

Terms of reference for an environmental impact statement

Centurion North Development project

July 2026

The Department of State Development, Infrastructure and Planning, connects industries, businesses, communities and government (at all levels) to leverage regions' strengths to generate sustainable and enduring economic growth that supports well-planned, inclusive and resilient communities.

Acknowledgement of Country

The department acknowledges the First Nations peoples in Queensland: Aboriginal and Torres Strait Islander peoples and their connections to the lands, winds and waters we now all share. We pay our respect to Elders, past, present and emerging. We also acknowledge the continuous living culture of First Nations Queenslanders – their diverse languages, customs and traditions, knowledges and systems. We acknowledge the deep relationship, connection and responsibility to land, sea, sky and Country as an integral element of First Nations identity and culture. The Country is sacred. Everything on the land has meaning and all people are one with it. We acknowledge First Nations peoples' sacred connection as central to culture and being. We acknowledge the stories, traditions and living cultures of First Nations peoples and commit to shaping our state's future together. The department recognises the contribution of First Nations peoples and communities to the State of Queensland and how this continues to enrich our society more broadly.

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Part A About these terms of reference

Introduction

This terms of reference (TOR) sets out the matters to be addressed in an environmental impact statement (EIS) for the Centurion North Development project (the project) under the *State Development and Public Works Organisation Act 1971* (SDPWO Act).

The purpose of an EIS is to:

- assess the potential adverse and beneficial environmental, economic and social impacts of the project
- assess management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the project and for the proponent to prepare environmental management plan(s)
- consider feasible alternative ways to carry out the project
- contain enough information for the proponent to prepare well-informed environmental management plan(s)
- contain sufficient information for Commonwealth and state authorities to assess the project and develop relevant recommended, stated and/or imposed conditions of approval.

Project proponent

Centurion Coal Mining Pty Ltd (Centurion) is a subsidiary of Peabody Energy Australia Pty Ltd (Peabody) and the proponent for the Centurion North Development (CND). Peabody has owned and operated the Centurion Coal mine for more than 20 years and has more than 140 years of global mining experience including six decades in Australia. Peabody is a leading coal producer, providing essential products for the production of affordable, reliable energy and steel.

Contact details for Centurion Coal Mining are as follows:

Centurion Coal Mining Pty Ltd

ACN 010 879 526

Level 14, 31 Duncan Street, Fortitude Valley QLD 4006

<https://centurionmine.com.au>

info@peabodyenergy.com

Project description

The purpose of the Centurion North Development project, hereby referred to as 'the Project', is to construct and operate an underground coal mine. The mining component is expected to extract up to 7.1 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal from 2029 to 2055, totalling up to 148 million tonnes of ROM coal over the life of the project, with product coal output peaking at up to 5.7 Mtpa of premium low volatile hard coking coal for export via existing rail infrastructure and the Dalrymple Bay Coal Terminal to international markets. The CSG component would include up to 150 pairs of surface-to-inseam vertical and lateral wells across up to 260 well pads, extracting up to 104.6 petajoules of gas between 2027 and 2054, with a maximum production rate of up to 10 PJ per annum for supply to the Queensland domestic gas market. The project would leverage substantial existing infrastructure at the Centurion Coal Mine, including the CHPP, train load-out facility, rail loop, mine water management infrastructure, workshops, administration facilities and accommodation village. The project is expected to involve an investment of approximately \$662 million, support a peak construction workforce of around 125 workers and secure ongoing employment for up to 525 employees and contractors, while contributing an estimated \$5.8 billion in royalties to the State over the life of the mine.

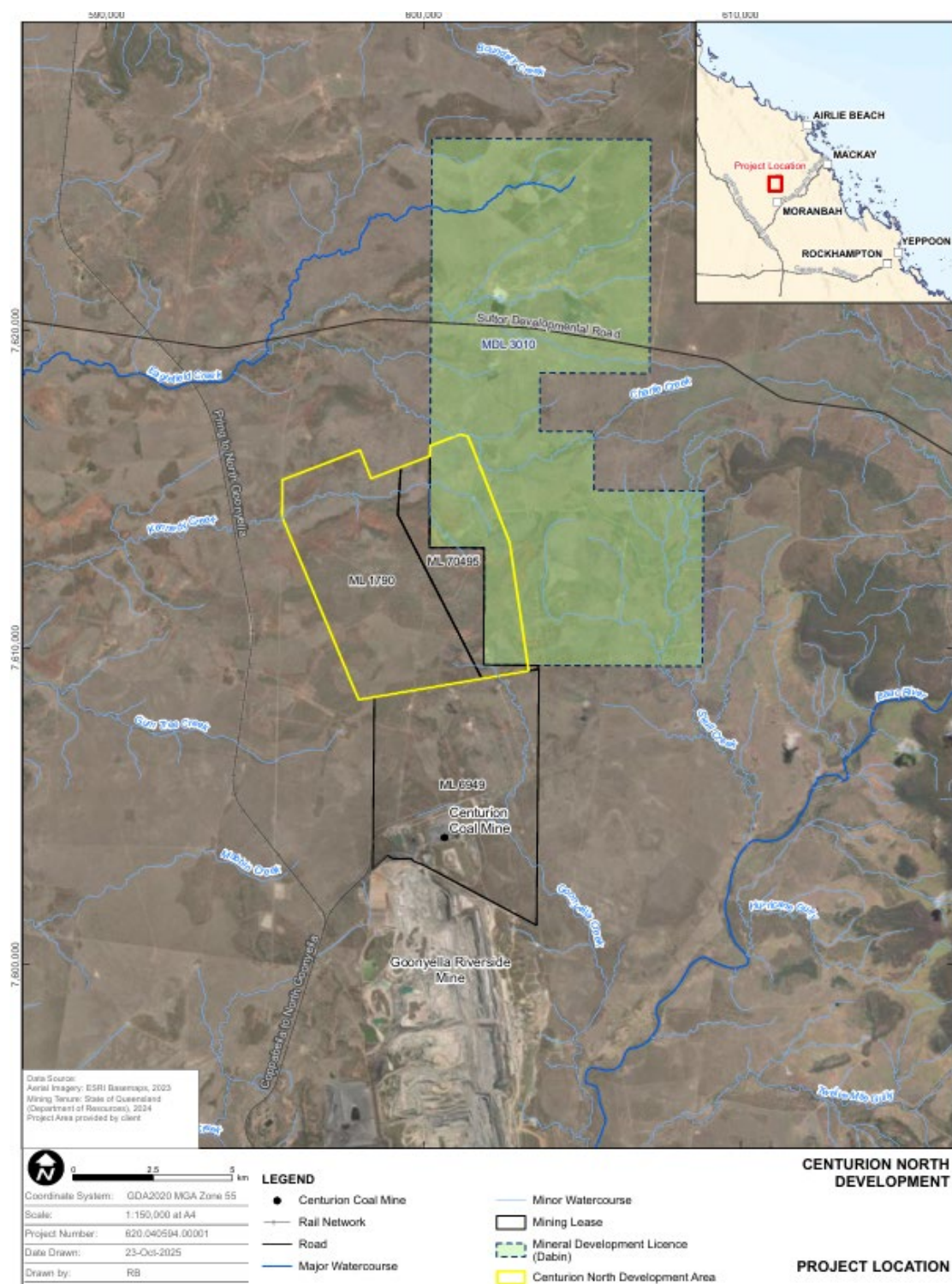


Figure 1 Locality map¹

¹ Source: ESRI Basemaps (2023), State of Queensland (Department of Resources) (2024) Project Area Peabody (2024)

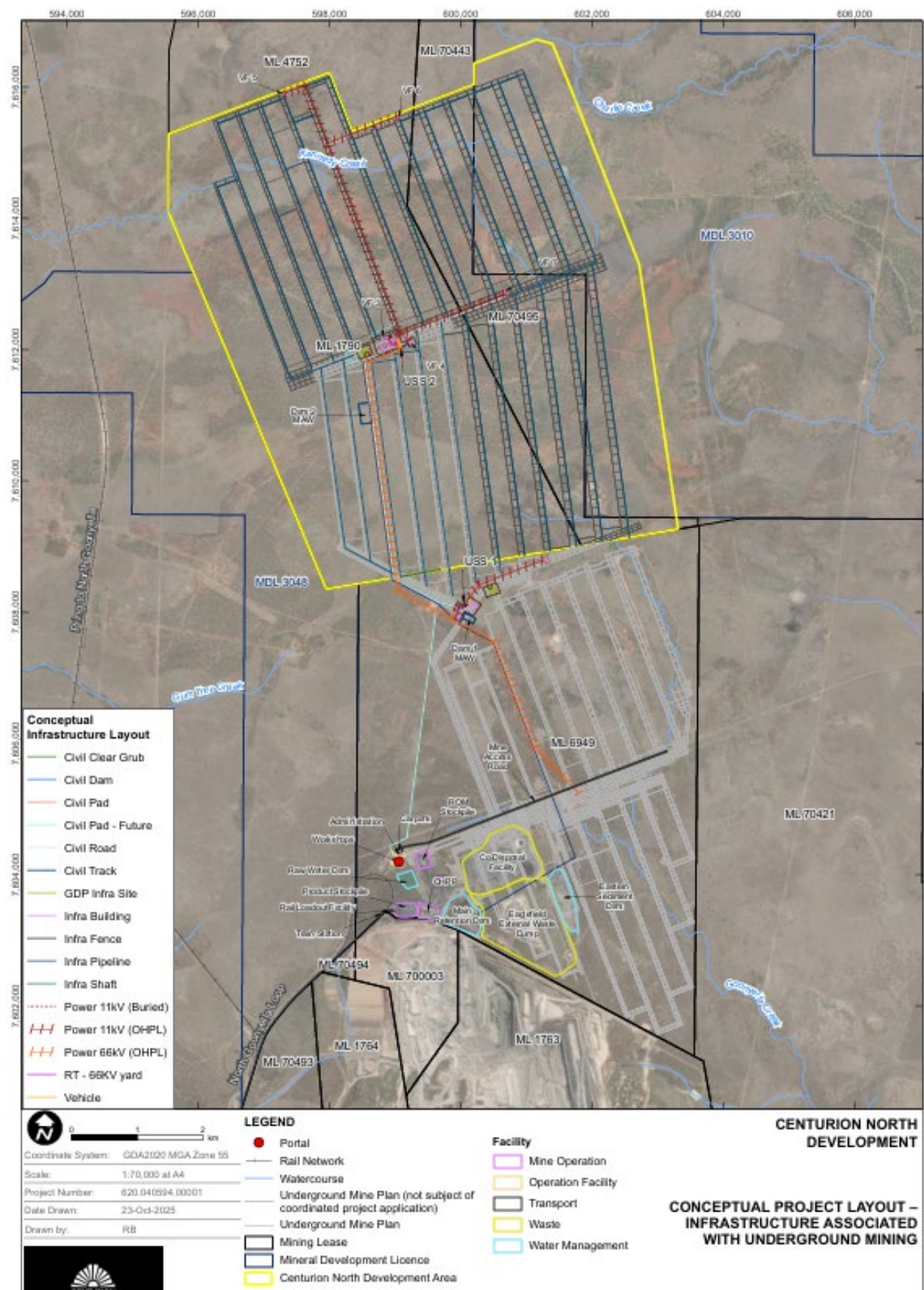


Figure 2 Locality map²

² Source: ESRI Basemaps (2023), State of Queensland (Department of Resources)(2024) Project Area Peabody (2024)

Critical matters

The EIS should give priority to the critical matters associated with the project, including:

- water resources
- land – geology, geomorphology, topography and soils
- flora and fauna
- matters of national environmental significance
- legislative requirements and project approvals.

A critical matter is an aspect of the proposal that has one or more of the following characteristics:

- a high or medium probability of causing serious or material environmental harm or a high probability of causing an environmental nuisance
- it is considered important by the Coordinator-General, and/or there is a public perception that an activity has the potential to cause serious or material environmental harm³ or an environmental nuisance, or the activity has been the subject of extensive media coverage
- it is relevant to a controlling provision under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- it raises obligations under any other legislation applicable for the project (e.g. *Water Act 2000* (Water Act)).

The project's critical matters have been prioritised in the structure of this TOR, with the relevant chapters at the beginning of the environmental assessment.

EIS assessment framework

SDPWO Act assessment pathway

The Coordinator-General declared the project to be a 'coordinated project for which an EIS is required' pursuant to section 26(1)(a) of the SDPWO Act. This declaration initiates the statutory environmental impact assessment procedure of Part 4 of the SDPWO Act, which requires the proponent to prepare an EIS for the project.

EPBC Act assessment pathway

On 4 March 2026, a delegate of the Australian Government Minister for the Environment and Water determined the project to be a 'controlled action' under the EPBC Act (EPBC reference 2026/10419). Therefore, the project requires approval under the EPBC Act.

The controlling provision/s for the project are listed threatened species and communities (sections 18 and 18A) and a water resource, in relation to unconventional gas development and large coal mining development (sections 24D and 24). Refer to Appendix 3 for further information on the controlling provisions.

On 4 March 2026, a delegate of the Australian Government Minister for the Environment and Water decided under section 87 of the EPBC Act that the project will be assessed under the Assessment Bilateral Agreement with Queensland.

The EIS must include, as a stand-alone chapter or report, an assessment of impacts to matters of national environmental significance (MNES) that fully addresses matters relevant to the controlling provision under the EPBC

³ Serious and material environmental harm are defined in sections 16 and 17 of the *Environment Protection Act 1994*.

Act. Section 35 of the TOR, developed in consultation with the Australian Government, sets out the information which must be included in the EIS relating to MNES.

Indigenous recognition and native title

This TOR acknowledges and respects the rights, culture, and interests of Queensland's Aboriginal peoples and Torres Strait Islander peoples.

The Widi People of the Nebo Estate #1 (QCD 2019/004 DET) are the determined native title holders for the southeastern portion of the project. No other determinations are noted within the project area.

Accepting statutory processes and regulated decision-making requirements, as far as practicable, the proponent is to demonstrate engagement and consideration of the views of Aboriginal peoples and Torres Strait Islander peoples.

More information

Information about the project, or the coordinated project declaration and EIS process under the SDPWO Act can be found at www.coordinatorgeneral.qld.gov.au/work-with-us/coordinated-projects.

Part B Developing the EIS

1. Structure and general approach

Scope

- 1.1 The EIS is to address all matters as specified in the TOR for the project. The detail required in the EIS to address each relevant project matter is to be proportionate to the potential significance of the impact on environmental values.
- 1.2 Each technical chapter of the EIS must identify and describe the relevant environmental values to be protected.
- 1.3 Proponents should use cross-referencing within the EIS to avoid repetition of information. It is suggested that proponents follow the heading structure as set out in Part C of this TOR.
- 1.4 For the purposes of the EIS process, 'environment' is defined in Schedule 2 of the SDPWO Act and includes social and economic matters.⁴
- 1.5 The detail required in the EIS to address each relevant project matter is to be proportionate to the potential significance of the impact on environmental values. When determining the significance of an impact, consider:
 - (a) the sensitivity of the environmental value
 - (b) the extent, intensity, duration, cumulative effect, unpredictability and/or irreversibility of the impact
 - (c) the risk of environmental harm, and
 - (d) the effectiveness of any proposed mitigation measures.
- 1.6 The EIS must address other matters not covered in the TOR in the following circumstances:
 - (a) studies reveal a matter that had not been foreseen when the TOR was finalised
 - (b) an issue not previously identified is considered contentious by the public, and addressing this issue is in the public interest
 - (c) the Coordinator-General directs the proponent in writing to address a matter as an information request under section 34B of the SDPWO Act
 - (d) new or amended legislation or policies come into effect after the TOR has been finalised⁵
 - (e) the proponent makes amendments to the proposed project that would result in a change in the nature, timing or location of any impacts.⁶
- 1.7 The EIS should address matters relevant to the environmental objectives and performance outcomes specified in schedule 8 of the Environmental Protection Regulation 2019 (EP Regulation) to allow appropriate conditions to be developed.

Legislative and regulatory requirements

- 1.8 The EIS must:

⁴ Consider also the definition of 'environment' provided in section 8 of the *Environmental Protection Act 1994*.

⁵ Transitional arrangements or exemptions may apply for individual projects.

⁶ The proponent is to notify the Coordinator-General of any amendments to the proposed project as described in the project's initial advice statement.

- (a) be prepared in accordance with, and meet the minimum requirements of, Schedule 1 of the State Development and Public Works Organisation Regulation 2020
- (b) be prepared in accordance with relevant policies, standards and guidelines, including those identified in this TOR, and any others identified during development of the EIS in consultation between the Coordinator-General, the proponent and advisory agencies
- (c) address the requirements of sections 125, 126A, 126B, 126C and 126D of the *Environmental Protection Act 1994* (EP Act) to enable the issuing of an environmental authority (EA) and progressive rehabilitation and closure plan (PRCP) schedule for the project
- (d) be prepared by suitably qualified and experienced professional(s), relevant to the field of expertise required for each subject matter
- (e) characterise the existing environment and clearly define environmental values that may be impacted by the project. This should be supported by site-specific and relevant baseline information sufficient to identify seasonal and long-term variations at a scale relevant to the project
- (f) identify the project's relevant impacts and analyse their significance. When determining the significance of an impact, consider the sensitivity of the relevant environmental value, the extent, intensity, duration, cumulative effect and irreversibility of the impact, the risk of environmental harm, and the effectiveness of proposed mitigation measures. Where impacts are not quantifiable, proponents should describe the impacts qualitatively, in as much detail as reasonably practicable
- (g) be supported by appropriate scientific and/or specialist studies that include details of their methodology, reliability, and any relevant assumptions or scientific judgements
- (h) provide detailed mitigation measures and strategies for the protection or enhancement of relevant environmental values. Mitigation measures and commitments should be SMART and should align with best practice environmental management. Mitigation measures must
 - (i) include a scientifically robust and evidence-based assessment of the known, expected and/or predicted effectiveness of the mitigation measures for addressing the project's relevant impacts
 - (ii) be specific to the identified impacts, state the clear action or process, and link to measurable outcomes
 - (iii) align with the hierarchy of:
 - avoid
 - minimise or otherwise mitigate, including best practice environmental management
 - where residual impacts remain after (i) and (ii) have been applied and where necessary and feasible, offset
 - (iv) identify and describe the statutory or policy basis for each measure
 - (v) provide cost estimates for mitigation measures
 - (vi) provide for an adaptive management approach to support long-term impact management
 - (vii) include any existing and proposed management plans as required by TOR Section 30
 - (viii) where relevant, be included in the proponent commitments register required by TOR Section 32
 - (ix) relate to proposed conditions identified under TOR Section 33
- (i) provide detail about the quality of the information, in particular:

- (i) the source of the information
- (ii) how recent the information is
- (iii) how the reliability of the information was tested, and any assumptions, exclusions and limitations. Justify the use of information that is incomplete, time-limited or has low levels of reliability, and explain how these limitations have been overcome
- (j) present a clear narrative that connects the existing environment and environmental values, project activities, their impacts, how mitigation measures will manage those impacts, and the acceptability of any residual impacts. Residual impacts must be identified, quantified where practicable, and justified. Conclusions should be supported by objective analysis and relevant evidence
- (k) provide plans and drawings of sufficient detail to support the approvals being sought and to enable the Coordinator-General and relevant agencies to evaluate and condition the project
- (l) use consistent and clearly defined nomenclature and terminology.

Format and copy requirements

- 1.9 The proponent must submit a draft EIS for the Coordinator-General's consideration. To ensure the draft EIS is evaluated in a timely manner, documents must be easy to navigate and meet the below criteria:
 - an electronic copy in Portable Document Format (PDF)
 - an electronic table of contents (PDF or HTML) with hyperlinks to each chapter
 - each chapter should include a table of contents, which is hyperlinked to subsections within the chapter (to 3 heading levels)
 - hyperlink any external websites referred to in the draft EIS.
- 1.10 The proponent must provide all supporting data, modelling and input/output information used in the EIS in an appropriate electronic format (e.g. shapefiles or Microsoft Excel files in accordance with the requirements of Table A1.2 of Appendix 1).
- 1.11 The proponent must provide spatial data for all project components in accordance with the requirements of Table A1.3 of Appendix 1.
- 1.12 Once the Coordinator-General and the Australian Government are satisfied the draft EIS addresses the TOR and is suitable for public notification, the proponent must meet the requirements of Table A1.1 of Appendix 1. A PDF version of the draft EIS will be published on the Coordinator-General's website at the commencement of the public notification period, and all advertising material will direct the public to that website. The proponent must not make the draft EIS publicly available until the Coordinator-General provides written advice that the draft EIS may be released. The Coordinator-General recommends visual aids or presentations are provided by the proponent during public notification to enhance stakeholder engagement.
- 1.13 Documents that do not meet the format and copy requirements will be returned to the proponent.

Part C Content requirements of the EIS

2. Executive summary

- 2.1 Provide an executive summary that describes and conveys the most important aspects of the project, its potential impacts and how they will be managed, in a concise and readable form. It is to use plain English, avoid jargon, be written as a stand-alone document and broadly follow the structure of the EIS.

3. Introduction

- 3.1 Provide an introduction that clearly explains the function of the EIS, why it has been prepared and what it sets out to achieve. The introduction should set the context for the detailed assessment of the project and describe the structure of the document.

About the project

- 3.2 Provide a brief description of the project including:
- (a) project title
 - (b) project location, including street address, locality, lot on plan, and local government area
 - (c) maximum life of the project
 - (d) key components of the project
 - (e) rationale for the project, including a clear outline of the project's objectives and background to the project's development
 - (f) how the project relates to any other projects, of which the proponent should be reasonably aware that have been, or are being, taken or that have been approved in the area affected by the project
 - (g) the project's most current status
 - (h) the consequences of not proceeding with the project.

Project proponent

- 3.3 Provide the following proponent information:
- (a) the proponent's full name, postal address, Australian Business Number or Australian Company Number as applicable, and details of any joint venture partners
 - (b) the nature of the proponent's business activities and experience in resource projects
 - (c) the proponent's (including directors) experience in relevant technologies and developing and implementing comparable major projects
 - (d) the proponent's (including directors) environmental record in Australia, including a list of any breach of, or proceedings against the proponent, its subsidiaries or parent entities as well as any third parties proposed to construct or operate any component of this activity under an Australian or state law for the protection of the environment or the conservation and sustainable use of natural resources (an environmental law), for at least the previous ten years
 - (e) the proponent's environmental, health, safety and community policies
 - (f) experience, qualifications and certification of all suitably qualified consultants and subconsultants engaged by the proponent to complete the EIS

- (g) all potential or actual conflicts of interest for the proponent and all consultants and subconsultants engaged by the proponent.

Environmental impact assessment process

- 3.4 Briefly describe the environmental impact assessment process under the SDPWO Act.
- 3.5 Describe:
 - (a) the opportunities for public submission on the EIS, including details on the process for a properly made submission, and
 - (b) how and when public submissions are addressed and considered in the assessment and decision-making process under the SDPWO Act and any other relevant legislation.
- 3.6 State whether the project is a controlled action under the EPBC Act, and if so:
 - (a) the assessment methodology
 - (b) the controlling provisions for the project.
 - (c) If not, discuss how the EPBC Act applies to the environmental impact assessment process.
- 3.7 Describe the environmental management framework to be applied to the project, including the approach to developing environmental management plans.

4. Project description

Proposed development

- 4.1 Clearly define the project footprint and total disturbance area in hectares (including buffer zones). Provide justification for the proposed buffer zones, identifying the values to be protected and how the buffers will achieve that protection. Identify the areas of underground and surface disturbance separately, with supporting maps. Provide spatial data of the disturbance footprint (all disturbance over the life of the project combined) and for all the mine features. Define the broader project site, if applicable.
- 4.2 Provide a description of the project's phases (e.g. pre-construction, construction, operations, decommissioning and rehabilitation), including likely timing and sequencing of phases and the physical layout of the project during each project phase. If the delivery of the project is to be staged, describe the nature and timing of proposed stages, including triggers and hold points.
- 4.3 Describe project activities across each project phase and identify whether any of the activities are located off lease, outlining the approval pathways for off lease activities.
- 4.4 Describe the proposed mine life, the annual and total quantity of run-of-mine (ROM) ore, waste rock material to be mined, and ore to be processed onsite.
- 4.5 Describe the resource base, including total seam/ore body thickness and seam/ore body depths.
- 4.6 Describe the proposed methods, equipment and techniques for extraction and resource separation, beneficiation and processing, including chemicals to be used and expected by-products.
- 4.7 Describe the project costs, including across each of its phases.
- 4.8 Describe the proposed delivery model for the project and commercial arrangements for delivery of the project including clearly articulating the division of roles for the extraction, utilisation and commercialisation of the CSG.
- 4.9 With regards to external/enabling infrastructure, identify and describe:

- (a) existing infrastructure that will be impacted by the project across each of its phases (e.g. roads, ports, water, wastewater, stormwater, electricity transmission and supply, telecommunications, waste disposal, housing, etc.)
 - (b) any external/enabling infrastructure upgrades proposed as part of the project (to be assessed as part of the EIS)
 - (c) any external/enabling infrastructure upgrades not proposed as part of the project, and how project-related impacts on this infrastructure would be managed.
- 4.10 Describe any project components subject to change or refinement through detailed design. Discuss alternative options that remain under consideration.
- 4.11 Describe any project components or activities that are proposed to be assessed separately to the EIS process, including details of the assessment and approvals process.
- 4.12 Identify whether any project infrastructure or facilities will be shared with other developments and demonstrate that there is sufficient capacity and the necessary approvals to enable this.
- 4.13 Provide as much detail as possible to describe the planned coal seam gas (CSG) activities. The EIS must provide the following information on the locations, timing and methodology that will be used:
- (a) the framework that describes how wells, gathering systems and production facilities would be arranged to produce gas and their maximum extent of disturbance. Confirm whether further processing of the gas is required as part of the project and include details of the process.
 - (b) field development plans (based on concept engineering design) that identify priority areas for development and detail how development may be undertaken and estimated timeframes including in relation to mining progression
 - (c) how competing land uses, including environmental, landholder and cultural heritage preliminary constraints analysis has guided the front-end engineering design process
 - (d) how foreseeable or likely actions related to the construction and operation of the project may impact on environmental values including:
 - (i) air
 - (ii) noise
 - (iii) water (including groundwater and impacts such decline in groundwater levels, (including groundwater such as decline in groundwater levels, surface water/groundwater interaction, groundwater dependent ecosystems, water quality and chemistry, and groundwater flow).
 - (iv) land
 - (v) waste
 - (e) how the identified potential impacts of the project would be considered in the final project design and layout including how this process would facilitate avoiding and minimising adverse impacts.
- 4.14 Provide a constraints analysis and detail the following information:
- (a) the environmental, social and economic values and factors considered, including in relation to competing land uses
 - (b) if an environmental value has not been used, the reason for its exclusion
 - (c) maps that show the results
 - (d) the accuracy of information, criteria and methodology used in the constraints analysis and decision-making for siting facilities

- (e) the limitations and caveats that apply to the interpretation of the analysis
 - (f) the process to incorporate the results of any subsequent field surveys and revised Queensland or Australian government datasets
 - (g) how any stakeholders who may be affected by changes to siting constraints would be informed of the changes.
- 4.15 Provide maps showing the results of constraints analysis at scales that allow stakeholders to appreciate both the wider scale of the development and how their own interest (e.g. landholdings) may be affected.

Design of infrastructure

- 4.16 Include specific provisions on infrastructure to be considered/included in the project scope, generally consistent with the Initial Advice Statement.

