.gov.au/land/mining/guidelines.html
- Department of Environment and Resource Management 2009, *Queensland Water Quality Guidelines, Version 3*, Department of Environment and Resource Management, Brisbane, viewed 18 June 2013, www.ehp.qld.gov.au/water/pdf/water-quality-guidelines.pdf
- Department of Transport and Main Roads, Guide to Traffic Impact Assessment, Department of Main Roads, Brisbane, 2017, <https://www.wip.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment>
- Maritime Safety Queensland 2013, *Guidelines for major development proposals*, May 2013, www.msq.qld.gov.au/Waterways/Major-development-proposals.aspx
- Department of State Development, Infrastructure and Planning 2013, Draft State Planning Policy, www.dsdiq.qld.gov.au/about-planning/state-planning-policy.html, Department of State Development, Infrastructure and Planning, Brisbane, viewed 17 June 2013,
- Department of State Development, Infrastructure and Planning 2013, Social impact assessment guideline, Department of State Development Infrastructure and Planning, Brisbane, viewed 4 March 2014, <http://www.dsdiq.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf>
- Queensland Resources Council 2013, *Queensland Resources and Energy Sector Code of Practice for Local Content*, Queensland Resources Council, Brisbane, viewed 18 June 2013, https://www.qrc.org.au/01_cms/details.asp?ID=3209

Appendix 2 Matters of national environmental significance

The project is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2012/6547) and the Environmental Impact Statement (EIS) will be prepared pursuant to the bilateral agreement between the Commonwealth and Queensland Governments for the purposes of the Commonwealth Government's assessment under part 8 of the EPBC Act. The EIS must address potential impacts on the Matters of National Environmental Significance (MNES) that were identified when the project was determined to be a controlled action.

Background and context

This section should provide a stand-alone description and detailed assessment of the impacts of the project on the controlling provisions for the project under the EPBC Act inclusive of any avoidance, mitigation and offset measures.

The then Commonwealth Minister for the Environment determined the project will impact upon the following controlling provisions under the EPBC Act:

- listed threatened species and communities (sections 18 and 18A);
- listed migratory species (sections 20 and 20A); and
- a water resource in relation to coal seam gas development and large coal mining development (sections 24D and 24E).

The EIS must be prepared pursuant to the bilateral agreement between the Commonwealth of Australia and the State of Queensland. This will enable the EIS to meet the impact assessment requirements under both Commonwealth and Queensland legislation. The project will require approval from the responsible Commonwealth Minister under Part 9 of the EPBC Act before it can proceed.

Once the EIS has been prepared to the satisfaction of the Department of Environment and Heritage Protection, and relevant MNES addressed to the satisfaction of the Australian Government Department of the Environment and Energy (DEE), the EIS will be made available for public comment.

The proponent may be required by the Department of Environment and Heritage Protection or DEE to provide additional material to address matters raised in submissions on the EIS.

At the conclusion of the environmental assessment process, the Department of Environment and Heritage Protection will provide a copy of the report to the Commonwealth Minister for the Environment and Energy, in accordance with Part 13, section 36(2) of the State Development and Public Works Organisation Regulation 2010 (Qld).

After receiving the evaluation report and sufficient information about the relevant impacts of the action, the Commonwealth Minister for the Environment and Energy has 30 business days to consider whether the impacts of the proposal are acceptable, or not, and to decide whether or not to approve each controlling provision.

The Minister's decision is separate to the assessment and approval decisions made by Queensland state agencies and other agencies with jurisdiction on state matters.

Consideration should be given to any relevant policy statements and guidelines available from www.environment.gov.au, including but not limited to:

- *Matters of National Environmental Significance: Significant impact guidelines 1.1*;
- *Significant impact guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources*;
- *Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals*;
- *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy 2012*; and
- approved conservation advice, recovery plans and threat abatement plans.

In accordance with Section 3.1 of Schedule 1 of the bilateral agreement, the EIS must:

- assess all the relevant impacts that the action has, will or is likely to have;
- provide enough information about the action and its relevant impacts to allow the Commonwealth Minister for the Environment and Energy to make an informed decision whether or not to approve the action; and
- address the matters set out in Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cwlth) (EPBC Regulations).

