

Terms of reference for an environmental impact statement under the *Environmental Protection Act 1994*

*Lake Vermont Meadowbrook Project
proposed by Bowen Basin Coal Pty Ltd
April 2020*

Contents

1	Purpose of this document.....	1
1.1	Introduction	1
1.2	Information about the proposed project and assessment	2
1.2.1	Project proponent.....	2
1.2.2	Proposed project description	2
1.2.3	EIS assessment process	8
2	Content requirements of the EIS for the proposed Lake Vermont Meadowbrook Project.....	8
3	Glossary.....	8
4	Executive summary	8
5	Introduction	8
5.1	Project proponent.....	8
5.2	The environmental impact statement process	8
5.3	Project approvals process	9
6	Consultation process	9
7	Proposed project description and alternatives	9
7.1	Proposed project.....	9
7.2	Site description	10
7.3	Proposed construction and operations	11
7.4	Feasible alternatives.....	11
8	The environmental impact assessment process	12
8.1	Environmental values	12
8.2	Impact assessment.....	12
8.3	Cumulative impacts.....	12
8.4	Avoidance and mitigation.....	13
8.5	Conditions and commitments	13
8.6	Critical matters	14
8.6.1	Critical environmental matters for this project	14
9	Project specific matters	14
9.1	Climate.....	14
9.2	Land (Critical Matter)	15
9.2.1	Subsidence (Critical Matter)	16
9.3	Rehabilitation (Critical Matter)	16
9.3.1	Mining projects.....	16
9.4	Water	18
9.4.1	Water quality (Critical Matter)	18
9.4.2	Water resources (Critical Matter).....	19
9.4.3	Flooding (Critical Matter).....	20
9.5	Regulated structures.....	21
9.6	Flora and fauna (Critical Matter)	22
9.6.1	Offsets.....	23

9.6.2	Biosecurity	24
9.7	Air.....	24
9.8	Noise and vibration	25
9.9	Waste management.....	26
9.10	Hazards and safety	27
9.11	Cultural heritage.....	29
9.12	Social (Critical Matter)	29
9.13	Economic (Critical Matter)	31
9.14	Transport.....	31
9.15	Matters of National Environmental Significant under EPBC Act (Critical Matter).....	32
10	Commitments	32
11	Conditions.....	32
12	Appendices to the EIS	32
13	Spatial and electronic data presentation	33
Appendix 1	Glossary.....	34
Appendix 2	Policies, guidelines and references	36
Appendix 3	Terms of reference for matters of national environmental significance (MNES) under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) requirements	40

1 Purpose of this document

1.1 Introduction

This document outlines the terms of reference (TOR) for the proposed Lake Vermont Meadowbrook Project (herein referred to as 'the proposed project') proposed by Bowen Basin Coal Pty Ltd (i.e. the proponent) being assessed under the environmental impact statement (EIS) process in Chapter 3, Part 1, of the *Environmental Protection Act 1994* (EP Act). It sets out the scope and required content that the EIS must include to allow the purposes of the EIS under section 40 of the EP Act to be achieved for the proposed project.

The EIS must address key requirements outlined in the EP Act and subordinate legislation, including but not limited to:

- the requirements of section 40 of the EP Act, which specifies the purpose of an EIS and of the EIS process
- the requirements of sections 125, 126 and 126A which set out the general information requirements for applications for an Environmental Authority (EA)
- the requirements of sections 126B, 126C and 126D which set out the information requirements for a proposed progressive rehabilitation and closure (PRC) plan for mining projects
- the requirements of Chapter 2 and Schedule 1 of the Environmental Protection Regulation 2019 (EP Regulation 2019), including matters to be addressed by assessment under the bilateral agreement between the Australian Government and the State of Queensland
- the environmental objectives and performance outcomes specified in Schedule 8, Part 3 of the EP Regulation 2019.

Section 139 of the EP Act states that the information stage of the EA application process does not apply if the EIS process is complete, unless there has been a subsequent change to the proposed project, including changes to a proposed PRC plan (where relevant). It is therefore important that the EIS provides all the information needed to enable the issuing of an EA (and PRC plan schedule for mining projects) for the proposed project as set out in these TOR in conjunction with latest version of the Department of Environment and Science's (herein referred to as 'the department') [EIS information guidelines](#) (DES 2020).

While every attempt is made by the department 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 in the following circumstances:

- studies reveal a matter that had not been foreseen when the TOR was finalised
- an issue not identified previously that is considered contentious by the public, such as a public perception of potential environmental harm or nuisance even though the perception might be mistaken
- the department 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 proposed project that would result in a change in the nature, timing or location of any impacts.

The department must consider if an EIS addresses the final TOR in an acceptable form and may refuse to allow the EIS to proceed under section 49(3) of the EP Act if it believes the information provided in the EIS is not adequate.

1.2 Information about the proposed project and assessment

1.2.1 Project proponent

The Proponent for the proposed project is Bowen Basin Coal Pty Ltd of Level 7, 12 Creek Street, Brisbane Queensland (Qld) 4000.

Bowen Basin Coal is a private company owned by the Lake Vermont Joint Venture, an unincorporated Australian joint venture operating in Queensland, whose participants and interests are identified in Table 1.

Table 1 Joint venture participants

Name	Registered address	Interest
QCMM (Lake Vermont Holdings Pty Ltd)	Level 7, Comalco Place 12 Creek Street, Brisbane QLD 4000	70%
Marubeni Coal Pty Ltd	123 Eagle Street, Brisbane QLD 4000	10%
CHR Vermont Pty Ltd	Level 34, Central Plaza One, 345 Queen Street, Brisbane QLD 4000	10%
Coranar (Australia) Pty Ltd	Level 37, Riverside Court, 123 Eagle Street, Brisbane QLD 4000	10%

Lake Vermont Resources Pty Ltd manages the Lake Vermont Joint Venture operations, on behalf of the joint venture participants.

1.2.2 Proposed project description

The proposed project involves the construction and operation of an underground multi-seam, longwall coal mine and is an extension of the existing Lake Vermont Coal Mine. The proposed project also includes three small-scale 'satellite' open-cut pits and supporting infrastructure. The proposed project addresses the scheduled future decline in coal output from the existing Lake Vermont Coal Mine, to maintain existing (approved) production levels across an extended life of the mine. The proposed project would maximise the use of existing Bowen Basin Coal Pty Ltd owned land and infrastructure at the Lake Vermont Coal Mine so as to minimise the environmental impacts from additional infrastructure and provide project efficiencies.

The proposed project would be located approximately 30 kilometres (km) northeast of Dysart and approximately 180 km southwest of Mackay, within the Bowen Basin of central Queensland (refer to Figure 1). The proposed project would be located close to rail, road and power infrastructure and is approximately 320 km (by rail) to the Abbot Point Coal Terminal (APCT) north of Bowen and approximately 430 km to the RG Tanna Coal Terminal (RGCT) in Gladstone. The proposed project would be also located 235 km (by rail) from the Dalrymple Bay Coal Terminal (DBCT) at the coal export port of Hay Point. Dysart is an established regional township servicing both mining and pastoral industries. The proposed project is located within the Isaac Regional Council Local Government Area and spans across Mineral Development Lease (MDL) 429 and 303 and the existing Lake Vermont Coal Mine on Mining Leases (ML) 70331, 70477 and 70528 (refer to Figure 2). The proposed project is located over one freehold land parcel, being Lot 102 SP310393 (formerly Lot 10) on Plan CNS93 (the 'Meadowbrook' property) owned by Bowen Basin Coal. The proposed project site is defined by the area of land within the northern portion of Mineral Development Lease (MDL) 303 and southern portion of MDL 429 that overlaps with the property named 'Meadowbrook' and the existing Lake Vermont Coal Mine on mining lease (ML) 70528, ML 70477 and ML 70331. The proposed project does not include the southern portion of MDL 303 (south of Lake Vermont Coal Mine), nor does it include the northern portion of MDL 429.

The key components of the proposed project are identified to include:

- an underground longwall (plus bord and pillar) coal mine to recover the coal resource
- three small-scale 'satellite' open-cut pits to recover the coal resource
- development of a new infrastructure corridor linking the new mining area to the existing infrastructure of the Lake Vermont Coal Mine, including:
 - provisioning for road access for personnel and material movements
 - extension of the high voltage power line and water delivery line from the existing Lake Vermont Coal Mine

- a coal haulage road, and potentially an overland conveyor connecting the underground Mine Infrastructure Area (MIA) to the existing Lake Vermont Coal Mine Coal Handling and Preparation Plant (CHPP)
- a network of gas drainage bores and associated surface infrastructure (consisting of gas and water collection networks and associated access tracks across the underground mine footprint)
- development of a supporting MIA, including:
 - a run of mine (ROM) stockpile
 - a laydown area
 - ventilation shafts and supporting buildings
 - a pit top ROM stockpile pad
 - mine clean water and waste water dams
 - workshop facilities
 - diesel refuelling tank(s) and an oil storage area
 - an emulsion farm (for storing longwall fluids)
 - a mine warehouse and stores yard
 - equipment washdown and laydown areas
 - administrative and operational office facilities
 - bath house facilities
 - potable water and waste water / sewage treatment plants
- construction of drifts and shafts (to provide access to underground operations)
- use of the existing Lake Vermont Coal Mine's CHPP, tailings storage facility and water, power and rail infrastructure
- expansion to the existing Lake Vermont Accommodation Village at Dysart (subject to local government Development Approval)
- access and infrastructure corridor connecting the proposed project to the existing Lake Vermont Coal Mine, including:

Final infrastructure locations would remain subject to ongoing feasibility studies, as part of efforts to minimise environmental impacts with indicative locations presented in Figure 3.

The proposed project involves the extraction of up to 7 Million tonnes per annum (Mtpa) of ROM coal, equivalent to approximately 5.5 Mtpa of metallurgical product coal (for the export and domestic market). The anticipated increase to the mine life is approximately 25 years. The planned project output would replace the scheduled decline in output from the existing open-cut operation, so as to maintain production at the currently approved levels of (up to) 12 Mtpa ROM (equivalent to approximately 9.5 Mtpa product coal).

Longwall extraction would be the primary mining method, with potential opportunities for bord-and-pillar mining also acknowledged. Existing facilities of the Lake Vermont Coal Mine would be used by the proposed project; including the CHPP for coal beneficiation, tailings storage facility and the existing rail infrastructure for transportation of product coal to market. Product coal from the proposed project would be railed along the existing Lake Vermont spur line that connects to the Aurizon Goonyella rail system for shipment to Abbot Point Coal Terminal APCT in Bowen. Product coal would also be railed to the RGTCT in Gladstone, and potentially to the Dalrymple Bay Coal Terminal DBCT in Mackay, should port capacity be made available. It is noted that the proposed project's product output (for transport via the rail network) is within Aurizon's existing approval limits.

The supply of electricity for the proposed project would utilize the existing 66kV line that supplies electricity to the Lake Vermont Mine. Initial power requirement estimates suggest that the proposed project would require 27 megavolt amperes of power capacity and that the Dysart Bulk Supply Substation has sufficient capacity to supply this requirement.

Water usage for the proposed project is estimated to be between 200 to 400 megalitres per annum. The current water supply agreement in place between SunWater's Eungella Water Pipeline Pty Ltd and Bowen Basin Coal is for the annual supply of 1,500 megalitres, of which the existing Lake Vermont Coal Mine uses approximately 970 megalitres. This indicates sufficient capacity within the current supply agreement, to meet the anticipated requirements of the proposed project.

The proposed project would employ up to 200 contract employees during construction, and approximately 350-400 employees during the underground mine operational phase. This increase in workforce for the planned underground mine would be largely offset by a significant decrease in the open-cut workforce numbers reflecting the scheduled future reduction in open-cut output. In total however, an overall incremental increase in the total workforce in the order of 150 to 200 employees (beyond current workforce levels) would be required to operate the combined open-cut and underground operations. It is Bowen Basin Coal's intention to provide opportunities to

existing Lake Vermont Coal Mine employees to transition to the proposed project. The existing Lake Vermont Accommodation Village at Dysart (subject to local government Development Approval) would also be expanded to support the incremental workforce growth associated with the proposed project. Access to the proposed project is available via the Golden Mile Road that runs eastward from Dysart and intersects with the Lake Vermont Coal Mine access road.