Site description

- 4.17 Describe and illustrate with suitably scaled maps and spatial data, the existing environment and features within the project footprint and surrounding area, including:
- (a) property descriptions, easements, underlying tenure (including existing, historic and under application resource authorities), land use and ownership information for all land impacted by the project footprint and adjacent properties, including detail of any special attributes of land and/or waters
 - (b) all existing infrastructure and services relevant to the project, including transport corridors, private roads, local and state-controlled roads, pipelines, energy and gas infrastructure, sewerage, stormwater, communications, rail, air services, maritime, etc.⁷
 - (c) waterways as defined by the *Fisheries Act 1994*; and lakes, springs, aquifers, floodplain areas (including wetlands), unmapped features, watercourses, and drainage features as defined by the Water Act.
- 4.18 Describe and map, in both plan and cross-section view, the geology, topography and landforms of the project area and any relevant areas within the project surrounds (including the boundaries of water catchment areas). Show geological structures (such as aquifers and faults), economic resources (such as agricultural, timber, quarries, mining and gas (including historic)), and any other relevant projects and known development proposals that could have an influence on, or be influenced by, the project and its construction and operational activities.
- 4.19 Describe, map and illustrate soil types and profiles of the project area including added fill and/or exposed ground surface at a scale relevant to the proposed project and in accordance with relevant guidelines. Identify soils that would require specific management due to wetness, erosivity, sodicity, depth, acidity, salinity or other features.

Project footprint

- 4.20 Within the context of the existing environment,⁸ define and map the location and boundaries of the project footprint, including all infrastructure elements, extent of disturbance (including clearing of vegetation), current and proposed resource tenures for the totality of the project, any off-lease infrastructure requirements, and development necessary for the project. Show all key aspects including excavations, spoil and waste dumps, stockpiles, areas of fill, subsidence areas, services infrastructure, plant locations, levees, water storages and dams, tailings storage facilities, existing and proposed groundwater

⁷ 'Air services' is defined in the Queensland Government, *State Development Assessment Provisions*, 2024.

⁸ As described in Chapters 8 to 30.

bores, stormwater infrastructure and drainage systems, spill containment bunds, buildings, waterway crossings (including type), watercourse and surface water diversions, haul and access roads (identifying sealed and non-sealed), causeways, stockpile areas and loading and unloading facilities, sewage treatment plant and disposal location. Include a discussion of any environmental design features of these facilities (for example, bunding of plant and storage facilities). Also provide this information as spatial data.

- 4.21 Describe with concept and layout plans, in both plan and cross-section views, requirements for constructing, upgrading or relocating all infrastructure to service the project. Show the locations and dimensions (including clearing) of any necessary infrastructure easements on the plans, including infrastructure such as roads, rail (and the rail corridor), tracks and pathways, environmental no-go areas, fencing, dams and weirs, bores, energy transmission infrastructure, power lines and other cables, wireless technology (such as microwave telecommunications), pipelines for any services, whether underground or above, vents, portals or any other above ground infrastructure (including access tracks) associated with any underground infrastructure.

Project phases

- 4.22 Describe for each project phase (pre-construction - including early works to date, construction, operation, decommissioning and rehabilitation) and stage (if relevant):
- (a) timing and sequencing of activities, and any implications where project staging is proposed
 - (b) disturbance areas for each project component, including buffer zones
 - (c) workforce numbers expressed as annual average full-time equivalent positions and proposed shifts, as applicable
 - (d) anticipated workforce recruitment and rostering arrangements, including proposed travel to and from work, such as fly-in, fly-out⁹ and drive-in, drive-out
 - (e) where and how personnel are to be accommodated (if relevant)
 - (f) the type, quantity, origin, routes, delivery modes, storage and laydown requirements/locations for materials
 - (g) the precise location (within and outside the project footprint) of works to be undertaken, structures to be built or components of the project that may have relevant impacts
 - (h) how the works are to be undertaken and design parameters for aspects of the structures, or components, of the project that may have relevant impacts
 - (i) requirements for new infrastructure, or the upgrading, retention, relocation and/or decommissioning of existing infrastructure on and offsite to service the project.
- 4.23 For the pre-construction phase, include a description of:
- (a) results of pre-disturbance surveys and how this information is or will be used in the final design and construction of the project
 - (b) early project activities including i. exploration ii. pilot scale gas drainage program iii. vertical and lateral SIS well construction and CSG pre-drainage program iv. development of underground gate roads. Proposed development, upgrades, modifications, realignments, relocation, deviation or restricted access to roads and other infrastructure including water, power and telecommunications (where relevant).

⁹ Fly-in, fly-out worker for a large resource project means a worker who travels to the project by aeroplane, or another means, from a place that is not a nearby regional community for the project – Schedule 1 of the *Strong and Sustainable Resource Communities Act 2017*.

- 4.24 For the construction phase, include a description of:
- (a) proposed hours of construction (including night-time works)
 - (b) the construction program/stages and key work streams
 - (c) the proposed construction methodology
 - (d) any temporary construction areas, and how and when temporary construction areas will be rehabilitated
 - (e) any resource requirement (e.g. water supply, quarry material, construction materials and components, electricity supply, etc.) and the quantity, source and proposed timing of requirement of each resource
 - (f) any supporting developments that are required, within and outside the project area, such as quarries, borrow pits, water storage, site offices, laydown areas, roads, etc.
 - (g) any project construction components proposed to be shared with other projects.
- 4.25 For the operation phase, include a description of:
- (a) proposed hours of operation
 - (b) proposed operational workforce, including proposed shifts and transport demand
 - (c) with appropriately scaled maps, gas drainage and mining sequence of each seam/ore body/structural unit and cross-sections showing profiles and geological strata and faults
 - (d) type, quality and quantity of resources mined or extracted at each major stage of the project
 - (e) water supply requirements and sources
 - (f) energy demand and sources
 - (g) other operational service requirements including sewer, waste and stormwater.
- 4.26 For the decommissioning and rehabilitation phase, include a description of:
- (a) the strategy for decommissioning and rehabilitation of all components of the project consistent with the progressive rehabilitation and closure plan, including a description of milestones, criteria, and rehabilitation areas for the project
 - (b) if any infrastructure is proposed to remain on site, identify the owner of this infrastructure and describe long-term use and relevant approvals required (e.g. landholder agreements, council approvals, etc.)
 - (c) proposed timing and extent of rehabilitation works (including progressive rehabilitation) and where relevant, restoration works¹⁰ with maps at suitable scales showing the location of disturbance areas
 - (d) the site after final rehabilitation, including mapped final landforms, post-mining land uses and any non-use management areas.

5. Project rationale and alternatives

- 5.1 Describe the project's objectives and rationale, including strategic alignment, economic, environmental and social implications, technical feasibility, and commercial drivers. Describe the markets the project is proposed to service and specify if the product will be for export, local markets, or both.

¹⁰ See Queensland Government, *RPI Act Statutory Guideline 09/14 – How to determine if an activity has a permanent impact on strategic cropping land*, which provides the definition of restoring land. Restoring land means that the land is returned not only to its pre-activity use but also that it is returned to its pre-activity productive capacity or potential productive capacity.

- 5.2 Demonstrate the need and scale of the project including in a regional, state and national context. Consider this in the context of other major relevant infrastructure projects proposed and/or under development in the region.
- 5.3 Provide a summary of the current status of similar technologies in Australia and globally, known environmental impacts associated with similar operations, and how these impacts are managed/mitigated.
- 5.4 Describe the expected benefits and opportunities associated with the project and the relevant recipients of these benefits and opportunities (supported by relative evidence).
- 5.5 Describe the process and criteria used in selecting the site and defining the project footprint and alignment options for new or existing infrastructure. Where relevant, the multi-criteria analysis is to assess the shared use of common user infrastructure with nearby mines/projects, in accordance with Queensland Government common user infrastructure assessment principles.¹¹
- 5.6 Describe the feasible alternatives to the project and project infrastructure configuration, including conceptual, technological, scale, locality and alignment alternatives that may improve environmental outcomes. Detail the criteria used to determine the alternatives. Provide sufficient detail to support selection of the preferred option(s).
- 5.7 Describe the options assessed for transport of materials and workers to site, and why the preferred option was selected with reference to managing health and safety considerations.
- 5.8 Where project options or alternatives are still under consideration, provide a description and assessment of each option and a timeframe of when the option will be confirmed. Briefly describe how the potential impacts of these options have been assessed, for example, consideration of worst case or greatest disturbance scenarios.
- 5.9 Demonstrate why the preferred option(s) has been selected by summarising the comparative environmental, social and economic impacts of each project option (supported by a cost-benefit analysis), with particular regard to the principles of ecologically sustainable development.
- 5.10 Describe the consequences of not proceeding with the project or any component of the project.

6. Legislative requirements and project approvals

- 6.1 Identify the statutory approvals (local, State and Commonwealth) that are likely to be required for the project. The list of statutory approvals should be in the format provided at Appendix 2. and describe the approval, relevant statutory provision, trigger, administering authority, when the approval is required (relative to the completion of the EIS process) and any exemptions that apply. Clearly define approvals for which conditions are being sought through the EIS process and approvals for which conditions will be sought separate to the EIS.¹² Identify whether each approval will be obtained and held by the proponent or a third party and also clarify who are the holders of all relevant resource tenures for the project.
- 6.2 Describe any legislative requirements that would need to be met in relation to the project's potential impacts on protected areas, reserves, areas of regional interest, declared fish habitat areas and State forests. If the project's potential impacts are considered to be inconsistent with the values of these areas, describe how the inconsistencies will be addressed.
- 6.3 Provide an overview of the land use planning instruments relevant to the project, such as applicable local government planning schemes, development schemes for a State development area, development schemes or interim land use plans for a priority development area, State regional plans (and the status /

¹¹ Queensland Government, Queensland Treasury, *Common user infrastructure principles*, available at www.treasury.qld.gov.au/programs-and-policies/common-user-infrastructure-assessment-principles/.

¹² Approvals for which conditions are being sought should consider consideration provisions of Part 4 of the SDPWO Act.

currency of their review¹³) or other land use planning document that regulates development and land use of the site.

- 6.4 Describe any approvals required under the *Regional Planning Interests Act 2014* (RPI Act), detailing any legislative requirements and mitigation requirements for the project (including any relevant exemptions). The assessment and supporting information, where relevant, is to be sufficient for the administering authority to decide whether an approval can be granted.
- 6.5 Provide information required under section 125(1) of the EP Act in support of the project's application for an environmental authority for any proposed environmentally relevant activities (ERAs). List each ERA separately and identify the appropriate ERA number and activity name and identify and justify the relevant threshold (see Schedule 2, EP Regulation for a list of ERAs). Environmental values, information and approval requirements are specified in the EP Act, the EP Regulation, environmental protection policies (EPP) and relevant guidelines. The assessment and supporting information, where relevant, is to be sufficient for the administering authority to decide whether an approval should be granted.
- 6.6 Assess the extent to which the project is consistent with the relevant statutory approvals, and that the intended outcomes are consistent with current legislation, policies, plans, guidelines and government priorities for the region. If there is a conflict, explain how the project can be approved.
- 6.7 Describe any approvals, authorisations or entitlements required under the *Water Act*, *Water Regulation 2016*, *Water Supply (Safety & Reliability) Act (2008)* or applicable water plans. Detail any legislative requirements and processes for gaining access to water for the project (including any relevant exemptions), including discussion of the applicable provisions of any applicable protocols. Demonstrate how the requirements of Chapter 3 – Underground water management of the Water Act 2000, will be addressed within the timeframes required by the legislation.

7. Stakeholder consultation and engagement

- 7.1 In preparing the EIS, consult with potentially impacted people, communities and key stakeholders, including but not limited to directly and indirectly affected land and tenure holders, Native Title holders, Aboriginal peoples and Torres Strait Islander peoples, local, State and Australian Government agencies, local and regional commerce, community and conservation groups, and social and public service providers. Utilise the community and stakeholder engagement methodologies outlined in the *Social Impact Assessment Guideline*¹⁴ (SIA Guideline) and *Social Impact Assessment Supplementary material for assessing and managing the social impacts of projects under the Coordinator-General's Social Impact Assessment Guideline* (SIA Supplementary Material).¹⁵
- 7.2 Describe in a stakeholder consultation and engagement report, the consultation and engagement activities undertaken during the preparation of the EIS. Include the dates of consultation and describe the information that was provided to stakeholders. Demonstrate that engagement methods and processes have clearly described the project and its potential impacts, and are effective, transparent, accessible, timely, well-recorded, provide appropriate content and context, and encourage and facilitate participation.
- 7.3 Identify issues raised during stakeholder engagement and explain how feedback from stakeholders has been considered and/or resolved during the EIS process and been incorporated into project design and outcomes.

¹³ All Queensland's regional plans are currently undergoing a review and as part of their review process, changes to areas of regional interest may occur prior to 'a resource activity may be carried out lawfully on the land' (see section 24 of the RPI Act).

¹⁴ Queensland Government, *Social impact assessment guideline*, July 2025.

¹⁵ Queensland Government, *Supplementary material for assessing and managing the social impacts of projects under the Coordinator-General's Social Impact Assessment Guideline*, July 2025. Consideration should also be given to the Australian Government, Department of Climate Change, Energy the Environment and Water, *The Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environmental Protection and Biodiversity Conservation Act 1999 (interim guidance)*, 2023 (or subsequent revision).

8. Tenure including Native Title

Existing environment

- 8.1 For the project footprint and surrounding area:
- (a) identify the tenure of the land
 - (b) identify the registered owner of the land
 - (c) identify any registered interests in the land
 - (d) identify and describe any proposed use of State land and Commonwealth land
 - (e) identify any tenure arrangements or commercial arrangements that the proponent has in place to access the land in association with the project
 - (f) identify any stock route under the *Stock Route Management Act 2002*
 - (g) identify any underlying resource authorities or applications.
- 8.2 Confirm whether any quarry materials or forest products in the project footprint are the property of the State and whether such quarry materials or forest products will be interfered with, used, or potentially sterilised.
- 8.3 Identify any native title rights and interests that apply to the project footprint, including:
- (a) a native title assessment that determines the presence, or otherwise, of Native Title over all land or waters
 - (b) land or waters where Native Title has been determined to exist by the Federal Court
 - (c) land or waters that are covered by a Native Title determination application
 - (d) land or waters that are covered by a registered Indigenous Land Use Agreement
 - (e) land or waters where Native Title has been determined not to exist.

Impact assessment

- 8.4 Identify any tenure proposed to be applied for as part of the project, including anticipated timeframes, approvals or owner's consent requirements.
- 8.5 Describe potential temporary and permanent impacts on the tenure of the land.
- 8.6 For impacts on overlapping tenures, describe the outcomes of consultation with the landholders, other tenure holders and occupiers with respect to access to land, impact assessment and mitigation measures. Include details of any compensation agreements proposed or agreed to, noting that confidential or commercially sensitive information is not required.
- 8.7 Identify whether the project involves any proposed impact on Native Title.

Mitigation measures

- 8.8 Identify any existing or proposed arrangements to manage impacts on Native Title.
- 8.9 Describe pathways for resolving Native Title considerations that comply with the *Native Title (Queensland) Act 1993* and the Queensland Government's Native title work procedures (such as the negotiation and registration of an Indigenous Land Use Agreement).¹⁶

¹⁶ Queensland Government, Native title work procedures, accessible online <https://www.qld.gov.au/firstnations/environment-land-use-native-title/native-title-work-procedures>

- 8.10 Detail proposed mitigation measures for potential impacts on the tenure of the land, including measures to maintain ongoing functionality of the land.

9. Land use planning

Existing environment

- 9.1 For the project footprint and surrounding area identify and describe all current and historic land use, including the following detail:
- (a) lot on plan descriptions
 - (b) key infrastructure
 - (c) recreational sites and tourist destinations
 - (d) residential, commercial, and industrial areas
 - (e) key resource areas
 - (f) findings of the Agricultural Land Audit (including land of agricultural state interest under the State Planning Policy)¹⁷
 - (g) results of the land suitability classification and agricultural land evaluation including the mapping and designation of agricultural land classes¹⁸
 - (h) areas of regional interest under the *Regional Planning Interests Act 2014*
 - (i) townships and urban areas
 - (j) any land that is listed on the environmental management register or the contaminated land register, or that has been subject to a notifiable activity under the EP Act
 - (k) any non-statutory or statutory soil conservation plans under the *Soil Conservation Act 1986*
 - (l) any restricted areas and any unavailable land under section 38 of the Mineral Resources Regulation 2025.
- 9.2 Identify any land use planning instruments that apply to the project footprint, including:
- (a) relevant provisions of the State Planning Policy
 - (b) the applicable regional plan that applies to the land, including the relevant provisions of the regional plan
 - (c) relevant provisions of the *Regional Planning Interests Act 2014*
 - (d) the applicable local government planning scheme, including the relevant provisions of the local government planning scheme
 - (e) relevant State codes under the State Development Assessment Provisions (SDAP).¹⁹

¹⁷ The Queensland Agricultural Land Audit identifies land important to current and future production and the constraints to development, highlighting the diversity and importance of Queensland's agricultural industries. For more information, see <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/business/expand/land-audit>.

¹⁸ Queensland Government, *Guidelines for Agricultural Land Evaluation in Queensland*.

¹⁹ Further information regarding SDAP requirements can be accessed from www.planning.qld.gov.au/planning-framework/state-assessment-and-referral-agency/state-development-assessment-provisions-sdap. If any off-lease infrastructure requires assessment through the EIS process, the EIS must provide an assessment against the relevant SDAP provision(s).

Impact assessment

- 9.3 Assess the project against the land use legislation and planning instruments and relevant SDAP State codes that apply to the project and demonstrate that statutory and policy requirements can be met, taking into consideration the proposed measures that would be used to avoid or minimise impacts.
- 9.4 If the project is exempt from compliance with a land use planning instrument or does not require assessment against a SDAP State Code but constitutes technical assessment under the Planning Regulation 2017 triggers, identify the exemption and extent, along with any limitations on the exemption.
- 9.5 Where non-compliance with a land use planning instrument is identified, provide commentary setting out whether the non-compliance is appropriate and provide reasons for the non-compliance.
- 9.6 Describe potential temporary and permanent changes to land uses within the project footprint and adjacent to the project footprint, including identifying any incompatible land uses.
- 9.7 For any impacts on mining or resource exploration activities, liaise with relevant authorised tenement holders. Describe consultation outcomes and potential impacts on tenement holders.
- 9.8 Provide an assessment against the relevant prescribed solution(s) for any area impacted of regional interest potentially impacted by the project, if relevant.²⁰

Mitigation measures

- 9.9 Detail proposed mitigation measures for potential impacts on land uses.
- 9.10 Demonstrate how the project will meet the environmental objectives and performance outcomes relevant to land use in Schedule 8 of the EP Regulation.

10. Visual amenity

- 10.1 The following guidance is relevant for the assessment of visual amenity:
 - (a) Australian Institute of Landscape Architects, *Guidance Note for Landscape and Visual Assessment*, 2018
 - (b) Landscape Institute, *Photography and photomontage in landscape and visual impact assessment*, 2018
 - (c) Landscape Institute and Institute of Environmental Management and Assessment, *Guidelines for Landscape and Visual Impact Assessment*, 2013.

Existing environment

- 10.2 Characterise the existing visual landscape by describing, mapping and illustrating landscape aspects that influence visual amenity, including:
 - (a) topography and natural landscape features (inclusive of species habitat)
 - (b) land use and character
 - (c) settlements, built features and infrastructure.
- 10.3 Identify visually sensitive locations, including residential properties, public viewpoints, recreation areas, tourist destinations, culturally relevant features (in consultation with Traditional Custodians), etc.
- 10.4 Evaluate the sensitivity of the existing visual landscape and its ability to absorb change.

²⁰ Schedule 2, , Regional Planning Interests Regulation 2014.

Impact assessment

- 10.5 Identify key project features during all stages of project development that will be visually obtrusive, including project lighting,²¹ and undertake a viewshed analysis to identify locations from which project features will be visible.
- 10.6 Assess the significance of project impacts on landscape character and visual amenity, supported by photomontage analysis from visually sensitive locations.

Mitigation measures

- 10.7 Describe proposed mitigation measures to avoid or minimise predicted impacts on landscape character and visual amenity, including:
 - (a) how the project has been designed to integrate with the existing landscape
 - (b) strategies to protect visual amenity at visually sensitive locations
 - (c) how the obtrusive effects of diffuse and direct lighting have been minimised.

11. Land – geology, geomorphology, topography and soils

- 11.1 The following guidance is relevant for the assessment of land, including geology, geomorphology, topography and soils:
 - (a) Queensland Government, *Land – EIS information guideline*, ESR/2020/5303
 - (b) Queensland Government, *Rehabilitation – EIS information guideline*, ESR/2020/5308
 - (c) Queensland Government, *Contaminated land – EIS information guideline*, ESR/2020/5300
 - (d) Queensland Government, *Quarry material – EIS information guideline*, ESR/2020/5306
 - (e) Queensland Government, *Application requirements for activities with impacts to land*, ESR/2015/1839
 - (f) Queensland Government, *Queensland Land Resource Assessment Guidelines – Volume 1: Soil and land resource assessment*, 2021
 - (g) Queensland Government, *Queensland Land Resource Assessment Guidelines – Volume 2: Field tests*, 2020
 - (h) Queensland Government, *Queensland Soil and Land Resource Survey Information Guideline*, VEG/2018/4460
 - (i) Soil Science Australia, *Guideline for soil survey along linear features*, 2015
 - (j) International Erosion Control Association, *Best Practice Erosion and Sediment Control*, 2008.

Existing environment

- 11.2 Describe, map and illustrate the topography and geomorphology of the project footprint and surrounding area.
- 11.3 Describe and map the geology and mineralogy of the project footprint and surrounding area, with reference to the physical and chemical properties of surface and sub-surface materials within the proposed areas of disturbance. This should include information regarding the presence of any naturally occurring hazardous materials (e.g. radioactive material or asbestos).

²¹ In accordance with Standards Australia, *Control of Obtrusive Effects of Outdoor Lighting* (Australian Standard 4282). Consider also, Australian Government, *National Light Pollution Guidelines for Wildlife*, 2023.

- 11.4 Describe and map geological structures and properties that could affect ground stability and influence the nature and location of project activities.
- 11.5 Describe and map soil types, soil profiles and unique map areas within the project footprint at a detailed property level scale²² relevant to project disturbance.
- 11.6 Describe physical and chemical soil properties relevant to erosion, stability, salinity, acidity, rehabilitation and agricultural land suitability (including agricultural land suitability class) and productivity supported by site-specific soil data.
- 11.7 Where excavated rock or spoil is to be used or placed within the project footprint, analyse the potential for acid generation, or generation of other potential pollutants of air, land or waters, supported by site-specific geochemical data.
- 11.8 Discuss how geology, geomorphology, topography, soils, agricultural values and relevant environmental values have informed the project design (e.g. constraints).

Impact assessment

- 11.9 Identify and assess the impacts of project activities and disturbance on geology and geomorphology. Analyse and describe the significance of these impacts on the structural stability of affected strata and landforms and their ability to support environmental values.
- 11.10 Identify and assess the impacts of project activities and disturbance on soils during each project phase and identify soil types requiring particular management. Analyse and describe the significance of these impacts on environmental values, current and future land use and management requirements, including consideration of erosion, stability, salinity, acidity, rehabilitation and agricultural productivity.
- 11.11 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 ponding, and its effect over time on land use, surface landforms and hydrology to be understood. Include supporting maps showing modelled subsidence depths and predicted ponding areas resulting from the underground mining activities and explicit discussions on both temporary and permanent subsidence and ponding effects over time on land use.
- 11.12 Assess the risks of project activities resulting in land contamination, with respect to known or potential sources, waste characterisation results and proposed land uses. Identify and describe any proposed notifiable activities.
- 11.13 Where irrigation water or effluent is proposed to be applied to land:²³
 - (a) identify the irrigation area
 - (b) describe irrigation water or effluent quality (including pH, salinity, biological oxygen demand, total solids, nutrients, and microbiology)
 - (c) provide design irrigation rates
 - (d) identify contingency storage
 - (e) demonstrate the avoidance of soil and land degradation (e.g. soil structure decline, secondary salinisation, erosion), and protection of soil composition and condition and associated

²² The scale of mapping must be in accordance with section 5 of the *Queensland Soil and Land Resource Survey Information Guideline*, VEG2018/4460.

²³ Relevant guidelines for projects which trigger ERA63: Queensland Government, *Model operating conditions ERA 63—Sewage Treatment*, ESR/2015/1668 and Queensland Government, *Disposal of effluent using irrigation – Technical Guideline*, (2020).

environmental values, supported by irrigation modelling (e.g. MEDLI (model for effluent disposal using land irrigation)).

Mitigation measures

- 11.14 Describe proposed measures to avoid and minimise predicted impacts to land or soils, and the environmental values they support. This should include measures to minimise the effect of subsidence caused by underground mining (e.g. cracking, ponding, watercourse subsidence). Demonstrate how proposed measures are consistent with best practice environmental management.
- 11.15 Demonstrate how the proposed project will meet the environmental objectives and performance outcomes for land in Schedule 8 of the EP Regulation.
- 11.16 Demonstrate that the disposal to land of any liquid wastes from onsite sewage treatment would meet the environmental objectives and performance outcomes in Table 1 (Operational assessment), Part 3, Schedule 8 of the EP Regulation.
- 11.17 Describe how unplanned impacts to land will be managed, including measures to avoid, identify, remediate and manage land that is contaminated or may become contaminated.
- 11.18 Describe how the achievement of environmental objectives and associated performance outcomes would be monitored, audited and reported, and how corrective/preventative actions and continual improvement would be managed.

12. Rehabilitation

- (a) Queensland Government, *Rehabilitation – EIS information guidelines*, ESR/2020/5308
- (b) Queensland Government, *Progressive rehabilitation and closure plan (PRCP plans) – Statutory guideline*, ESR/2019/4964
- (c) Queensland Government, *Common issues with Progressive Rehabilitation and closure plan applications – Information Sheet*, ESR/2021/5775
- (d) Queensland Government, *Non-use management areas – Information sheet*, ESR/2019/4954
- (e) Preparing a plan of operations for an environmental authority relating to a petroleum lease, ESR/2015/1821
- (f) Queensland Government, *Guideline Underground water impact reports and final reports*, ESR/2016/2000
- (g) Queensland Government, *Code of practice for the construction and abandonment of petroleum wells and associated bores in Queensland Version 2, 2019* (or subsequent revision)
- (h) Any technical and scientific mine rehabilitation publications on leading practice rehabilitation developed by or published on the website of the Office of the Queensland Mine Rehabilitation Commissioner²⁴.

Rehabilitation and closure (mining projects)

- 12.2 Describe the rehabilitation strategy which demonstrates how the project infrastructure will be decommissioned and removed, and rehabilitation methodology for all disturbance areas, including timing and agreed final landforms and post-mining land use. Where infrastructure is proposed to remain, identify the owner of this infrastructure.

²⁴ See <https://www.qmrc.qld.gov.au/>.

- 12.3 Demonstrate that rehabilitation of the environment disturbed by construction, operation and decommissioning of the project can meet the environmental objectives and performance outcomes in Schedule 8A of the EP Regulation.
- 12.4 Where relevant, describe restoration works proposed for areas of regional interest under the *Regional Planning Interests Act 2014*.²⁵

Progressive rehabilitation and closure plan

- 12.5 Provide a proposed PRCP for the project in accordance with Statutory Guideline – Progressive rehabilitation and closure plans and best practice approaches about the strategies and methods for progressive and final rehabilitation.²⁶ The PRCP 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 provides for the condition to which the holder must rehabilitate the land before the EA may be surrendered.²⁷ The PRCP must consist of two components:
- (a) rehabilitation planning part
 - (b) PRCP schedule.