The MNES section of the EIS should bring together assessments of impacts from other chapters and produce a stand-alone assessment in a format suited for assessment under the EPBC Act.

The project should initially be assessed in its own right followed by an assessment of the cumulative impacts related to all known proposed developments in the region with respect to each controlling provision and all identified consequential actions. Cumulative impacts not solely related to the project development should also be assessed.

Predictions of the extent of threat (risk), impact and the benefits of any mitigation measures proposed, should be based on sound science and quantified where possible. Reference all sources of information relied upon and provide an estimate of the reliability of predictions. Also identify and evaluate any positive impacts.

The extent of any new field work, modelling or testing should be commensurate with risk and should be such that when used in conjunction with existing information, provides sufficient confidence in predictions that well-informed decisions can be made.

Alternatives

Project alternatives must be discussed in accordance with Schedule 4, section 2.01(g) of the EPBC Regulations, including:

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

Short, medium and long-term advantages and disadvantages of the alternatives or options must be discussed.

The following content requirements are based on these matters and considerations, with the addition of directions specific to the proposed action and the receiving environment.

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:

- (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 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:

- (a) details of any public consultation activities undertaken, and their outcomes;
- (b) details of any consultation with Indigenous stakeholders;
- (c) projected economic costs and benefits of the project, including the basis for their estimation through cost/benefit analysis or similar studies; and
- (d) employment and other 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, as identified in Section 4 above, should also be included.

Identification of affected parties is required, including a statement mentioning any communities that may be affected and describing their views.

Background and description of the action

The EIS must provide background to the action and describe in detail all components of the action for example (but not limited to), the construction, operational 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 EIS must also provide details on the current state groundwater and surface water in the region as well as any use of these resources.

The EIS 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. The EIS must also provide details on the current status of the action as well as the consequences of not proceeding with the action.

Listed threatened species and communities

Describe the listed threatened species and ecological communities identified below (including EPBC Act status, distribution, life history and habitat).

Provide details of the scope, timing/effort (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 which may be impacted by the proposed development). Include details of:

- (a) the application of best practice survey guidelines; and
- (b) how studies or surveys are consistent with (or a justification for divergence from) published Australian Government guidelines and policy statements.

Consider and assess the impacts to the listed threatened species and ecological communities that are found to be or may potentially be present in areas that may be impacted by the project in accordance with relevant departmental guidelines and taking relevant conservation advices into consideration.

Describe the indirect, cumulative and facilitated impacts that may result from the project.

Describe any mitigation measures proposed to reduce the impact on the listed threatened species and ecological communities and the anticipated benefit of proposed mitigation measures. Supporting evidence should be provided to demonstrate the appropriateness of mitigation measures proposed. Where the likely success of mitigation measured cannot be supported by evidence, identify contingencies in the event the mitigation is not successful.

Describe the residual significant impacts of the proposed development after all proposed avoidance and mitigation measures are taken into account.

Where relevant, demonstrate that the project will not be inconsistent with:

- (a) Australia's obligations under:
 - (i) the Biodiversity Convention;
 - (ii) the Convention on Conservation of Nature in the South Pacific (Apia Convention);
 - (iii) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); and
- (b) a recovery plan or threat abatement plan.

List of potential listed threatened species and their status

Address impacts on listed threatened species, including but not limited to the following:

- (a) Fitzroy River Turtle (*Rheodytes leukops*) – vulnerable;
- (b) Red Goshawk (*Erythrorhynchus radiatus*) – vulnerable;
- (c) Squatter Pigeon (*Geophaps scripta scripta*) – vulnerable;
- (d) Star Finch (eastern) (*Neochmia ruficauda ruficauda*) – endangered;
- (e) Black-throated Finch (*Poephila cincta cincta*) – endangered;
- (f) Australian Painted Snipe (*Rostratula australis*) – vulnerable;
- (g) Black-breasted Button-quail (*Turnix melanogaster*) – vulnerable;
- (h) Large-eared Pied Bat (*Chalinolobus dwyeri*) – vulnerable;
- (i) Northern Quoll (*Dasyurus hallucatus*) – endangered;
- (j) South-eastern Long-eared Bat (*Nyctophilus corbeni*) – vulnerable;