Figure 1: Regional location of the proposed Lake Vermont Meadowbrook Project

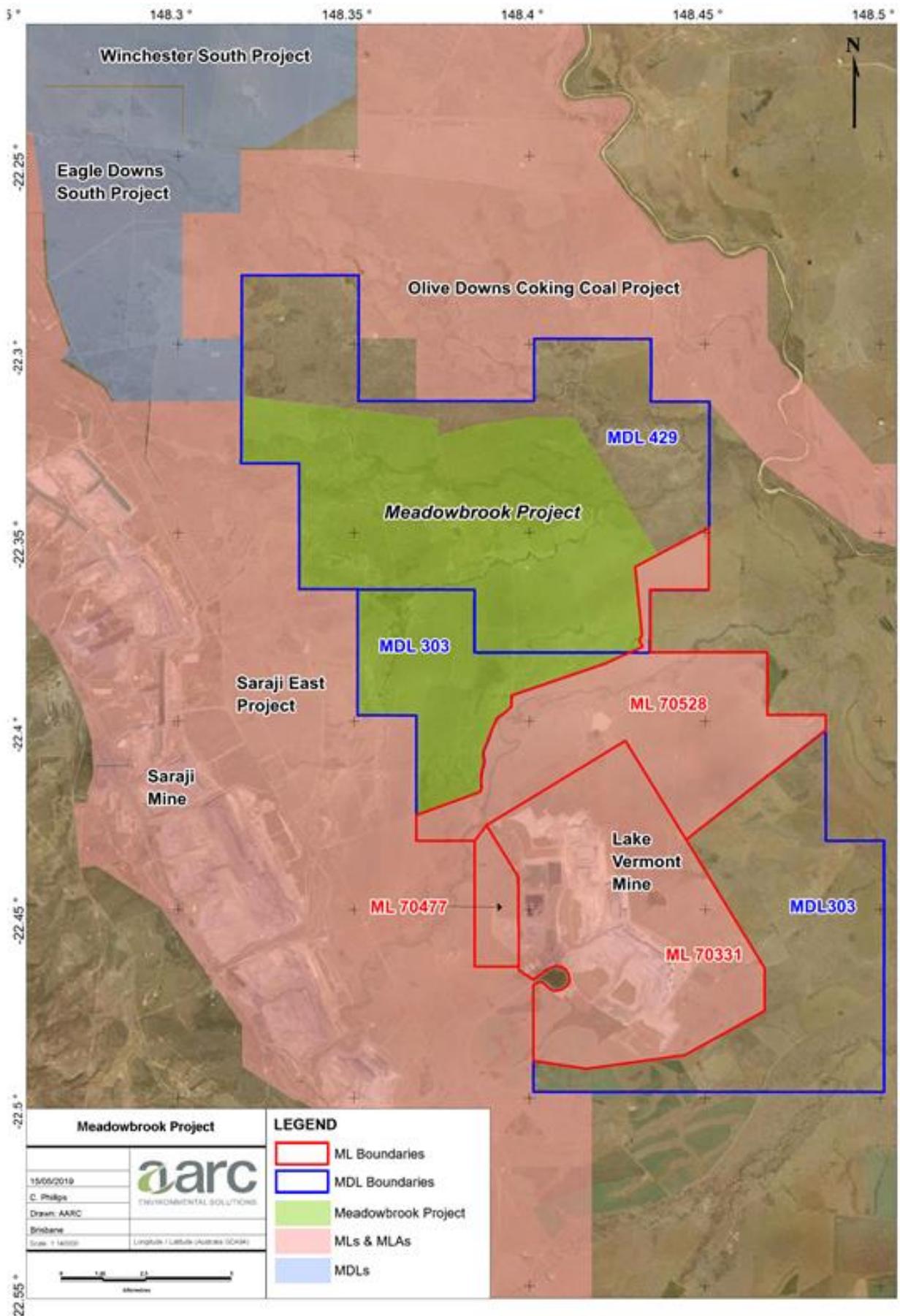


Figure 2: Proposed project boundary and mining tenure

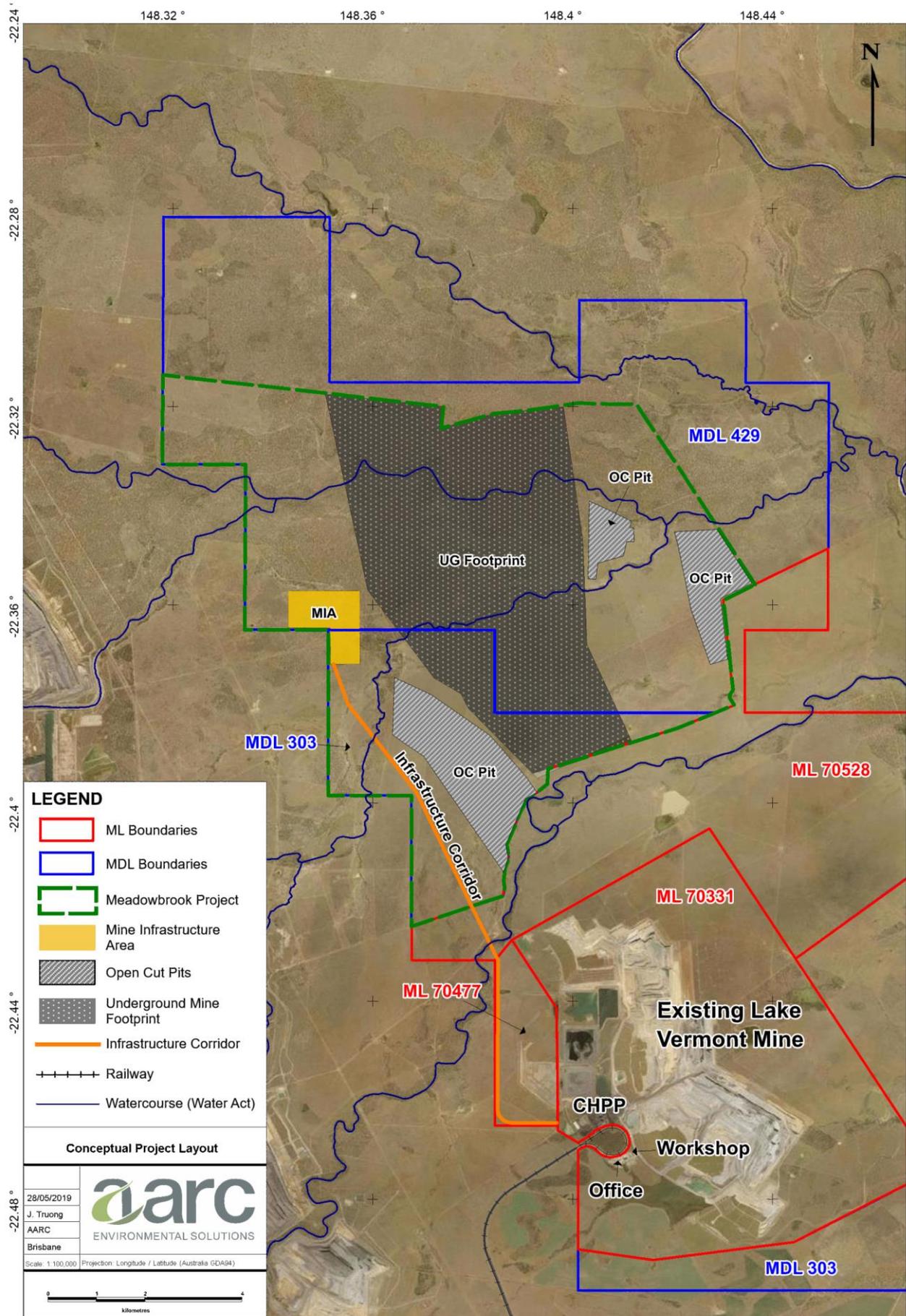


Figure 3: Conceptual proposed project layout

1.2.3 EIS assessment process

On 26 August 2019 the department approved an application for Bowen Basin Coal Pty Ltd to voluntarily prepare an EIS under the EP Act, for the proposed project. Under section 125 of the EP Act, the EIS will form the application documents for the requirements of Chapter 3 of the EP Act.

The proposed project was determined to be a controlled action (per EPBC Referral 2019/8485) under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 22 November 2019. The controlling provisions are sections 18 and 18A (listed threatened species and communities), sections 20 and 20A (listed migratory species), and, 24D and 24E (a water resource, in relation to coal seam gas development and large coal mining development).

The EIS for the proposed project will be assessed under the EP Act, in accordance with the assessment bilateral agreement between the Australian Government and the State of Queensland.

Further information on the EIS process under the EP Act is described in the department's guideline, [The environmental impact statement process for resource projects under the Environmental Protection Act 1994](#).

2 Content requirements of the EIS for the proposed Lake Vermont Meadowbrook Project

The following sections of this ToR outline the information requirements of an EIS under the EP Act, for the proposed project. It is not necessary for the EIS to follow the specific structure outlined below, but the relevant requirements for each section must be included within 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

The EIS must include an executive summary which describes the proposed project and conveys the most important aspects and environmental management commitments relating to the proposed project; in a concise and readable form.

5 Introduction

The introduction of the EIS must clearly explain the function of the EIS, why it has been prepared and what it sets out to achieve. It should 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 and experience in resource projects
- proponent's environmental record, including a list of any breach of proceedings against the proponent(s) under, a law of the Commonwealth or a State for the protection of the environment or the conservation and sustainable use of natural resources (an environmental law)
- the proponent's environmental, health, safety and community policies.

5.2 The environmental impact statement process

Outline the steps of the EIS process, noting which milestones have been completed, and an estimated completion date for each remaining EIS stage. Highlight the steps in which the public will have the opportunity to provide input or comment. This information is required to ensure readers are informed of the EIS process and are aware of their

opportunities for input and commenting.

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 all approvals under federal, state or local legislation that are required to enable the proposed project to be constructed and operated; and note the legislation under which the approvals are assessed and issued. This information must explain how the EIS fits into the assessment and approval processes for the EA and other approvals required of the proposed project before construction and operations can start.

As this proposed project is to be assessed under the bilateral agreement between the Australian Government and the State of Queensland, describe the approvals process under the EPBC Act.

6 Consultation process

Describe the consultation that has taken place and how responses from stakeholders, including government agencies and members of the community, have been incorporated into the design and outcomes of the proposed project.

Describe any proposed future consultation activities and outline how the results of that consultation will be used in the ongoing management of the proposed project.

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

- the objectives of the consultation process
- timing of consultation
- the number and interests of the people, organisations and communities 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
- the potential impacts of the proposed activity on Strategic Cropping Area (SCA) in accordance with the *Regional Planning Interests Act 2014* (RPI Act) [Statutory Guideline \(06/14\) for public notification of assessment applications](#)
- an assessment explaining how the consultation objectives have been met
- an analysis of the issues and views raised and their completed or planned resolution, including any alterations to the proposed project as a result of the received feedback.

7 Proposed project description and alternatives

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

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

7.1 Proposed project

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

- proposed project title
- a clear outline of the proposed project's objective

- expected capital expenditure
- rationale for the proposed project
- background to the proposed project and justification for its need
- proposed project description, including the nature and scale of all project components and activities
- whether it is a greenfield or brownfield site
- power and water supply
- transport requirements
- regional and local context of the proposed project's footprint, including maps at suitable scales
- proposed timing of the development, including construction staging, likely schedule of works and anticipated mine life
- 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 fly-in-fly-out (FIFO) or drive-in-drive-out (DIDO) workforce.

7.2 Site description

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

Describe and illustrate the topography of the proposed project site and surrounding area and highlight and identify any significant features shown on the maps. Map the location and boundaries of the proposed project's footprint, including all infrastructure elements and development necessary for the proposed project. Show all key aspects, including excavations, stockpiles, areas of fill, subsidence areas, services infrastructure, plant locations, water or tailings storages, buildings, bridges and culvert, haul and access roads, causeways, stockpile areas and loading facilities and any areas of dredging or 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 landforms of the proposed 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 proposed project's activities.

Describe and illustrate the precise location of the proposed project in relation to any designated and protected areas, wetlands, waterbodies and waterways providing fish passage. 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 land and soil resources (types and profiles) of the proposed project area at a scale relevant to the site in accordance with the latest version of the department's [Land—EIS information guideline](#) (DES 2020). Identify soils that would require particular management due to wetness, erosivity, depth, acidity, salinity or other feature, including acid sulfate soils.

Describe with concept and layout plans, in both plan- and cross-section views, requirements for constructing, upgrading or relocating all infrastructure associated with the proposed project. Show the locations of any necessary infrastructure easements on the plans, including infrastructure such as roads, rail (and the rail corridor), level crossings, conveyors, bridges, tracks and pathways, dams and weirs, bore fields, power lines and other cables, wireless technology (such as microwave telecommunications), and pipelines for any services, whether underground or above.

7.3 Proposed construction and operations

Describe the following information about the proposed project, provide maps and concept and layout plans for the following:

- 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
- the precise location of works to be undertaken, structures to be built or components of the proposed project
- 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
- the location, design and capacity of all other required supporting infrastructure, including water supply and storage, sewerage, electricity from the grid, generators and fuels (whether gas, liquid and/or solid), power stations and telecommunications
- changes to watercourses, waterways providing fish passage, flooding and overland flow on or off the site, including water diversions, crossings, flood levees, water off-takes and, locations of any proposed water discharge points
- any take of surface and groundwater (both direct and in-direct)
- proposed tailings management and storage
- any infrastructure alternatives, justified in terms of ecologically sustainable development, including energy and water conservation
- days and hours of construction and operation
- proposed mine life, location, spatial extent and amount of resources to be mined and the resource base, including total seam thickness and seam depths
- mining sequence and cross sections showing profiles and geological strata and faults
- the planned recovery of resources, including the location of any resources not intended to be mined that may be sterilised during mining activity or from related infrastructure
- planning to ensure recovery of the resource is undertaken efficiently to minimise or avoid wastage and sterilisation of resources
- the proposed methods, equipment and techniques for resource separation, beneficiation and processing
- process flow-sheets showing material balances for the processing plant
- 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 dredging, bed levelling, quarry and screening operations that may be required to service construction or operation of the proposed project.

7.4 Feasible alternatives

Present feasible alternatives of the proposed project. Address a range of alternatives, including conceptual, technological, locality, configuration, scale and individual elements or components that may improve environmental outcomes as well as the alternative of not proceeding with the proposed project.

Describe and evaluate the comparative environmental, social and economic impacts of each alternative (including the option of not proceeding), with particular regard to the principles of ecologically sustainable development.

Discuss each alternative and its potential impacts in sufficient detail to enable an understanding of the reasons for

preferring certain options and courses of action while rejecting others. Justify why the proposed project and preferred options should proceed.

8 The environmental impact assessment process

For each project specific matter outlined in section 9, the EIS must identify and describe the relevant environmental values, assess potential adverse and beneficial environmental, economic and social impacts of the proposed project; and outline the management, monitoring, planning and other measures proposed to avoid, minimise and/or mitigate any adverse environmental impacts of the proposed project. This must be addressed within the scope of the following requirements.

8.1 Environmental values

For the purposes of the EIS process, 'environment' is defined in section 8 of the EP Act.

Identify and describe the values that must be protected for all the relevant matters, including:

- environmental values specified in the EP Act, the EP Regulation (e.g. environmental objectives and performance outcomes as defined in Schedule 8) environmental protection policies (EPPs) and associated guidelines
- values under other State legislation, policies and guidelines, including the *Vegetation Management Act 1999*, the *Nature Conservation Act 1992* and the *Regional Planning Interests Act 2014*
- values identified in the project specific matters in section 9.

Consider all available baseline information relevant to the environmental risks of the proposed project, including seasonal and long-term 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 assumptions and uncertainties in the information.

8.2 Impact assessment

Assess the impacts of the proposed project on environmental values. This includes demonstrating that the proposed project meets the environmental objectives and outcomes for each matter in section 9 and the environmental objectives and performance outcomes for any matters listed in Schedule 8 of the EP Regulation.

Impact assessment must address:

- the construction, operation and decommissioning stages of the proposed project
- short, medium and long term scenarios
- the nature and scale of an impact, including but not limited to:
 - the impact's intensity and duration
 - cumulative effects of the proposed project in combination with other major projects or developments of which the proponent should reasonably be aware
 - the risk of environmental harm
 - avoidance, mitigation and management strategies and if necessary, offsets provisions
 - the potential for unforeseen impacts
 - the risks associated with unlikely but potentially major impacts
 - direct, indirect, secondary, permanent, temporary, unknown, unpredictable and/or irreversible impacts
 - both positive and negative impacts
 - impact interactions.

8.3 Cumulative impacts

Assess the cumulative impacts of the proposed project on environmental values. Every effort should be made to find information from all sources relevant to the assessment of cumulative impacts, including other major projects or developments of which the proponent should reasonably be aware. The EIS must outline ways in which the cumulative impact assessment and management could subsequently be progressed further on a collective basis.