Rehabilitation planning part

- 12.6 Provide rehabilitation planning part of the proposed PRCP, by addressing the following:
- (a) describe each resource tenure, including the area of each tenure
 - (b) describe the relevant activities and the likely duration of the relevant activities
 - (c) describe all water needs and the proposed authority under which the water would be taken to do this work by defining the location, source of water take and volumes required
 - (d) include a detailed description, including maps, of how and where the relevant activities are to be carried out
 - (e) provide detailed final landform designs and cover system designs of all the final landform features including rehabilitation milestone criteria. Describe the associated impacts of the landform and cover system designs to environmental values
 - (f) describe the proposed post mining land uses (PMLUs) and non-use management areas (NUMAs)
 - (g) include details and supporting evidence of the consultation undertaken in developing the proposed PRCP, including consultation on the mine plan, post-mining land uses, non-use management areas, areas of disturbance, rehabilitation and management methods, progressive rehabilitation and closure timeframe infrastructure proposed to be retained onsite
 - (h) For any infrastructure is proposed to be retained, state the required actions to ensure it is safe, stable and does not cause environmental harm. Provide evidence of agreement of any infrastructure that will have ownership transferred (e.g. landholder agreement) and how it is consistent with the proposed post-mining land use
 - (i) include details of how ongoing consultation will be undertaken to discuss rehabilitation to be carried out under the plan

²⁵ See: State Government, *Areas of Regional Interest* (website) available at: <https://www.planning.qld.gov.au/planning-issues-and-interests/areas-of-regional-interest>

²⁶ Queensland Government, Progressive rehabilitation and closure plan (PRCP plans) – Statutory guideline, ESR/2019/4964

²⁷ Stable condition is defined in section 111A of the EP Act.

- (j) include details of how waterway barriers will be removed, or if not removed, how fish passage will be reinstated
 - (k) 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 government or the Australian Government
 - (l) for each proposed post-mining land use, state the 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
 - (m) identify the risks of a stable condition for land identified as a proposed post-mining land use not being achieved, and detail measures to manage or minimise the risks
 - (n) demonstrate how the post-mining land use aligns with the surrounding regional ecosystems and promotes connectivity of habitats, where relevant
 - (o) demonstrate how species selection for PMLUs to be rehabilitated to a native ecosystem aligns with key regional ecosystem (RE) species and the pre-mining and surrounding land use.
 - (p) for each proposed NUMA, provide details of how the area has been minimised, and state the reasons (with supporting scientific evidence) why the area cannot be rehabilitated to a stable condition because of either of the below:
 - (i) carrying out rehabilitation of the land would cause a greater risk of environmental harm than not carrying out the rehabilitation or
 - (ii) 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 proponent 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
 - (q) include copies of reports or other evidence relied on for each proposed non-use management area
 - (r) for each proposed NUMA, state the proposed methodology for achieving best practice management of the area to support the management milestones under the proposed PRCP schedule for the area
 - (s) include the required spatial files as outlined in Submission of a progressive rehabilitation and closure plans (ESR/2019/4957)
 - (t) include other information requirements outlined in Guideline – Progressive rehabilitation and closure plans.²⁸
- 12.7 Show a comparison of pre-activity site topography and the expected final topography of the site with any excavations, waste areas and dam sites on suitably scaled maps. Discuss how the expected final topography and PMLU is aligned with the long-term land use planning in the area.
- 12.8 Illustrate the location of proposed infrastructure (including tailing storage facilities, dams, voids and waste rock dumps, disturbed and rehabilitated areas) in relation to the flood plain as defined by section 41C(3) of the Environmental Protection Regulation and in accordance with the *Guideline – Progressive rehabilitation and closure plans* and the *Voids in Flood Plains information sheet*.²⁹
- 12.9 Describe how the costs of rehabilitation have been considered in the proposed rehabilitation outcomes for the project. Provide an estimation of rehabilitation costs for the project in its year of maximum

²⁸ Queensland Government, *Statutory Guideline – Progressive rehabilitation and closure plans*, ESR/2019/4964.

²⁹ Queensland Government, *Voids in floodplains – Information sheet*, ESR/2019/49662.

rehabilitation liability, demonstrated to be in accordance with the approved calculation methodology in *Estimated rehabilitation cost under the Environmental Protection Act 1994*, *Estimated rehabilitation cost calculator – mining and petroleum and gas*, and *User guide for estimated rehabilitation cost calculator user guide – mining and petroleum and gas*.³⁰

PRCP schedule

- 12.10 Provide a proposed PRCP schedule which describes time-based milestones for achieving each post-mining land use or non-use management areas for the project.³¹ Present the proposed PRCP schedule in the table template included in Submission of a progressive rehabilitation and closure plan.³²
- 12.11 The proposed PRCP schedule, must identify:
- (a) all land within the resource tenure as either a PMLU or NUMA
 - (b) when land becomes available for rehabilitation or improvement
 - (c) rehabilitation milestones to achieve a post-mining land use
 - (d) management milestone to achieve a non-use management area
 - (e) milestone criteria that demonstrate when each milestone has been completed
 - (f) completion dates for each milestone to be achieved
 - (g) a final site design – a map showing the maximum disturbance footprint, resource tenure boundaries, PMLU(s) and NUMA(s) for the land within the resource tenures, and flood plain extent.
 - (h) reference map – a map showing the rehabilitation areas and improvement areas.
 - (i) all milestone criteria must be consistent with the SMART principles.³³
- 12.12 Demonstrate that effective, long-term planning for rehabilitation over the life of the mine has been included in the mine planning in line with matters raised in *Guideline – Progressive rehabilitation and closure plans*.³⁴

13. First Nations cultural heritage

Existing environment

- 13.1 Identify the Aboriginal peoples and/or Torres Strait Islander peoples who are the Traditional Custodians of the land and waters within the project footprint, surrounding area and potential impact area.
- 13.2 Identify the existing and potential Aboriginal peoples' and/or Torres Strait Islander peoples' cultural heritage values and the environmental values of the cultural landscape of the affected area in terms of the physical and cultural integrity of lands and waters potentially affected by the project. This is to be undertaken in consultation with relevant Aboriginal peoples and/or Torres Strait Islander peoples consistent with consultation and engagement requirements identified in Section 7 of this document.

³⁰ Queensland Government, *Guideline – Estimated rehabilitation cost under the Environmental Protection Act 1994*, ESR/2018/4425; Queensland Government, *Estimated rehabilitation cost calculator – mining*, ESR/2015/1824; Queensland Government, *Estimated rehabilitation cost calculator – petroleum and gas*, ESR/2015/1824; Queensland Government, *User Guide for Estimated Rehabilitation Cost Calculator for Mining*, ESR/2019/4626; Queensland Government, *User Guide for Estimated Rehabilitation Cost Calculator for Petroleum and Gas*, ESR/2019/4627.

³¹ The TOR is not an exhaustive list of all PRCP requirements. All milestone criteria must be consistent with the SMART principles and PRCP content must meet all requirements as described in Queensland Government, *Guideline – Progressive rehabilitation and closure plans* (PRC Plans), ESR/2019/4964.

³² Queensland Government, *Submission of a progressive rehabilitation and closure plan*, ESR/2019/4957.

³³ 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.

³⁴ Queensland Government, *Guideline – Progressive rehabilitation and closure plans* (PRC Plans), ESR/2019/4964.

- 13.3 Any desktop assessment is to be verified and supported by an appropriate field survey, consultation or other investigation of the project footprint. The survey, consultation or other investigation must be sufficient to support the preparation of a cultural heritage management plan (CHMP) in accordance with the *Aboriginal Cultural Heritage Act 2003* and/or *Torres Strait Islander Cultural Heritage Act 2003*.

Impact assessment

- 13.4 Detail potential impacts on Aboriginal peoples' and Torres Strait Islander peoples' cultural heritage in accordance with the *Aboriginal and Torres Strait Islander cultural heritage – EIS information guideline*.³⁵ Consider every aspect of the environment that has a cultural dimension.

Mitigation measures

- 13.5 Develop a CHMP for the project in accordance with the requirements of Part 7 of the *Aboriginal Cultural Heritage Act 2003* and/or *Torres Strait Islander Cultural Heritage Act 2003* and identify any associated agreements that have been reached.³⁶ The area covered by the CHMP must include the project's potential impact area being assessed in the EIS.

14. Non-Indigenous cultural heritage

Existing environment

- 14.1 Describe the known and potential historic heritage values that are protected under the *Queensland Heritage Act 1992* and may be impacted by the project.
- 14.2 Undertake a study of and describe the known and potential historic heritage values that may be affected by the project in accordance with the *Non-Indigenous cultural heritage – EIS information guideline*.³⁷ After identifying local and state values, assess the values against the respective thresholds using recognised criteria.
- 14.3 In consultation with the Queensland Museum, review and assess the extent and stratigraphic context of fossil deposits (if any) within the project footprint to determine their value to the community, such as age, species, rarity and representation, if relevant.

Impact assessment

- 14.4 Detail potential impacts on non-Indigenous cultural heritage values.

Mitigation measures

- 14.5 Propose mitigation measures to avoid and minimise harm to non-Indigenous cultural heritage values in accordance with the *Non-Indigenous cultural heritage – EIS information guideline*. Management and mitigation strategies should include provisions for discoveries of potentially significant archaeological artefacts in accordance with section 89 of the *Queensland Heritage Act 1992* and include reference to the *Guideline - Archaeological Investigations and Assessing cultural heritage significance: Using the cultural heritage criteria*.³⁸
- 14.6 In consultation with the Queensland Museum, identify strategies to mitigate and/or manage impacts on fossils should they be found within the project footprint, if relevant.

³⁵ Queensland Government, *Aboriginal and Torres Strait Islander cultural heritages – EIS information guideline*, ESR/2020/5296.

³⁶ Unless section 86 of the *Aboriginal Cultural Heritage Act 2003* or the *Torres Strait Islander Cultural Heritage Act 2003* applies.

³⁷ Queensland Government, *Non-Indigenous cultural heritage – EIS information guideline*, ESR/2020/5302.

³⁸ Queensland Government, *Guideline – Archaeological Investigations* (Department of Environment and Science, 2019); Queensland Government, *Assessing cultural heritage significance – using the cultural heritage criteria*, 2017.

- 14.7 Include a strategy to address unexpected archaeological discoveries, remains and/or historic cultural places.

15. Flora and fauna

- 15.1 Guidance material relevant for the flora and fauna assessment includes:
- (a) Queensland Government, *Aquatic ecology – EIS information guidelines*, ESR2020/5295
 - (b) Queensland Government, *Terrestrial ecology – EIS information guideline*, ESR/2020/5309
 - (c) Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301
 - (d) Queensland Government, *Water – EIS information guideline*, ESR/2020/5312
 - (e) Queensland Government, *Matters of national environmental significance – EIS information guideline*, ESR/2020/5304
 - (f) Queensland Government, *Biosecurity – EIS information guideline*, ESR/2020/5297
 - (g) Queensland Government, Business Queensland, Fish salvage (website), available at: www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/salvage
 - (h) Queensland Government, *Policy for Vegetation Management*, VEG/2014/1084
 - (i) Queensland Government, Waterway Barrier Works (website), available at: www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/barriers.

Existing environment

- 15.2 Describe the legislative context for flora and fauna in the project footprint and surrounding area, including the protection and conservation status of each identified ecological value under the EP Act, *Nature Conservation Act 1992*, *Fisheries Act 1994*, *Vegetation Management Act 1999* (VM Act), EPBC Act, *Environmental Offsets Act 2014*, local government planning scheme and any other relevant statutory instrument.
- 15.3 Identify and describe MNES, matters of state environmental significance (MSES), matters of local environmental significance (MLES), fauna and flora of cultural significance to Aboriginal peoples and/or Torres Strait Islander peoples, state and regionally significant biodiversity, and the environmental values of the terrestrial and aquatic ecosystems likely to be impacted by the project.³⁹ The description should include flora and fauna environmental values in the project area, and surrounding areas, identified in desktop analysis and field surveys, and shown on maps in relation to their habitat and connectivity in the landscape (including upstream and downstream of the project). This includes, but is not limited to the following:
- (a) regulated vegetation under the VM Act
 - (b) regional ecosystems and biodiversity status
 - (c) connectivity areas

³⁹ The Queensland Government, *State Planning Policy*, 2017 definition of MSES should be considered in the context of describing flora and fauna values in the project footprint. Consider: Queensland Government, *Aquatic ecology-EIS information guidelines*, ESR2020/5295; Queensland Government, *Terrestrial Ecology- EIS information guideline*, ESR/2020/5309; Queensland Government, *Business Queensland, Fish salvage* (website), available at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/salvage; Queensland Government, *Policy for Vegetation Management*, VEG/2014/1084; Queensland Government, regional ecosystem descriptions, available at www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions; ; Queensland Government, Waterway Barrier Works (website), available at: www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/barriers.

- (d) wetlands and waterways
 - (e) threatened ecological communities and wildlife habitat
 - (f) migratory species, listed threatened species, near threatened and special least-concern species
 - (g) groundwater dependent ecosystems (GDEs)
 - (h) protected areas and conservation areas
 - (i) conservation parks and scientific research
 - (j) waterways providing for fish passage
 - (k) declared fish habitat areas
 - (l) designated precincts in a strategic environmental area under the Regional Planning Interests Regulation 2014
 - (m) biodiversity offset areas approved by the State or Australian governments (if any).
- 15.4 Describe, with photographs and detailed mapping (at a suitable scale), the context of the project footprint in relation to surrounding MNES/MSES/MLES (or any matter identified at TOR item 15.3) including the location of project activities, disturbance footprint, infrastructure and buffers.
- 15.5 Identify MSES (and MLES, where relevant) that are also MNES and provide specific cross-referencing throughout the draft EIS to demonstrate where the matter has been assessed in the MNES chapter.
- 15.6 Provide details of the scope, methodology, timing, effort and results of the field surveys (including spatial data for the survey sites, extent and location of transects, and fauna and flora records on site) undertaken in the EIS.⁴⁰ Field surveys should appropriately cover seasonal fluctuations in conditions (i.e. wet and dry seasons). Ecological survey reports (including field proformas and data sheets) should be provided as searchable and hyperlinked appendices.
- 15.7 Describe, using relevant literature, habitat mapping, and the results of surveys, the natural and existing upstream and downstream movement and habitat requirements identified at TOR 15.3 in the project area and surrounding area. Identify sensitivity to change of aquatic and terrestrial flora and fauna groups, REs, and significant species.
- 15.8 In the context of species identified at TOR 15.3, describe the existing quality and suitability of habitat for species known to occur, likely to occur, or have the potential to occur in the project footprint. Provide the area of existing habitat in hectares for each species in the project footprint based on field verification. For habitat area calculations, identify the area of remnant vegetation and the use (if any) of high value regrowth vegetation and non-remnant areas.
- 15.9 Discuss how environmental values relating to flora and fauna have adequately informed the project design (i.e. a constraints analysis has led to impact, avoidance and mitigation).
- 15.10 Address any obligations imposed by state or Commonwealth legislation or international treaty obligations, such as the China–Australia Migratory Bird Agreement, Japan–Australia Migratory Bird Agreement, Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) or Republic of Korea–Australia Migratory Bird Agreement.

⁴⁰ Guidance materials relevant to survey methods include Queensland Government, *Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland*, Version 7.0, 2023 (or subsequent revision); Queensland Government, *Flora Survey Guidelines – Protected Plants*, NCS/2016/2534; Queensland Government, *Terrestrial Vertebrate Fauna Survey Guidelines For Queensland*, Version 4.0, 2022 (or subsequent revision). For targeted survey guidelines see: Queensland Government, Terrestrial vertebrate fauna survey guidelines (webpage) at www.qld.gov.au/environment/plants-animals/biodiversity/vertebrate-survey#download

Impact assessment

- 15.11 Describe all relevant impacts (direct, indirect, cumulative and facilitated) on biodiversity and natural environmental values identified at TOR item 15.3 (including the type of habitat impacted, such as breeding, roosting, migration or recruitment pathways, nesting and foraging habitat) from the project across all stages. The assessment should consider known and potential impacts of the project, and must include:
- (a) terrestrial and aquatic ecosystems including groundwater-dependent ecosystems⁴¹
 - (b) biological diversity
 - (c) the integrity of ecological processes, including habitats of listed threatened, near threatened or special least concern species
 - (d) connectivity within and between aquatic and terrestrial habitats and ecosystems
 - (e) identification of analogous (reference) sites and the collection of sufficient baseline information to inform rehabilitation criteria post mining
 - (f) the integrity of landscapes and places, including wilderness and similar natural places
 - (g) chronic, low-level exposure to contaminants or the bioaccumulation of contaminants
 - (h) 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; artificial light; and other relevant matters
 - (i) impacts of waterway barriers on fish passage in all waterways (consider waterways that are mapped on the Queensland Waterways for Waterway Barrier Works spatial data layer and waterways that are present on the ground that are not mapped), including details of any significant diversion or interception of water flows and the effects of subsidence and groundwater drawdown.
- 15.12 When identifying impacts, ensure figures are appropriately scaled and provided for each activity/component and for each phase of the project.
- 15.13 Describe any actions of the project that require an authority under the *Nature Conservation Act 1992*, and/or would be accepted or assessable development for the purposes of the EP Act, *Fisheries Act 1994*, VM Act and *Planning Act 2016*. Features to consider include regional ecosystems, environmentally sensitive areas, wetlands, nature refuges, protected areas and strategic environmental areas.
- 15.14 Identify where any proposed clearing is accepted or exempt development under relevant planning instruments.
- 15.15 Provide an assessment against the relevant prescribed solution(s) for any areas regional interest potentially impacted by the project, if relevant.⁴²
- 15.16 Provide an assessment against SDAP *State code 15: Removal of quarry material from a watercourse or lake* for any assessable operational works required for the project, including construction activities, if relevant.
- 15.17 Provide an assessment against SDAP *State code 16: Native vegetation clearing* addressing the relevant assessment benchmarks, if relevant.⁴³
- 15.18 Provide an assessment against SDAP *State code 12: Development in a declared fish habitat area*, if relevant.

⁴¹ Queensland Government, *Groundwater dependent ecosystems - EIS information guideline*, ESR/2020/5301. Consider: Australian Government, *Information Guidelines Explanatory Note – Assessing groundwater-dependent ecosystems*, 2019.

⁴² Schedule 2, Part 5, section 15, Regional Planning Interests Regulation 2014.

⁴³ Including the following (or subsequent revisions) available at: <https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/development-approvals/sdap>: *Guide to State Development Assessment Provisions State code 16: Native vegetation clearing, Coordinated project - agriculture, Coordinated project - all other purposes, Coordinated project - extractive industry*.

- 15.19 Provide an assessment against SDAP *State code 18: Constructing or raising waterway barrier works in fish habitats* for any assessable waterway barrier works required for the project, including construction activities, if relevant.⁴⁴

Mitigation measures

- 15.20 Demonstrate how the proposal avoids native vegetation clearing, or where avoidance is not reasonably possible, minimises clearing to conserve vegetation, avoid land degradation and maintain ecological processes.
- 15.21 Describe how the project will be designed, constructed and operated to avoid direct, indirect, cumulative or facilitated impacts on ecological environmental values.
- 15.22 Where impacts to MSES cannot reasonably be avoided, describe measures to minimise and then mitigate the direct, indirect, cumulative or facilitated impacts on ecological values.
- 15.23 Assess how nominated quantifiable indicators and standards may be achieved for nature conservation management through a structured cycle of baseline measurement, targeted intervention, and rigorous monitoring. Address measures to protect or preserve any listed threatened, near threatened or special least concern species. Describe the practicality, effectiveness and risks for each avoidance and mitigation measure. Include the timeframes in which results would be achieved, frequency of monitoring, and how corrective actions will be managed for all phases of the project.
- 15.24 Justify how applying all proposed avoidance and management measures would result in acceptable outcomes for terrestrial and aquatic ecology. Describe how achieving the measures will be monitored, measured and audited. Include provisions to regularly evaluate all the mitigation measures so that improvements may be made as new technologies and best practices evolve.
- 15.25 Propose measures that would avoid the need for waterway barriers. Where waterway barrier works cannot be reasonably avoided, propose measures to mitigate the impacts of their construction and operation.
- 15.26 Describe, illustrate, and demonstrate how the project provides safe and adequate upstream and downstream aquatic fauna passage, including all monitoring and maintenance measures.
- 15.27 Detail measures to ensure waterway diversions are designed and constructed to resemble the natural waterway they replace. Demonstrate waterway diversions tie in with the natural bed and banks of waterways upstream and downstream of the diversion. Demonstrate any proposed diversion will function as a natural waterway and will provide and maintain similar connectivity, hydrological, hydraulic and environmental conditions and include similar profiles, fish habitat and fish passage features.
- 15.28 Describe and illustrate any screening incorporated to prevent the entrainment of fish into water pumping infrastructure.
- 15.29 Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors. The assessment must take into account the role of buffer zones in maintaining and enhancing riparian vegetation and wetlands to improve water quality, promote habitat connectivity and provide habitat.
- 15.30 Propose rehabilitation criteria, in relation to environmental values, that would be used to measure progressive rehabilitation of disturbed areas. Describe how the achievement of the rehabilitation criteria will be monitored and audited, and how corrective actions will be managed. Proposals for rehabilitation of

⁴⁴ Queensland Government, *Waterway barrier works* (website) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/barriers; Queensland Government, *Waterways in Queensland* (website) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/qld; Queensland Government, *Accepted development requirements for operational work that is constructing or raising waterway barrier works, 2018* (or subsequent revision); Queensland Government, *Queensland waterways for waterway barrier works mapping version 3 update, 2023*; Queensland Government, *SDAP Guideline State code 18: Constructing or raising waterway barrier works in fish habitats, 2022* (or subsequent revision); Queensland Government, *Fisheries development approvals and accepted development* (webpage) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/approvals.

disturbed areas must, in suitable habitat, describe terrestrial and aquatic fauna habitat features to achieve rehabilitation outcomes.⁴⁵

- 15.31 Demonstrate how the project will meet the environmental objectives and performance outcomes of the EP Regulation.

Environmental offsets

Environmental Offsets must be addressed to the satisfaction of the Coordinator-General, with the requirements determined on a project-by-project basis. The minimum requirements are detailed below.

- 15.32 After demonstrating that all reasonable steps have been taken to avoid and then mitigate impacts, identify whether the project will result in a significant residual impact (SRI) to MSES/MLES requiring an environmental offset with reference to the Queensland Environmental Offsets policy, *Significant Residual Impact Guideline*, and Queensland environmental offset framework.⁴⁶ Characterise the scale of SRI in hectares.
- 15.33 Propose offsets consistent with the relevant state and Commonwealth legislation or policies for any SRI:
- (a) if an SRI will occur on a prescribed environmental matter as outlined in the Environmental Offsets Regulation 2014, offset(s) must be consistent with the requirements of the *Environmental Offsets Act 2014* and the latest version of the Queensland Environmental Offsets Policy⁴⁷
 - (b) if the Australian Government's offset policy requires an offset for a significant impact on a MNES, offset(s) must be consistent with the requirements of the EPBC Act Environmental Offsets Policy (2012) (Offsets Policy).⁴⁸
- 15.34 In addition to TOR item 15.33, propose environmental offsets, that at a minimum:
- (a) identify and illustrate the extent of any SRI overlap between impacts on MSES/MLES and MNES
 - (b) include a detailed analysis that demonstrates how/why the MSES/MLES is the same or substantially the same prescribed matter and the same or substantially the same impact as the MNES being assessed by the Australian Government
 - (c) for staged offsets, consider the full extent of potential impacts on prescribed environmental matters for the entire project as part of the SRI assessment
 - (d) identify whether an SRI to MSES will be addressed through a financial or proponent driven offset (land-based offset)
 - (e) evaluate how the proposed offset will achieve a conservation outcome for the impacted matter
 - (f) for land-based offsets:
 - (i) provide results of a habitat quality assessment on both the impact area and the proposed offset area(s) to compensate for impacts⁴⁹

⁴⁵ Consider: Queensland Government, *Rehabilitation – EIS information guideline*, ESR/2020/5308.

⁴⁶ State Government, *Environmental Offsets – Legislation- Environmental offset framework* (webpage) at www.qld.gov.au/environment/management/environmental/offsets/legislation. See also: Queensland Government, *General guide for the Queensland Environmental Offsets Framework*, EPP/2021/5541; Queensland Government, *Queensland Environmental Offsets Policy*, EPP/2015/1658; Queensland Government, Department of Environment and Heritage Protection, *Queensland Environmental Offsets Policy: Significant Residual Impact Guideline*, 2014 (or subsequent revision); Queensland Government, *Significant Residual Impact Guideline: For matters of state environmental significance and prescribed activities assessable under the Sustainable Planning Act 2009 – Queensland Environmental Offsets Policy*, 2014 (or subsequent revision). Note: Environmental Offsets Regulation 2014 (Qld) defines prescribed environmental matters including MSES and MLES.

⁴⁷ Queensland Government, *Queensland Environmental Offsets Policy*, EPP/2015/1658.

⁴⁸ Australian Government, Department of Sustainability, *Environment, Water, Population and Communities, EPBC Act offsets policy*, 2012.

⁴⁹ Before undertaking habitat quality assessments, consult with the Office of the Coordinator-General regarding the relevant methodology.

- (ii) assess the vulnerability and resilience of any proposed offset site(s) under climate change scenarios (e.g. reduced water availability, increased bushfire risk, increased flood risk, sea level rise)
 - (iii) describe any active restoration actions that would be undertaken to improve, enhance and manage native vegetation or threatened species habitat at the proposed offset site
 - (g) for financial offsets, provide a financial offset calculation.
- 15.35 Describe how the achievement of the offset will be monitored and audited, and how corrective actions will be managed.
- 15.36 Describe any proposed measures that would be used to avoid, minimise, or mitigate any impact on agricultural land of state or regional significance when meeting environmental offset requirements required for the project.

16. Biosecurity

- 16.1 The following guidance is relevant for the biosecurity assessment:
- (a) Queensland Government, *Biosecurity-EIS information guideline*, ESR/2020/5297.

Existing environment

- 16.2 Survey terrestrial and aquatic pest animals and weeds and describe their current distribution and abundance in the project footprint and surrounds.⁵⁰ Field surveys should appropriately cover seasonal fluctuations in conditions (i.e. wet and dry seasons). Provide maps showing pest animal and weeds distribution in relation to the project footprint and ecologically significant areas identified as containing, or likely to contain, listed flora, fauna, and ecological communities of MSES or MNES. This survey is to include prohibited and restricted matters listed in the *Biosecurity Act 2014* and Biosecurity Regulation 2016, Weeds of National Significance, pests and weeds declared under local laws, and designated pests under the *Public Health Act 2005*.

Impact assessment

- 16.3 Describe for each proposed project phase, the potential introduction or spread of terrestrial and aquatic pest animals, terrestrial, aquatic plant or weed species, and disease within the project footprint, construction and operations access routes, and into adjoining properties (where relevant).⁵¹

Mitigation measures

- 16.4 Propose detailed measures using best practice to prevent, remove, control and limit the spread of pests, weeds, diseases, pathogens and contaminants within and surrounding the project footprint and adjacent areas. Detail alignment with any relevant local government area Biosecurity Plans and pest management priorities or initiatives undertaken by Biosecurity Queensland. Include a discussion on minimising any susceptibility to biosecurity risks with the introduction and/or expansion of temporary and permanent infrastructure.

⁵⁰ Guidance materials relevant to survey methods include: Queensland Government, *Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland*, Version 7.0, 2023 (or subsequent revision); Queensland Government, *Flora Survey Guidelines – Protected Plants*, NCS/2016/2534; Queensland Government, *Terrestrial Vertebrate Fauna Survey Guidelines For Queensland*, Version 4.0, 2022 (or subsequent revision). For targeted survey guidelines see: Queensland Government, Terrestrial vertebrate fauna survey guidelines (webpage) at www.qld.gov.au/environment/plants-animals/biodiversity/vertebrate-survey#download

⁵¹ Queensland Government, *Biosecurity – EIS information guideline*, ESR/2020/5297.