- (k) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) (*Phascolarctos cinereus*) – vulnerable;
- (l) Ooline (*Cadellia pentastylis*) – vulnerable;
- (m) Collared Delma (*Delma torquata*) – vulnerable;
- (n) Ornamental Snake (*Denisonia maculata*) – vulnerable;
- (o) Yakka Skink (*Egernia rugosa*) – vulnerable;
- (p) Dunmall's Snake (*Furina dunmalli*) – vulnerable.

List of potential listed threatened communities

Address impacts to listed threatened communities including but not limited to the following:

- (a) Brigalow (*Acacia harpophylla* dominant and co-dominant) – endangered;
- (b) Weeping Myall Woodlands – endangered;
- (c) Coolibah-Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions – endangered; and
- (d) Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions – endangered.

Impact on listed migratory species

Describe the listed migratory species identified below (including EPBC Act status, distribution, life history and habitat).

Provide details of the scope, timing/effort (survey season/s) and methodology for studies or surveys used to provide information on the listed migratory species/habitat at the site (and in areas which may be impacted by the proposed development). Include details of:

- (a) the application of best practice survey guidelines; and
- (b) how studies or surveys are consistent with (or a justification for divergence from) published Australian Government guidelines and policy statements.

Assess and describe the impacts to the listed migratory species identified below and any others that are found to be or may potentially be present in areas that may be impacted by the project.

Describe the indirect, cumulative and facilitated impacts that may result from the project.

Describe and discuss any mitigation measures proposed to reduce the impact on migratory species and the anticipated benefit of proposed mitigation measures.

Where relevant, demonstrate that the project will not be inconsistent with:

- (a) the Bonn Convention;
- (b) China–Australia Migratory Bird Agreement (CAMBA);
- (c) Japan–Australia Migratory Bird Agreement (JAMBA); and
- (d) an international agreement approved under subsection 209(4) of the EPBC Act.

List of potential migratory species

Address impacts to migratory species, including but not limited to the following:

- (a) Fork-tailed swift (*Apus pacificus*);
- (b) Oriental cuckoo, Horsfield's cuckoo (*Cuculus optatus*);
- (c) White-throated needletail (*Hirundapus caudacutus*);
- (d) Black-faced monarch (*Monarcha melanopsis*);
- (e) Spectacled monarch (*Monarcha trivirgatus*);
- (f) Yellow wagtail (*Motacilla flava*);
- (g) Satin flycatcher (*Myiagra cyanoleuca*);
- (h) Rufous fantail (*Rhipidura rufifrons*);

- (i) Latham's snipe, Japanese snipe (*Gallinago hardwickii*); and
- (j) Osprey (*Pandion haliaetus*).

Impact on water resources/Independent Expert Scientific Committee

The National Partnership Agreement on Coal Seam Gas and Large Coal Mining, to which Queensland is a signatory, specifies that all coal seam gas and large coal mining proposals that are likely to have a significant impact on water resources are to be referred to the Independent Expert Scientific Committee (IESC) for advice.

The EIS must address the information requirements contained in the IESC's *Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals* (IESC Guidelines), and should sufficiently address and cross-reference the checklist at Appendix A of the IESC Guidelines within the EIS.

Offsets

Describe the residual impacts of the proposed development for each relevant MNES, after all proposed avoidance and mitigation measures are taken into account. Propose offsets for significant residual impacts to relevant MNES consistent with the *EPBC Act environmental offsets policy* (2012).

Conclusion

Include an overall conclusion as to the environmental acceptability of the proposal on each relevant MNES, including:

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

Approved by

Chris Loveday

19 July 2017

Signature

Date

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

Enquiries:
Impact Assessment and Operational Support
Ph. (07) 3330 5598
Fax. (07) 3330 5875