Impact assessment must address cumulative impacts, including but not limited to:

- environmental values of land, air and water, public health and the health of terrestrial and aquatic ecosystems

- environmental values over time or in combination with other impacts in the dimensions of scale, intensity, duration or frequency of the impacts
- impacts created by the activities on other adjacent, upstream and downstream developments and infrastructure, and landholders.

8.4 Avoidance and mitigation

Propose and describe avoidance, mitigation and management strategies for the protection or enhancement of identified environmental values. Proposed strategies must:

- adhere to the department's management hierarchy: (a) to avoid; (b) to minimise or mitigate, including best practice environmental management; once (a) and (b) have been applied, (c) if necessary and possible, to offset
- include an assessment of the expected or predicted effectiveness, of the mitigation measures for dealing with the proposed project's relevant impacts
- the name of the entity responsible for endorsing or approving each mitigation measure or monitoring program
- any statutory or policy basis for the mitigation measures
- the cost of the mitigation measures
- include an environmental management plan setting out the framework for continuing management, mitigation and monitoring activities for the proposed project's relevant impacts, including any provision for independent environmental auditing
- 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 the department's model conditions and/or site-specific, outcome-focussed conditions that can be measured and audited.

For unproven elements of a resource extraction or processing process, technology or activity, identify and describe any global leading practice environmental management that would apply.

Demonstrate that the design of the proposed project and its predicted outcomes:

- meet the environmental objectives and outcomes listed in section 9 for each matter and the performance outcomes stated in Schedule 8 of the EP Regulation
- address the matters outlined in Schedule 1 of the EP Regulation, including items 2 and 4
- are consistent with best practice environmental management during construction, operation, decommissioning and post-closure management of the proposed project
- meet all statutory and regulatory requirements of the federal, state and local government, including any relevant plans, strategies, policies and guidelines.

Include a consolidated description of commitments to implement management measures, including monitoring activities.

8.5 Conditions and commitments

Provide sufficient evidence and detail through studies, proposed management measures and supporting information:

- to demonstrate that the predicted outcomes for the proposed project can be achieved
- to meet the requirements of sections Chapter 5, Part 2, Division 3 of the EP Act as relevant to the proposed project
- to meet the requirements of Schedule 1 of the EP Regulation
- for the administering authority to make recommendations about the suitability of the proposed project, assess whether an approval should be granted and recommend draft conditions for inclusion on relevant approvals.

8.6 Critical matters

The detail in which the EIS deals with all matters relevant to the proposed project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider the impact's nature, intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offset provisions.

A critical matter is a project specific matter listed in section 9 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 are issued, the EIS must address that new matter.

8.6.1 Critical environmental matters for this project

Critical environmental matters identified for this proposed project which the EIS must give priority are:

- Land (Section 9.2), including subsidence (Section 9.2.1)
- Rehabilitation (Section 9.3)
- Water quality (Section 9.4.1)
- Water resources (Section 9.4.2)
- Flooding (Section 9.4.3)
- Flora and fauna (Section 9.6)
- Social (Section 9.12)
- Economic (Section 9.13)
- Matters of National Environmental Significance (Section 9.15 and Appendix 3).

9 Project specific matters

9.1 Climate

Conduct the assessment in accordance with the latest version of the department's [Climate—EIS information guideline](#) (DES 2020). Describe the proposed project area's climate patterns that are relevant to the environmental impact assessment, with particular regard to the proposed project's discharges to water and air, and the propagation of noise. Provide climate data in a statistical form, including long-term averages and extreme values. It should also be illustrated by bar charts, wind rose diagrams or other relevant graphic means as necessary.

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 decommissioning of the proposed project, as well as the rehabilitation of the site. Describe measures that would be taken to minimise the risks of these events.

Assess the proposed project's vulnerabilities to climate change (e.g. changing patterns of rainfall, hydrology, temperature and, extreme weather events). The assessment of climate hazards and risks should reference relevant climate projection data and employ standard risk assessment methodologies. Describe the adaptation strategies and/or activities designed to minimise climate change impacts to the proposed project, subsequent land uses on that site (e.g. rehabilitation projects) and surrounding land uses. Adaptation activities must be designed to avoid perverse outcomes, such as increased emissions of greenhouse gases or maladaptive outcomes for surrounding land uses.

9.2 Land (Critical Matter)

Environmental objective and outcomes

The activity is operated in a way that protects the environmental values of land, including soils, subsoils, landforms and associated flora and fauna.

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.

The location for the activity on a site protects all environmental values relevant to adjacent sensitive use.

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.

Impact assessment

Conduct the impact assessment in accordance with the latest version of the department's [Land—EIS information guideline](#) (DES 2020), [Applications for activities with impacts to land](#) (ESR/2015/1839¹), [DAFF Environmental impact assessment companion guide](#) (DAFF 2014), [RPI Act statutory guideline 11/16 companion guide](#) (DILGP 2017) and, if the proposed activities are in a SCA, refer to 03/14 of the guideline [Carrying out resource activities in the Strategic Cropping Area](#) and, and, if any quarry material is needed for construction, the department's [Quarry material—EIS information guideline](#) (DES 2020). The impact assessment will consider the Mackay, Isaac and Whitsunday Regional Plan (2012) for any areas identified as being of regional interest under the RPI Act. Demonstrate that the proposed project can meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

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 proposed 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 proposed project site
- temporary and permanent changes to land uses of the proposed project site and adjacent areas, considering:
 - actual and potential agricultural uses
 - regional plans and local government planning schemes
 - any [Key Resource Areas](#) that were identified as containing important extractive resources of state or regional significance which the state considers worthy of protection
 - strategic cropping land, priority agricultural areas, priority living area and strategic environmental areas under the *Regional Planning Interests Act 2014* and the [trigger map for strategic cropping land](#)
 - findings of the [Agricultural Land Audit](#)
 - constraints to the expansion of existing and potential agricultural land uses
- 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
- identify any infrastructure proposed to be located within, or which may have impacts on, the stock route network^{2,3} associated with the *Land Protection (Pest and Stock Route Management Act) 2002*.

Assess the proposed project against the requirements of the *Regional Planning Interests Act 2014*. Further advice is provided in DILGP's [RPI Act statutory guideline 11/16 companion guide](#) (DILGP 2017) and the [DAFF](#)

¹ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

² <https://www.qld.gov.au/environment/land/stock-routes/about/>

³ https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0010/99622/stock-route-management-strategy.pdf

[Environmental impact assessment companion guide](#) (Department of Agriculture, Fisheries and Forestry, August 2014).

Propose suitable measures to avoid or minimise impacts related to land use.

Show how landforms, during and after disturbance, will be stable over time and will meet any requirements of proposed 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 proposed 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 proposed 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](#).

Detail (including with the use of maps) the following native title considerations:

- current tenure of all land or waters within the project area (which may include creeks)
- land or waters where native title has been determined to exist by the Federal Court
- land or waters that are covered by a native title determination application
- land or waters that are covered by a registered Indigenous Land Use Agreement.

Describe pathways for resolving any native title considerations that comply with the Queensland Government's [Native title work procedures](#) (such as the negotiation and registration of an Indigenous Land Use Agreement).

9.2.1 Subsidence (Critical Matter)

For underground mines and any other projects likely to cause land subsidence, assess and provide comprehensive surface subsidence predictions using tools or techniques that enable the location, extent and scale of subsidence, and its effect over time on surface landforms and hydrology to be understood. Propose detailed mitigation measures for any significant impacts that would result from subsidence, including impacts on infrastructure, land, hydrology, flora and fauna.

9.3 Rehabilitation (Critical Matter)

Environmental objective and outcomes
<p>Land disturbed by mining activities will be rehabilitated progressively as it becomes available, to minimise the risks of environmental impacts and reduce cumulative areas of disturbed land.</p> <p>The activity is operated in a way that protects the environmental values of land, including soils, subsoils, landforms and associated flora and fauna.</p> <p>The activity is operated in a way that disturbed areas will be rehabilitated or restored to a stable condition; the land is safe and structurally stable, there is no environmental harm being caused by anything on or in the land, and, the land can sustain a post-mining land use.</p> <p>The progress and outcomes of progressive rehabilitation activities will be monitored and reported on to demonstrate how successful they have been in achieving progress towards the agreed final land use, and to inform corrective action where required.</p>

Impact assessment

9.3.1 Mining projects

Address the rehabilitation requirements of the EP Act, including the provisions requiring a proposed progressive rehabilitation and closure plan (PRC plan). Demonstrate that the proposed rehabilitation is consistent with the department's guideline [Progressive rehabilitation and closure plans](#) (ESR/2019/4964⁴) and best practice approaches about the strategies and methods for progressive and final rehabilitation.

⁴ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

Demonstrate that the rehabilitation of the environment disturbed by construction, operation, and decommissioning of the proposed project can meet the environmental objectives and performance outcomes in Schedule 8A of the EP Regulation.

9.3.1.1 Proposed PRC plan

Provide a proposed PRC plan for the proposed project. The plan must show how and where activities will be carried out on land in a way that maximises the progressive rehabilitation of the land to a stable condition and provide for the condition to which the holder must rehabilitate the land before the EA may be surrendered.

The proposed PRC plan must consist of two components:

- rehabilitation planning part
- progressive rehabilitation and closure plan schedule (PRCP schedule).

The proposed PRC plan should be consistent with the information requirements in the department's [Submission of a progressive rehabilitation and closure plan](#) (ESR/2019/4957⁵).

9.3.1.2 Rehabilitation planning part

Provide the rehabilitation planning part of the proposed PRC plan, by addressing the following:

- describe each resource tenure, including the area of each tenure
- describe the relevant activities and the likely duration of the relevant activities
- consider the rehabilitation and final land use for the strategic cropping area in accordance with the relevant sections of *RPI Act*
- include a detailed description, including maps, of how and where the relevant activities are to be carried out
- include details of the consultation undertaken by the applicant in developing the proposed PRC plan.
- include details of how the applicant will undertake ongoing consultation in relation to the rehabilitation to be carried out under the plan
- state the extent to which each proposed post-mining land use or non-use management area is consistent with the outcome of consultation with the community in developing the plan and any strategies or plans for the land of a local government, the State or the Commonwealth
- for each proposed post-mining land use, state the applicant's proposed methods or techniques for rehabilitating the land to a stable condition in a way that supports the rehabilitation milestones under the proposed PRCP schedule
- identify the risks of a stable condition for land identified as a proposed post-mining land use not being achieved, and how the applicant intends to manage or minimise the risks
- for each proposed non-use management area, state the reasons the applicant considers the area cannot be rehabilitated to a stable condition because of either of the below:
 - carrying out rehabilitation of the land would cause a greater risk of environmental harm than not carrying out the rehabilitation or,
 - the risk of environmental harm as a result of not carrying out rehabilitation of the land is confined to the area of the relevant resource tenure and the applicant considers, having regard to each public interest consideration, that it is in the public interest for the land not to be rehabilitated to a stable condition
 - demonstrate that any capture of surface or underground water is in accordance with the *Water Plan (Fitzroy Basin) 2011*
- include copies of reports or other evidence relied on by the applicant for each proposed non-use management area
- for each proposed non-use management area, state the applicant's proposed methodology for achieving best practice management of the area to support the management milestones under the proposed PRCP schedule for the area
- include other information requirements outlined in the department's statutory guideline [Progressive rehabilitation and closure plans](#) (ESR/2019/4964⁶).

1.1.2 PRCP schedule

⁵ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

⁶ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

Provide a proposed PRCP schedule⁷ which describes time-based milestones for achieving each post-mining land uses or non-use management areas for the proposed project. Present the proposed PRCP schedule in the table template included in the department's [Submission of a progressive rehabilitation and closure plan](#) (ESR/2019/4957⁸).

The proposed PRCP schedule, must identify:

- all land within the resource tenure as either a post-mining land use or non-use management area
- when land becomes available for rehabilitation or improvement
- rehabilitation milestones to achieve a post-mining land use
- management milestones to achieve a non-use management area
- milestone criteria that demonstrate when each milestone has been completed
- completion dates for each milestone to be achieved
- a final site design.

All milestone criteria must be consistent with the SMART principles⁹.

9.4 Water

9.4.1 Water quality (Critical Matter)

Environmental objective and outcomes
The activity will be operated in a way that protects environmental values of waters.
The activity will be operated in a way that protects the environmental values of groundwater and any associated surface ecological systems.
The activity will be managed in a way that prevents or minimises adverse effects on wetlands.

Impact assessment

Conduct the impact assessment in accordance with the department's [Water—EIS information guideline](#) (DES 2020), [Applications for activities with impacts to water](#) (ESR/2015/1837¹⁰), [Water quality guidelines](#) (Queensland Government, 2020), [Monitoring and sampling manual](#) (DES 2018), and the [Groundwater quality assessment guideline](#) (DSITI 2017). Demonstrate that the proposed project can meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

With reference to the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 and section 9 of the EP Act, identify the environmental values and water quality objectives for surface waters within the proposed project area and immediately downstream that may be affected by the proposed project, including any human uses and cultural values of water.

Define the relevant water quality objectives applicable to the environmental values and demonstrate how these will be met by the proposed project during construction, operation, decommissioning and following proposed project completion. Where locally relevant water quality objectives are not available these should be defined according to the department's latest [Water quality guidelines](#) (Queensland Government, 2020) and the procedures outlined in the guideline [Deciding aquatic ecosystem indicators and local water quality guidelines under the Environmental](#)

⁷ The guideline [Progressive rehabilitation and closure plans](#) (ESR/2019/4964) contains further information about how to develop a PRCP schedule.

⁸ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

⁹ SMART milestones are:

- **Specific** – it is clear what must be done
- **Measurable** – it must be possible to know when it has been achieved
- **Achievable** – it is capable of being achieved
- **Reasonable/relevant** – there is a clear connection between the milestone and the desired outcomes. The requirement is reasonable
- **Time Specific** – it is clear when the milestone will be completed.

¹⁰ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

[Protection \(Water\) Policy \(draft 2009\)](#) or relevant updates for all waters, including any semi-permanent or permanent pools, including stock water.

Detail the chemical, physical and biological characteristics of surface waters and groundwater within the area that may be affected by the proposed project and at suitable reference locations using sufficient data to define natural variation, including seasonal variation.

Describe the quantity, quality, location, duration and timing¹¹ of all potential and/or proposed releases of contaminants, during construction, operation, decommissioning, rehabilitation and following proposed project completion. 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, contaminated run-off from operational areas of the site (including seepage from waste rock dumps) or run-off from disturbed acid sulfate soils.

Assess the potential impact of any releases from point or diffuse sources on all relevant environmental values and water quality objectives of the receiving environment, during construction, operation, decommissioning, rehabilitation and following proposed project completion. The impact assessment should consider the resultant quality and hydrology of receiving waters and the assimilative capacity of the receiving environment.