- 16.5 All proposed measures are to be in accordance with any relevant biosecurity surveillance or prevention measures authorised under the *Biosecurity Act 2014*, any requirements under the VM Act or *Planning Act 2016* and aligned with local government pest management priorities.
- 16.6 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. Performance outcomes should correspond to the relevant policies, legislation and guidelines, and sufficient evidence should be supplied (through studies and proposed management measures) to show these outcomes can be achieved.

17. Water resources

- 17.1 The following guidance is relevant for the assessment of water resources:
- (a) Queensland Government, *Water – EIS information guideline*, ESR/2020/5312
 - (b) Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301
 - (c) Queensland Government, *Application requirements for activities with impacts to water*, ESR/2015/1837
 - (d) Queensland Government, *Stormwater and environmentally relevant activities*, ESR/2015/1653
 - (e) Queensland Government, Our policies (website), available at: www.dlgwv.qld.gov.au/about-us/our-policies
 - (f) Queensland Government, *Requirement for site-specific and amendment applications-underground water rights – Guideline*, ESR/2016/3275
 - (g) Australian Government, *Information guidelines for proponents preparing coal seam gas and large coal mining development proposals*, IESC 2024.

Existing environments

- 17.2 Describe the legislative context for water resources in the project footprint and surrounding area, including the Water Act and relevant approvals, provisions (e.g. outcomes, strategies and objectives) of the relevant water plan(s), water management protocols and other relevant water planning instruments relevant to the project.
- 17.3 Describe, map, name and illustrate water features within the existing surface water environment in the project footprint, surrounding area and potential impact area including:
- (a) natural, modified, ephemeral and perennial waterways, watercourses,⁵² drainage features, lakes (including waterholes, lagoons, wetlands and swamps) and springs
 - (b) drainage patterns, catchments, stream order, sediment processes and geomorphology
 - (c) hydrology and streamflow characteristics, including the frequency, duration and magnitude of flow events, and seasonal variations (supported by site-specific hydrological modelling)
 - (d) flooding and overland flow patterns, including flood-prone or low-lying land within the project footprint

⁵² Note that the terms 'watercourse' and 'waterway' are defined in the *Environment Protection Act 1994* and the *Fisheries Act 1994*. The terms 'watercourse', 'drainage feature' and 'spring' are defined in the *Water Act 2000* and can be identified on the Watercourse Identification Map (WIM) at www.business.qld.gov.au/industries/mining-energy-water/water/maps-data/watercourse-map. Features mapped as "unmapped" or missing on the WIM may require a watercourse determination request.

- (e) waterways providing for fish passage, and natural or artificial waterway barriers
 - (f) alterations or interferences with the flow regime, including impoundments (dams, weirs, etc.) diversions, levees and stormwater management systems
 - (g) groundwater-surface water interactions, including identification of waterways as gaining or losing streams, and potential for groundwater baseflow to other water features (e.g. wetlands)
 - (h) current and potential surface water uses and users, including supported environmental values (e.g. aquatic ecosystem health), licenced and unlicensed abstraction (including location, purpose and volumes where relevant) their existing condition and the streamflow required to support uses and users
 - (i) the significance of water features within the local and regional surface water environment
 - (j) the sensitivity of the surface water environment to change, particularly within the context of project-related changes.
- 17.4 Describe, map and illustrate the existing groundwater environment within the project footprint, surrounding area and potential impact area, including for each relevant groundwater formation:
- (a) its nature, type, geology/lithology, stratigraphy, thickness, depth and propensity to outcrop/sub crop
 - (b) its hydraulic properties, vertical and horizontal connectivity (including inter-aquifer connectivity, groundwater-surface water interaction and barriers to flow) and the effects of geological structures (e.g. faults and dykes)
 - (c) hydrostratigraphical characteristics including groundwater flow, recharge and discharge, current and historical groundwater levels (supported by hydrographs), seasonal variations and other trends, contours and flow directions
 - (d) current and potential groundwater uses and users, including supported environmental values (e.g. Groundwater dependent ecosystem (GDEs), water supply bores, etc.), authorised (licensed and unlicensed) abstraction (including purpose and volumes where relevant), location and source of existing groundwater supply facilities (e.g. bores or wells) and the groundwater levels required to support uses and users
 - (e) its significance within the local and regional environment
 - (f) its sensitivity to change, particularly within the context of project-related impacts.
- 17.5 Develop an ecohydrological conceptual model using illustrations, maps and cross-sections that represents the groundwater and surface water components and how they interact with ecological and human uses and users within the project footprint, surrounding area and potential impact area in consideration of the *Information Guidelines Explanatory Note – Using impact pathway diagrams based on ecohydrological conceptualisation in environmental impact assessment*.⁵³
- 17.6 Describe investigation and monitoring programs to support characterisation of the existing water environment (including sediment), and demonstrate that it is supported by sufficiently robust site-specific data, and is in accordance with relevant guidelines and best practice by:⁵⁴

⁵³ Note that the terms 'watercourse' and 'waterway' are defined in the *Environment Protection Act 1994* and the *Fisheries Act 1994*. The terms 'watercourse', 'drainage feature' and 'spring' are defined in the *Water Act 2000* and can be identified on the Watercourse Identification Map (WIM) at www.business.qld.gov.au/industries/mining-energy-water/water/maps-data/watercourse-map. Features mapped as "unmapped" or missing on the WIM may require a watercourse determination request.

⁵⁴ Queensland Government, *Monitoring and sampling manual – Environmental Protection (Water) Policy 2009*, 2nd edition, 2018; National Uniform Drillers Licensing Committee, *Minimum Construction Requirements for Water Bores in Australia*, 4th edition, 2020; Australian and New Zealand Governments, *Australian and New Zealand guidelines for fresh and marine water quality*, 2018.

- (a) justifying the number and spatial extent of monitoring locations (including reference locations), relevant to the existing environment and proposed project activities or infrastructure
 - (b) justifying the frequency and duration of monitoring periods
 - (c) providing monitoring bore stratigraphy and drilling logs
 - (d) describing monitoring and sampling methods and equipment
 - (e) describing any limitations of the monitoring network or dataset (e.g. reliance on third party access) and how and when these limitations will be addressed
 - (f) justifying the representativeness and suitability of the monitoring network to characterise the existing environment, establish baseline conditions (including natural variations) and monitor project-related impacts.
- 17.7 Develop hydrological models to describe the inputs, movements, exchanges and outputs of all significant quantities of surface water and groundwater resources that may be affected by the project. The models must:
- (a) address the range of climatic conditions and the potential for cumulative impacts that may be experienced at the site
 - (b) adequately address the potential impacts of the project on water resources
 - (c) include a site water balance.
- 17.8 Present all available site-specific water quality and flow data for each monitoring location, incorporating any relevant historical data. Include data date range of sampling for each indicator and location, as well as number of samples collected. Include summary statistics for validated data in a tabulated form and present clear time series graphs for all indicators and each monitoring location within the EIS. Where relevant, graph and describe the interrelationship between local stream flow and electrical conductivity for receiving waterways. Provide raw monitoring data in a specified electronic format, upon request.

Impact assessment

- 17.9 Identify the location of all project activities, disturbance footprint and infrastructure in relation to the existing water environment.
- 17.10 Describe and map project water management infrastructure including water storages, regulated structures, inundation areas, drains, diversions, levees, water treatment plant, water pipelines, irrigation areas, discharge points and monitoring points. Provide the flow rate and dimensions of water flow diversions and the dimensions and volumes of impoundments.
- 17.11 Describe the project's water supply requirements for each stage of the project. Identify and evaluate all water supply options for the project, including any options available under the relevant water plan. Detail the source(s)/location(s), type(s) (e.g. potable, raw), volumes required, storage locations, security, availability and quality of supply, expected rates of usage and water treatment requirements.
- 17.12 Describe and quantify any temporary or permanent watercourse diversion and include scaled plans and cross-sections of the proposed diversion. Demonstrate how the proposed functional design of any diversion would address the key principles and achieve each of the outcomes of *Works that interfere with water in a watercourse for a resource activity—watercourse diversions authorised under the Water Act 2000* in sufficient detail to facilitate assessment.⁵⁵

⁵⁵ Queensland Government, *Works that interfere with water in a watercourse for a resource activity—watercourse diversions authorised under the Water Act 2000*, OSW/2019/4599.

- 17.13 Describe the project's direct and indirect water take/interference, including groundwater dewatering, and alteration of drainage characteristics (e.g. diversion or interception of waterways or overland flow) to facilitate project water management.
- 17.14 Provide a detailed water balance for the project across all project stages. Include groundwater collected during dewatering, and management of incident rainfall on disturbed areas such as spoil piles. Quantify the water balance analysis including evaporative and seepage losses from relevant infrastructure. Identify quantities of water the project will require to release and any proposed measures to reduce the volume of water to be released (suitability and quantities used for dust suppression, irrigation, evaporation, etc.).
- 17.15 Describe and map any waterway barrier works that may interfere with fish passage. Include any upstream inundation areas caused by project infrastructure; and impacts to downstream flow regimes that may impact fisheries resources that are reliant on environmental flows. Measure and document the main channel and bankfull widths of each impacted waterway at representative points throughout the impacted area.
- 17.16 Describe and map any activities or disturbance in, or within 40 metres of, the bed and banks of a watercourse, lake or spring as defined by the Water Act. Describe, map and justify the extraction of materials obtained from the bed and banks of the watercourse, lake or spring. Describe any exemptions or approvals that may be required for these activities and provide the relevant information.⁵⁶
- 17.17 Describe the proposed water supply and direct and indirect water usage/interference, including the details and timing of relevant authorisations and approvals (e.g. allocations, licences, agreements, exemptions, unallocated water). Identify the water that is regulated under the relevant legislative instruments, and how it applies/does not apply to the project. Describe how the project, including proposed authorisations and approvals for all project stages (including post-closure) would address and satisfy the relevant criteria in the Water Act and the relevant water plan(s).
- 17.18 Supported by hydrological modelling, prepare a detailed water balance for the project including for each stage of the project, considering temporary and long-term water requirements. Identify and assess the impacts of project activities, disturbance and infrastructure on surface water resources, existing or potential water users and uses, and relevant environmental values. Analyse and describe the significance of direct, indirect and cumulative impacts on water features, hydrology and flow characteristics, drainage patterns, sediment processes, geomorphology, groundwater-surface water interactions, and the environmental values supported by these features and characteristics (e.g. dry season refugia, recreation facilities). Analyse and describe the significance of impacts in the context of local and regional water resources, and with reference to provisions of the relevant water plan(s), water management protocols and other water planning instruments relevant to the project.
- 17.19 Develop a numerical groundwater model in accordance with the relevant guidelines that:⁵⁷
- (a) is consistent with the ecohydrological conceptual model
 - (b) predicts project-only and cumulative groundwater changes to:
 - (i) groundwater drawdown or pressure changes in affected formations (drawdown assessment is to include impacts from early works, drainage of gas, CSG extraction, gate road construction and underground longwall mining)
 - (ii) groundwater flows, inter-aquifer connectivity, recharge and discharge
 - (iii) groundwater-surface water connectivity

⁵⁶ Queensland Government, *Riverine protection permit exemption requirements*, WSS/2013/726. Business Queensland, *Authorisations to remove quarry material* at <https://www.business.qld.gov.au/industries/mining-energy-water/resources/quarries/riverine-materials/authorisations>.

⁵⁷ Australian Government, *Australian groundwater modelling guidelines*, 2012.

- (iv) groundwater uses and users
 - (c) simulates groundwater impacts for the life of project and post closure, with sufficient timeframe to assess long term impacts, and potential plume behaviour and aquifers recovery
 - (d) explicitly represents subsidence in a manner that is consistent with supporting subsidence studies, which should include temporal effects on hydraulic properties and inter-aquifer connectivity/connectivity to surface systems
 - (e) connects model outputs to groundwater monitoring design and defines adaptive management strategies (e.g. drawdown thresholds or contaminant concentrations)
 - (f) is peer reviewed by an independent third-party specialist, and accompanied by a peer review report
 - (g) is accompanied by a numerical model report that details all relevant parameters, conditions and assumptions used.
 - (h) incorporates existing data from early works (i.e. pre-drainage of gas, CSG extraction and gate road construction)
- 17.20 Supported by numerical groundwater modelling, identify and assess the impacts of project activities, disturbance and infrastructure on groundwater resources and environmental values. Analyse and describe the significance of direct and indirect impacts on aquifers and other relevant groundwater units, including groundwater levels and pressure, groundwater flows, inter-aquifer connectivity, recharge and discharge, groundwater-surface water connectivity, and the environmental values supported by these features and characteristics (e.g. GDEs, water supply bores, etc.). Analyse and describe the significance of impacts in the context of local and regional water resources, and with reference to provisions of the relevant water plan(s) and other relevant water planning instruments relevant to the project.
- 17.21 Provide an assessment against the relevant prescribed solution(s) for any area of regional interest impacted by the project, if relevant.⁵⁸
- 17.22 Use hydrological models to assess the project's potential impacts at the local and regional scale, including:
- (a) changes to flow regimes (surface and groundwater) from CSG operations, diversions, water take (including dewatering) and discharges
 - (b) alterations to riparian vegetation, and bank and channel morphology
 - (c) direct and indirect impacts arising from the project
 - (d) monitoring and adopted measures to avoid impact on local wetlands, streams, groundwater dependent ecosystems and waterways.

Mitigation measures

- 17.23 Provide a project water management strategy (including site layout and conceptual plans) that details stormwater and wastewater management systems and structures including any significant diversion or interception of overland flow, capacity of onsite detention systems, details of water sensitive urban design measures, sediment basins, discharge locations, and measures to treat, reuse or dispose of water. The strategy must account for any water taken off site, ensuring consistency with the End of Waste Codes or End of Waste approval for associated water (including CSG water). Demonstrate that project water management systems have been designed to minimise the likelihood of uncontrolled discharges and avoid or minimise impacts to the receiving environment.

⁵⁸ Schedule 2, Regional Planning Interests Regulation 2014.

- 17.24 Describe proposed measures to avoid, minimise, mitigate or offset the predicted impacts to surface water and groundwater resources, existing or potential water users and uses, and relevant environmental values. Demonstrate how proposed measures are consistent with best practice environmental management.
- 17.25 Demonstrate how the proposed project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.
- 17.26 Describe how the achievement of water resources objectives in relevant water plan(s) would be monitored, audited, reported, and how corrective/preventative actions and continual improvement would be managed. Provide measurable criteria, standards and/or indicators that will be used to assess the condition of environmental values and the receiving water environment.
- 17.27 Provide an assessment against SDAP *State code 10: Taking or interfering with water* for any assessable operational works that take or interfere with water required for the project, including construction activities, if relevant.
- 17.28 Provide an assessment against State Development Assessment Provisions (SDAP) *State code 19: Category 3 levees* for any assessable operational works requiring the development of a category 3 levee required for the project, if relevant
- 17.29 Provide an assessment against SDAP *State code 20: Referable dams* for any assessable operational works requiring the development of a referable dam required for the project, if relevant.

Water-related cultural values

Existing environment

- 17.30 Discuss Aboriginal peoples' and/or Torres Strait Islander peoples' cultural and spiritual values and water-related cultural use as relevant to the project and recognised under the *Human Rights Act 2019*.

Impact assessment and mitigation measures

- 17.31 Describe the project's potential impacts on water-related cultural values, uses and aspirations of water resources for Aboriginal peoples and/or Torres Strait Islander peoples, including consideration for cultural outcomes of the relevant water plans.
- 17.32 Describe how water-related cultural values, uses and aspirations of water resources for Aboriginal peoples and/or Torres Strait Islander peoples will be protected and/or promoted through water allocation and management strategies, relevant to the project.
- 17.33 Where country may be affected by existing or proposed projects in the area, assess the cumulative impacts of these projects on the water-related cultural values, uses and aspirations linked to water for Aboriginal peoples and/or Torres Strait Islander peoples

18. Water quality

- 18.1 The following guidance is relevant for the assessment of water quality:
 - (a) Queensland Government, *Water – EIS information guideline*, ESR/2020/5312
 - (b) Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301
 - (c) Queensland Government, *Monitoring and Sampling Manual: Environmental Protection (Water) Policy*, 2018
 - (d) Queensland Government, *Application requirements for activities with impacts to water*, ESR/2015/1837

- (e) Queensland Government, *Waste – EIS information guideline*, ESR/2020/5311
- (f) Queensland Government, *Regulated structures – EIS information guideline*, ESR/2020/5312
- (g) Queensland Government, *Technical guideline – Wastewater release to Queensland waters*, ESR/2015/1654
- (h) Queensland Government, *Stormwater and environmentally relevant activities*, ESR/2015/1653
- (i) Queensland Government, *Using monitoring data to assess groundwater quality and potential environmental impacts*, 2021.
- (j) Australian Government, *Deriving site-specific guideline values for physico-chemical parameters and toxicants*, IESC 2019
- (k) Australian and New Zealand Guidelines for Fresh and Marine Water Quality

Existing environment

- 18.2 With reference to the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 and section 9 of the EP Act, and section 40 and 41AA of the EP Regulation, identify, map and describe the environmental values of surface water and groundwater in the project footprint, surrounding area and potential impact area including wetlands, waterways, semi-permanent and permanent pools, seagrass beds, corals, any human uses and cultural values of water.
- 18.3 Identify and describe the relevant water and sediment quality objectives and guidelines applicable to the environmental values. Where there are no scheduled EPP water or sediment quality objectives for the project site, these are required to be locally derived in accordance with relevant guidelines,⁵⁹ supported by complying water quality monitoring data submitted as part of the EIS.
- 18.4 Describe current and historical surface water, groundwater, and sediment quality in terms of physical, chemical and biological characteristics in the project footprint, surrounding area and potential impact area. Characterise the nature and extent of any existing surface and groundwater contamination sources, including licenced releases from other developments, that may interact with project activities.
- 18.5 Analyse water quality variability to identify and describe trends, including those associated with seasonal or climatic factors, variability of freshwater flows and responses to natural and anthropogenic events/changes. This analysis should be supported by raw and quality assured data (including removal of statistical outliers where relevant), clearly presented statistical summaries, time-series graphs and comparisons against relevant water quality objectives and/or water quality guideline values. Use suitable reference locations and statistically robust site-specific data to adequately establish baseline condition and define natural variation, including seasonal variation. All surface water quality data should be presented alongside corresponding flow conditions at the time of sampling.
- 18.6 Within the project footprint, surrounding area and potential impact area, describe:
 - (a) the relationship of water quality to location, rainfall, stream flow and groundwater movement supported by site-specific and local catchment data
 - (b) existing water quality issues (e.g. stratification, eutrophication and deoxygenation) and/or exceedance of existing water quality objectives and/or water quality guideline values
 - (c) the confirmed or likely causes of existing water quality issues, including how they are managed (if known)

⁵⁹ Queensland Government, *Queensland Water Quality Guidelines*, 2013; Queensland Government, *Deciding aquatic ecosystem indicators and local water quality guideline values*, 2022.

- (d) correlations between groundwater quality data and surface water quality data to inform groundwater-surface water interactions.
- 18.7 Surface water samples must as a minimum be analysed for electrical conductivity, temperature, pH, sulfate, fluoride, dissolved oxygen, turbidity, total suspended solids, nutrients, dissolved and total metals and metalloids, total recoverable hydrocarbons and major anions and cations, dissolved inorganic nitrogen (DIN), fine sediment plus any other potential contaminants relevant to the project. Groundwater samples must be analysed for the same parameters (except turbidity and total suspended solids) as a minimum. Sediments should be analysed for relevant metals (e.g. those elevated above normal crustal abundance and relevant potential contaminants) and relevant influential factors (e.g. sediment particle size for metals). Sample analysis should be appropriate for relevant water quality objectives to be assessed (e.g. laboratory reporting limits appropriate for the relevant objectives).
- 18.8 Discuss how the environmental values relating to water quality informed the project design (i.e. constraints, impact mitigation).

Impact assessment

- 18.9 Describe and map all potential and/or proposed controlled and uncontrolled discharges of water and contaminants⁶⁰ by the project, including the predicted quantity, quality, location, source (point or diffuse) timing and duration. All potential contaminants of concern arising from onsite activities should be identified, thoroughly evaluated, supported by adequate technical rationale. Discharges may include controlled water releases to surface waters, uncontrolled discharges when the design capacity of storages is exceeded, management of spills of products during loading or transportation, stormwater discharge, and contaminated run-off or seepage from operational areas of the site. Address the following matters for each potential discharge:
 - (a) describe the circumstances in which controlled and uncontrolled discharges might occur
 - (b) describe chemical and physical discharge properties, including predicted concentrations of contaminants, at the point of entering natural surface waters along with toxicity of discharge contaminants to relevant environmental values (e.g. aquatic ecosystems, irrigation water etc.)
 - (c) provide receiving environment stream flow data, discharge rates and other relevant information to estimate the potential for in-stream dilution, mixing and resultant water quality
 - (d) 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. Investigate options for controlled discharge at times of natural stream flow to ensure that adequate flushing of wastewater is achieved
 - (e) provide draft contaminant release limits and receiving water conditions, with detailed scientific justification to ensure the protection of aquatic ecosystem health, other relevant environmental values and to protect other water uses.
- 18.10 Identify and assess the impacts of project activities (including point source and diffuse discharges), disturbance and infrastructure on groundwater and surface water and sediment quality and relevant environmental values. Analyse and describe the significance of direct, indirect and cumulative impacts on physical, chemical and biological characteristics in the receiving environment in the context of the assimilative capacity, supported environmental values and relevant water and sediment quality objectives and/or guideline values. This should include potential impacts from air deposition of contaminants from stack point source emissions.

⁶⁰ Defined under sections 440ZD and 440ZF of the EP Act and Schedule 10 of the EP Regulation.

- 18.11 Address section 41AA of the EP Regulation regarding releases of particular contaminants to Great Barrier Reef (GBR) catchment water and other waters and address the information requirements of the Reef discharge standards for industrial activities guideline. Confirm if:
- (a) the proposed activity will be carried out in the GBR catchment or other waters mentioned in section 41AA subsection (1)(b) of the EP Regulation
 - (b) the proposed activity will result in a residual impact where fine sediment or DIN is released to water because of the relevant activity and will remain or is likely to remain in the GBR catchment or other waters mentioned in subsection (1)(b).

Mitigation measures

- 18.12 Describe proposed measures to avoid, minimise, mitigate or offset predicted impacts to surface water and groundwater quality, and relevant environmental values.
- 18.13 Describe the management framework for controlled discharges, including:
- (a) treatment options and requirements prior to discharge
 - (b) receiving environment flows
 - (c) discharge water quality limits and receiving environment conditions designed to comply with water quality objectives and/or water quality guideline values and protect environmental values within the receiving environment.
- 18.14 Describe how unplanned or indirect impacts (including uncontrolled discharges) to water quality will be managed, including measures to:
- (a) avoid, identify, remediate and manage water that is contaminated or may become contaminated
 - (b) limit the impacts of flooding and extreme weather events.
- 18.15 Demonstrate how the project will meet the environmental objectives for water and performance outcomes in Schedule 8 of the EP Regulation.
- 18.16 Describe how water quality will be monitored, audited, reported, and how corrective/preventative actions and continual improvement would be managed. Provide measurable criteria, standards and/or indicators that will be used to assess the condition of environmental values and the receiving water environment.
- 18.17 Develop proposed conditions for any proposed release to waters and receiving environment monitoring that meet the requirements of relevant guidelines and are designed to protect environmental values, prevent environmental harm and allow for responsive management and reporting actions.
- 18.18 Describe proposed measures to avoid or minimise the release of fine sediment or DIN into the GBR catchment or other waters mentioned in section 41AA subsection (1)(b) of the EP Regulation, and offset measures proposed to reduce the load of fine sediment or DIN in the GBR catchment or other waters mentioned in subsection (1)(b).

19. Flooding and regulated structures

- 19.1 The following guidance is relevant for the assessment of flooding and regulated structures:
- (a) Queensland Government, *Water – EIS information guideline*, ESR/2020/5312
 - (b) Australian Government, *Australian Rainfall and Runoff: A Guide to Flood Estimation*, 2019
 - (c) Queensland Government, *Regulated structures – EIS information guideline*, ESR/2020/5307
 - (d) Queensland Government, *Structures which are dams or levees constructed as part of environmentally relevant activities*, ESR/2016/1934.

- (e) Queensland Government, *Guideline for failure impact assessment of water dams*, 2018
- (f) Queensland Government, *Guideline for construction or modification of Category 2 and 3 levees*, 2022

Existing environment

- 19.2 Provide a hydraulic and hydrological flood model demonstrating the design flood peak discharges for the project footprint and surrounding area which exist in the pre- and post-development scenarios for all flood and stormwater events. This should include at least the following flood and stormwater events: 86.5%, 63.2%, 50%, 20%, 10%, 5%, 2%, 1% and 0.1% annual exceedance probability (AEP), and Probable Maximum Flood, inclusive of climate change.
- 19.3 Describe the likelihood and history of flooding (from all sources) within the project footprint and surrounding areas that may be modified by the project or have the potential to impact on the project. Evaluate flood-related constraints and considerations in the existing environment relevant for the impact assessment.

Impact assessment

- 19.4 Describe and map where project infrastructure would lie in relation to the existing and predicted flood risk from all sources for the following flood and stormwater events: 86.5%, 63.2%, 50%, 20%, 10%, 5%, 2%, 1% and 0.1% AEP, and Probable Maximum Flood. The maps and modelling are to detail the location of infrastructure prior to disturbance, during operations (including progressive development and rehabilitation of infrastructure such as waste rock dumps, tailings storage facilities, dams and voids) and at the end of operations.
- 19.5 Use flood modelling (and any additional data) to assess how the project may potentially change flooding and run-off characteristics within the project footprint, and both upstream and downstream of the project footprint. The assessment must consider all project infrastructure and all design measures to avoid or minimise impacts. Mapping (afflux, water level/depth and velocity) should be provided to clearly illustrate the pre-development scenario, and the post development impacts for all relevant design events. The flood modelling assessment should consider impacts and risks to people, property (including damage to other properties), community and environmental values during flooding events.
- 19.6 Assess the project's vulnerabilities to climate change (e.g. changing patterns, frequencies and severities of rainfall, hydrology, temperature and extreme weather events) and demonstrate that flood storage capacity is maintained.
- 19.7 Identify, map and describe (including their purpose) existing or proposed dams, levees and regulated structures in the project footprint.
- 19.8 Undertake a consequence category assessment to determine the consequence category (low, significant or high) for each dam, levee, or potential regulated structure according to criteria outlined in the relevant guidelines.⁶¹ The assessment must be undertaken for the 3 different failure event scenarios, i.e. seepage, overtopping and dam break. Provide certified copies of the consequence category determination for each structure assessed.
- 19.9 Develop environmental objectives and performance outcomes for dams, levees and regulated structures with reference to guidelines published by the Australian National Committee on Large Dams as well as other relevant guidelines.
- 19.10 Assess the potential impact on regulated structures in accordance with relevant guidelines.

⁶¹ Queensland Government, *Manual for assessing consequences categories and hydraulic performance of structures*, ESR/2016/1933.

Mitigation measures

- 19.11 Describe how the project has been designed to avoid or minimise flood risks.
- 19.12 Describe management actions to minimise impacts of flooding to mine infrastructure and manage mine pit water post-flooding, if required.
- 19.13 Describe how risks associated with dam failure, seepage, and overtopping will be avoided or minimised to protect people, property and environmental values.
- 19.14 Describe how dams, levees and regulated structures would be monitored and managed during periods of high incidental rainfall and/or flooding to minimise potential impacts.
- 19.15 Demonstrate how the project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

20. Social

- 20.1 Describe the project within the legislative context of the *Strong and Sustainable Resource Communities Act 2017* (SSRC Act), including provisions for large resource projects.
- 20.2 Prepare a social impact assessment (SIA) for the project consistent with the relevant requirements in the SIA Guideline⁶² and SIA Supplementary Material.⁶³
- 20.3 The SIA is to be developed in consultation with the Office of the Coordinator-General. The SIA is to describe the potential social impacts (both positive and negative) of the project and must identify relevant and effective impact mitigation and benefit enhancement measures.

21. Economics

Existing environment

- 21.1 Describe the existing economic environment consistent with the *Economic Impact Assessment Guideline*.⁶⁴ The analysis is to describe the local and regional economies likely to be impacted by the project, identify the relevant stakeholders, and include:
 - (a) the regional economy's key industries and their contribution to regional output
 - (b) relevant economic indicators
 - (c) existing, approved and proposed projects in the region
 - (d) costs to government from subsidies, concessions and funding received by the project.
- 21.2 Describe the existing and future demand for the project's products in both domestic and international markets over the life of operations, including alternative demand scenarios and detail any assumptions underpinning the demand scenarios.
- 21.3 Describe the preferred project delivery model (including funding sources) and expected timeframes, outlining assumptions on economic externalities that have the potential to impact on the delivery model and/or expected timeframes.

⁶² Queensland Government, *Social impact assessment guideline*, July 2025.

⁶³ Queensland Government, *Supplementary material for assessing and managing the social impacts of projects under the Coordinator-General's Social Impact Assessment Guideline* July 2025.

⁶⁴ Queensland Government, *Economic impact assessment guideline*, 2017

Impact assessment and mitigation measures

- 21.4 Identify the net economic impacts of the project on the local and regional area and the State, ensuring the analysis is consistent with the *Economic Impact Assessment Guideline*.
- 21.5 The economic impact assessment is to address matters including, but not limited to:
- (a) labour demand, including the ability for labour (including specialists) to be drawn from the existing local, regional and state workforce, and the potential effects this may have on local and regional businesses
 - (b) raw input demand, including the ability of existing local, regional and state suppliers to provide relevant raw and manufactured inputs
 - (c) the anticipated value of offsets required for all components of the project.
- 21.6 Provide a demand analysis as justification for the scale and scope of the project, relative to the demand scenarios examined in TOR item 21.2, with sensitivity analysis for potential changes in product prices.
- 21.7 Undertake a regional impact assessment (RIA) in accordance with the *Economic Impact Assessment Guideline* that quantifies the employment by industry (including an estimate of supply chain employment) and value-added contribution of the project to the local, regional and state economies. The RIA is to estimate the changes in key indicators including:
- (a) gross regional product
 - (b) gross state product
 - (c) employment by industry
 - (d) gross value added by industry.
- 21.8 Subject to any confidentiality requirements, discuss any economic aspirations identified through engagement with Aboriginal peoples and Torres Strait Islander peoples that are enabled via the project, especially for areas where native title exists.
- 21.9 Undertake a cost-benefit analysis (CBA) in accordance with the *Economic Impact Assessment Guideline* that identifies the structure of the project and the relevant direct costs and benefits from the project. The CBA is to consider:
- (a) key construction inputs and milestones in the form of a project timeline
 - (b) relevant renewal costs related to the project (including projected repair/replacement of infrastructure)
 - (c) operational costs, including all input costs of production
 - (d) costs associated with environmental management, monitoring, mitigation, rehabilitation and offsets associated with the project, including abatement of greenhouse gas (GHG) emissions abatement measures. For Safeguard facilities, the assessment should consider both the costs of implementing abatement measures and the potential avoided costs under the Commonwealth Safeguard Mechanism, including reduced reliance on the purchase of carbon credits for compliance purposes.
 - (e) benefits, including revenue projections (and stipulating unit/price assumptions)
 - (f) expected project life and any residual value over the assessment period.
- 21.10 The CBA should also consider all direct, indirect, and external social costs and benefits. These would include:
- (a) external net benefits to third parties who are providing inputs to the project

- (b) external net costs (to third parties, community, local and state government) as a direct result of the project
 - (c) comparisons of all direct, indirect and external costs and benefits and valuing those direct, indirect and external costs and benefits in monetary terms
 - (d) assumptions for benefits and costs, including risk assessments
 - (e) all beneficiaries (e.g. individuals, the community, local and state government) of the project.
- 21.11 The CBA should consider any alternative sites, alignments and/or designs for project components and infrastructure, including shared use of common user infrastructure with other projects, which provide for lower impact.
- 21.12 Subject to any confidentiality requirements, discuss any economic aspirations identified through engagement with Aboriginal peoples and/or Torres Strait Islander peoples that are enabled via the project, especially for areas where native title exists. Where agreements have been entered into with Aboriginal peoples and/or Torres Strait Islander peoples, describe the net benefit provided by these agreements and how they align with any identified economic aspirations.

22. Hazards, health and safety

- 22.1 The following guidance is relevant for the assessment of hazards, health and safety:
- (a) Queensland Government, *Queensland Emergency Risk Management Framework Risk Assessment Process Handbook*, 2018
 - (b) Queensland Government, *Health considerations – Environmental Impact Statement – Guidelines for Proponents*, 2016
 - (c) Queensland Government, *Guideline: Dam Safety Management*, 2024
 - (d) Queensland Government, *Regulated structures – EIS information guideline*, ESR/2020/5307
 - (e) Queensland Government, *Structures which are dams or levees constructed as part of environmentally relevant activities*, ESR/2016/1934
 - (f) Queensland Government, *Guideline for failure impact assessment of water dams*, 2018
 - (g) Standards Australia, *Risk Management – Guidelines* (Australian Standard ISO 31000:2018)
 - (h) Standards Australia, *Managing environmental-related risk* (Australian Standard HB203:2006)
 - (i) Queensland Government, Business Queensland, Recognised standards, guidelines and guidance notes relating to mining and quarrying activities in Queensland (website), available at: www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/legislation-standards/recognised-standards
 - (j) Queensland Government, Business Queensland, Guidance information relating to petroleum and gas activities in Queensland (website) available at: www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/petroleum-gas/operating-plant/guidance.

Existing environment

- 22.2 Describe the likelihood and severity of hazards, health, and safety risks in and around the project footprint and surrounding area including, but not limited to storms, floods, bushfires, drought, earthquakes, landslides and heatwaves. Evaluate hazard-related vulnerabilities, constraints and considerations in the area, which are relevant for the impact assessment.

- 22.3 Describe the likelihood and severity of hazards, health, and safety risks due to the mineralogy of the project footprint and surrounding area.

Impact assessment

- 22.4 Prepare a risk assessment and describe the potential risks to people, property, and environmental values that may be impacted by the project taking into account climate projections for the region, for all components and stages of the project. The assessment is to include:
- (a) identification of potential hazards and estimated probabilities of occurrence, including:
 - (i) consideration of project activities and disturbance
 - (ii) consideration of natural events (e.g. storms, cyclones, flooding, bushfires, earthquakes⁶⁵, heatwaves⁶⁶, landslides) that may affect the site with at least a one per cent annual exceedance probability or 100 year average reoccurrence interval level, including the implications related to climate change and adaptation
 - (iii) consideration of the mineralogy of the project footprint and surround area
 - (iv) consideration of all hazardous substances (including fuels, chemicals, hazardous waste and explosives) to be used, transported, stored, processed or produced⁶⁷
 - (v) consideration of whether the site or operation will meet the threshold of a major hazard facility either temporarily or permanently
 - (vi) consideration of potential hazards associated with dam failure, petroleum and gas pipelines, abandoned mines, explosive magazines
 - (vii) consideration of hazards posed by wildlife interactions (including mosquitos)
 - (viii) consideration of hazards away from the project footprint where hazard characteristics may be changed by the project
 - (ix) consideration of the cumulative impact of several natural hazards occurring at the one time
 - (x) mapping of potential hazard areas within the project footprint.
 - (b) hazard analysis and risk assessment in accordance with relevant guidelines and standards.⁶⁸
- 22.5 Provide an assessment against SDAP *State code 21: Hazardous chemical facilities* addressing the relevant assessment benchmarks.⁶⁹

⁶⁵ The State Earthquake Risk Assessment includes probabilities of major seismic events for all local government areas and is to be used to inform risk consideration and management – Queensland Government, *State Earthquake Risk Assessment*, 2019.

⁶⁶ In accordance with Queensland Government, *State Heatwave Risk Assessment*, 2019.

⁶⁷ In accordance with Standards Australia, *Explosives – Storage, transport and use – storage* (Australian Standard AS2187.1).

⁶⁸ Standards Australia, *Risk management – Guidelines*, 2nd edition, 2018, ISO, 31000:2018; Standards Australia, *Managing environment-related risk*, 2012, ISO, HB 203:2012; Standards Australia; Queensland Government, *Queensland Emergency Risk Management Framework Risk Assessment Process Handbook*, 2018.

⁶⁹ Standards Australia, *Risk management – Guidelines* (Australian Standard ISO 31000:2018); Standards Australian, *Managing environment-related risk* (Australian Standard ISO HB 203:2012). Consider also: *Explosives Act 1999*, *Mining and Quarrying Safety and Health Act 1999*; *Petroleum and Gas (Production and Safety) Act 2004*; Queensland Government, *Queensland Emergency Risk Management Framework Risk Assessment Process Handbook*, 2018. Consider also the risk assessments provided in the relevant Local Disaster Management Group Plans and the Queensland State Risk Assessment available at: www.disaster.qld.gov.au/plans (State heatwave assessment, State Earthquake Risk assessment, Severe Wind Hazard Assessment); Queensland Government, *Climate action resources*, available at: <https://www.qld.gov.au/environment/climate/climate-change/resources>; Queensland Government, Queensland Future Climate Dashboard, available at: <https://longpaddock.qld.gov.au/qld-future-climate/dashboard/>; Queensland Government, Queensland Emergency Risk Management Framework, available at: www.disaster.qld.gov.au/queensland-emergency-risk-management-framework

- 22.6 Detail any consultation undertaken with the relevant state, district and local emergency response authorities and organisations (including local disaster management groups, where relevant) to support the risk assessment and proposed mitigation measures.
- 22.7 Demonstrate compliance with the provisions of the *Explosives Act 1999*, *Mining and Quarrying Safety and Health Act 1999*, the *Radiation Safety Act 1999*, *Petroleum and Gas (Production and Safety) Act 2004* and Part 7 Subdivision 4 – Major hazard facilities of the Mining and Quarrying Safety and Health Regulation 2017. Discuss the contents and implementation of the relevant safety and health management system(s), including any engagement with Resources Safety and Health Queensland.

Mitigation measures

- 22.8 Describe how the project has been designed to avoid or mitigate project-related risks to people, property, and environmental values, including the need for fire breaks, overland flow and flood zones, no-go areas etc.
- 22.9 Detail safeguards and mitigation measures that will reduce the likelihood and severity of hazards, consequences and project-related risks to people, property, and environmental values. Identify the residual risk following the application of mitigation measures. Present an assessment of the overall acceptability of residual project risks with consideration of uncertainties and risk profiles.
- 22.10 Where emergency response or hazard management plans are proposed to address scenarios and hazards identified in the risk assessment, provide a plan outline, including key measures and procedures, and consultation with relevant groups. As part of the emergency response plan, include the following:
- (a) a bushfire management plan, certified by a suitably qualified person, in consultation with the Queensland Fire Department and Rural Fire Service Queensland addressing construction and operations, and 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 Resilience⁷⁰
 - (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
 - (b) a safety and emergency management plan addressing construction and operations, and 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 Department and Rural Fire Service Queensland) and provide an adequate level of training to staff who will be tasked with emergency management activities.
- 22.11 Demonstrate how the project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.
- 22.12 Describe how risk management would be monitored, audited and reported. Detail how corrective/preventative actions and continual improvement would be managed.

23. Air quality

- 23.1 The following guidance is relevant for the assessment of air quality:

⁷⁰ Queensland Government, *State Planning Policy*, 2017.

- (a) Queensland Government, *Air – EIS information guideline*, ESR/2020/5294
- (b) Queensland Government, *Guideline – Application requirements for activities with impacts to air*, ESR/2015/1840.

Existing environment

- 23.2 Identify and map the location of any sensitive receptors and environmental values of the project footprint and surrounding areas that may be impacted by air emissions from the project.⁷¹
- 23.3 Provide baseline data on local and regional meteorology up to the airshed scale. Parameters should include air temperature, wind speed and directions, atmospheric stability, mixing depth and other parameters necessary for input to the model.
- 23.4 Discuss the existing local and regional airshed and air quality, referencing available data from any site-specific air monitoring, the National Pollutant Inventory reporting, and/or ambient air quality monitoring undertaken by the Queensland Government, including background/ambient levels and sources of particulates, gaseous and odorous compounds, and any major constituent and contaminants. Identify/illustrate any existing significant sources of contaminants.

Impact assessment

- 23.5 Identify, quantify and describe the air emissions from the project (point, diffuse and fugitive emission sources) in an emissions inventory.
- 23.6 Tabulate the air quality criteria and objectives applicable to the air emissions from the project.
- 23.7 Detail the potential impacts of air emissions from the project on environmental values and sensitive receptors, including identifying any exceedances of the air quality criteria in accordance with the Environmental Protection (Air) Policy 2019 (EPP (Air)), *Air – EIS information guideline*, and *Application requirements for activities with impacts to air*.⁷² The potential impacts must include the quantification of human health risk and amenity impacts associated with emissions from the project for all contaminants whether or not they are covered by the National Environmental Protection (Ambient Air Quality) Measure or the EPP (Air).
- 23.8 Where there is potential for nuisance odours to impact on sensitive receptors, an odour impact assessment should be undertaken in accordance with *Guideline – Odour Impact Assessment from Developments*.⁷³
- 23.9 Detail the compatibility of air quality impacts from the project on existing and approved land uses in the project footprint and surrounding area.
- 23.10 Demonstrate how the project will meet the environmental objectives and performance outcomes relevant to air in Schedule 8 of the EP Regulation.

Mitigation measures

- 23.11 Describe the mitigation measures that will be applied to the project to:
 - (a) achieve the air quality criteria that has been developed for the project
 - (b) avoid, minimise and/or mitigate adverse air quality impacts to sensitive receptors
 - (c) protect the environmental values of the air environment.

⁷¹ Queensland Government, *Air – EIS information guideline*, ESR/2020/5294.

⁷² Queensland Government, *Air – EIS information guideline*, ESR/2020/5294; Queensland Government, *Application requirements for activities with impacts to air*, ESR/2015/1840.

⁷³ Queensland Government, *Guideline – Odour Impact Assessment from Developments*, ESR/2024/6828.

- 23.12 Describe the monitoring and auditing processes to achieve the air quality criteria that has been developed for the project.
- 23.13 Describe the process for corrective actions to address any exceedance of the air quality criteria.

24. Noise and vibration

- 24.1 The following guidance is relevant for the assessment of noise and vibration:
- (a) Queensland Government, *Noise and vibration – EIS information guideline*, ESR/2020/5305
 - (b) Queensland Government, *Guideline – Application requirements for activities with noise impacts*, ESR/2015/1838.

Existing environment

- 24.2 Identify and map the location of any sensitive places and noise sensitive environmental values of the project footprint and surrounding areas that may be impacted by noise emissions or vibrations from the project.⁷⁴
- 24.3 Describe the existing background noise within the project footprint, including noise and vibration sources. The data must be collected in accordance with quality-assured, best practice methodologies and as per the *Noise Measurement Manual*.⁷⁵

Impact assessment

- 24.4 Identify and quantify the noise and vibration sources emitted from the project (point and general emission sources). Describe whether the sources will be continuous, intermittent, fluctuating, vibrating or impulsive.
- 24.5 Tabulate the noise and vibration objectives applicable to the noise and vibration emissions from the project.
- 24.6 Detail the potential impacts of noise and vibration emissions from the project on environmental values and sensitive places, including identifying any exceedances of the acoustic quality criteria. The assessment must address low-frequency (<200 Hz) noise emissions.
- 24.7 If the project involves blasting, describe the locations, frequency and expected size of blasts, and predict the noise levels, air blast overpressure, and ground vibration that would result from the blasts.
- 24.8 Detail the compatibility of noise and vibration impacts from the project on existing and approved land uses in the project footprint and surrounding area.
- 24.9 Demonstrate how the project will meet the environmental objectives and performance outcomes relevant to noise in Schedule 8 of the EP Regulation.

Mitigation measures

- 24.10 Describe the mitigation measures that will be applied to the project to:
- (a) achieve the noise and vibration criteria that have been developed for the project
 - (b) avoid, minimise and/or mitigate additional adverse noise and vibration impacts to sensitive receptors
 - (c) protect the environmental values of the acoustic environment
 - (d) control background creep in noise as outlined in the Environmental Protection (Noise) Policy 2019.

⁷⁴ For clarity, for the purpose of this TOR, the assessment must include Aboriginal and/or Torres Strait Islander cultural heritage sites and places.

⁷⁵ Queensland Government, *Noise Measurement Manual*, ERS/2016/2195.

- 24.11 Describe the monitoring and auditing processes to achieve the noise and vibration criteria developed for the project.
- 24.12 Describe the process for corrective actions to address any exceedance of the noise and vibration criteria.

25. Traffic and transport

- 25.1 The following guidance is relevant for the assessment of traffic and transport:
- (a) Queensland Government, *Transport – EIS information guideline*, ESR/2020/5310
 - (b) Queensland Government, *Guide to Traffic Impact Assessment*, 2018, available at: www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment
 - (c) Queensland Government, Assessable development under the Planning Act, available at www.tmr.qld.gov.au/Community-and-environment/Planning-and-development/Planning-and-development-assessment-under-the-Planning-Act/Assessable-development
 - (d) Queensland Government, Technical publications, available at: <https://www.tmr.qld.gov.au/business-industry/technical-standards-publications>.

Existing environment

- 25.2 Describe the existing and future (as planned by state or local government) transport network and corridors that could be affected by the project including detailed maps to appropriate scales showing relevant:
- (a) construction laydown areas and workers accommodation areas
 - (b) locations where project components cross or are located in proximity to or located within existing and planned:
 - (i) state or local government road corridors and road infrastructure
 - (ii) railway corridors and rail infrastructure
 - (iii) other relevant approved or known projects.

Impact assessment

- 25.3 Describe the total transport activities associated with each project phase. The information should include, but not be limited to:
- (a) background traffic growth and existing traffic data that is expected via the state-controlled road network and via local government roads
 - (b) expected annual volumes, weights and origins/destinations of materials, products, hazardous goods, and wastes
 - (c) details concerning road transportation for each major transport task (e.g. fuel, plant and equipment, consumables, wastes) including heavy vehicle classification, load size (highlighting over-mass and over-sized loads) (swept paths to be provided), number of trips, service frequency, likely timing and duration, and maps of routes highlighting any vulnerable bridges or other structures along the proposed routes
 - (d) potential impacts to time sensitive agricultural freight (e.g. exports, horticulture, livestock)
 - (e) traffic generated by workforce personnel and service providers during each phase of the project

- (f) a multi-criteria analysis and/or a cost benefit analysis of the economic, social, and environmental impacts for logistics management alternatives being considered, including shared use of common user infrastructure
 - (g) detail appropriate choices for modes of transport to ensure efficiency and minimise impacts on the community.
- 25.4 Identify and map the main access to the project (include latitude and longitude coordinates). Include an assessment of the suitability for the proposed use and any required upgrades in accordance with relevant local and/or state policies, standards, and manuals.
- 25.5 Prepare a transport impact assessment in accordance with *Transport – EIS information guideline*.⁷⁶ Present the transport assessment in separate sections for each project-affected mode (road, rail, air services and port) as appropriate for each proposed phase of the project, including the proposed transportation and delivery of pre-assembled modules or components to site. The assessment must be completed by a Registered Professional Engineer of Queensland and include:
- (a) how the existing and future safety, condition, and performance of transport infrastructure (local and state) will be impacted by each proposed phase of the project
 - (b) details of the adopted assessment methodology for impacts on roads within the road impact assessment report in accordance with Guide to Traffic Impact Assessment (GTIA) for state-controlled roads and the local government impact assessment methodologies for local government roads⁷⁷
 - (c) for state-controlled roads, to ensure that all impact types, such as road safety, access and frontage, intersection delay, road link capacity, pavement, and transport infrastructure (including bridges, culverts, and grids), and wayfinding and road signs as detailed in the GTIA are considered and mitigated. Particular emphasis is to also be placed on the following sections of the GTIA:
 - (i) section 8.4.2 - Heavy vehicle routes
 - (ii) section 9 - Road safety
 - (iii) section 13 - Pavement
 - (d) for impacts on level crossings, the Australian Level Crossing Assessment Model (ALCAM).
- 25.6 Provide a detailed assessment of the project's impacts on local government roads in accordance with the relevant local government's impact assessment methodology.

Mitigation measures

- 25.7 Demonstrate that any necessary transport impact mitigation works will not compromise existing and future transport infrastructure corridors planning and works, with reference to the latest version of the Department of Transport and Main Roads (DTMR's) *Queensland Transport and Roads Investment Program* and the Development Assessment Mapping System.⁷⁸
- 25.8 Demonstrate how project impacts for each transportation mode will be mitigated to maintain the safety, efficiency and operational integrity of all affected transport modes for the project workforce and other transport systems. Mitigation measures are to be prepared in consultation with relevant transport authorities (e.g. local governments, DTMR, Civil Aviation Safety Authority, Queensland Rail and Queensland Police Service) and must consider the transport authorities' works programs and forward planning, and be in accordance with the relevant methodologies, guidelines, and design manuals.

⁷⁶ Queensland Government, *Transport - EIS information guideline*, ESR/2020/5310.

⁷⁷ Queensland Government, *Guide to Traffic Impact Assessment*, 2018, available at www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment

⁷⁸ Refer to www.tmr.qld.gov.au/QTRIPonline

26. Waste

- 26.1 The following guidance is relevant for the assessment of waste:
- (a) Queensland Government, *Waste – EIS information guideline*, ESR/2020/5311
 - (b) Queensland Government, *Application requirements for activities with waste impacts*, ESR/2015/1836.

Existing environment

- 26.2 Describe any current waste management infrastructure/facilities relevant to the project, including location, capacity, and accepted waste streams. Evaluate waste-related constraints and considerations relevant for the impact assessment.
- 26.3 Describe and map any actual or potential contaminated material, including any emerging contaminants within the project footprint, including details of relevant site investigations and details of management or disposal obligations/requirements.

Impact assessment

- 26.4 Provide a waste inventory for all expected project waste streams generated by project activities during the construction, operational, rehabilitation and decommissioning phases. Describe the source, quantity/volume, and waste type (solid, liquid, regulated (category 1, category 2) etc.). Discuss whether waste would be reused, recycled, disposed or managed under an end of waste approval.
- 26.5 Describe the quantity, and physical, chemical and toxicological characteristics of each waste stream, any contaminants of concern, any attributes that may affect its management (dispersal, chemical reactivity and persistence in the environment), and its associated risk of causing environmental harm. Describe how waste would be stored, handled, transported, treated, disposed or managed in another way at each stage of the project to minimise risks to environmental values.
- 26.6 Detail the geochemistry of all waste rock, including spoil, tailings and rejects. Assess 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.
- 26.7 Describe waste treatment, reuse, recycling and recovery processes to be carried out within the project footprint, including end uses.
- 26.8 Describe off site waste disposal requirements and assess potential impacts on local government waste infrastructure, including landfills and transfer stations.
- 26.9 If relevant, provide information on proposed on-site disposal of general and/or regulated waste relevant to ERA 60, by referring to relevant policies and guidelines.⁷⁹
- 26.10 Provide relevant information on existing and proposed sewage infrastructure relevant to ERA 63, by referring to relevant policies and guidelines,⁸⁰ depending on the proposed sewage collection and treatment infrastructure the reuse and/or disposal of treated wastewater and sewage wastes generated. Provide details of the sewage treatment process and related infrastructure, including daily peak design capacity and the amounts and compositions of waste solids, liquids and gases.
- 26.11 Identify end of waste codes under the *Waste Reduction and Recycling Act 2011* which may be relevant for the project.⁸¹ This may include associated water (including CSG water), CSG drilling mud, coal combustion products.

⁷⁹ Queensland Government, *Model operating conditions ERA 60 – Waste disposal*, ESR/2015/1667.

⁸⁰ Queensland Government, *Assessment guideline – Assessing applications for sewage treatment works*, ESR/2015/1652.

⁸¹ A list of current end of waste codes are available at: www.business.qld.gov.au/running-business/environment/waste-management/regulated-waste/eow-codes.

- 26.12 Discuss any obligations under the *National Environment Protection (National Pollutant Inventory) Measure 1998* (NPI NEPM) and ensure data provided meets the requirements of the NPI NEPM and its subordinate legislation. Identify the types and amounts of certain substances being emitted to air, land, and water and both on-site and off-site waste transfers that may need to be reported.

Mitigation measures

- 26.13 Describe proposed measures to avoid or minimise environmental impacts as a result of waste storage, handling, transport, disposal, or other management at each stage of the project. Demonstrate that proposed measures are consistent with best practice environmental management, including the waste management hierarchy, namely: avoid and reduce waste generation; cleaner production; reduce; recycle; reuse; reprocess and reclaim; waste to energy; treatment; disposal.
- 26.14 Demonstrate how the project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.
- 26.15 Describe how the achievement of environmental objectives and associated performance outcomes would be monitored, audited and reported, and how corrective/preventative actions and continual improvement would be managed.
- 26.16 Use a material/energy flow analysis to provide details of:
- (a) natural resource use efficiency (e.g., energy and water)
 - (b) integrated process design
 - (c) any co-generation of power and by-product reuse.
- 26.17 Develop a CSG water management plan consistent with the CSG water management criteria and salt management criteria in the Coal Seam Gas Water Management Policy.⁸²

27. Climate

- 27.1 The following guidance is relevant for the assessment of climate:
- (a) Queensland Government, *Climate – EIS information guideline*, ESR/2024/5298.

Existing environment

- 27.2 Describe the existing climate in accordance with the *Climate – EIS information guideline*. The description should include, but not be limited to:
- (a) the local and regional climate relevant to the project, with regard to its seasons and its susceptibility to extreme events such as droughts, cyclones, flooding and bushfires
 - (b) rainfall patterns (including magnitude and seasonal variability of rainfall)
 - (c) overland flow paths
 - (d) air temperature, evaporation, humidity, wind (direction and speed), atmospheric pressure and any other special factors (e.g. temperature inversions) that may affect the management of the project.

Impact assessment

- 27.3 Conduct an assessment in accordance with the *Climate – EIS information guideline*.⁸³

⁸² Queensland Government, *Coal Seam Gas Water Management Policy 2012*, ESR/2016/2381.

⁸³ Queensland Government, *Climate – EIS information guideline*, ESR/2020/5298.

- 27.4 Describe the project area's climate patterns that are relevant to the environmental impact assessment, particularly the project's discharges to water and air, and propagation of noise. Climate information is to be presented in a statistical form including long-term averages and extreme values reflecting extreme weather events (e.g. droughts, floods and bushfires), as necessary. It should also be illustrated by bar charts, wind rose diagrams, or other relevant graphic means as necessary.
- 27.5 Assess the project's vulnerabilities to projected climate change (e.g. changing patterns of temperature, rainfall, hydrology and extreme weather events. In the assessment of climate hazards and risks, reference relevant climate projection data (e.g. Queensland Future Climate high-resolution climate projection data) and employ appropriate risk assessment methodology.⁸⁴

Mitigation measures

- 27.6 Describe the adaptation strategies and/or activities designed to minimise climate change impacts to the 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 GHGs, temperature rise, an increase in frequency and intensity of severe weather events, or maladaptive outcomes for surrounding land uses.

28. Greenhouse gas

- 28.1 The following guidance is relevant for the assessment of GHG emissions:
- (a) Queensland Government, *Guideline – Greenhouse gas emissions*, ESR/2024/6819 (GHG Guideline).

Existing environment

- 28.2 Describe nearby activities or sources that may emit GHG emissions (point source or diffuse) including naturally occurring (potential or actual) sources.