Describe how water quality objectives would be achieved and environmental impacts 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 and Wetland Biodiversity) Policy 2019. 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 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 to be used if objectives are not likely to be met.

9.4.2 Water resources (Critical Matter)

Environmental objective and outcomes
<p>With regard to water resources, the proposed project should meet the following objectives:</p> <ul style="list-style-type: none"> • equitable, sustainable and efficient use of water resources • 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 • maintenance of the stability of beds and banks of watercourses, and the shores of waterbodies, estuaries and the coast • maintenance of supply to existing users of surface and groundwater resources.

Impact assessment

Conduct the impact assessment in accordance with the department’s [Water—EIS information guideline](#) (DES 2020) and [DAFF Environmental impact assessment companion guide](#) (DAFF 2014). Address the requirements of section 126A of the EP Act.

Describe present and potential users and uses of water in areas potentially affected by the proposed project, including municipal, agricultural,¹² industrial, recreational and environmental uses of water.

Describe the quality, quantity and significance of groundwater in the proposed project area and any surrounding area potentially affected by the proposed project’s activities. Include the following:

- characterise: the nature, type, geology/stratigraphy and depth to and thickness of the aquifers; their transmissivity; and value as water supply sources

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.

¹² <https://publications.qld.gov.au/dataset/daff-environmental-impact-assessment-companion-guide/resource/7b1825c4-5e42-4cf8-aa2d-7fa55c2f5e4c>

- analyse the movement of underground water to and from the aquifer(s), including how the aquifer(s) interacts with other aquifers and surface water
- characterise the quality and volume of the groundwater, including seasonal variations of groundwater levels and provide drawdown contours across the different stages of mine life
- provide surveys of existing groundwater supply facilities (e.g. bores, wells, or excavations) and data from field tests.

Model and describe the inputs, movements, exchanges and outputs of surface water and groundwater that would or may be affected by the proposed project. The models used to estimate associated water take should take into account the climatic conditions at the site, assess the potential impacts on water resources and include a site water balance. The model should be peer-reviewed by an independent appropriately qualified person(s) consistent with the Australian groundwater modelling guidelines (Barnett et al 2012).

Provide a description of the proposed project’s impacts at the local scale and in a regional context, including:

- changes in flow regimes from diversions, water take and discharges
- groundwater draw-down and recharge
- management of mine affected water
- alterations to riparian vegetation and bank and channel morphology
- direct and indirect impacts arising from the development.

Provide a mine water management plan, for the life of the proposed project, which details management strategies of mine-affected water, sediment-affected water and drainage from areas not disturbed by mining activities. Any water taken off site for further use must also be accounted for and must be consistent with the General Use Approval for associated water (including coal seam gas water).

Identify any approval or allocation that would be needed under the *Water Act 2000* for the take or interference with surface or underground water. Specifically address whether or not the proposed project would take water from, or affect recharge to, aquifers of the Great Artesian Basin. Describe the practices and procedures that would be used to avoid or minimise impacts on water resources.

Describe how ‘make good’ provisions would apply to any water users that may be adversely affected by the proposed project. Propose a network of groundwater monitoring bores before and after the commencement of the proposed project that would be suitable for the purposes of monitoring groundwater quality and hydrology impacts that may occur as a result of the resource activity. Include details on investigation timeframes and actions if exceedances are detected.

Include maps of suitable scale showing the location of diversions and other water-related infrastructure in relation to resource infrastructure. Detail any significant diversion or interception of overland flow, including the effects of subsidence. Describe watercourse diversion design, operation and monitoring based on current engineering practice and the DNRME guideline [Works that interfere with water in a watercourse—watercourse diversions authorised under the Water Act 2000](#) if any features within the proposed project area are identified as ‘yet to be mapped’ on the Watercourse Identification Mapping in Queensland Globe, the proponent should contact DNRME to request a watercourse determination for those features.

Describe the options for supplying water to the proposed project and assess any potential consequential impacts in relation to the objectives of any water plan, water management protocol and associated planning documents that may apply.

Describe the proposed supply of potable water for the proposed 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. The EIS must satisfy the information requirements contained in the IESC’s [Information guidelines](#) (IESC, 2020), including relevant information guidelines explanatory notes (e.g. uncertainty analysis, assessing groundwater-dependent ecosystems).

9.4.3 Flooding (Critical Matter)

Environmental objective and outcomes
The construction and operation of the proposed 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.

Impact assessment

Describe the history of flooding onsite and in proximity to the site. Describe current flood risk for a range of annual exceedance probabilities up to the probable maximum flood for the proposed project site. Use flood modelling to assess how the proposed project may potentially change flooding and run-off characteristics on-site and both upstream and downstream of the site. The assessment should consider all infrastructure associated with the proposed project, including levees, roads, and linear infrastructure, and all proposed measures to avoid or minimise impacts. Describe the potential impacts on ecological function and connectivity, including any impacts downstream / off-site resulting from altered flow paths, changes in flow velocity and changes in inundation periods.

Evidence should be provided to demonstrate that the securing of storage containers of hazardous contaminants during flood events meets the requirements of Schedule 8 of the EP Regulation.

Describe, illustrate and assess where any proposed infrastructure, including tailing storage facilities or dams, voids and waste rock dumps, disturbed and rehabilitated areas, would lie in relation to the extent to any modelled flood level, including the probable maximum flood level. Describe management actions to minimise impacts of flooding to mine infrastructure and manage in mine pit water post-flooding.

Assess the proposed 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 proposed project site.

9.5 Regulated structures

Environmental objective and outcomes
<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.</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. have published several guidelines, which should be used to further develop objectives and outcomes for individual projects and the regulated structures they involve.</p>

Impact assessment

Conduct the impact assessments on regulated structures in accordance with the latest version of the department’s [Regulated structures—EIS information guideline](#) (DES 2020), the department’s [Guideline on Structures which are dams or levees constructed as part of environmentally relevant activities](#) (ESR/2016/1934¹³), and the department’s [Manual for assessing hazard consequence categories and hydraulic performance of structures](#) (ESR/2016/1933¹⁴).

Describe the purpose of all dams or levees proposed on the proposed 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 proposed project infrastructure comprises dams or other structures for a) storing potentially hazardous materials, and b) levees for excluding floodwaters from operational areas, undertake a consequence category assessment for each dam or levee, according to the criteria outlined in the department’s [Manual for assessing consequence categories and hydraulic performance of structures](#) (ESR/2016/1933¹⁵). The assessment must be undertaken for the three different failure event scenarios described in the department’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](#) (ESR/2016/1933¹⁶) in accordance with Schedule 8, Division 2 of the EP Regulation.

Following the consequence category assessment, determine the consequence category (‘low, significant, or high’) according to Table 1 of the department’s [Manual for assessing hazard categories and hydraulic performance of](#)

¹³ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

¹⁴ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

¹⁵ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

¹⁶ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

structures (ESR/2016/1933¹⁷) and provide certified copies of the consequence category determination for each of the proposed dams or levees assessed.

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.

9.6 Flora and fauna (Critical Matter)

Environmental objective and outcomes
The activity will be operated in a way that protects the environmental values of land, including soils, subsoils, landforms and associated flora and fauna.
There will be no potential or actual adverse effect on a wetland as part of carrying out the activity.
The proposed project minimises serious environmental harm on areas of high conservation value and special significance and sensitive land uses at adjacent places.
The location for the activity on a site protects all environmental values relevant to adjacent sensitive use.
The proposed project manages the impacts on the environment by seeking to achieve ecological sustainability, including, but not limited to, protected wildlife and habitat.
Critical habitat receives special management considerations and protection through a management plan for the proposed project.
The proposed 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.
The proposed project provides for the conservation of the marine environment, particularly the Great Barrier Reef Marine Park.
The construction, operation and decommissioning of the proposed project must be consistent with all statutory and regulatory requirements of the federal, state and local government and be consistent with their relevant plans, strategies, policies and guidelines that relate to the terrestrial and aquatic ecological environment.

Impact assessment

Describe the potential direct and indirect impacts on the biodiversity and natural environmental values of affected areas impacted by the construction, operation and decommissioning of the proposed project. Take into account any proposed avoidance and/or mitigation measures. The EIS should provide information based on relevant guidelines, including but not limited to the latest version of the department's [EIS information guidelines \(DES 2020\)](#) that cover flora and fauna, aquatic ecology, groundwater dependent ecosystems, water, matters of national environmental significance, and biosecurity.

Demonstrate that the proposed project can meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

The assessment should include the following key elements:

- identification of all significant species and ecological communities, including MSES and MNES, listed flora and fauna species, and regional ecosystems, on the proposed project's site and in its vicinity
- terrestrial and aquatic ecosystems (including groundwater dependent ecosystems and subterranean fauna, e.g. stygofauna) and their interactions. Stygofauna assessment guidance is available through the department's [Background information on sampling bores and stygofauna](#) and the former Department of Science, Information Technology, Innovation and the Arts [Guideline for the environmental assessment of subterranean aquatic fauna](#)
- biological diversity
- the integrity of ecological processes, including habitats of listed threatened, near threatened or special least-concern species

¹⁷ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

- 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
- direct and indirect impacts on terrestrial and aquatic species and ecosystems whether due to: vegetation clearing; hydrological changes; discharges of contaminants to water, air or land; noise; and other relevant matters
- impacts of waterway barriers on fish passage in all waterways, including mapped waterways on the Queensland Waterways for Waterway Barrier Works spatial data layer and unmapped waterways that meet the definition of a waterway as per the spatial user guide, [Guide for the determination of waterways using the spatial data layer Queensland waterways for waterway barrier works](#)
- describe any actions of the proposed 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*, the *Regional Planning Interests Act 2014*, the *Fisheries Act 1994* and the *Planning Act 2016*.¹⁸ 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. In particular, 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, elements such as provision of low shrubs, ground level hollow logs, stick piles, nest hollows, ground litter and fish passage and habitat.

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.

9.6.1 Offsets

For any significant residual impact, 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](#).
- where Commonwealth offset policy requires an offset for significant residual 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.

¹⁸ This is notwithstanding the application of the *Vegetation Management Act 1999* to mining projects. Note that regulated vegetation (an MSES value) is subject to assessment for resource projects assessed under the EP Act. Off-lease activities associated with a mining project may also be assessable under the *Vegetation Management Act 1999*. Refer also to <https://www.qld.gov.au/environment/land/vegetation/clearing/>

9.6.2 Biosecurity

Environmental objective and outcomes

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

- the introduction and spread of weeds, pests (including marine pests) and disease, pathogens and contaminants are avoided or minimised
- existing weeds and pests, including marine pests, are controlled, including biosecurity threats and their management
- 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 can be achieved.

Impact assessment

Conduct the impact assessment in accordance with the latest version of the department's [Biosecurity—EIS information guideline](#) (DES 2020).

Describe the current distribution and abundance of pest animals and weeds on the proposed project site.

Describe the impact the proposed project's construction and operation will have on the spread of pest animals, weed species and disease.

Propose detailed measures to remove, control and limit the spread of pests, weeds disease, pathogens and contaminants on the proposed project site and any areas under the proponent's control. This includes declared plants and animals under Queensland's *Biosecurity Act 2014*, the Commonwealth *Biosecurity Act 2015* and weeds of national significance (WONS) and designated pests under the Queensland *Public Health Act 2005*. All proposed measures are to be in accordance with biosecurity surveillance or prevention measures authorised under the *Biosecurity Act 2014* aligned with local government pest management priorities, including the Isaac Regional Biosecurity Plan 2020-2023¹⁹.

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

9.7 Air

Environmental objective and outcomes

The activity will be operated in a way that protects the environmental values of air.

Impact assessment

Describe the existing air environment at the proposed 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 proposed project.

Demonstrate that the proposed project can meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

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 2019 (EPP (Air)), and the latest version of the department's [Air—EIS information guideline](#) (DES 2020) and [Applications for activities with impacts to air](#) (ESR/2015/1840²⁰). 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 any 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

¹⁹ <https://www.isaac.qld.gov.au/downloads/file/2274/isaac-region-biosecurity-plan-2020-23>

²⁰ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

should also quantify the human health risk and amenity impacts associated with emissions from the proposed 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 to limit impacts from air emissions and how the proposed activity will be consistent with best practice environmental management. The EIS must address the compatibility of the proposed 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, State Development Areas or other relevant planning frameworks.

Describe how the proposed project's air emission objectives would be achieved, monitored, audited and reported, and how corrective actions would be managed for the life of the proposed project.

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 regarding greenhouse gas emissions and energy production and consumption provided in the EIS is consistent with requirements of the NGER Act and its subordinate legislation.²¹

Provide an inventory of projected annual emissions for each relevant greenhouse gas, with total emissions expressed in 'CO₂ equivalent' terms. Estimate emissions from upstream activities associated with the proposed project, including the fossil fuel based electricity to be used during construction, operation and decommissioning and briefly describe the methods used to make the estimates. The *National Greenhouse and Energy Reporting (Measurement) Determination 2008* provides methods and criteria for calculating greenhouse gas emissions and energy data under the NGER Act which can be used in combination with the [National greenhouse energy report technical guidelines](#) (DAWE, 2020) as a reference source for emission estimate methods and supplemented with information from other sources where practicable and appropriate.

The proposed project 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 proposed project site.

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

- a description of the proposed preferred and alternative measures to avoid and/or minimise greenhouse gas emissions directly resulting from activities of the proposed project, including such activities as transportation of products and consumables, and energy use by the proposed 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 of greenhouse gas emissions through indirect means.

Describe flare emissions if gas flaring will be used during the commissioning stages and/or during the emergency under normal operation. If the flare is expected to be used continuously for more than three months to incinerate the waste gases, then conduct the impact assessment from this source for inclusion in the EIS as a separate item of the assessment.

9.8 Noise and vibration

Environmental objective and outcomes
The activity will be operated in a way that protects the environmental values of the acoustic environment.

Impact assessment

Describe and illustrate the locations of any sensitive receptors that are listed in Schedule 1 of the Environmental Protection (Noise) Policy 2019. Also describe any other environmental values that could be impacted by emissions from the proposed project.

²¹ <http://www.cleanenergyregulator.gov.au/NGER>

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 proposed project.

Conduct a noise and vibration impact assessment in accordance with the latest version of the department's [Noise and vibration—EIS information guideline](#) (DES 2020) and [Applications for activities with noise impacts](#) (ESR/2015/1838²²). The assessment must address low-frequency (<200 Hz) noise emissions and potential cumulative impact of the proposed project with other emissions of noise from any existing developments and known possible future development in the area.

Demonstrate that the proposed project can meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

Describe how the proposed activity would be managed to be consistent with best practice environmental management, including the control of background creep in noise as outlined in the Environmental Protection (Noise) Policy 2019. The EIS must address the compatibility of the proposed 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, State Development Areas or other relevant planning frameworks.

Describe how the environmental management objectives for noise and vibrations would be achieved, monitored, audited and reported, and how corrective actions would be managed.

9.9 Waste management

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

Impact assessment

Conduct the impact assessment in accordance with the latest version of the department's [Waste—EIS information guidelines](#) (DES 2020) and [Applications for activities with waste impacts](#) (ESR/2015/1836²³). Demonstrate that the proposed project can meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

Describe all the expected waste streams from the proposed project activities during the construction, operational, rehabilitation and decommissioning phases of the proposed 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.

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

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

Assess and describe the proposed management measures against the preferred waste management hierarchy, namely: avoid and reduce waste generation; cleaner production; reduce; 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 reported, and how corrective actions would be managed.

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

Describe procedures to prevent the attraction or propagation of pests, vectors or vermin and other threats to public health or that may result in any contamination of water supplies.

²² This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

²³ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

Waste management planning will include detail of all identified waste types (inclusive of sewage sludge waste), waste volumes, storage methods, transportation methods and proposed locations for waste disposal, including intended burying of waste.

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.

Detail the geochemistry of all waste rock, including spoil, tailings and rejects. Assess the potential risks associated with this waste stream and describe the management of progressive placement and any disposal strategy to minimise any potential impacts on environmental values of the proposed project area. Detail how high risk waste material will be managed in the rehabilitation plan.

Identify the quantity, quality and location of all potential discharges of water and contaminants by the proposed project, including treated wastewater and sewage. 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 waters, in the near-field or far-field, resulting from controlled or uncontrolled discharges from the site. 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 water quality 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 other 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 relevant to environmentally relevant activity (ERA) 63, by referring to relevant department policies and guidelines, depending on the proposed sewage collection and treatment infrastructure proposed the reuse and/or disposal of treated wastewater and sewage wastes generated.

Identify [end of waste codes](#) 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. Additional end of waste framework guidelines are available on the department’s website.

Undertake water balance modelling applying appropriate techniques, such as the Model for Effluent Disposal via Irrigated Land (MEDLI), to ascertain suitable wet weather storage volume(s), sufficient irrigation area(s), suitable effluent irrigation rates and suitable vegetation to be irrigated to ensure sustainable effluent irrigation for the predicted volume of sewage that will be generated and treated, and then land irrigated.

9.10 Hazards and safety

Environmental objective and outcomes
<p>The construction and operation of the proposed project should ensure:</p> <ul style="list-style-type: none"> • the risk of, and the adverse impacts from, natural and man-made hazards are avoided, minimised or mitigated to protect people and property • the community’s resilience to natural hazards is maintained or enhanced • 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.

Environmental objective and outcomes

- that any risk associated with explosives use, transportation, storage or manufacture is within an acceptable level, in accordance with the *Explosives Act 1999* and codes and standards, including the Australian Standard AS2187 Explosives Storage, transport and use
- the proposed project prevents or minimises the production of hazardous contaminants and waste
- if the production of hazardous contaminants and waste is unavoidable, the proposed project treats and/or contains hazardous contaminants until their disposal at an approved facility.

Impact assessment

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

- the safety of employees during design and planning of the proposed project.
- potential hazards (including those associated with radiation sources, petroleum and gas pipelines, abandoned mines, explosive magazines and the storage and use of explosives as part of construction), accidents, spillages, fire and abnormal events that may occur during all stages of the proposed 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 and the [Queensland Emergency Risk Management Framework](#) (Queensland Government, 2020) as the endorsed approach to disaster and emergency risk management in Queensland
- demonstrate that any major hazard facility involving dangerous and hazardous materials is appropriately located in accordance with [State Development Assessment Provisions](#), Code 21, Hazardous chemical facilities (Queensland Government, 2020)
- 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 Explosives-storage transport and use*
- identify the need for appropriate explosive licences and notice of proposed blasting prior to explosives use. Describe the safety and health management system that will control the risk to the safety and health of persons who may be affected by coal mining operations to an acceptable level and in accordance with the *Coal Mining Safety and Health Act 1999* and the Coal Mining Safety and Health Regulation 2017
- consider geophysical risk management such as earthquakes. The [State Earthquake Risk Assessment](#) includes probabilities of major seismic events for all local government areas and should be used to inform risk consideration and management
- address the risk to the proposed project from other natural events such as cyclone and severe wind hazard, heat and heatwave risk drought, flooding, bushfire and implications related to climate change and adaptation with reference the [Queensland Emergency Risk Management Framework](#), the [State Heatwave Risk Assessment](#), and [Natural Hazard Risk and Resilience spatial layer](#)
- potential wildlife hazards, including a development of a mosquito management plan in accordance with [Queensland Health guidelines](#)
- describe natural hazards that may affect the site with at least a 1% Annual Exceedance Probability (AEP) or 100 year average recurrence interval (ARI) level, including mapping of the potential hazard areas at the site
- describe 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
- provide details on the safeguards that would reduce the likelihood and severity of hazards, consequences and risks to persons, within and adjacent to the proposed project area(s). Identify the residual risk following application of proposed mitigation measures. Present an assessment of the overall acceptability of the impacts of the proposed project in light of the residual uncertainties and risk profile.
- As part of the emergency response plan include:
 - a bushfire management plan, certified by a suitably qualified person, in consultation with the Queensland Fire and Emergency Services addressing construction and operations, including the following information at a minimum:

- i. a bushfire hazard analysis
- ii. mitigation strategies to achieve the relevant development outcomes in Part E of the [State Planning Policy– Natural Hazards, Risk and Resilience](#) (DILGP 2017)
- iii. provides details of the proposed ongoing management of fuel loads across the subject site through grazing or mechanical means including the asset protection zone proposed
- a safety and emergency management plan addressing construction and operations, including the following information at a minimum:
 - i. evacuation plans for the construction and operation phases of the development
 - ii. safety management plans and emergency response procedures in consultation with the state and regional emergency service providers (including Queensland Fire and Emergency Services) and provide an adequate level of training to staff who will be tasked with emergency management activities.

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.

Outline any consultation undertaken with the relevant emergency management authorities, including the local disaster management group.

9.11 Cultural heritage

Environmental objective and outcomes

The construction and operation of the proposed project should achieve the purposes of the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003* with respect to the proposed project site and ensure that the nature and scale of the proposed project does not compromise the cultural heritage significance of a heritage place or heritage area.

Impact assessment

Conduct the impact assessment in accordance with the latest version of the department’s [Aboriginal and Torres Strait Islander cultural heritages—EIS information guideline](#) (DES 2020) and [Non-Indigenous cultural heritage—EIS information guideline](#) (DES 2020).

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

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 proposed project. Any such study should be conducted by an appropriately qualified cultural heritage practitioner. Provide strategies to mitigate and manage any negative impacts of the proposed project on non-Indigenous cultural heritage values and enhance any positive impacts. Management and mitigation strategies should include provisions for the management of discoveries of potentially significant archaeological artefacts in accordance with section 89 of the *Queensland Heritage Act 1992* and include reference to the [guidelines for Archaeological Investigations](#) (DES, October 2019) and [Assessing cultural heritage significance: Using the cultural heritage criteria](#) (DES, October 2017).

9.12 Social (Critical Matter)

Environmental objective and outcomes

The construction and operation of the proposed project should ensure that:

- adverse social impacts arising from the proposed project are avoided or mitigated
- benefits for local and regional communities are enhanced.

Impact assessment

Prepare a Social Impact Assessment (SIA) for the proposed project that is consistent with the requirements of the *Strong and Sustainable Resource Communities Act 2017* (SSRC Act) and the Coordinator-General’s [SIA guideline](#) (March 2018).

Develop the SIA in consultation with the Office of the Coordinator-General, Department of State Development,

Manufacturing, Infrastructure and Planning. The SIA is to describe the potential social impacts (both positive and negative) of the proposed project, and must identify relevant and effective impact mitigation and benefit enhancement measures.

The SIA is required to include detailed assessment of the following key matters in accordance with the SIA guideline:

- community and stakeholder engagement
- workforce management
- housing and accommodation
- local business and industry procurement
- health and community well-being.

The SIA is to include an analysis of the capacity of relevant towns within 125 km radius of the proposed main access to provide workers for the construction and operational phases of the proposed project and the impacts of a resident workforce on housing and social infrastructure. The information provided in the EIS (including the SIA) will inform the Coordinator-General's decision under Section 12 of the SSRC Act on whether personnel employed during the construction phase of the proposed project should be protected by the SSRC Act's antidiscrimination and 100 percent FIFO prohibition provisions.

Identify and assess the potential impacts of the project on existing health services in the construction and operational phases and describe how the health services are likely to be affected and the impact of these services on neighbouring communities and towns.

Community and stakeholder engagement for social impact assessment

The SIA is to be informed by an inclusive and collaborative community and stakeholder engagement process, consistent with the SIA guideline. Community and stakeholder engagement is to be iterative throughout preparation of the SIA and engagement with local government must commence at an early stage.

The SIA is to demonstrate evidence of engagement outcomes from local government, state agencies, local and regional employment and training providers, public and private housing providers, local and regional commerce and community development groups, social and public service providers, emergency services and public health providers and any other relevant stakeholders. The SIA must be informed by the results from community and stakeholder engagement.

Key SIA outcomes

The SIA must clearly identify measures for prioritising the recruitment of workers from local and regional communities. This includes describing how the recruitment hierarchy for workers in section 9 (3A) of the SSRC Act will be implemented.

Where a FIFO workforce is proposed, the SIA must identify measures for managing this workforce in accordance with the SIA guideline, as well as sections 6 and 8 of the SSRC Act and the relevant provisions in the Anti-Discrimination Act 1991. The SIA will need to include a target for obtaining a local workforce and set the maximum proportion of FIFO workers for the proposed project. This is to be supported by a rationale to ensure local benefit.

The SIA must include a social impact management plan (SIMP) with management measure to mitigate the impacts and enhance the potential benefits identified in the assessment of the five key matters listed above in accordance with the SIA guideline. In particular the SIMP must:

- address barriers that may impact choice for workers to live local and provide support for people in local and regional communities to engage in project employment opportunities
- provide management measures to ensure availability and affordability of local and regional housing and accommodation is not adversely impacted.

The SIMP must describe a practical basis for the implementation of management measures identified through the SIA process. The SIMP is to include timeframes for implementation, roles and responsibilities, stakeholders and potential partnerships. Potential partnerships include opportunities for linkages with other projects planned or operating in the area and possible alignment with existing strategies that would benefit the management of cumulative social impacts.

The SIMP must include a process of review throughout the proposed project lifecycle to ensure management measures continue to be effective, and where not achieving the stated outcomes, are amended to appropriately mitigate impacts. A monitoring program must be included in the SIMP to consider the ongoing effectiveness of the management measures. The SIA Guideline sets out the monitoring, review and compliance requirements.

9.13 Economic (Critical Matter)

Environmental objective and outcomes

The construction and operation of the proposed project should ensure that it:

- avoids or mitigates adverse economic impacts arising from the proposed project
- capitalises on opportunities potentially available for local industries and communities
- creates a net economic benefit to the region and state.

Impact assessment

Identify the potential adverse and beneficial economic impacts of the proposed project on the local and regional area and the State. Estimate the costs and benefits and economic impacts of the proposal using both regional impact analysis and cost–benefit analysis. Undertake the analysis in accordance with the Coordinator-General's [Economic impact assessment guideline](#) (DSDMIP 2017). Separately address each major stage of the proposed project (e.g. construction, operation and decommissioning).

Provide an analysis of the economic costs to agricultural activities on land, including any impacts to supply chains.

9.14 Transport

Environmental objective and outcomes

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

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

Impact assessment

The EIS should include a clear summary of the total transport task for the proposed project, including workforce, inputs and outputs, during the construction, operational and decommissioning phases of the proposed project. The proponent 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 department's [Transport—EIS information guideline](#) (DES 2020). The methods used should include the following matters:

- for impacts on roads: a traffic impact assessment report in accordance with the [Guide to traffic impact assessment](#) (DTMR 2018) with traffic data in DTMR-suitable formats
- for impacts on rail level crossings: the [Australian Level Crossing Assessment Model](#) (ALCAM, 2020)

Present the transport assessment for each proposed project-affected mode (road, rail, air, port and sea) as appropriate for each phase of the proposed project. Provide sufficient information to allow an independent assessment of how existing transport infrastructure will be affected by proposed 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.²⁴ The strategies should be prepared in close consultation with relevant transport authorities, including local government and the Queensland Police Service. Strategies should consider the transport authorities' works programs and forward planning, and be in accordance with the relevant methodologies, guidelines and design manuals.

²⁴ Contact the Department of Transport and Main Road on MDP@tmr.qld.gov.au

9.15 Matters of National Environmental Significant under EPBC Act (Critical Matter)

The following matters must be considered when preparing the EIS, the:

- EIS must state and address the controlling provisions and describe the particular aspects of the environment leading to the controlled action declaration under the EPBC Act.
- EIS must provide enough information about the proposed project and its relevant impacts to allow the Australian Government's Environment Minister to make an informed decision whether to approve the proposed project under the EPBC Act.
- 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. Proponents should refer to department's [MNES—EIS information guideline](#) (DES 2020) for additional guidance.

Refer to Appendix 3 for the complete TOR for MNES under the EPBC Act requirements.

When water resources for a coal seam gas development or large coal mine are a controlling provision, the proposed project's EIS is referred to the Independent Expert Scientific Committee (IESC) on Coal Seam Gas and Large Coal Mining Development. The IESC provides scientific advice to decision makers on potential impacts from CSG and large coal mining developments on Australia's water resources. That typically occurs in time for the IESC's views to be considered by the administering authority when deciding the suitability of the proposed project and developing conditions for any approval.

10 Commitments

The EIS must provide a consolidated description of all the proponent's commitments to implement avoidance, mitigation, management and design measures (including monitoring activities and management plans) that would need to be applied to meet the predicted project outcomes. Should the proposed project proceed, these commitments should be able to be carried over into the approval conditions as relevant.

11 Conditions

Propose conditions that may be placed on the EA and any other required approvals or licenses. For the EA, conditions may be taken directly from the department's [environmental authority conditions](#) (DES, 2020), including model operating conditions for mining and petroleum activities and/or modified or developed to suit site and project specific issues.

As part of the PRC plan (refer to Section 9.3) provide a PRCP schedule which sets out the milestones and conditions that relate to the completion of progressive rehabilitation and mine closure. The PRC plan must be consistent with the department's guideline [Progressive rehabilitation and closure plans](#) (ESR/2019/4964²⁵).

12 Appendices to the EIS

Appendices to the EIS must include the 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.