Impact assessment

- 28.3 Assess emissions to demonstrate the project can meet Schedule 8 environmental objectives and performance outcomes of the EP Regulation and comply with the GHG Guideline. Include:
- (a) likely direct (Scope 1) and indirect (Scope 2) emissions to inform:
- (i) assessment against regulatory requirements and the standard criteria and
- (ii) considerations under the *Human Rights Act 2019* by the administering authority's delegate
- (b) mitigation and management measures and their alignment with the GHG abatement hierarchy
- (c) a risk assessment that outlines the scale of expected emissions and the project's anticipated contribution to climate change impacts on Queensland's environmental values.
- 28.4 Provide information on emissions, energy production and consumption consistent with the *National Greenhouse and Energy Reporting Act 2007* (Cth) (NGER Act) and subordinate legislation, including methodology, emissions factors, and calculations.

Mitigation measures

- 28.5 Undertake an assessment of GHG emissions, including:
- (a) estimated annual and cumulative Scope 1 and Scope 2 CO₂ equivalent emissions (abated and unabated) over the project's life of the project

⁸⁴ Queensland Government, *Queensland Future Climate Dashboard*, <https://longpaddock.qld.gov.au/qld-future-climate/dashboard>

- (b) estimated annual and cumulative Scope 3⁸⁵ emissions over the life of the project, identifying whether these occur domestically or internationally and whether they are expected to be generated in countries that are Paris Agreement signatories or have equivalent policies
 - (c) where relevant, include land-clearing emission estimates using the Full Carbon Accounting Model (FullCAM) in accordance with the ACCU scheme methods and the FullCAM guideline with all assumptions and inputs provided.
- 28.6 Justify how the project will influence Queensland's GHG emission reduction targets for the project by:
- (a) demonstrating support for legislated targets in the *Clean Economy Jobs Act 2024* (Qld)
 - (b) meeting NGER Act requirements and, where triggered, the emission reduction targets and trajectory under the Commonwealth's Safeguard Mechanism.
- 28.7 Demonstrate how the project will reduce emissions by providing the following:
- (a) scope 1 and 2 emissions reduction targets and trajectory over the life of the project. For Safeguard facilities, provide the estimated baselines representing the Scope 1 emissions reduction trajectory
 - (b) planned ongoing mitigation and management measures to progressively reduce emissions, stated as specific, measurable, achievable, realistic, and time-bound (SMART principles)
 - (c) estimated volume of carbon offsets required to meet reduction targets and how offset requirements under the GHG Guideline and/or the Commonwealth Safeguard Mechanism, will be met if applicable.
- 28.8 Demonstrate how the project applies best practice and continuous improvement in managing emission by addressing the following:
- (a) describe and compare feasible project alternatives (conceptual, technological, locality, configuration, scale or component changes) considered to avoid or reduce the project's emissions
 - (b) compare and detail preferred GHG controls and energy consumption measures against best practice and leading international environmental management, including emerging technologies
 - (c) describe assumptions and data inputs applied to develop emissions estimates and the emissions reduction targets. For Safeguard facilities, calculate baselines using methodology in the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 (Safeguard rule)
 - (d) detail processes for continuous improvement, including adoption of new technologies, management practices and personnel training over the life of the project
 - (e) for coal underground mining projects, assess feasibility, timing and scale of ventilation air methane abatement, including use of generative thermal oxidisers (RTOs) The feasibility assessment must be reviewed by an appropriately qualified person. Where abatement is determined to not be feasible, provide detailed justification.
 - (f) demonstrate that mitigation measures have been factored into the economic feasibility of the project
 - (g) identify any voluntary initiatives or research to reduce the lifecycle and embodied energy carbon intensity of the project's processes or products
 - (h) identify opportunities to reduce Scope 3 emissions and detail measurable commitments where appropriate

⁸⁵ Scope 3 emissions should include emissions associated with the foreseeable end use of sold products, including emissions arising from the combustion, oxidation, or use of fuels and feedstocks derived from the project's products (e.g. coke produced from metallurgical coal), consistent with Scope 3 Category 11 of the GHG Protocol.

- (i) compare expected cumulative project GHG emissions with the remaining global, national and state emission budgets⁸⁶, considering all Scope 3 emissions at the relevant scale
- (j) where offsets are the only remaining option for abatement, develop a comprehensive carbon offsets management plan, including market supply considerations
- (k) develop an annual reporting program demonstrating progress towards the project's emissions reduction targets. Where facilities are already reporting emissions under another framework, refer to that reporting.
- (l) For coal seam gas (CSG) activities, develop and implement a methane management program to minimise methane emissions from venting and fugitive leaks. The program should include, at a minimum:
 - (i) a Leak Detection and Repair (LDAR) program, including monitoring frequency, detection methods, and repair timeframes for identified leaks;
 - (ii) the use of high-efficiency flaring systems (e.g. enclosed flares), where practicable, and measures to minimise flare downtime and methane venting; and
 - (iii) an assessment of opportunities for beneficial utilisation of coal seam methane. Beneficial use options should be prioritised over flaring where practicable.
- (m) For fugitive methane emissions estimates, provide the assumptions, methodologies, and supporting data used in the assessment, including estimates of seam gas content and its variability across the resource area.

29. Cumulative impacts

- 29.1 Provide a cumulative impact assessment that considers the combined effect of potential impacts of different components/aspects of the project on the same environmental value (i.e. intra-project cumulative impacts) and the impacts of other relevant projects acting in combination on the same environmental value (i.e. inter-project cumulative impacts).
- 29.2 The cumulative impact assessment must identify potential cumulative environmental, social, economic, cultural and public health impacts for each phase of the project. Consider and assess cumulative impacts to environmental values including land, air, noise, waste, water and aquatic ecosystems with justified spatial and temporal boundaries for each value or receptor. This should include consideration of impacts to environmental values over time and in combination with other impacts, including the likelihood, intensity, duration, magnitude, frequency and extent of impacts.
- 29.3 Describe how identified cumulative impacts may be affected by climate change, including the frequency and intensity of extreme weather events.
- 29.4 Describe how the cumulative impact assessment and management measures could be progressed further on an inter-project basis.
- 29.5 Assess the cumulative impacts on terrestrial ecological values at a local, subregional and bioregional scale and over time.
- 29.6 Discuss the impact of the project on overall state and national GHG inventories and targets.

⁸⁶ Remaining global carbon budgets should be based on the latest Intergovernmental Panel on Climate Change Sixth Assessment Report (AR6) and the latest Global Carbon Budget updates (2025, Friedlingstein et al), using 50% probability budgets for limiting warming to 1.5°C and 2°C and adjusting these to the project's commencement year. National and state budgets should also align with the project's commencement year, and may be derived either by allocating the global budget to Australia and Queensland (e.g. per-capita or emissions-share approaches) or by estimating budgets from historical emissions and legislated targets, applying a linear reduction pathway between those targets. All assumptions and adjustment methods should be clearly stated.

- 29.7 Describe measures that would be used to avoid, minimise, or mitigate any identified cumulative impacts.

30. Environmental management plans

- 30.1 Provide a project environmental management strategy (EMS) that includes sufficiently detailed environmental management plans (EMPs) to demonstrate that project impacts from the construction, operation, decommissioning and rehabilitation phases of the project will be appropriately managed. The EMS should:
- (a) provide a strategic framework for project environmental management and compliance with relevant legislation
 - (b) include a document hierarchy for the implementation of EMPs, sub-plans, programs, processes and procedures
 - (c) detail the project's environmental management system, which should include key objectives, principles and commitments
 - (d) describe the environmental risk assessment process to identify and manage ongoing risks
 - (e) outline high-level roles and responsibilities for environmental management.
- 30.2 EMPs should be developed from, and be consistent with, the impact avoidance and mitigation strategies proposed in the EIS. Mitigation measures and commitments should be SMART and should align with best practice environmental management to protect identified environmental values.⁸⁷ EMPs are to be presented as stand-alone documents (appendices to the EIS).
- 30.3 EMPs must:
- (a) summarise relevant project activities and potential impacts on environmental values
 - (b) set out the environmental objectives and performance outcomes the proponent has committed to achieving for the project (i.e. expected levels of environmental harm, performance standards and associated measurable indicators, including progressive and final rehabilitation)⁸⁸
 - (c) clearly describe impact avoidance and mitigation strategies, including measures to avoid, minimise and rehabilitate all impacts identified in the EIS
 - (d) identify management measures that have been developed in consultation with, or based on feedback from relevant stakeholders, and provide for ongoing stakeholder engagement as the project proceeds
 - (e) identify future scopes of work and relevant hold points required before the EMP can be implemented
 - (f) outline monitoring and compliance programs to detect potential impacts and confirm the effectiveness of management measures in achieving environmental objectives and performance outcomes
 - (g) include a process for implementation of preventative and corrective actions (including use of trigger action response plans where suitable) as well as documentation, notification and response obligations following identified non-compliance

⁸⁷ SMART commitments 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 commitment and the desired outcome. The requirement is reasonable; Time Specific – it is clear when the milestone will be completed.

⁸⁸ Consider: Queensland Government, *Rehabilitation – EIS information guideline*, ESR/2020/5308; Australian Government, *Environmental management plan guidelines*, 2024.

- (h) include a program for regular reporting and auditing on EMP compliance and implementation, as well as EMP reviews and updates to ensure continual improvement.

31. Conclusions

- 31.1 The EIS must include an overall conclusion that sets out:
 - (a) a summary of the predicted project impacts
 - (b) a description of the impact avoidance and mitigation strategies the proponent will implement to avoid, then minimise and mitigate the predicted project impacts
 - (c) an overall evaluation of the project that considers the balance of predicted environmental, economic and social impacts and benefits.

32. Commitments

- 32.1 Provide a consolidated list of all proponent commitments (covering avoidance, mitigation, management and design measures, monitoring programs and management plans) needed to achieve the predicted project outcomes. If the project proceeds, these commitments will inform the development of relevant conditions.
- 32.2 Commitments should be SMART and should align with best practice environmental management to protect identified environmental values.⁸⁹

33. Conditions

- 33.1 Propose conditions that may be applied to the EA and any other required approvals or licenses. For EA conditions, refer to the Queensland Government's *Environmental authority conditions* website,⁹⁰ and/or propose site-specific conditions tailored to the project.
- 33.2 The proposed conditions are to be outcome focused, measurable and auditable, and clearly relate to mitigation measures identified under TOR item 1.8 and to the proponent's commitments (TOR Section 32).
- 33.3 As part of the PRC plan (TOR Section 12), provide a PRCP schedule which identifies the milestones and conditions associated with the completion of progressive rehabilitation and mine closure. The PRC plan must align with *Progressive rehabilitation and closure plans*.

34. Appendices to the EIS

- 34.1 Appendices are to provide the complete technical evidence used to develop assumptions, statements and findings in the main text of the EIS. No significant issue or matter is to be mentioned for the first time in an appendix; such matters are to be addressed in the main text of the EIS.
- 34.2 The EIS must also include the following appendices:
 - (a) a table listing the section of the EIS (to the lowest possible subsection) where each requirement of the TOR is addressed
 - (b) a list citing all reference material used or relied on in the EIS
 - (c) a glossary of terms and a list of acronyms and abbreviations

⁸⁹ SMART commitments 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 commitment and the desired outcome. The requirement is reasonable; Time Specific – it is clear when the milestone will be completed.

⁹⁰ <https://www.business.qld.gov.au/running-business/environment/licences-permits/applying/conditions>

- (d) a consolidated commitment register that lists all mitigation measures (including monitoring programs and management plans) proposed in the EIS to protect or enhance environmental values.

35. Matters of national environmental significance

On 4 March 2026, a delegate of the Australian Government Minister for the Environment and Water determined the project to be a 'controlled action' under the EPBC Act (EPBC reference 2026/10419).

The controlling provisions for the project are:

- listed threatened species and communities (sections 18 and 18A)

a water resource, in relation to unconventional gas development and large coal mining development (sections 24D and 24E). The MNES assessment is to focus on the potential impacts of the project on these controlling provisions, having regard to the Matters of National Environmental Significance identified in Appendix 3.

The MNES chapter must address the matters outlined in Schedule 4 of the EPBC Regulations and the matters outlined below.

- 35.1 The MNES chapter of the EIS should be a stand-alone document that primarily focuses on the project's controlling provisions listed above. The MNES chapter is to contain sufficient information to be read alone with reference to technical data or supplementary reports (where appropriate). Any detailed technical information that supports the MNES chapter is to be summarised in the main text and included as appendices to the EIS.
- 35.2 The MNES chapter is to take into consideration the EPBC Act Significant Impact Guidelines,⁹¹ relevant statutory documentation (including relevant recovery plans and conservation advice accessible via the SPRAT database) and Commonwealth policy guidelines.⁹²
- 35.3 The MNES chapter must contain sufficient information to allow the Australian Government Minister for the Environment and Water (or delegate) to make an informed decision on whether or not to approve the taking of the action, and if approved, what conditions to attach under Part 9 of the EPBC Act for the controlling provision.
- 35.4 The MNES chapter must contain sufficient information to enable interested stakeholders to understand the environmental consequences of the proposed action on MNES and how these impacts will be avoided, mitigated and/or offset. Information provided in the MNES chapter should be objective, clear, and succinct, and where appropriate, be supported by maps, plans, diagrams and other descriptive detail. The body of the MNES chapter is to be written in a clear and concise style that is easily understood by the general reader. Technical jargon should be avoided wherever possible. Cross-referencing should be used to avoid unnecessary duplication of text.
- 35.5 The level of analysis and detail in the MNES chapter must reflect the level of significance of the expected impacts on the environment. Any unknown variables or assumptions made in the assessment must be clearly stated and discussed, including how limitations in available information may influence the conclusions of the assessment. Management measures must be clear, specific and evidence based

⁹¹ Australian Government, Department of the Environment, Water, Heritage and Arts, *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance*, 2013. Department of Climate Change, Energy, the Environment and Water, *Significant Impact Guidelines 1.3 – Coal seam gas and large coal mining developments – impacts on water resources*, 2022.

⁹² See: Australian Government, Department of Climate Change, Energy, the Environment and Water, *EPBC Act publications and resources* (webpage) available at www.dcceew.gov.au/environment/epbc/publications#policy.

- 35.6 The proponent is to ensure that the MNES chapter assesses the action's compliance with the principles of ecologically sustainable development and the objects of the EPBC Act.⁹³

Format and style

- 35.7 The MNES chapter must comprise 3 elements:
- (a) the executive summary
 - (b) the main text of the document
 - (c) appendices containing detailed technical information and other information, including management plans, that can be made publicly available.
- 35.8 The MNES chapter must be written so that any conclusions reached can be independently assessed. To this end, all sources must be appropriately referenced using the Harvard standard. The reference list should include the address and date of access of any internet webpages used as data sources.
- 35.9 The main text of the MNES chapter must include a list of abbreviations, a glossary of terms and appendices containing:
- (a) a copy of these guidelines
 - (b) a list of persons and agencies consulted during the EIS
 - (c) contact details for the proponent
 - (d) the names of the persons involved in preparing the EIS and work done by each of these persons.
- 35.10 Maps, diagrams and other illustrative material must be included in the MNES chapter. The MNES chapter should be produced in A4 size paper capable of being photocopied, with maps and diagrams in A4 or A3 size and in colour (where possible) in line with the *Guide to providing maps and boundary data for EPBC Act projects*.⁹⁴
- 35.11 The MNES chapter must be in an appropriate format and style to allow publication on the internet.

Specific content

General information

- 35.12 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
 - (c) a clear outline of the objective of the action
 - (d) the location of the action, including the regional context
 - (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
 - (h) the consequence of not proceeding with the action.

⁹³ See EPBC Act chapter 1, part 1.

⁹⁴ Australian Government, Department of Agriculture, Water and the Environment, *Guide to providing maps and boundary data for EPBC Act projects*, 2021 (or subsequent revision).

Description of the action

- 35.13 Describe in detail all components (phases) of the action, including pre-construction, construction, operation, maintenance, decommissioning and rehabilitation. This is to include the precise location (including coordinates) of all works to be undertaken, structures to be built or elements of the action that may have impacts on MNES.
- 35.14 Detail the anticipated start and completion dates of all actions such as the extent, staging and timing of vegetation clearing undertaken over the construction period.
- 35.15 Detail how the works are to be undertaken (including stages of development and their timing) and design parameters for those aspects of the structures or elements of the action that may have relevant impacts. The various elements of the action must be described in the text and illustrated with maps, diagrams, plans (at a suitable scale) and other information as required to provide sufficient context and basis for the identification and assessment of impacts. This section must also include but not be limited to:
- (a) all infrastructure to be constructed and proposed construction methods
 - (b) ancillary or supporting infrastructure, associated works or safety works including new construction and upgrades
 - (c) location of mine infrastructure area, hydrolyser plant, hydrogen storage area, waste rock dump, tailings dams, water supply dams, truck load-out facilities and ROM pad/stockpiles
 - (d) location of power sub-station, distribution network and on-site diesel generators
 - (e) all new and existing roads, as well as details on which roads are sealed and unsealed, traffic volume and ownership and responsibility for maintenance of any shared infrastructure
 - (f) treatment of contaminated land, including method of treatment, disposal of waste and contaminated material, standards and minimum thresholds required for removal/disposal
 - (g) realignment or replacement of services, structures, access, etc required as a result of the action
 - (h) maximum life of the action, including construction, operation, decommissioning, and rehabilitation
 - (i) number of jobs for the life of the action, including number of jobs for Indigenous employees
 - (j) other such actions, including but not limited to, earthworks, use of explosives, changes to hydrological flow and groundwater, accommodation facilities, material storage, construction facilities, fines and dust control management, waste management generally and management of spills/contaminants/pollutants
 - (k) the proposed source of construction and operation water and the respective approval process.
- 35.16 Provide the total size of the project footprint, the disturbance footprint, and any adjoining areas (beyond the impact area) that may be subject to indirect or facilitated impacts (in hectares). If the project footprint is the same as the proposed disturbance footprint, the MNES chapter is to include a statement to this effect. Detail any area subject to indirect or facilitated impacts (outside of the project footprint), including (but not limited to) edge effects, noise, light spill, dust, vehicle access, changes to surface and groundwater quality, changes to water quality from erosion and/or sedimentation, altered fire regimes, and hazardous substance spills. The MNES chapter must include maps, which clearly identify all components of the action and boundaries of the proposed project footprint including all infrastructure elements and development necessary for the project. All maps must follow the *Guide to providing maps and boundary data for EPBC Act projects*.⁹⁵

⁹⁵ Australian Government, Department of Agriculture, Water and the Environment, *Guide to providing maps and boundary data for EPBC Act projects*, 2021 (or subsequent revision).

- 35.17 Describe any changes to the project description or action footprint that may have occurred since the original referral.

Feasible alternatives

- 35.18 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 MNES
 - (c) sufficient detail with evidence to make clear why an alternative is preferred to another or why alternatives to the above projects are not possible
 - (d) short, medium and long-term advantages and disadvantages of the feasible alternatives.

Description of the environment

General description of the environment

- 35.19 Describe the environment of the project footprint and surrounding areas (i.e. adjacent, upstream and/or downstream) that may be affected by the action. At a minimum, this section is to include:
- (a) current and historical land uses of the project area
 - (b) historical anthropogenic uses of the project area and existing condition of the overall area within and adjacent to, downstream and upstream of the project area
 - (c) hydrology (surface and ground), including flood extents, relevant hydrogeology, and local water quality (include a map that documents stream order across the site)
 - (d) description of any listed threatened species or ecological community that occurs in the project footprint and adjacent areas
 - (e) terrestrial and aquatic ecosystems, including key vegetation communities and relevant watercourses. Include the area (in hectares) of each vegetation community and the percentage (%) cover for each vegetation type
 - (f) GDEs of potentially affected rivers, creeks and wetlands, including but not limited to Kennedy Creek and Goonyella Creek and relevant wetlands in the region
 - (g) soil and geological characteristics, and physical, chemical and biological characterisation of any soils that will be disturbed as a result of the action. Include site investigations conducted to date and a map with labelled contour intervals and soil types
 - (h) occurrence of potential acid sulfate soils
 - (i) assessment of vegetation (not limited to MNES), including raw data sheets and species lists
 - (j) total size (in hectares) of REs present on site, as well as a map(s) showing RE patches and native vegetation regrowth
 - (k) distribution and abundance of pest species and weeds
 - (l) topography and elevation across the project footprint (include a map with contour intervals)
 - (m) identification of conservation and special use areas and any outstanding natural features
 - (n) cultural heritage values, people and communities and other socially relevant considerations

- (o) ancillary transport roads and the surrounding areas that may be affected by the action.

Matters of national environmental significance

The MNES chapter must provide the quantification of the extent of the MNES present both within and surrounding the proposed action site, details of the resources used to identify and assess the below MNES, and whether consultation was undertaken and/or advice sought from local community groups or experts.

It is the proponent's responsibility to be aware of any changes to the distribution of threatened species and ecological communities that are listed at the time of the controlled action decision, including information available in the SPRAT Database. The proponent must ensure that a recent Protected Matters Search Tool report has been generated and considered before finalising the draft EIS. This Protected Matters Search Tool report must be provided as an attachment to the EIS.

If the listing or up-listing of a species occurs after the controlled action decision, the species will continue to be assessed under the level of threatened status it was before this event. However, all relevant conservation advice and recovery plans remain at least partially relevant and are a mandatory consideration for the Minister in deciding whether or not to approve a proposed action (section 139 of the EPBC Act). The proponent should ensure that the most recent documents are consulted and referenced.

- 35.20 The MNES chapter must include a detailed assessment of the presence of individuals and suitable habitat for the listed threatened species and communities that are known to occur, may occur, or are likely to occur below, within and adjacent to the project footprint.
- 35.21 The MNES chapter must also include a detailed presence and habitat assessment for any other listed threatened species and communities, that will, or is likely to, be directly or indirectly impacted by the proposed action.
- 35.22 The MNES chapter must provide information about the habitat for and presence of any MNES identified as potentially being significantly impacted by the proposed action, including (but not limited to) the MNES identified in Appendix 3.

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

For each of the listed threatened species and threatened ecological communities identified in Appendix 3, the following structure and detail must be provided in the MNES chapter:

- description
- desktop analysis
- survey effort and outcomes
- habitat assessment
- impact assessment
- avoidance, mitigation and management
- rehabilitation requirements
- significant impact assessment
- statutory requirements.

Note: The listed threatened species and threatened ecological communities identified in Appendix 3 may not be a complete list of listed threatened species and threatened ecological communities that will, or are likely to, be impacted by the action. It is the proponent's responsibility to ensure that any listed threatened species and threatened ecological communities listed at the time of the EPBC Act controlled action decision, that will or are likely to be impacted by the project, are assessed for the Minister's consideration.

Description

- 35.23 Describe each listed threatened species and threatened ecological communities that will or is likely to be impacted by the project. For each species and ecological community, include the following details: EPBC Act listing status, abundance, condition, distribution, ecology and habitat preferences of the species or communities.

Desktop assessment

- 35.24 Describe the desktop assessment methodology used to inform the field surveys in and within the vicinity of the project footprint.
- 35.25 Identify and describe known historical records of the listed threatened species and ecological communities within the proposed action area and adjacent area. Where relevant, also identify and describe known and historical records of listed threatened species in the broader region (e.g. highly mobile, transient, or cryptic species). All known records must be supported by an appropriate source (i.e. Australian Government and State databases, published research, publicly available survey reports, etc.) and include the year of the record and a brief description of the habitat in which the record was identified.

Survey effort and outcomes

- 35.26 Provide details of the scope, methodology, timing and effort of field surveys (to be undertaken by qualified species experts with demonstrated experience in detecting the relevant listed threatened species and ecological communities) within, adjacent to, downstream and upstream of the project. Provide details of:
- (a) how surveys were undertaken in accordance with relevant Australian Government and State guidelines or best practice survey guidelines at the time of the surveys

- (b) an assessment of the adequacy of any surveys undertaken (including survey effort, timing and any limitations which may impact the results), the extent to which the surveys were appropriate for the species and in accordance with Australian Government's relevant survey and policy guidelines⁹⁶
 - (c) if relevant, the justification for divergence from relevant State and Commonwealth guidelines or best practice survey guidelines at the time of the surveys
 - (d) state the total number of records (individuals and evidence of presence) of each listed threatened species and ecological communities in and within the vicinity of the proposed action site and show in applicable area maps. Provide maps identifying verified sightings of MNES during studies or surveys.
- 35.27 Surveys are to be of a suitable standard, including the scope, timing and spatial and temporal replication, to be able to detect cryptic or difficult to detect terrestrial and aquatic species. Surveys are to also target areas upstream, downstream and adjacent to the project area, particularly for species that regularly disperse through the landscape or aquatic environments (particularly seasonally) and/or have large home ranges.
- 35.28 Wherever practicable, surveys should be undertaken over an ecologically relevant scale and period to adequately determine the likely presence or absence of the target species or environmental value. A precautionary approach should be taken where this is not possible or where the target species is cryptic by nature. Where a protected matter is considered absent, robust evidence must be provided.
- 35.29 Attach all relevant ecological surveys referenced in the referral and MNES chapter as supporting documents to the EIS.

Habitat assessment

- 35.30 Provide a robust habitat assessment for the listed threatened species and threatened ecological communities. The assessment should consider the presence of species outside, within and adjacent to the proposed action area where they have the potential to be impacted. The habitat assessment should assess 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.), identify the total area of habitat (in hectares) within the project area and provide detailed mapping of specific habitat that may be impacted (including an overlay of the project disturbance footprint, habitat type and known records). The habitat assessment should be informed by:
- (a) field surveys and vegetation assessments
 - (b) the SPRAT Database⁹⁷
 - (c) relevant Australian Government documents (e.g. approved conservation advices, recovery plans, listing advices, referral guidelines, etc)
 - (d) published research and other relevant sources (if relevant).
- 35.31 Where potential habitat for listed threatened species and threatened ecological communities is identified in the project area, an assessment must be undertaken regardless of whether the species was recorded (i.e. the potential for occurrence of these species and communities must also be considered and assessed).
- 35.32 Describe the habitat mapping and the results of surveys, the natural and existing upstream and downstream movement and habitat requirements for relevant terrestrial and aquatic flora and fauna, both

⁹⁶ See Australian Government, Department of Climate Change, Energy, the Environment and Water, [On-ground surveys and data for referred actions under the EPBC Act - DCCCEEW](#), last updated 2024; For listed migratory species, consider also: Australian Government, *EPBC Act Policy Statement 3.21 – Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species*, 2015 (or subsequent reiteration).

⁹⁷ Australian Government, Department of Climate Change, energy, the Environment and Water, *Species Profiles and Threats Database*, available at www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

native and introduced species (e.g. including weeds and feral animals). Similar species can be grouped and discussed together where practicable.

- 35.33 Habitat assessments for listed threatened species and threatened ecological communities must provide habitat quality estimates for each protected matter. Habitat quality should be assessed using the same approach/scoring mechanism used for any offset site. The method applied must be suitable and targeted for each protected matter.
- 35.34 Identify potential climate change refugia within the proposed action area and adjacent area for listed threatened species which may be impacted by the proposed action. See *Characteristics of climate change refugia for Australian biodiversity* for information on climate change refugia as well as other more recent and species-specific research where relevant.⁹⁸

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

The National Partnership Agreement on Coal Seam Gas and Large Coal Mining, to which Queensland is a signatory, specifies that all coal seam gas and large coal mining proposals that are likely to have a significant impact on water resources are to be referred to the Independent Expert Scientific Committee on Unconventional Gas Development and Large Coal Mining Development (IESC) for advice. The IESC provides scientific advice to decision makers on potential impacts from unconventional gas and large coal mining developments on Australia's water resources.

The IESC's *Information guidelines for proponents preparing coal seam gas and large coal mining development proposals* (2024) outline the information considered necessary to enable the IESC to provide robust scientific advice to relevant decision-makers on water-related impacts of unconventional gas and large coal mining projects. Historic and contemporary data should be included.