The EIS must include a table listing the section and sub-sections of the EIS where each requirement, including specific elements of the TOR is addressed.

²⁵ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

13 Spatial and electronic data presentation

Maps included in the EIS should have contours at suitable increments relevant to the scale, location, potential impacts and type of proposed project, shown with respect to Australian Height Datum (AHD) and drafted to Geocentric Datum of Australia 2020 (GDA2020). In relatively flat locations, contours should be at one metre intervals. Geographical coordinates should be presented as latitude and longitude against the GDA2020.

Provide spatial data presented in the EIS to the department in appropriate electronic form, such as shape files. This includes all water quality and waste water quality data. Refer to the department's guideline [Spatial information submission](#) (ESR/2018/4337²⁶) for information on the format for spatial information.

²⁶ This is the publication number which can be used as a search term to find the latest version of a publication at www.qld.gov.au.

Appendix 1 Glossary

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

Acronym/abbreviation	Definition
AEP	annual exceedance probability
AHD	Australian height datum
ALCAM	Australian Level Crossing Assessment Model
ARI	average reoccurrence interval
APCT	Abbot Point Coal Terminal
BMA	BHP Mitsubishi Alliance
Bilateral agreement	an agreement between the Australian Government 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
DAF	Department of Agriculture and Fisheries
DAFF	The former Commonwealth Department of Agriculture, Fisheries and Forestry now the Department of Agriculture
DBCT	Dalrymple Bay Coal Terminal
DoEE	Department of the Environment and Energy (Commonwealth)
DES	Department of Environment and Science
DILGP	Department of Infrastructure, Local Government and Planning
DTMR	Department of Transport and Main Roads
EA	Environmental Authority
EHP	The former Department of Environment and Heritage Protection - now the Department of Environment and Science
EIS	Environmental Impact Statement
EP Act	<i>Environmental Protection Act 1994</i> (Qld)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
EPP	Environmental Protection Policy (under the EP Act)
EP Regulation	Environmental Protection Regulation 2019 (Qld)
ERA	environmentally relevant activity
FIFO	fly-in-fly-out
GDA2020	Geocentric Datum of Australia 2020
IESC	Independent Expert Scientific Committee

Acronym/abbreviation	Definition
MDL	Mineral Development Lease
MIA	Mine Infrastructure Area
ML	Mining Lease
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
Mtpa	Million tonnes per annum
NGER	National Greenhouse Energy Reporting scheme (Commonwealth)
RGTCT	RG Tanna Coal Terminal
ROM	run of mine
SIA	Social Impact Assessment
SSRC Act	<i>Strong and Sustainable Resource Communities Act 2017</i>
TOR	Terms of Reference
WONS	Weeds of National Significance

Appendix 2 Policies, guidelines and references

The most recent version of the following documents must be considered in the development of the EIS for the proposed project.

- Australian Level Crossing Assessment Model (ALCAM)*, <http://www.tmr.qld.gov.au/Travel-and-transport/Rail/Level-crossings/ALCAM.aspx>
- Barnett B, Townley LR, Post V, Evans RE, Hunt RJ, Peeters L, Richardson S, Werner AD, Knapton A and Boronkay A 2012, *Australian groundwater modelling guidelines*, Australian Government National Water Commission, Canberra.
- Business and Industry Portal, 2017, *Key resource areas in Queensland*, Queensland Government, Brisbane, <https://www.business.qld.gov.au/industry/mining/quarries/key-resource-areas>
- Business and industry portal, 2017, *Mining and resources*, Queensland Government, Brisbane, <https://www.business.qld.gov.au/industry/mining>
- Commonwealth of Australia, 2008, *National framework and guidance for describing the ecological character of Australian Ramsar wetlands*, Australian Government, Canberra, <http://www.environment.gov.au/system/files/resources/6d7408dc-2519-4294-9820-f7b2284816dd/files/module-2-framework.pdf>
- Commonwealth of Australia 2016, Publications: About the IESC and its advice and fact sheets, e.g. *Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals*, Australian Government, Canberra, www.environment.gov.au/coal-seam-gas-mining/publications.html
- Commonwealth of Australia, 2017, EPBC Act publications and resources, e.g. *Matters of National Environmental Significance – Significant impact guidelines, Environment Protection and Biodiversity Conservation Act 1999*, Australian Government, Canberra, <http://www.environment.gov.au/epbc/publications>
- Department of Agriculture, Fisheries and Forestry, 2014, *DAFF Environmental Impact Assessment Companion Guide*, Queensland Government, Brisbane, <https://publications.qld.gov.au/dataset/daff-environmental-impact-assessment-companion-guide>
- Department of Agriculture and Fisheries, 2017, *Accepted development requirements*, e.g. *Accepted development requirements for operational work that is constructing or raising waterway barrier works*, Queensland Government, Brisbane, <https://www.daf.qld.gov.au/fisheries/habitats/fisheries-development/accepted-development>
- Department of Agriculture, Water and the Environment, *National greenhouse energy report technical guidelines*, Australian Government, Canberra, viewed March 2020, <http://www.environment.gov.au/climate-change/climate-science-data/greenhouse-gas-measurement/nger/technical-guidelines>
- Department of Environment and Heritage Protection, 2013, *Model water conditions for coal mines in the Fitzroy basin*, Queensland Government, Brisbane, <https://www.ehp.qld.gov.au/assets/documents/regulation/rs-gl-water-conditions-mines-fitzroy.pdf>
- Department of Environment and Heritage Protection, 2013, *Noise measurement manual*, Queensland Government, Brisbane, <https://www.ehp.qld.gov.au/licences-permits/pdf/noise-measurement-manual-em1107.pdf>
- Department of Environment and Heritage Protection, 2014, *Queensland environmental offsets policy: Significant residual impact guideline, Nature Conservation Act 1992, Environmental Protection Act 1994, Marine Parks Act 2004*, Queensland Government, Brisbane, <https://www.ehp.qld.gov.au/assets/documents/pollution/management/offsets/significant-residual-impact-guide.pdf>
- Department of Environment and Heritage Protection, 2016, *Noise and vibration from blasting guideline*, Queensland Government, Brisbane, <https://www.ehp.qld.gov.au/assets/documents/regulation/ts-gl-blasting-noise-and-vibration.pdf>
- Department of Environment and Heritage Protection, 2016, *Streamlined model conditions for petroleum activities*, Queensland Government, Brisbane, <https://www.ehp.qld.gov.au/assets/documents/regulation/rs-gl-streamlined-model-conditions-petroleum.pdf>
- Department of Environment and Heritage Protection, 2016, *Manual for assessing consequence categories and hydraulic performance of structures*, March 2016, Queensland Government, Brisbane,

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

- Department of Environment and Heritage Protection, 2017, *Coastal development*, Queensland Government, Brisbane, <https://www.ehp.qld.gov.au/coastal/development/>;
<http://www.ehp.qld.gov.au/coastal/development/guidelines>; <https://www.ehp.qld.gov.au/coastal/development/>
- Department of Environment and Science, 2019, *The environmental impact statement process for resource projects under the Environmental Protection Act 1994*, Queensland Government, Brisbane,
<http://www.ehp.qld.gov.au/management/impact-assessment/eis-processes/documents/eis-process-guideline-em1375.pdf>
- Department of Environment and Science, 2017, *Model mining conditions*, Queensland Government, Brisbane,
<https://www.ehp.qld.gov.au/assets/documents/regulation/rs-gl-model-mining-conditions.pdf>
- Department of Environment and Science, 2019, *Guideline – Structures which are dams or levees constructed as part of environmentally relevant activities*, Queensland Government, Brisbane,
<https://www.ehp.qld.gov.au/assets/documents/regulation/era-gl-structures-dams-levees-eras.pdf>
- Department of Environment and Science, 2020, *Environmental impact statement information guidelines*, Queensland Government, Brisbane, viewed March 2020,
<https://www.qld.gov.au/environment/pollution/management/eis-process/about-the-eis-process/developing-an-eis>
- Department of Environment and Science, 2018 (draft), *Environmental Protection (Water) Policy 2009 Deciding aquatic ecosystem indicators and local water quality guidelines*, Brisbane, viewed April 2020,
https://environment.des.qld.gov.au/__data/assets/pdf_file/0029/88148/deriving-local-water-quality-guidelines.pdf
- Department of Environment and Science, 2019, Links guidelines and manuals in regards to resource activities and/or the EIS process, Queensland Government, Brisbane:
<https://environment.des.qld.gov.au/management/activities/mining/guidelines>
<https://environment.des.qld.gov.au/licences-permits/application-forms/guidelines>
- Department of Environment and Science, 2017, *Information to be provided to support an environmental authority application* (e.g. air, noise, land, waste, water), Queensland Government, Brisbane,
<https://environment.des.qld.gov.au/licences-permits/application-forms/guidelines#toc-3>
- Department of Environment and Science, 2018, *Water quality guidelines*; and *Water monitoring and sampling manual*, Queensland Government, Brisbane, <https://environment.des.qld.gov.au/management/water/quality-guidelines>, and <https://environment.des.qld.gov.au/management/water/quality-guidelines/sampling-manual>
- Department of Environment and Science, 2018, *Background information on sampling bores and stygofauna, Environmental Protection (Water Policy 2009 – Monitoring and sampling manual)*,
https://environment.des.qld.gov.au/__data/assets/pdf_file/0029/90767/biological-assessment-background-information-on-sampling-bores-for-stygofauna.pdf
- Department of Infrastructure, Local Government and Planning 2017, *State Planning Policy—state interest guideline Natural hazards, risk and resilience*, viewed April 2020
<https://www.dlgrma.qld.gov.au/resources/guideline/spp/spp-guideline-natural-hazards-risk-resilience.pdf>
- Department of Infrastructure, Local Government and Planning 2017, *State Planning Policy*, Queensland Government, Brisbane, viewed March 2020,
<https://www.cabinet.qld.gov.au/documents/2017/May/SPP/Attachments/Policy.pdf>
- Department of Infrastructure, Local Government and Planning, 2017, *The Regional Planning Interests Act and statutory regional plans*, Queensland Government, Brisbane
<https://www.business.qld.gov.au/industries/invest/regional-opportunities/regional-planning-qld>
- Department of Infrastructure, Local Government and Planning, 2017, *RPI Act Statutory Guideline 11/16 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*, Queensland Government, Brisbane,
<https://www.dilgp.qld.gov.au/resources/guideline/rpi-guideline-11-16-dilgp-companion-guide.pdf>
- Department of Infrastructure, Local Government and Planning, 2017, *State Planning Policy Interactive Mapping System*, Queensland Government, Brisbane,
<https://spp.dsdip.esriaustraliaonline.com.au/geoviewer/map/planmaking>
- Department of State Development, Infrastructure and Planning, 2014, *Significant residual impact guidelines: For matters of state environmental significance and prescribed activities assessable under the Sustainable*

- Planning Act 2009, Queensland Government, Brisbane, <http://www.dlgrma.qld.gov.au/resources/guideline/planning/dsdip-significant-residual-impact-guideline.pdf>
- Department of Transport and Main Roads, 2017, *Guide to traffic impact assessment*, Queensland Government, Brisbane, <https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment>
- Department of National Parks, Recreation, Sport and Racing, 2014, *Code of practice for native forest timber production on the QPWS forest estate*, Operational Support, Queensland Parks and Wildlife Service, Queensland Government, Brisbane <http://www.nprsr.qld.gov.au/managing/pdf/timber-production-qpws-estate.pdf>
- Department of Natural Resource Mines and Energy, 2019, *Works that interfere with water in a watercourse—watercourse diversions*, Queensland Government, Brisbane, https://www.dnrme.qld.gov.au/?a=109113:policy_registry/watercourse-diversions-water-act.pdf&ver=2.00
- Department of Natural Resources and Mines, 2016, *Queensland stock route network management strategy, 2014–19*, Queensland Government, Brisbane, https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0010/99622/stock-route-management-strategy.pdf
- Department of Natural Resources and Mines, 2017, Office of Groundwater Impact Assessment (OGIA), Queensland Government, Brisbane, <https://www.dnrm.qld.gov.au/ogia/role>
- Department of Planning, Transport and Infrastructure, November 2012, *Underwater piling noise guidelines*, Government of South Australia, http://www.dpti.sa.gov.au/__data/assets/pdf_file/0004/88591/DOCS_AND_FILES-7139711-v2-Environment_-_Noise_-_DPTI_Final_word_editing_version_Underwater_Piling_Noise_Guide.pdf
- Department of Science, Information Technology, Innovation and the Arts, December 2016, *Terrestrial vertebrate fauna survey guidelines*, Queensland Government, Brisbane, <https://www.qld.gov.au/environment/plants-animals/biodiversity/vertebrate-survey>
- Department of Science, Information Technology, Innovation and the Arts, December 2016, *Guideline for the environmental assessment of subterranean aquatic fauna*, Queensland Government, Brisbane, <https://publications.qld.gov.au/dataset/subterranean-aquatic-fauna>
- Department of Science, Information Technology, Innovation and the Arts, March 2017, *Groundwater quality assessment guideline: Using monitoring data to assess groundwater quality and potential environmental impacts*, Queensland Government, Brisbane, <https://publications.qld.gov.au/en/dataset/groundwater-quality-assessment-guideline/resource/472cc88a-000a-4bb8-a60d-204cfe7e0238>
- Department of State Development, April 2017, *Economic impact assessment guideline*, Queensland Government, Brisbane, <http://www.coordinatorgeneral.qld.gov.au/resources/guideline/cg/economic-impact-assessment-guideline.pdf>
- Department of State Development, Infrastructure and Planning, January 2015, *State planning policy—state interest guideline, Mining and extractive resources*, Queensland Government, Brisbane, <http://www.statedevelopment.qld.gov.au/resources/guideline/spp/spp-guideline-mining-extractive-resources.pdf>
- Department of State Development, Infrastructure and Planning, July 2017, *State planning policy*, Queensland Government, Brisbane, <https://planning.dsdmip.qld.gov.au/planning/spa-system/plan-making-under-spa/state-planning-under-spa/state-planning-policy>
- Department of State Development and Planning, 2017, *State development assessment provisions (SDAP)*, Queensland Government, Brisbane, <https://www.dlgrma.qld.gov.au/resources/policy/sdap/v2/sdap.pdf>
- Department of Sustainability, Environment, Water, Populations and Communities, October 2012, *Environment Protection and Biodiversity Conservation Act 1999 Environmental offsets policy*, Australian Government, Canberra, <http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>
- Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development, IESC Publications and resources, viewed March 2020, <http://www.iesc.environment.gov.au/publications>
- Queensland Government, 2017, *Environmental offsets and environmental offsets framework*, Queensland Government, Brisbane, <http://www.qld.gov.au/environment/pollution/management/offsets/>
- Queensland Government, 2017, *Obtaining approval to clear native vegetation*, Queensland Government, Brisbane, <https://www.qld.gov.au/environment/land/vegetation/clearing/>

- Queensland Government, 2017, *Community involvement in mining and petroleum lease approvals*, Queensland Government, Brisbane, <https://www.qld.gov.au/environment/pollution/management/impacts-approvals>
- Queensland Government, *Water quality guidelines*, Queensland Government, Brisbane, viewed March 2020, <https://environment.des.qld.gov.au/management/water/quality-guidelines>
- Queensland Health, March 2002, *Guidelines to minimise mosquito and biting midge problems in new development areas*, *Diseases Control, Services*, Communicable Diseases Unit, Queensland Health, Queensland Government, Brisbane, <https://www.health.qld.gov.au/ph/documents/cdb/14804.pdf>
- Queensland Resources Council, 2014, *Queensland resources and energy sector code of practice for local content*, Queensland Resources Council, Brisbane, <http://statedevelopment.qld.gov.au/coordinator-general/assessments-and-approvals/coordinated-projects.html>
- The Coordinator-General, 2016, *Coordinated projects fact sheets and guidelines*, Department of State Development, Infrastructure and Planning, Queensland Government, Brisbane, www.dsdip.qld.gov.au/fact-sheets-and-guidelines/coordinated-projects.html
- The Coordinator-General, March 2018, *Social impact assessment guideline*, Department of State Development, Infrastructure and Planning, Queensland Government, Brisbane, <https://www.statedevelopment.qld.gov.au/resources/cg/social-impact-assessment-guideline.pdf>

Appendix 3 Terms of reference for matters of national environmental significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requirements²⁷

The proposed action was referred on 23 July 2019 to the then Australian Government Department of the Environment and Energy (DoEE) 2019/8485). On 22 November 2019, DoEE determined the proposed action to be a controlled action under the Commonwealth EPBC Act.