The MNES chapter must describe and assess the impacts to water resources giving consideration to the EPBC Act Significant impact guidelines 1.3: *Coal seam gas and large coal mining developments— impacts on water resources* (2022).

- 35.35 The proponent must ensure that all the information outlined in the IESC Guidelines is provided in the EIS. A cross-reference table to identify where each component of the guidelines has been addressed must be provided in the MNES chapter. Specific requirements have been provided at Appendix 4.
- 35.36 Consider and apply the guidance in the IESC Explanatory notes where applicable:
- (a) uncertainty analysis for groundwater modelling (Middlemis and Peeters, 2023)
 - (b) assessing groundwater-dependent ecosystems (Doody et al., 2019)
 - (c) deriving site-specific guideline values for physico-chemical parameters and toxicants (Huynh and Hobbs, 2019)
 - (d) characterisation and modelling of geological fault zones (Murray and Power, 2021)
 - (e) subsidence associated with underground coal mining (Commonwealth of Australia, 2023)
 - (f) using impact pathway diagrams based on ecohydrological conceptualisation in environmental impact assessments (Commonwealth of Australia, 2024)
 - (g) subsidence associated with coal seam gas production (Commonwealth of Australia, 2024).

⁹⁸ Reside, AE, Welbergen, JA, Phillips, BL, Wardell-Johnson, GW, Keppel, G, Ferrier, S, Williams, SE, Vanderwal, J, Characteristics of climate change refugia for Australian biodiversity, *Austral Ecology*, 39: 887-897, DOI:10.1111/aec.12146, 2014.

- 35.37 Provide a conceptualisation of water resources. Conceptualisation and understanding of surface water, groundwater dependent ecosystems, groundwater, surface-to-ground water and their interconnection should:
- (a) be informed by systematic water level and water quality monitoring with appropriate temporal coverage to best capture seasonality, inter-annual variability trends, including:
 - (i) continuous or at least monthly monitoring of groundwater levels
 - (ii) regular water quality sampling of groundwater, as informed by variability in groundwater levels e.g. to capture processes like rainfall infiltration
 - (iii) regular water quality sampling of surface waters, and event-based sampling as needed
 - (b) follow relevant Commonwealth, state and/or best practice guidelines to conduct a baseline study and derive site-specific water quality guidelines where appropriate and/or adopt default guidelines as provided by the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018) (and other relevant sources)
 - (c) include measurement of physio-chemical parameters, nutrients, metals and metalloids, and other relevant parameters, such as hydrocarbons, needed to understand potential impacts
 - (d) describe, if relevant, how baseline hydrological conditions may be influenced by activities associated with nearby mining operations
 - (e) provide a statement to evaluate the representativeness of water sampling and monitoring sites.
- 35.38 Identify water quality and environmental flow guidelines and objectives within and at the outflow point of the Fitzroy Basin and Burdekin Basin Catchments.

Groundwater

- 35.39 Provide information and data to characterise the current condition of all groundwater systems present at the project area (noting current or baseline conditions are defined as those conditions prior to any impacts from both the early works, pre-drainage of gas, CSG extraction and gate road construction and the EIS project) and how they relate to other MNES (such as listed threatened species and ecological communities), including but not limited to groundwater levels/potentiometric surface, hydraulic parameters, groundwater flow, inter-aquifer connectivity, groundwater-surface water interactions and groundwater quality.
- 35.40 Develop robust conceptual and numerical models that provide information on the potential future impacts to all groundwater systems and potential aquitards. Use the modelling and field data to assess the causes, pathways and receptors of potential impacts to groundwater.
- 35.41 Provide information to identify and assess risks and impacts to all groundwater resources (and dependent flora and fauna) in the project area.

Surface water

- 35.42 Provide information on the current baseline condition and characterisation of surface water hydrology and quality in the project area and surrounding area. Consider the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (2018), or updated revisions. Where applicable, provide details of the potential impacts from creek diversions in relation to:
- (a) surface water baseflows, flow and no-flow duration, seasonality, and other factors that could alter surface water regimes (such as rainfall events)
 - (b) altered surface water-groundwater interactions

- (c) potential impacts to terrestrial and aquatic ecology.
- 35.43 Provide water quality monitoring data, including when and where samples have been obtained. The monitoring data must show the temporal and spatial trends in water quality. Regular routine monitoring (where possible subject to flows) and event-based monitoring programs should be considered to collect all baseline data.
- 35.44 Provide a detailed impact assessment for surface water resources (and dependent flora and fauna) in the project area and downstream of the project area and in the surrounding area.
- 35.45 Provide information to identify and assess risks to all surface water resources (and dependent flora and fauna) in the project area and downstream.

Groundwater dependent ecosystems

- 35.46 Provide information on the groundwater dependent ecosystems and provide details of the groundwater dependency of vegetation in the project area and surrounding area.
- 35.47 Provide information including using a robust numerical groundwater model to evaluate how changes in groundwater flux may impact on the groundwater dependent ecosystems.
- 35.48 Provide ground-truthing survey methodologies for determining the abundance of terrestrial groundwater dependent ecosystems and assess groundwater dependence. This information should include, but is not limited to:
 - (a) survey timing and whether seasonal changes to groundwater dependency have been sufficiently characterised in the methodology
 - (b) a comparison of current ecosystem condition to historical ecosystem condition. This assessment should assess the impact of the action and aid in development of monitoring programs
 - (c) groundwater dependency should be assessed using techniques such as leaf water potential and isotope studies.
- 35.49 Provide information of ecological communities that are dependent on groundwater, including any wetlands in the project area in relation to the:
 - (a) presence and abundance of ecological communities (flora and fauna) relying on groundwater in the project area – using the surveying techniques outlined in the *Information Guidelines Explanatory Note: Assessing groundwater-dependent ecosystems* (Doody et al. 2019) and relevant state guidelines
 - (b) studies of baseline water quality on wetlands in the project area
 - (c) likely nature and extent of impacts in the project area, as a result of the project (e.g. loss of ecological communities and habitat, degradation of water quality, reduced water availability).
- 35.50 Provide information on stygofauna, including sampling methodology and analyses, following the guidelines in the Department of Science, Information Technology and Innovation *Guideline for the Environmental Assessment of Subterranean Aquatic Fauna – Sampling methods and survey considerations* (2015), including, but not limited to:
 - (a) survey timing (i.e. over how many years the pilot survey was completed, and if seasonal changes were adequately accounted for)
 - (b) survey methods and techniques for sampling stygofauna
 - (c) bore mapping (i.e. which bores were sampled for stygofauna in the project area, and how many bores were sampled).

- 35.51 Sample bores in relevant aquifers to confirm the presence of stygofauna and to confirm their dependency on groundwater in the project area.
- 35.52 Provide an evidence-based assessment that the potential impacts (due to dewatering and groundwater quality degradation) and expected depletion of aquifers will not affect other water users, aquifers, and associated environmental values.

Subsidence

- 35.53 Provide predictions of subsidence impacts on surface topography, water-dependent assets, groundwater (including enhanced connectivity between aquifers) and the movement of water across the landscape, ensuring that you:
 - (a) consider multiple methods of prediction and apply the most appropriate method
 - (b) consider the limitations of the applied method, including the adequacy of empirical data and site-specific geological conditions, and justify the selected method
 - (c) consider the timing of the subsidence impacts, identifying whether impacts will occur rapidly or develop over the longer term.
- 35.54 Describe subsidence monitoring methods, including the use of remote or on-ground techniques, and explain the predicted accuracy of such techniques.
- 35.55 Assess both conventional and unconventional subsidence. For project expansions, provide an evaluation of past or current effects of geological structures on subsidence and the implications for water resources and water-dependent assets.
- 35.56 Consider geological strata and their properties (strength/hardness/fracture propagation) in the subsidence analysis and/or modelling. Anomalous and near-surface ground movements with implications for water resources and compaction of unconsolidated sediment should also be considered.

Impact assessment

The MNES chapter must include a description of all the relevant impacts of the action. Relevant impacts are impacts that the action will have or is likely to have on a matter protected by a controlling provision.

For each listed threatened species and community, provide the habitat assessment and impact assessment together under a heading of the species' name so potential impacts can be easily understood.

- 35.57 Relevant impacts are the impacts that the action will have, or is likely to have, on MNES. 'Likely' is taken to mean a 'real, or not remote, chance or possibility'. Impacts during the pre-construction, construction, operation, decommissioning and rehabilitation phases of the project should be addressed, and the following information provided:
 - (a) a detailed assessment of the nature and extent of the likely short-term and long-term relevant impacts, taking into consideration any indirect impacts (e.g. light and dust pollution, noise from operations, construction and explosives, increased risk of predation)
 - (b) a statement, with supporting evidence, of whether any relevant impacts are likely to be unknown, unpredictable or irreversible
 - (c) an analysis of the significance of the relevant impacts
 - (d) any technical data and other information used or needed to make a detailed assessment of the relevant impacts
 - (e) consideration must be given to specific habitat features relevant to the species within and surrounding the development footprint.

- 35.58 Provide an assessment of the likelihood, intensity, duration, magnitude and extent of impacts resulting from the pre-construction, construction, operation, maintenance, decommissioning and rehabilitation components of the project on listed threatened species and threatened ecological communities and species' habitat.
- 35.59 With consideration of all project phases, identify and describe which component(s) and stage(s) of the action and/or consequential actions are of relevance to each listed threatened species and/or ecological community. All relevant impacts of the action must be assessed in accordance with the latest relevant Commonwealth policies and guidelines, and information provided in the SPRAT database, including but not limited to:
- (a) habitat clearance
 - (b) habitat inundation
 - (c) habitat fragmentation and degradation
 - (d) injury or death (such as vehicle strike)
 - (e) disturbance from dust, light, vibration and noise
 - (f) introduction/spread of, and/or increase in, pests, weeds and disease
 - (g) changes to hydrological regimes (including flow changes and flooding)
 - (h) impacts to groundwater levels in root zones of relevant vegetation
 - (i) impacts to water quality, including from waste/chemical pollution and/or land contamination
 - (j) sedimentation and erosion
 - (k) barriers to fauna dispersal, subsidence and edge effects.
- 35.60 For threatened ecological communities (if relevant), the total direct and indirect impact (in hectares) to each identified patch within and adjacent to the project site must be provided. 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 or indirectly impacted from fragmentation as a result of vegetation clearance. Assessment of the impact to threatened ecological communities must include any relevant buffers directly surrounding the patch. Justification must be provided as to the size and form of any buffer applied, or in cases where a buffer is not applied.
- 35.61 Assess how changes to hydrology associated with the proposed action may impact on listed threatened species and threatened ecological communities taking into consideration both surface and groundwater dependence.
- 35.62 Include the potential direct, indirect, facilitated, and cumulative (where possible) loss and/or disturbance on listed threatened species and their habitat and threatened ecological communities as a result of the proposed action. This must include:
- (a) the quality of the habitat impacted
 - (b) quantification of the individuals, where relevant
 - (c) duration of impact
 - (d) the total amount of each type of habitat (in hectares) to be impacted for each listed threatened species and ecological communities.
- 35.63 The MNES chapter is to address the potential impact of the action on ecosystem resilience where relevant for MNES. This should include consideration of the likely/predicted changes to climate regimes.

- 35.64 Where relevant, the MNES chapter must consider the anticipated/predicted future climatic conditions at the site in the assessment of impacts on MNES, and how changes in climate and the frequency and severity of weather events may interact with, exacerbate or reduce the impacts of the proposed action on MNES over time. This should include, but not be limited to the:
- (a) loss, fragmentation, and/or drying of potential climate refugia and/or refuges for threatened species or communities as a result of the proposed action – consider the potential impacts of removing or otherwise impacting these habitats
 - (b) increased risk of fire as a result of the proposed action under drier conditions and periods of extreme heat
 - (c) inclusion of different climate scenarios in water modelling.
- 35.65 A risk assessment for all identified risks to threatened species and ecological communities must be conducted and documented.

Cumulative Impacts

- 35.66 The MNES chapter is to identify and assess the cumulative impacts on MNES (terrestrial and aquatic) created by the project and the activities of other existing and proposed adjacent, upstream and downstream relevant developments, water users and land users. This must include at a minimum, cumulative impacts of other projects including, but not limited to, Centurion Coal Mine (A EPML00815613), Centurion North Extension Project (P-EA-100658735 amendment), Pilot CSG exploration and extraction program (P-EA-100658735) impacting on the relevant MNES, being listed threatened species and threatened ecological communities and a water resource, in relation to coal seam gas development and large coal mining activities.

Avoidance, mitigation and management

Avoidance, minimisation, and mitigation measures are the primary methods of eliminating and reducing significant impacts on MNES. Where possible and practicable, it is best to avoid impacts. If impacts cannot be avoided, they should be minimised or mitigated as much as possible. Residual impacts should then be managed. Avoidance, minimisation, and mitigation measures must be investigated thoroughly as a part of the assessment and be supported by evidence to demonstrate likely success.

The MNES chapter must provide information on proposed avoidance, minimisation, mitigation, and management measures to deal with the impacts of the action. committal language (i.e. 'will') rather than non-committal language (i.e. 'may', 'where possible', 'if required', etc.) must be used, and any commitments by the proponent must be clearly distinguished from recommendations or statements of best practice made by the document author or other technical expert. The proposed measures and outcomes to be achieved must be provided and substantiated with the best available evidence and practices.

The SPRAT database, conservation advice, recovery plans, and associated statutory and policy documents, may provide a starting point for relevant mitigation measures for listed threatened species, ecological communities.

Any management plans required for the mitigation and management of impacts on MNES should be provided either as separate documents attached to the EIS or included as subsections in the MNES chapter. The Australian Government is likely to recommend to the Australian Government Minister (or delegate) that any conditions of approval require that final versions of any relevant plans be approved and in place prior to the commencement of the proposed action.

The Australian Government encourages the proponent to establish, test, and monitor novel methods for avoiding, minimising, and mitigating the impacts of the proposed project on MNES. The Australian Government also encourages the development of scientifically rigorous monitoring programs to measure impacts and assess the effectiveness of mitigation.

- 35.67 Provide a consolidated list of mitigation measures, including environmental design features, proposed to be undertaken to prevent, minimise, or compensate for all relevant impacts of the action, including:
- (a) a description of the environmental outcomes the measures are expected to achieve, including details of any baseline data or proposed monitoring to demonstrate progress towards achieving these outcomes
 - (b) a description of proposed safeguards and mitigation measures to deal with relevant impacts of the action, including mitigation measures proposed to be taken by the proponent
 - (c) assessment of the expected or predicted effectiveness of the mitigation measures, with consideration of climate change predictions where relevant
 - (d) details of ongoing management, including scientifically robust monitoring programs to support an adaptive management approach and determine the effectiveness of the proposed measures or assess against proposed outcomes
 - (e) any statutory or policy basis for the mitigation measures, including reference to the SPRAT Database and relevant approved conservation advice, recovery plan or threat abatement plan
 - (f) the cost of the mitigation measures
 - (g) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.

- 35.68 Proposed measures must be based on best available practices, appropriate standards, evidence of success for other similar actions and supported by published scientific evidence. All commitments must be drafted using committal language (e.g. 'will' and 'must') when describing the proposed measures. All proposed measures must also be drafted to meet the 'S.M.A.R.T' principle:
- (a) S – Specific (what and how)
 - (b) M – Measurable (baseline information, number/value, auditable)
 - (c) A – Achievable (timeframe, money, personnel)
 - (d) R – Relevant (conservation advices, recovery plans, threat abatement plans)
 - (e) T – Time-bound (specific timeframe to complete).
- 35.69 Describe how habitat fragmentation and patch isolation will be avoided, with consideration of whether avoidance areas will enable species mobility across the project area and still be connected to habitat in the broader landscape.
- 35.70 Provide a detailed outline of an EMP that sets out the framework for management, mitigation, and monitoring of relevant impacts of the action, including any provisions for independent environmental auditing.⁹⁹ The EMP must:
- (a) address the project phases (construction, operation, decommission and rehabilitation) separately
 - (b) state the environmental objectives, performance criteria, monitoring, reporting, corrective action, responsibility and timing for each environmental issue
 - (c) describe contingencies for events such as heavy or prolonged rainfall, unexpected finds protocol for encountering unexpected contamination, the importation of inappropriate fill material, chemical spills and off-target impacts of chemical usage
 - (d) in the construction phase of the EMP, include management measures such as dust suppression and enforcement of reduced construction zone vehicle speeds
 - (e) incorporate weed and pest management actions, including monitoring
 - (f) consider the Environmental Management Plan Guidelines¹⁰⁰
 - (g) Include the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.

Rehabilitation requirements

Where rehabilitation is proposed and relevant to listed threatened species and threatened ecological communities, the information below must be included in a rehabilitation management plan or a subsection of the MNES chapter.

- 35.71 Detail any rehabilitation activities proposed to be undertaken and how they meet best practice standards, including for the restoration of habitat for relevant listed threatened species listed threatened ecological communities, and avoidance of sedimentation/erosion.
- 35.72 Provide a summary of the vegetation communities including dominant species that are being rehabilitated.

⁹⁹ Australian Government, Department of Climate Change, Energy, the Environment and Water, *Environmental Management Plan Guidelines*, 2024 (or subsequent version).

¹⁰⁰ Australian Government, Department of Climate Change, Energy, the Environment and Water, *Environmental Management Plan Guidelines*, 2024 (or subsequent revision).

- 35.73 Provide the details of any rehabilitation activities proposed to be undertaken as required by Commonwealth, state or territory, and local government legislation.
- 35.74 Provide information on the timing, frequency and duration of proposed rehabilitation activities to be implemented, including anticipated time to completion (refer to 'S.M.A.R.T' principle above). All commitments must be drafted using committal language (e.g. 'will' and 'must') when describing the proposed activities.
- 35.75 Detail the rehabilitation acceptance criteria relevant to MNES and the procedures, including contingency measures that will be undertaken to achieve them.
- 35.76 Provide details of ongoing management and monitoring programs, including timing, to validate the effectiveness of proposed rehabilitation activities, including any contingency measures and when they would be triggered.
- 35.77 Provide details of tangible, on-ground corrective actions that will be implemented, including timing, in the event that monitoring programs indicate that the completion criteria have not been, or will not be, achieved.
- 35.78 Provide information on the management of the rehabilitation sites including, but not limited to, weed and pest management.
- 35.79 Provide maps showing the areas that will be rehabilitated within the project area and the size in hectares of these areas.

Significant impact assessment

- 35.80 After consideration of proposed avoidance, mitigation, and management measures, provide an assessment of the likelihood of residual significant impacts on relevant listed threatened species and ecological communities. The significant impact assessment must consider the Australian Government's *Significant impact guidelines 1.1*.¹⁰¹
- 35.81 Provide the total amount of residual significant impacts, if any, for each type of habitat (in hectares) in the disturbance footprint for each listed threatened species and ecological community.

Statutory requirements

- 35.82 Describe, with supporting evidence, how the proposed action will not be inconsistent with:
 - (a) Australia's obligations under the Biodiversity Convention, the Convention on Conservation of Nature in the South Pacific (Apia Convention), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
 - (b) a recovery plan or threat abatement plan.
- 35.83 Describe, with supporting evidence, how the proposed action has taken into account any relevant approved conservation advice for the relevant listed threatened species and threatened ecological communities.

¹⁰¹ Australian Government, Department of the Environment, Water, Heritage and the Arts, *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*, 2013 (or subsequent revision).

Offsets

The MNES chapter must include an assessment of the likelihood of residual significant impacts occurring on listed threatened species and threatened ecological communities, and water resources after all avoidance, mitigation and management measures relating to the proposed action have been applied. If it is considered that residual significant impacts are likely, then environmental offsets are required to be provided.

Environmental offsets are measures that compensate for the residual significant impacts of an action on the environment. Offsets provide environmental benefits to counterbalance the impacts that remain after consideration of avoidance and mitigation measures. Offsets do not reduce the impacts of an action and are not intended to make proposals with unacceptable impacts acceptable.

It is important to consider environmental offsets early in the assessment process. Any proposed offsets must meet the key principles of the *EPBC Act Environmental Offsets Policy*.

If it is considered that a residual significant impact is likely, the EIS must include a draft Offset Area Management Plan (OAMP) consistent with the Offsets Policy. Note that if there is a residual significant impact, the relevant Australian Government department is likely to recommend to the Australian Government Minister (or delegate) that any conditions of approval require the environmental offset and associated OAMP be approved and implemented prior to the commencement of the proposed action.

- 35.84 Following TOR items 33.80 and 33.81 if a residual significant impact is likely, in the MNES chapter include a summary of the proposed environmental offset(s) and key commitments to achieve a conservation gain for each protected matter in accordance with the *EPBC Act Environmental Offsets Policy* (Offsets Policy).¹⁰²
- 35.85 An EPBC Act protected matter must be present in the proposed offset site(s), or it must be demonstrated that it can be present in the proposed offset site(s) (e.g. an existing population adjacent to the offset site), if it is present in the project site to align with the Offsets Policy.
- 35.86 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.
- 35.87 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).¹⁰³
- 35.88 The draft OAMP must be prepared by a suitably qualified ecologist and in accordance with the Australian Government's *Environmental Management Plan Guidelines*.¹⁰⁴

¹⁰² Australian Government, Department of Sustainability, Environment, Water, Population and Communities, *EPBC Act environmental offsets policy*, 2012 (or subsequent revision).

¹⁰³ Australian Government, Department of Sustainability, Environment, Water, Populations and Communities, *Offsets assessment guide*, 2012. Available at www.dcceew.gov.au/environment/epbc/publications/epbc-act-environmental-offsets-policy. See also: Australian Government, Department of Sustainability, Environment, Water, Populations and Communities, *How to use the Offsets assessment guide*, 2012; Australian Government, Department of Climate Change, Energy, the Environment and Water, *Offsets assessment guide* (webpage), available at www.dcceew.gov.au/environment/epbc/approvals/offsets/guidance/offsets-assessment-guide.

¹⁰⁴ Australian Government, Department of Climate Change, Energy the Environment and Water, *Environmental Management Plan Guidelines*, 2024 (or subsequent revision).

Minimum requirements for a draft Offsets Area Management Plan

The draft OAMP must be provided as an appendix to the EIS, which demonstrates how the environmental offset(s) compensate for the residual significant impacts of the action on listed threatened species and ecological communities, and their habitat in accordance with the principles of the Offsets Policy. The minimum information requirements include (but may not be limited to), the below.

- 35.89 Describe the offset area(s), including location, size, condition, environmental values present and surrounding land uses.
- 35.90 Provide baseline data and other supporting evidence that documents the presence of the relevant MNES, and the quality of their habitat within the offset area(s).
- 35.91 Detail 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 MNES.
- 35.92 Provide specific, committal and measurable environmental outcomes that detail the nature of the conservation gain to be achieved for listed threatened species and threatened ecological communities, including the creation, restoration, and revegetation of habitat in the proposed offset area(s).
- 35.93 Provide an assessment of the site habitat quality for the offset area(s). Before undertaking habitat quality assessments, consult with the Office of the Coordinator-General and the relevant Australian Government department regarding the proposed methodology for deriving Habitat Quality scores for the *Offsets Assessment Guide (calculator)*.¹⁰⁵ An important factor is that both impact and offset sites are assessed using the same approach/scoring mechanism, that the method is suitable and targeted for each species/community, and that the resulting offset proposed is in line with the core principles of the Offsets Policy.
- 35.94 Demonstrate (with supporting evidence) how the environmental offset(s) compensate for residual significant impacts of the proposed action on relevant MNES, and/or their habitat, in accordance with the principles of the Offsets Policy and all requirements of the Offsets Assessment Guide including:
 - (a) time over which loss is averted (maximum 20 years)
 - (b) time until ecological benefit
 - (c) risk of loss (%) without offset
 - (d) risk of loss (%) with offset
 - (e) confidence in result (%).
- 35.95 Provide 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.
- 35.96 Detail the management actions, and timeframes for implementation, to be carried out to meet the offset completion criteria.
- 35.97 Include interim milestones that set targets at 5 year intervals for progress towards achieving the offset completion criteria.
- 35.98 Detail 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

¹⁰⁵ Australian Government, Department of Climate Change, Energy, the Environment and Water, Offsets assessment guide (webpage), available at: www.dcccew.gov.au/environment/epbc/approvals/offsets/guidance/offsets-assessment-guide.

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).

- 35.99 Propose timing for the submission of monitoring reports that provide evidence demonstrating whether the interim milestones have been achieved.
- 35.100 Provide timing for the implementation of tangible, on-ground corrective actions to be implemented if monitoring activities indicate the interim milestones have not been achieved.
- 35.101 Provide a 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.
- 35.102 Provide 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.
- 35.103 Provide supporting evidence 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 *Biosecurity Act 1994* (Qld), existing grazing regimes, etc.) as required by the Offsets Policy.
- 35.104 Include robust scientific evidence (e.g. published research, pilot studies, previously successful projects/programs) to demonstrate the success of proposed measures to create, revegetate, regenerate and/or improve habitat (e.g. tree planting, nest boxes, artificial hollows) in the proposed offset area(s) for the specific listed threatened species and ecological communities.
- 35.105 Provide 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 relevant MNES that the environmental offset(s) compensates for, and the size of the environmental offset(s) in hectares).
- 35.106 Provide details and execution timing of a mechanism to legally secure the proposed offset area(s), such that legal security remains in force over the offset area(s) in perpetuity to provide enduring protection for the offset area(s) against development incompatible with conservation.
- 35.107 All proposed management actions, monitoring approach and corrective actions must be written using committed language (e.g. 'will' and 'must').

Habitat quality assessment

Where there is a residual significant impact, a methodology that is suitable for the protected matter must be used to assess habitat quality (i.e., endorsed by the department or supported by literature), noting the same scoring mechanism must be used at both impact and offset sites. The department encourages proponents to consult and seek endorsement from the department on a proposed method prior to undertaking any habitat quality assessment at both impact and offset site(s).

The department currently prefers the use of the Modified Habitat Quality Assessment (MHQA) method. Either version 1.2 (2017) or 1.3 (2020) of the Queensland Government's Guide to determining terrestrial habitat quality (DEHP Guide) can be used. MHQA was developed to better reflect the requirements of the EPBC Act Offsets Policy for determining habitat quality.

To support habitat quality assessments, a MHQA scoring guide and a MHQA scoring spreadsheet template (.xlsx) are provided with these guidelines. However, the department notes that not all of the MHQA attributes may be directly relevant to the viability of all listed species. Therefore, the use of attributes and/or relative contribution of attributes may diverge from the standard MHQA. Where there is a change to the standard MHQA, ensure any modifications are outlined clearly and reference the relevant statutory documents, contemporary literature, or independent expert advice is provided to justify the modification.

- 35.108 Where applicable, clearly outline any modifications made to the standard MHQA and provide reference the relevant statutory documents, contemporary literature, or independent expert advice to justify the modification(s).
- 35.109 The 'threats to the species' or 'absence of threats' component of the score must only contain indicators that reflect the current habitat quality of the site (e.g. presence of pest species). Indicators that instead relate to the total loss of a site in perpetuity due to future development must be excluded (e.g. risk of clearing or development). These threats are appropriately dealt with in consideration of future risk of loss in the Offsets Assessment Guide (offset calculator) and so should not be included in the score for current habitat condition.
- 35.110 A precautionary approach to forecasting scores should be applied, with all limitations and uncertainties considered, documented and integrated within the 'Confidence in Result % (Quality)' value applied in the Offset Assessment Guide. Please also note the following:
- (a) if you propose a habitat quality gain of more than 2 points, or an achieved future habitat quality score 'with offset' of 9 or 10, it becomes less certain that the conservation outcome can be achieved. The justification of effectiveness of your proposed management measures and associated habitat quality score improvements and (reflected in the confidence in result) must be supported by substantial evidence
 - (b) higher habitat quality gains will generally be associated with lower 'confidence in result' scores in the Offset Assessments Guide to reflect the difficulty associated with achieving the conservation outcomes. In these cases, it is likely that outcomes-based commitments will be required in the associated management plan for the site, including specifying binding metrics to be met to demonstrate quality improvement. For further information, please contact the department to discuss the metrics that will be used to demonstrate achievement of quality standards.
- 35.111 If you intend to propose an alternative habitat quality scoring methodology for any protected matters, the alternative methodology must:

- (a) directly relate to habitat requirements of the species and factors associated with the viability of the protected matter, and align with information contained in the SPRAT Database and relevant statutory/departmental documents
- (b) be substantiated with appropriate field surveys in accordance with the relevant survey guidelines or using a scientifically robust and repeatable methodology.