The controlling provisions are sections:

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

The proposed action 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. The TOR must be addressed by the proponent in a stand-alone section that primarily focuses on the MNES listed above. This section (henceforth called the 'MNES section') must 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 must be included as appendices to the draft EIS.

General Content

The MNES section must take into consideration the EPBC Act Significant Impact Guidelines that can be downloaded from the following web site: <http://www.environment.gov.au/epbc/guidelines-policies.html>.

If it is necessary to make use of material that is considered to be of a confidential nature, the proponent must consult with DAWE on the preferred presentation of that material, before submitting it to the Minister for approval for publication.

The proponent must ensure that the MNES section assesses compliance of the action with the principles of Ecological Sustainable Development as set out in the EPBC Act, and the objects of the EPBC Act at [Attachment 1](#). A copy of Schedule 4 of the EPBC Regulations, 'Matters to be addressed by draft public environment report and environmental impact statement', is at [Attachment 2](#).

Format

The MNES section must be written so that any conclusions reached are supported by clear evidence and 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 "web" pages used as data sources.

Maps, diagrams and other illustrative material must be included in the MNES section in a format so that they are legible and easily understood. The MNES section must 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 must 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.

Specific Content for the MNES Section

1 General Information

Provide the background and context of the action including:

- (a) the title of the action;
- (b) the full name and postal address of the designated proponent;

²⁷ provided by the Commonwealth Department of Agriculture, Water and the Environment (DAWE)

- (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 of the Action

All construction, operational, rehabilitation and decommissioning components of the action must be described in detail. This must include the precise location of all works to be undertaken, 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.

Provide the total size (in hectares) of the project site and the total size (in hectares) of the disturbance footprint. If the disturbance footprint is the same as the project site, the MNES section must include a statement to this effect.

The MNES section must include a map (or maps) which clearly identify all components of the action and their location within the project site.

3 Feasible Alternatives

Any feasible alternatives to the action to the extent reasonably practicable, including:

- (a) if relevant, the alternative of taking no action
- (b) a comparative description of the impacts of each alternative on the MNES above, and
- (c) sufficient detail to make clear why any alternative is preferred to another.

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

4 Description of the Environment

A description of the environment of the project site and the surrounding areas that may be affected by the action (this may also include downstream of the project site). This section must include information relevant to listed threatened species and ecological communities, and their habitat, listed migratory species and their habitat, and water resources, and third party users.

5 Listed threatened species and communities (sections 18 and 18A)

The MNES section must address, at a minimum, impacts on the following listed threatened species and ecological communities for the action:

- Curlew Sandpiper (*Calidris ferruginea*) – Critically Endangered
- Red Goshawk (*Erythrotriorchis radiatus*) – Vulnerable
- Squatter Pigeon (Southern) (*Geophaps scripta scripta*) – Vulnerable
- Painted Honeyeater (*Grantiella picta*) – Vulnerable
- Star Finch (Eastern) (*Neochmia ruficauda ruficauda*) – Endangered
- Australian Painted Snipe (*Rostratula australis*) – Endangered
- Northern Quoll (*Dasyurus hallucatus*) – Endangered
- Ghost Bat (*Macroderma gigas*) – Vulnerable
- Corben's Long-eared Bat (*Nyctophilus corbeni*) – Vulnerable
- Koala (combined populations of Qld, NSW and the ACT) (*Phascolarctos cinereus*) – Vulnerable
- Greater Glider (*Petauroides volans*) – Vulnerable
- Grey-headed Flying Fox (*Pteropus poliocephalus*) - Vulnerable
- *Cycas ophiolitica* – Endangered

- Quassia (*Samadera bidwillii*) – Vulnerable
- Ornamental Snake (*Denisonia maculata*) – Vulnerable
- Yakka Skink (*Egernia rugosa*) – Vulnerable
- White-throated Snapping Turtle (*Elseya albagula*) – Critically endangered
- Dunmall's Snake (*Furina dunmalli*) – Vulnerable
- Retro Slider (*Lerista allanae*) – Endangered
- Fitzroy River Turtle (*Rhodytes leukops*) – Vulnerable
- Brigalow (*Acacia harpophylla* dominant and co-dominant) threatened ecological community – Endangered
- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin threatened ecological community – Endangered
- Poplar Box Grassy Woodland on Alluvial Plains threatened ecological community – Endangered

Note: The list above may not be a complete list of listed threatened species and ecological communities that will or are likely be impacted by the action. It is the proponent's responsibility to ensure that any listed threatened species and ecological communities at the time of the controlled action decision, which will or are likely to be impacted by the project, are assessed for the Minister's consideration. Any listing events (e.g. the listing or up-listing of a species) that occur after the controlled action decision do not affect the assessment and approval process.

The structure of the assessment of listed threatened species and communities in the MNES section must be the following:

(a) **Description:** describe each listed threatened species and ecological communities listed above (including EPBC Act listing status, distribution, life history, etc.).

(b) **Desktop analysis:** describe the desktop assessment methodology used to inform the field surveys within, adjacent to and/or downstream of the project site.

The MNES section must identify and describe known historical records of listed threatened species and ecological communities in the broader region. All known records must be supported by an appropriate source (i.e. Commonwealth and State databases, published research, publicly available survey reports, etc.), the year of the record and a brief description of the habitat in which the record was identified.

(c) **Survey effort:** provide details of the scope, methodology, timing and effort of field surveys (which must be undertaken by qualified species experts with demonstrated experience in detecting the above species) within, adjacent to and/or downstream of the project site. Provide details of:

(i) how surveys were undertaken in accordance with relevant Commonwealth, State guidelines or best practice survey guidelines at the time of the surveys; and

(ii) if relevant, the justification for divergence from relevant Commonwealth, State guidelines or best practice survey guidelines at the time of the surveys.

(d) **Survey outcomes:** state the total number of records (individuals and evidence of presence) of listed threatened species and ecological communities within, adjacent to and/or downstream of the project site. All records must be supported by the year of the record and a brief description of the habitat in which the record was identified.

(d) **Habitat assessment:** provide a robust assessment of the potential habitat available within, adjacent to and/or downstream of the project site for listed threatened species and ecological communities. This must include the assessment of specific habitat requirement/s relevant to each listed threatened species and ecological community (e.g. breeding, foraging, dispersal, known important habitat, suitable habitats, roosting, etc.).

Habitat assessments must be derived from information obtained from:

(i) field surveys and vegetation assessments

(ii) the Species Profile and Threats (SPRAT) Database

(iii) relevant DAWE documents (e.g. approved conservation advices, recovery plans, listing advices, draft referral guidelines, etc.), and

(iv) published research and other relevant sources (where relevant).

The MNES section must not just consider Queensland Regional Ecosystem (RE) mapping to determine habitat for listed threatened species – habitat assessments must consider and align with the information in the SPRAT

Database and relevant DAWE documents. However, some Queensland REs align with the descriptions for some ecological communities and therefore the use of Queensland REs is acceptable in these cases.

Provide the total amount of each type of habitat (in hectares) in the project site for each listed threatened species and ecological community.

The MNES section must also include a detailed habitat assessment for any other listed threatened species and/or ecological communities identified during field surveys.

DAWE considers it is not unreasonable that a species may still use a project site at some point in time because the vegetation and habitat feature/s to support its requirements are present. As such, the potential for occurrence of listed threatened species and communities must also be considered and assessed in the MNES section.

(e) **Impact assessment:** describe and assess all impacts (direct, indirect and cumulative) to listed threatened species and ecological communities identified above and any others that are found to be or may potentially be present in areas that may be impacted by the action. The impact assessment must include consideration of the requirements in the 'Relevant Impacts' section below.

Identify which component/s and stage/s of the action is of relevance to each listed threatened species and/or ecological community and/or if the threat of impact relates to consequential actions.

For threatened ecological communities, the total direct impact (in hectares) to each identified patch within and adjacent to the project site must be provided in the MNES section compared to its current extent. Further, the impact assessment for ecological communities must include a discussion on the post-impact viability of each individual patch within and adjacent to the project site to be directly impacted from fragmentation as a result of vegetation clearance.

Provide the total amount of each type of habitat (in hectares) in the disturbance footprint for each listed threatened species and ecological community.

Detailed mapping of habitat type/s for relevant listed threatened species and ecological communities that are found to be, or may potentially be, present within, adjacent to and/or downstream of the project site must be included in the MNES section, and must:

- i. be specific to the habitat assessment undertaken for each listed threatened species and ecological community (i.e. not illustrate relevant Queensland REs only);
- ii. include an overlay of the project disturbance footprint; and
- iii. include known records of individuals (or evidence of individuals) derived from desktop analysis and/or field surveys.

(f) **Avoidance, mitigation and management:** describe all relevant species-specific measures proposed to avoid, mitigate and manage potential impacts on listed threatened species and ecological communities as required in the 'Avoidance, Mitigation and Management' section below.

The MNES section must not just state proposed management plans and/or broad objectives to describe avoidance, mitigation and management measures. The MNES section must include detailed measures that will be implemented to avoid, mitigate and manage impacts on listed threatened species and ecological communities. Committed language (i.e. 'will') rather than non-committal language (i.e. 'may', 'where possible', 'if required', etc.) must be used.

Note: Appropriate measures may be detailed on the SPRAT Database for relevant listed threatened species and ecological communities. All proposed measures must consider the 'S.M.A.R.T' principle (see below).

(g) **Statutory requirements:** where relevant, briefly discuss how the proponent has had regard to relevant approved conservation advice/s.

The MNES section must demonstrate, with supporting evidence, that the action will not be inconsistent with Australia's obligations under:

- i. the Biodiversity Convention
- ii. the Convention on Conservation of Nature in the South Pacific (Apia Convention)
- iii. the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and
- iv. a recovery plan or threat abatement plan.

(h) **Significant impact assessment:** after consideration of proposed avoidance, mitigation and management measures, provide an assessment of the likelihood of significant impacts on relevant listed threatened species and ecological communities. The significant impact assessment must consider the Significant impact guidelines 1.1.

The MNES section must provide a clear and definitive conclusion of significant impacts on relevant listed threatened species and ecological communities to align with the *EPBC Act Environmental Offsets Policy* (2012).

6 Listed migratory species (sections 20 and 20A)

The MNES section must address, at a minimum, impacts on the following listed migratory species for the action:

- Fork-tailed Swift (*Apus pacificus*)
- Oriental Cuckoo, Horsfield's Cuckoo (*Cuculus optatus*)
- Black-faced Monarch (*Monarcha melanopsis*)
- Yellow Wagtail (*Motacilla flava*)
- Satin Flycatcher (*Myiagra cyanoleuca*)
- Common Sandpiper (*Actitis hypoleucos*)
- Sharp-tailed Sandpiper (*Calidris acuminata*)
- Curlew Sandpiper (*Calidris ferruginea*)
- Pectoral Sandpiper (*Calidris melanotos*)
- Latham's Snipe (*Gallinago hardwickii*)
- Osprey (*Pandion haliaetus*)
- Common Greenshank (*Tringa nebularia*).

Note: The list above may not be a complete list of listed migratory species that will or are likely be impacted by the action. It is the proponent's responsibility to ensure that any listed migratory species at the time of the controlled action decision, which will or are likely to be impacted by the action, are assessed for the Minister's consideration. Any listing events that occur after the controlled action decision do not affect the assessment and approval process.

Similarly to the 'Listed threatened species and communities' section above, the structure of the assessment of listed migratory species in the MNES section must be the following:

- (a) Description
- (b) Desktop analysis
- (c) Survey effort
- (d) Survey outcomes
- (e) Habitat assessment
- (f) Impact assessment
- (g) Avoidance, mitigation and management
- (h) Statutory requirements

The MNES section must demonstrate, with supporting evidence, that the action will not be inconsistent with Australia's obligations under:

- (i) the Bonn Convention;
 - (ii) CAMBA
 - (iii) JAMBA, and
 - (iv) an international agreement approved under subsection 209(4) of the EPBC Act.
- (I) Significant impact assessment.

7 A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24)

General

The National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development, 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 on Coal Seam Gas and Large Coal Mining Development (IESC) for advice.

To assist the IESC's consideration of the action's potential impacts on water resources, the MNES section must include sufficient baseline (i.e. pre-action impact) monitoring to inform and support a robust assessment of potential impacts on water resources, including for:

- groundwater quality and levels, and
- surface water quality and flow regimes.

The complete monitoring data must be attached to the draft EIS with clear and concise summaries presented in the MNES section.

The MNES section must provide robust scientific information and supporting evidence for every assertion, assumption and/or conclusion made in the assessment of potential impacts, or lack of impacts, on water resources.

The assessment of water resources must consider and apply the guidance provided in the IESC Explanatory Notes available on the IESC website. Further, DAWE recommends the review of recent IESC advices to identify key target areas for the assessment, recommendations to implement appropriate assessment approaches, and/or useful research to inform survey methodologies (e.g. groundwater-dependent ecosystems).

DAWE recommends different experts liaise with each other in the preparation of the MNES section (e.g. aquatic ecologists and modellers) to ensure sharing of data and consistency in the assessment of potential impacts on water resources (e.g. groundwater drawdown on groundwater-dependent ecosystems).

The water resources assessment must consider climate change in modelling scenarios and in the water balance (e.g. through the use of the Climate Futures Tool), particularly if the action will require external water sources and/or has a long lifetime.

Broadly, the assessment of potential impacts on water resources must include the following:

Description: at a minimum, a description of both groundwater and surface water resources at the project site and in the region, as well as any third party users of these resources (e.g. groundwater-dependent ecosystems, landholders, other mining operations, etc.).

Impact assessment: describe and assess all impacts (direct, indirect and cumulative) to water resources and third party users that may be impacted by the action. The impact assessment must include consideration of the requirements in the 'Relevant Impacts' section below.

Avoidance, mitigation, management and monitoring: describe all relevant measures proposed to avoid, mitigate, manage and monitor potential impacts on water resources as required in the 'Avoidance, Mitigation and Management' section below.

The MNES section must not just state proposed management plans and/or broad objectives to describe avoidance, mitigation and management measures. The MNES section must include detailed measures that will be implemented to avoid, mitigate and manage impacts on water resources. Committed language (i.e. 'will') rather than non-committal language (i.e. 'may', 'where possible', 'if required', etc.) must be used.

All proposed measures must consider the 'S.M.A.R.T.' principle and, where relevant, the conditions that may be imposed by the Queensland Government in a draft Environmental Authority.

IESC checklist: the MNES section must address the information requirements contained in the Information Guidelines for the IESC and provide a cross-reference table, as an attachment to the draft EIS, to identify where each component of the guidelines has been addressed.

Significant impact assessment: after consideration of avoidance, mitigation and management measures, provide an assessment of the likelihood of significant impacts on water resources. The significant impact assessment must consider the Significant impact guidelines 1.3.

The MNES section must provide a clear and definitive conclusion of significant impacts on water resources to align with the *EPBC Act Environmental Offsets Policy (2012)*.

Groundwater

DAWE recommends the following approach to the groundwater assessment:

1. consider and apply the guidance in the IESC Explanatory Notes.
2. undertake an appropriate risk analysis.
3. construct the groundwater models, considering the type of uncertainty analysis that is appropriate given the action's risk profile.
4. run the groundwater models.
5. review the risk analysis and uncertainty analysis in light of the model predictions.

6. revise and re-run the groundwater models (if required).

The groundwater assessment must include conceptual and numerical models. Models must be constructed at a suitable scale to be able to assess both site-specific and regional cumulative impacts.

DAWE recommends that models are peer-reviewed by an independent expert, considering the Australian Groundwater Modelling Guidelines and the IESC Explanatory Notes. Recommendations of the peer review should be incorporated into the models. DAWE recommends peer reviewers are engaged early and throughout the groundwater assessment (see above) to ensure it is an iterative process.

If relevant, the proponent should consider the number and location of groundwater monitoring bores (both within and adjacent to the project site) to ensure there is adequate spatial coverage in all aquifers.

- nested or paired bores must be used to characterise inter-aquifer connectivity (where needed).
- new bores must be located where they are unlikely to be removed for future mining activities.

Site-specific data for all relevant hydraulic properties for each groundwater unit must be available or able to be captured from the proposed monitoring network for input into the groundwater models.

Groundwater-dependent ecosystems (GDEs)

To determine the presence of GDEs in and adjacent to the project site, the GDE assessment must comprise both:

- desktop assessments (e.g. Landsat, Water Observations from Space, remote sensing, etc.) used to identify potential GDEs for field assessment; and
- field assessments (e.g. soil moisture testing, leaf moisture testing, root depth drilling, etc.) to confirm the outcomes of the desktop assessments.

The desktop and field assessments must consider the Australian GDE Toolbox and the IESC GDE Explanatory Note, and should be informed by the review of recent IESC advices. If GDE field verification surveys are not undertaken, the Department is likely to apply a precautionary approach to the presence of GDEs and the assessment of potential impacts.

The GDE assessment must be informed by information derived from multiple stygofauna seasonal surveys, undertaken using techniques specified in relevant Queensland guidelines.

Surface water

The MNES section must include a water balance in the assessment which clearly demonstrates how much water will be required for the action, and where water will be sourced (where there is a deficit) and/or how water will be disposed (where there is a surplus). The water balance must consider rainfall variability and may need to consider climate change (see above).

The MNES section must quantify current surface water flow regimes in respective catchments (both within and adjacent to the project site) to ensure there is sufficient baseline information to assess how the location, volume, velocity and timing of flows may change as a result of the action. Changes to the duration of low-flow and no-flow periods must be assessed and subsequent potential ecological impacts must also be assessed.

The MNES section must assess the potential impacts of any proposed creek diversions, including how existing flows and volumes will be maintained as a result of the diversion.

Note: Where ephemeral watercourses are present, DAWE recommends considering the use of remote sensing techniques would be appropriate as gauging stations may be impractical.

The MNES section must consider using more recent water quality guidelines (i.e. ANZG [2018]) to inform water quality objectives for relevant parameters (e.g. metals/metalloids).

The estimates of discharge quality must be discussed in the MNES section (e.g. as stated in a draft Environmental Authority) and an assessment of potential ecological impacts must be provided.

8 Relevant Impacts

All relevant impacts of the action must be assessed in accordance with relevant DAWE policies and guidelines, and information provided in the SPRAT Database.

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

- a detailed assessment of the nature and extent of the likely short-term and long-term relevant impacts

- a statement, with supporting evidence, whether any relevant impacts are likely to be unknown, unpredictable or irreversible, and
- any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

The MNES section must identify and address cumulative impacts, where potential impacts of the action 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 must also address the potential cumulative impact of the project on ecosystem resilience. The cumulative effects of climate change impacts on the environment must also be considered in the assessment of ecosystem resilience. Where relevant to the potential impact, a risk assessment must be conducted and documented.

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

- listed threatened species and ecological communities
- listed migratory species, and/or
- a water resource, in relation to coal seam gas development and large coal mining development.

9 Avoidance, Mitigation and Management Measures

The MNES section must include detailed descriptions of measures proposed to be undertaken by the proponent to avoid, mitigate and manage relevant impacts of all stages of the action on MNES. The proposed measures must be based on best available practices, appropriate standards and supported by scientific evidence. The MNES section must include:

- proposed measures to be undertaken to avoid and mitigate the relevant impacts of the proposed action on MNES, including those required by other Commonwealth, State and local government approvals
- an assessment of the predicted effectiveness of the proposed measures
- any statutory or policy basis for the proposed measures, including reference to the SPRAT Database and relevant approved conservation advices, and a discussion on whether the proposed measures are not inconsistent with relevant recovery plans and threat abatement plans
- details of ongoing management, including monitoring activities to support an adaptive management approach and determine the effectiveness of the proposed measures
- details on measures, if any, proposed to be undertaken by State and local government, including the name of the agency responsible for approving each measure
- information on the timing, frequency and duration of the measures to be implemented, and
- the name of the agency responsible for endorsing or approving each mitigation measure or monitoring activities.

The MNES section must not just state proposed management plans and/or broad objectives to describe avoidance, mitigation and management measures. The MNES section must include detailed measures that will be implemented to avoid, mitigate and manage impacts on listed threatened species and ecological communities. Committed language (i.e. 'will') rather than non-committal language (i.e. 'may', 'where possible', 'if required', etc.) must be used.

The SPRAT Database may provide some relevant mitigation measures for listed threatened species and ecological communities. All proposed measures for MNES must consider the 'S.M.A.R.T.' principle:

- S – Specific (what and how)
- M – Measurable (baseline information, number/value, auditable)
- A – Achievable (timeframe, money, personnel)
- R – Relevant (conservation advices, recovery plans, threat abatement plans)
- T – Time-bound (specific timeframe to complete)

10 Environmental Offsets

The MNES section must include an assessment of the likelihood of residual significant impacts occurring on listed threatened species and communities, listed migratory species, and water resources after avoidance, mitigation and

management measures have been applied. If it is determined that a residual significant impact is likely, include a draft Offset Management Strategy that provides, at a minimum:

- details of the environmental offset/s (in hectares) for residual significant impacts of the proposed action on relevant MNES, and/or their habitat
- details of how the environmental offset/s meets the requirements of the *EPBC Act Environmental Offsets Policy* (2012) (EPBC Act Offset Policy), including the Offsets Assessments Guide, available at: www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy
- details of a strategy for the staging of environmental offset/s for each project stage (if proposed)
- details of appropriate offset area/s (including a map) to compensate for the residual significant impact on relevant MNES, and/or their habitat
- the methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to the project site for each relevant MNES, including:
 - quantum of impact – area (in hectares)
 - quantum of impact – quality (e.g. using the *Queensland Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* [Version 1.2, April 2017], or subsequent revision)
- the methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to each potential offset area/s for each relevant MNES, including:
 - time over which loss is averted (max. 20 years)
 - time until ecological benefit
 - risk of loss (%) without offset
 - risk of loss (%) with offset
 - confidence in result (%)
- evidence that the relevant MNES, and/or their habitat, can be present in the potential offset area/s
- information about how the proposed offset/s area provides connectivity with other relevant habitats and biodiversity corridors, and
- details of the mechanism to legally secure the environmental offset/s (under Queensland legislation or equivalent) to provide protection for the offset area/s against development incompatible with conservation.

Where offset area/s have been nominated, include a draft Offset Area Management Plan (OAMP) which includes information to demonstrate how the environmental offset/s compensate for residual significant impacts of the project on relevant MNES, and/or their habitat, in accordance with the principles of the Offsets Policy and all requirements of the Offsets Assessment Guide. The draft OAMP must include:

- a description of the offset area/s, including location, size, condition, environmental values present and surrounding land uses
- baseline data and other supporting evidence, including the ecological field data, that documents the presence of the relevant MNES, and the quality of their habitat within the offset area/s
- an assessment of the site habitat quality for the offset area/s using an appropriate methodology, with justification and supporting evidence, (e.g. using the *Queensland Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* [Version 1.2, April 2017], or subsequent revision)
- details of how the offset area/s will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for the relevant listed threatened species and communities
- maps and shapefiles to clearly define the location and boundaries of the offset area/s, accompanied by the offset attributes (e.g. physical address of the offset area/s, coordinates of the boundary points in decimal degrees, the listed threatened species and communities that the environmental offset/s compensates for, and the size of the environmental offset/s in hectares)
- specific offset completion criteria derived from the site habitat quality to demonstrate the improvement in the quality of habitat in the offset area/s over a 20-year period

- details of the management actions, and timeframes for implementation, to be carried out to meet the offset completion criteria
- interim milestones that set targets at 5-yearly intervals for progress towards achieving the offset completion criteria
- details of the nature, timing and frequency of monitoring to inform progress against achieving the 5-yearly interim milestones (the frequency of monitoring must be sufficient to track progress towards each set of milestones, and sufficient to determine whether the offset area/s are likely to achieve those milestones in adequate time to implement all necessary corrective actions)
- proposed timing for the submission of monitoring reports which provide evidence demonstrating whether the interim milestones have been achieved
- timing for the implementation of corrective actions if monitoring activities indicate the interim milestones have not been achieved
- risk analysis and a risk management and mitigation strategy for all risks to the successful implementation of the OAMP and timely achievement of the offset completion criteria, including a rating of all initial and post-mitigation residual risks in accordance with a risk assessment matrix
- if proposed for listed threatened species and communities, evidence of how the management actions and corrective actions take into account relevant approved conservation advices and are consistent with relevant recovery plans and threat abatement plans; and
- details of the legal mechanism for legally securing the proposed offset area/s, such that legal security remains in force over the offset area/s for at least 20 years to provide enduring protection for the offset area/s against development incompatible with conservation.

The draft OAMP must be prepared by a suitably qualified person and in accordance with DAWE's *Environmental Management Plan Guidelines* (2014), available at: www.environment.gov.au/epbc/publications/environmental-management-plan-guidelines.

The draft OAMP must provide evidence, derived from field surveys and vegetation assessments, to demonstrate that an EPBC Act protected matter (e.g. listed threatened species or ecological community) is or can be present in the proposed offset area/s. Field surveys must be undertaken in accordance with Commonwealth guidelines, State guidelines and/or best practice survey methodologies.

Note: The Department expects that an EPBC Act protected matter is present in the proposed offset site/s if it is present in the project site to align with the EPBC Act Offsets Policy.

Supporting evidence must be included in the draft OAMP to justify how proposed management action/s are additional to the existing requirements of the landholder in managing their land (e.g. weed and pest management requirements under the Queensland *Biosecurity Act 1994*, existing grazing regimes, etc.) as required by the EPBC Act Offsets Policy.

The draft OAMP must include robust scientific evidence (e.g. published research, pilot studies, previously successful projects/programs, etc.) to demonstrate the success of proposed measures to create, revegetate, regenerate and/or improve habitat (e.g. tree planting, nest boxes, artificial hollows, etc.) in the proposed offset area/s for a listed threatened species or ecological community, or listed migratory species.

Where the proposed offset area/s supports an environmental offset for multiple MNES, proposed management action/s for one protected matter must not be detrimental (i.e. have an impact) to other protected matters.

Where an offset is proposed, with a completed Offsets Assessment Guide calculation, all inputs must be supported by robust scientific evidence and/or supporting evidence (e.g. historical grazing regimes, satellite imagery, statements from landholders, etc.).

Note: It is DAWE's expectation that the agreed inputs into the Offsets Assessment Guide are specified in the conditions of approval (if the action is approved, subject to conditions, under the EPBC Act).

11 Other Approvals and Conditions

The MNES section must include information on any other requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action. This 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:
 - what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan or policy; and

- 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.

12 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.

13 Economic and Social Matters

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

- details of any public consultation activities undertaken, including any consultation with Indigenous stakeholders, and their outcomes
- projected economic costs and benefits of the action, including the basis for their estimation through cost/benefit analysis or similar studies, and
- employment opportunities expected to be generated by the action (including construction and operational phases).

Economic and social impacts must be considered at the local, regional and national levels. Details of the relevant cost and benefits of alternative options to the action, as identified above, must also be included.

14 Information Sources Provided in the MNES Section

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

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

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 public environment report (PER) or EIS (Schedule 4 of the EPBC Regulations 2000)

1 General information

1.01 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

2.01 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

3.01 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

4.01 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 activities 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 activities, 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

5.01 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

6.01 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.

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

7 Information sources

7.01 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.