35.112 Where there are any inconsistencies between the habitat assessment approach and information contained in the SPRAT Database, the inconsistencies must be discussed with the department prior to the submission of the assessment documentation and must be supported by scientific evidence, including published research, independent expert advice and information derived from field surveys.

Other approvals and conditions

- 35.113 Provide 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:
- (a) what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan, or policy
 - (b) how the scheme provides for the prevention, minimisation, and management of any relevant impacts
 - (c) a description of any approval that will or has been obtained from a state, territory, local government or Australian Government agency or authority (other than an approval under the EPBC Act), including any conditions that apply to the action
 - (d) a statement identifying any additional approval that is required
 - (e) a description of the monitoring, enforcement, and review procedures that apply, or are proposed to apply, to the action.

Economic and social matters

- 35.114 Provide an analysis of the economic and social impacts of the action, both positive and negative. The analysis must include:
- (a) detail projected economic costs and benefits of the project, including the basis for their estimation through cost/benefit analysis or similar studies
 - (b) economic and employment opportunities expected to be generated by the project (including construction and operational phases)
 - (c) economic and social impacts at the local, regional and national level.
- 35.115 Details of the relevant costs and benefits of identified alternative options to the proposed action (including not proceeding with the action) should also be included with reference to impacts on and benefits to nearby communities and other social and economic considerations.

Consultation

- 35.116 Provide details of any consultation that has occurred concerning the action, including:
- (a) any consultation that has already taken place
 - (b) proposed consultation about relevant impacts of the action and plans for future consultation throughout the life of the proposed action

- (c) if there has been consultation about the proposed action, any documented response to, or result of, the consultation and management measures to address community concerns
- (d) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views
- (e) signed documents or statements of consent from land holders or managers (including Registered Native Title Body Corporates).

Indigenous engagement

- 35.117 Identify existing or potential native title rights and interests, including any areas and objects that are of particular significance to Indigenous peoples and communities, possibly impacted by the proposed action and how the potential impacts will be managed.
- 35.118 Describe any Indigenous consultation that has been undertaken, or will be undertaken, in relation to the proposed action and their outcomes. This should include:
- (a) details regarding the specific Indigenous groups and Traditional Owners consulted and an indication of the areas, both tangible and intangible, of cultural significance across the proposed action footprint
 - (b) a discussion about how impacts to areas and/or objects of Indigenous cultural significance (tangible and intangible) are avoided, mitigated or minimised.
- 35.119 Best practice consultation, in accordance with the Interim engaging with First Nations People and Communities on assessments and approvals under the EPBC Act includes:¹⁰⁶
- (a) identifying and acknowledging all relevant affected Indigenous peoples and communities
 - (b) committing to early engagement
 - (c) building trust through early and ongoing communication for the duration of the project, including approvals, implementation and future management
 - (d) setting appropriate timeframes for consultation
 - (e) demonstrating cultural awareness.
- 35.120 Describe any state requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action with regards to Indigenous peoples and communities.
- 35.121 Describe employment opportunities (including Indigenous employment targets) expected to be generated by the project (including construction, operation, decommissioning and rehabilitation phases).

Environmental record of person proposing to take the action

- 35.122 Include details of any past or present 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
 - (b) for an action for which a person has applied for a permit, the person making the application.

¹⁰⁶ Australian Government, Department of Climate Change, Energy the Environment and Water, *The Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environmental Protection and Biodiversity Conservation Act 1999* (interim guidance), 2023 (or subsequent revision).

- 35.123 If the person proposing to take the action is a corporation—details of the corporation’s environmental policy and planning framework, and the history of the corporation’s executive officers (and those of the parent body if the corporation is a subsidiary of another company) in relation to environmental matters.

Principles of ecologically sustainable development

- 35.124 Describe how the proposed action meets the principles of ecologically sustainable development, as defined in section 3A of the EPBC Act, which are as follows:
- (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.

Information sources

- 35.125 For information given in the EIS, the EIS must state:
- (a) the source of the information
 - (b) how recent the information is
 - (c) how the reliability of the information was tested
 - (d) what uncertainties (if any) are in the information.

Ecological data

- 35.126 All species occurrence records from field surveys conducted for the proposed action must be provided to the department in digital form. Occurrences derived from systematic field surveys should include data relating to the surveyed sites and survey methodology where available (in addition to the species occurrence data). These data may be used by the department for internal purposes including decision-making, planning, and reporting. Some data may also be made public. The proponent may request that data that are commercial-in-confidence not be disclosed (see section 170BA of the EPBC Act).
- 35.127 Data must be provided in accordance with the instructions at the department’s Biodiversity Data Repository - Manual Submission¹⁰⁷. Sensitive ecological data must be identified and will be treated in accordance with the department’s Policy on accessing and sharing biodiversity data – DCCEEW¹⁰⁸.

Conclusion

- 35.128 An overall conclusion as to the environmental acceptability of the proposal should be provided, including discussion on compliance with principles of ecologically sustainable development and the objects and

¹⁰⁷ Australian Government, Department of Climate Change, Energy, the Environment and Water, *Biodiversity Data Repository: Data Submission*, at <https://www.dcceew.gov.au/environment/environment-information-australia/biodiversity-data-repository>

¹⁰⁸ Australian Government, Department of Climate Change, Energy, the Environment and Water, *Policy on accessing and sharing biodiversity data*, 2024 (or subsequent revision).

requirements of the EPBC Act. Reasons justifying undertaking the proposal in the manner proposed should also be outlined.

- 35.129 Key mitigation proposed, as well as any offsets proposed for any unavoidable residual significant impacts on MNES, should be summarised here.

36. Glossary and acronyms

The definitions of terms frequently used in this TOR includes but is not limited to the below.

Table 1 Glossary

Term	Definition
approvals	Means approvals, authorisations, permits, designations, licences or other instruments that approve development or works under State law.
environmental value	Consistent with section 9 of the EP Act means: • a quality or physical characteristic of the environment that is conducive to ecological health or • a quality or physical characteristic of the environment that is conducive to public health, safety or amenity or • a quality or physical characteristic of the environment that contributes to its biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community or • another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.
land use planning instruments	Means any applicable local government planning scheme, development scheme for a State development area, land use plan for strategic port land, development schemes or interim land use plans for a priority development area or other land use planning document that regulates development and land use of the site.
matters of national environmental significance or MNES	The nine matters protected by the EPBC Act - world heritage properties, national heritage places, wetlands of international importance ('Ramsar Wetlands'), nationally threatened species and ecological communities, migratory species, Commonwealth marine areas, the Great Barrier Reef Marine Park, nuclear actions (including uranium mining), and a water resource in relation to coal seam gas development and large coal mining development. ¹⁰⁹
matters of state environmental significance or MSES	Means MSES as defined in Queensland Government State Planning Policy, 2017. For the purpose of environmental offsets, prescribed environmental matters – matters of state environmental significance are defined in Schedule 2 of the Environmental Offsets Regulation 2014.
project	Means the project as described in the EIS.
project footprint	Means the physical area (above and below ground) occupied by the project and includes all buffers, accesses and temporary areas that support the project.
residual impact	An impact that remains following the implementation of mitigation measures.

¹⁰⁹ Australian Government, Department of the Environment, Water, Heritage and Arts, *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance*, 2013, page 2.

Term	Definition
resource authority	Means any of the listed authorities as listed in section 10 of the <i>Mineral and Energy Resources (Common Provisions) Act 2014</i> .
sensitive place	As described in the <i>Noise and vibration – EIS information guideline</i> ¹¹⁰ ; includes a sensitive receptor as defined in the Environmental Protection (Noise) Policy 2019.

Table 2 Acronyms and abbreviations

Acronym/abbreviation	Definition
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
CBA	Cost-benefit analysis
CHMP	Cultural Heritage Management Plan
CO ₂	carbon dioxide
CSG	Coal seam gas
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DETSI	Department of Environment, Tourism, Science and Innovation
DNRMMRRD	Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development
DIDO	drive-in, drive-out
DIN	dissolved inorganic nitrogen
DTMR	Department of Transport and Main Roads
EA	environmental authority
EIS	environmental impact statement
EMP	environmental management plan
EMR	environmental management register
EMS	environmental management strategy
EP Act	<i>Environmental Protection Act 1994</i>
EP Regulation	Environmental Protection Regulation 2019
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Cth)
EPP	environmental protection policies
EPP (Air)	Environmental Protection (Air) Policy 2019
EPP (Water and Wetland Biodiversity)	Environmental Protection (water and Wetland Biodiversity) Policy 2019
ERA	environmentally relevant activity

¹¹⁰ Queensland Government, *Noise and vibration – EIS information guideline*, ESR/2020/5305.

Acronym/abbreviation	Definition
ESD	ecologically sustainable development
EV	environmental value
ALCAM	Australian Level Crossing Assessment Model
FIFO	fly-in, fly-out
GDA2020	Geocentric Datum of Australia 2020
GDE	Groundwater dependent ecosystem
GHG	greenhouse gas including carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), sulphur (or sulfur) hexafluoride (SF ₆), hydro fluorocarbons (HFCs) and perfluorocarbons (PFCs)
GHG Guideline	Queensland Government, <i>Guideline – Greenhouse gas emissions</i> , ESR/2024/6819
GTIA	Queensland Government, <i>Guide to Traffic Impact Assessment</i> , 2018
Ha	hectares
HAT	highest astronomical tide
IESC	Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development
km	kilometre
MLES	matters of local environmental significance
MNES	matters of national environmental significance
MSES	matters of state environmental significance
NC Act	<i>Nature Conservation Act 1992</i>
NGER Act	<i>National Greenhouse Energy Reporting Act 2007</i>
NPI NEPM	<i>National Environment Protection (National Pollutant Inventory) Measure 1998 (Cth)</i>
OAMP	Offset Area Management Plan
OCG	Office of the Coordinator-General
Offsets Policy	EPBC Act Environmental Offsets Policy
PDF	Portable Document Format
PFAS	per-and poly-fluoroalkyl substances
PMST	Protected Matters Search Tool
PRCP	progressive rehabilitation and closure plan
Queensland Heritage Act	<i>Queensland Heritage Act 1992</i>
RE	regional ecosystem
RIA	regional impact assessment
ROM	run of mine
SDAP	State Development Assessment Provisions

Acronym/abbreviation	Definition
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
SIA	social impact assessment
SIA Guideline	Social impact assessment guideline
SIA Supplementary Material	Supplementary material for assessing and managing the social impacts of projects under the Coordinator-General's Social Impact Assessment Guideline (March 2018)
SIMP	social impact management plan
SPRAT	Species Profile and Threats
SRI	significant residual impact
SSRC Act	<i>Strong and Sustainable Resource Communities Act 2017</i>
TOR	terms of reference
VM Act	<i>Vegetation Management Act 1999</i>
Water Act	<i>Water Act 2000</i>

Appendices

Appendix 1 - Formatting

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Appendix 1 - Formatting

Table A1.1 Requirements for public notification of the draft EIS

Document requirements	
☐	An unsecured version of the draft EIS in PDF format. The PDFs must allow for text to be copied and pasted. The unsecured version is for internal working purposes only and will not be made publicly available.
☐	A secured version of the full draft EIS in PDF, that meets the format and spatial requirements in Table A1.2 and Table A1.3.
☐	High resolution versions of all maps/diagrams/figures used in the draft EIS (excluding technical reports) in JPEG format (minimum resolution 300 dpi). These images are for internal use only, for possible reproduction in the Coordinator-General's evaluation report.
Electronic and printed copies available on request	
☐	Produce a small number of copies of the draft EIS on A4-size paper, with maps and diagrams of A4 or A3 size (discuss the copy and distribution requirements with the Office of the Coordinator-General in the early stages of the EIS process). These hard copies may be required for public viewing locations, such as libraries.
☐	Produce a small number of electronic copies of the draft EIS for public distribution by the proponent on request. Discuss this requirement with the Office of the Coordinator-General, as the requirements may vary depending on the location of the audience.

Table A1.2 Format requirements

Document size	Each PDF file should not be larger than 20 MB and must meet the accessibility requirements described in the 'creating accessible PDFs' guidance information, available at www.helpx.adobe.com/au/acrobat/using/creating-accessible-pdfs.html
Format and style	The format and style of the document is to be appropriate for publication on the Internet.
Plans, maps, diagrams and other illustrative material	All plans, maps, diagrams, and other illustrative material is to be provided at a suitable scale and must be included in a PDF format so they are legible and easily understood.
	Plans, maps and diagrams are to be located within the appropriate draft EIS chapter(s), as close as possible to where referenced in the text.
	Plans, maps and diagrams are to be to scale on A4 or A3 size with the scale clearly displayed on each. The plan, map or diagram is also to state the original size (e.g. A1). Each should be in colour, where possible, and have a resolution between 300 and 900 dpi.
	Maps must contain the following information: • relevant features of interest • features name • a legend containing map symbology • north point • scale shown as a multiple of either 1K, 2.5K, 5K, or 10K

	• title, version and date • inset reference map showing regional location.
Locations	Coordinates are to be in Geocentric Datum of Australia 2020 latitude/longitude (decimal degrees) in preference to eastings/northings and should be to 6 decimal places (e.g. - 27.47522,153.02578).
Elevations	Elevations detailed in the draft EIS are to be provided to the Australian Height Datum. Plans, maps and diagrams included in the draft EIS should have contours at suitable increments relevant to the scale, location, potential impacts and components of the project.
Supporting data	Supporting data (e.g. sampling and monitoring data) should be provided in PDF format as an appendix to the EIS, as well as an accompanying Excel spreadsheet. To provide clarity of information, all data must contain descriptive attributes.
References	All sources must be appropriately referenced using the Harvard standard. The reference list should include the address of any Internet webpages used as data sources.

Table A1.3 Spatial data file format requirements

Required information	The draft EIS must be accompanied by relevant supporting spatial information to facilitate project review and evaluation. This should include project information (e.g. project layout) and relevant information on the existing environment (e.g. ecological survey maps, water monitoring locations).
File types	Spatial data must be compatible with Queensland Globe, which supports the following file types: GPX, KML, KMZ, SHP (zipped), JSON and CSV. Shapefiles must be < 2MB, other file types <10MB and cannot include more than 1,000 features. Shapefiles should be provided in the geographic coordinate system and in the Australian geodetic datum reference system - GDA2020, in unprojected geographic coordinate format (Lat/Long).
EA and PRCP requirements	Where an environmental authority (EA) and/or progressive rehabilitation and closure plan (PRCP) is an approval sought through the coordinated project process, the draft EIS must also be accompanied by a separate package of spatial data which complies with the relevant guidelines on Spatial Information Submission (ESR/2018/4337), Progressive Rehabilitation and Closure Plans (ESR/2019/4964) and any other relevant guidelines. This spatial package should be emailed to Office of the Coordinator-General separately to other spatial data.

Appendix 2 - Project approvals

The EIS must include a comprehensive list of all approvals that are required for the project. Where an exemption from obtaining an approval applies, this must be set out in the table below.

The table below provides a template and examples of approvals that may be required for the project. The proponent must provide a comprehensive list of approvals required for the project, including the detail of any environmentally relevant activities and development approvals. The proponent must nominate whether conditions of an approval are being sought through the EIS process, and if so, whether these would be imposed, stated or recommended conditions.

Table A2.4 Project approvals

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
Commonwealth				
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	EPBC Act referral and approval (if a controlled action)	Australian Government Minister for the Environment and Water (Australian Government Environment Minister) / Department of Climate Change, Energy, the Environment and Water (DCCEEW)	An action that has, will have or is likely to have a significant impact on a matter of national environmental significance, and that the Minister has determined is a controlled action. The proponent should provide confirmation that a referral for the project has or will be made, or that a referral is not required.	Approval to be obtained from DCCEEW following release of the Coordinator-General Evaluation Report. The Coordinator-General's Evaluation Report will make findings regarding the acceptability of residual impacts on MNES and recommend conditions in accordance with Section 87 of the EPBC Act.

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
			If a controlled action decision has been made, the proponent must detail: - the controlling provisions - the assessment approach - who the designated proponent is for the EPBC Act.	
EPBC Act Environmental Offsets Policy (2012)	Controlled action offset strategy and offset area management plan (OAMP)	Australian Government Minister for the Environment and Water (Australian Government Environment Minister) / DCCEEW	The proponent must identify if significant impacts on matters of national environmental significance (MNES), which will be determined in the EPBC referral, cannot be mitigated or avoided. The proponent must outline the approach to offset the project's impacts and submit an OAMP.	Yes, recommended conditions for the controlled action offsets.
<i>Native Title Act 1993</i>	Indigenous Land Use Agreement or other future act validation process	National Native Title Tribunal / Queensland Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism	The proponent must set out details of the relevant native title parties for the project footprint and the compliance pathway under the <i>Native Title Act 1993</i> .	No. Agreement required prior to commencement of construction
Further Commonwealth project approvals may be required				

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSIHP Act)</i>	Compliance with the ATSIHP Act and Cultural Heritage Management Plan (CHMP)	DCCEEW	The proponent must identify if the project may impact on protected areas or objects of significance under the ATSIHP Act. The proponent must briefly describe the CHMP under the <i>Queensland Aboriginal Cultural Heritage Act 2003</i> and the <i>Torres Strait Islander Cultural Heritage Act 2003</i> which will meet the requirements of the ATSIHP Act.	
<i>National Greenhouse Energy Reporting Act 2007 (NGER Act)</i>	Apply to register on National Greenhouse and Energy Register	Clean Energy Regulator	Proponent to specify	No. The EIS will report estimated GHG emissions from the Project.
State				
<i>Aboriginal Cultural Heritage Act 2003 and the Torres Strait Islander Cultural Heritage Act 2003</i>	Cultural Heritage Management Plan	Department of the Environment, Tourism, Science and Innovation (DETSI)	The proponent must engage in an approved CHMP (or develop a native title agreement or Indigenous Land Use Agreement pursuant to section 86 of the <i>Aboriginal Cultural Heritage Act 2003</i>) and demonstrate compliance with the cultural heritage duty of care.	No.

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
			Traditional Owners are to be engaged early in project development and CHMP (or native title agreement or Indigenous Land Use Agreement pursuant to section 86 of the <i>Aboriginal Cultural Heritage Act 2003</i>) approved prior to project	
<i>Environmental Protection Act 1994</i>	Environmental authority for an environmentally relevant activity (ERA) for:	DETSI	The proponent must identify ERA thresholds triggered under the Environmental Protection Regulation 2019, including concurrence and prescribed ERAs. Clearly describe all the Environmental Protection Act 1994 approval pathways proposed for the project, including all new, amended and existing environmental authorities and associated instruments (e.g. PRCP schedules), and how these relate to each project component.	E.g.: Yes, stated conditions for the environmental authority
<i>Planning Act 2016</i>	Development permit for [insert]	Department of State Development, Infrastructure	The proponent must identify each relevant assessment	To be confirmed in the EIS.

Terms of reference for an environmental impact statement

Centurion North Development project

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
<i>Planning Regulation 2017</i>		and Planning (DSDIP) and relevant local government	trigger under the Planning Regulation 2017 or the relevant local government planning scheme. The proponent must identify any referral agency trigger under the Planning Regulation 2017. The proponent must ensure that the EIS contains the information required to support the application.	The Coordinator-General's Evaluation Report may include stated conditions for any development permits required for the Project.
<i>Water Supply (Safety & Reliability) Act (2008)</i>	Approval for referable dams	Department of Local Government, Water and Volunteers (DLGWV)	Proponent must identify each relevant assessment for referable dams	
<i>Water Regulation 2016</i>	Approval for Category 3 levees	DLGWV	Proponent must identify each relevant assessment for Category 3 levees	
Further state project approvals may be required				
<i>Acquisition of Land Act 1967</i>	Acquisition of land	Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development (DNRMMRRD)	Proponent to specify	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
<i>Biosecurity Act 2014</i>	General biosecurity obligation	Department of Primary Industries (DPI)	Proponent to specify	
<i>Electricity Act 1994</i>	Transmission authority, distribution authority, generation authority and/or special approval	Treasury	Proponent to specify	
<i>Environmental Offsets Act 2014 (EO Act)</i> <i>Environmental Offsets Regulation 2014 (EO Regulation)</i>	Offset delivery plan	DETSI	Proponent to specify	Any applicable offsets will be conditioned as part of the stated conditions for the Environmental Authority.
<i>Environmental Protection Act 1994 (EP Act)</i> <i>Mineral and Energy Resources (Financial Provisioning) Regulation 2019 (MERFP Regulation)</i>	Progressive Rehabilitation and Closure Plan and Schedule and Estimated Rehabilitation Calculation	DETSI	Proponent to specify	Yes, stated conditions for the Progressive Rehabilitation and Closure Schedule.
<i>Fisheries Act 1994</i>	Development permit for operational works for [insert]	DPI	Proponent to specify	The Coordinator-General's Evaluation Report may include stated conditions for any works within waterways required for the Project.
<i>Land Act 1994</i>	Tenure arrangements on State land such as permit to occupy and/or creation of easement	DNRMMRRD	Proponent to specify	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
<i>Nature Conservation Act 1992</i> <i>Nature Conservation (Animals) Regulation 2020</i> <i>Nature Conservation (Plants) Regulation 2020</i>	Permit for [insert]	DETSI	Proponent to specify	
<i>Queensland Heritage Act 1992</i>	Approval for disturbance to heritage site	DETSI	Proponent to specify	
<i>Regional Planning Interests Act 2014</i>	Regional Interests Development Approval	DSDIP	Proponent to specify	
<i>Stock Route Management Act 2002</i>	Approval for impacts on stock routes	DNRMMRRD	Proponent to specify	
<i>Transport Infrastructure Act 1994</i>	Approval or permit for [insert]	Department of Transport and Main Roads (DTMR)	Proponent to specify	
<i>Vegetation Management Act 1999</i>	Operational work to clear native vegetation	DNRMMRRD	Proponent to specify	
<i>Waste Reduction and Recycling Act 2011</i>	Compliance to waste management hierarchy and/or operation under an End of Waste (EOW) code	DESTI	Proponent to specify	
<i>Water Act 2000</i>	Water allocation or water licence - use and take of surface water or groundwater. Riverine protection permit.	Department of Local Government, Water and Volunteers	Clearly identify and describe all relevant <i>Water Act 2000</i> approval pathways	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
			proposed for the project including any new, amended and existing water entitlements and other authorisations and how these relate to each project component.	
<i>Work Health and Safety Act 2011</i> Work Health and Safety Regulation 2011	Major Hazard Facility Licence and/or [insert]	Workplace Health and Safety Queensland	Proponent to specify	
Local				
Insert relevant local approvals				

Appendix 3 – MNES listed threatened species and communities

Table A3.1 lists the listed threatened species and threatened ecological communities relevant to the controlled action under the EPBC Act, which at a minimum, is to be included in the impact assessment in the MNES chapter.

Note: The lists at Table A3.1 may not be a complete list of listed threatened species and threatened ecological communities that will or are likely to be impacted by the action. It is the proponent's responsibility to ensure that any listed threatened species and communities at the time of the controlled action decision, which will or are likely to be impacted by the action are assessed for the Australian Government Minister for the Environment's consideration. Any listing events that occur after the controlled action decision of the 4 March 2026 are not required to be considered in the assessment.

Table A3.1 Listed threatened species and threatened ecological communities

Ecological community/species name	Status under the EPBC Act
Birds	
Australian Painted Snipe (<i>Rostratula australis</i>)	Endangered
Squatter Pigeon (southern) (<i>Geophaps scripta scripta</i>)	Vulnerable
Latham's Snipe (<i>Gallinago hardwickii</i>)	Vulnerable
Mammals	
Koala (<i>Phascolarctos cinereus</i> (combined populations of Queensland, NSW and the ACT))	Endangered
Greater Glider (southern and central) (<i>Petauroides volans</i>)	Endangered
Flora	
King Bluegrass (<i>Dichanthium queenslandicum</i>)	Endangered
Reptiles	
Ornamental Snake (<i>Denisonia maculata</i>)	Vulnerable
Threatened ecological communities	
Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) Threatened Ecological Community	Endangered
Natural grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Endangered

Appendix 4 – IESC information guidelines

The following checklist provides specific guidance on IESC information needs, and reflects the approach taken by the IESC when assessing project documentation. The checklist does not stand alone and should be considered in addition to the general guidance provided in the main body of the Information Guidelines and any Explanatory Notes available on the IESC website at: www.iesc.gov.au/publications.

Table A4.1 IESC guideline requirements

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
Description of the proposal		
General		
A4-1	Provide a regional overview of the proposed project area, including a description of the geological basin, coal resource, surface water catchments, groundwater systems, water-dependent assets (including terrestrial and aquatic GDEs), and past, present and reasonably foreseeable coal mining and CSG developments.	
A4-2	Describe the proposal's location, purpose, scale, duration and disturbance area, and the means by which it is likely to have a significant impact on water resources and water-dependent assets.	
A4-3	Assess the frequency (and time lags, if any), location, volume and direction of interactions between water resources, including surface water/groundwater connectivity, inter-aquifer connectivity and connectivity with sea water.	
Regulatory context		
A4-4	Describe the statutory context, including information on the proposal's status within the regulatory assessment process and any applicable water management policies or regulations.	
A4-5	Describe how potentially impacted water resources are currently being regulated under state or Commonwealth law, including whether there are any applicable standard conditions.	
A4-6	Describe existing water quality guidelines, environmental flow objectives and other requirements (e.g., water planning rules) for the surface water catchments and groundwater basins within which the development proposal is based.	
A4-7	Describe public health, recreation, amenity, Indigenous, tourism and/or agricultural values for each water resource, and the plans relevant to their management and protection.	
Groundwater context		
A4-8	Describe and map geology at an appropriate level of horizontal and vertical resolution including:	

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
	- definition of the geological sequence(s) in the area, with names and descriptions of the formations and accompanying surface geology, cross-sections and any relevant field data - identification of hydrogeological sequences and characteristics.	
A4-9	Define and describe or characterise significant geological structures (e.g., faults, folds, intrusives) and associated fracturing in the area and their influence on groundwater – particularly groundwater flow, discharge or recharge. Provide geological maps appropriately annotated with symbols that denote fault type, throw and the parts of sequences the faults intersect or displace (e.g., Murray and Power 2021). Include discussion of how the faults potentially influence regional-scale groundwater conditions.	
A4-10	Describe the likely recharge, discharge and flow pathways for all hydrogeological units likely to be impacted by the proposed development. Identify current stressors, including impacts from any currently approved projects.	
A4-11	Describe the existing water quality of all aquifers in the project area. Where groundwater is to be used for a given purpose such as irrigation, compare the data with relevant guideline values (ANZG 2018) and regional and local water quality objectives.	
Surface water context		
A4-12	Describe the watercourses, standing waters and springs across the site, including: - drainage patterns and key surface water and floodplain features - hydrological regimes (especially ecologically relevant components such as durations, timing and frequency of periods when no surface water is present) - current stressors, including impacts from any currently approved projects.	
A4-13	Describe the existing water quality of surface waters potentially impacted by the proposed development. Include comparison to relevant default guideline values (ANZG 2018) and regional and local (or site-specific) water quality objectives.	
Ecological context		
A4-14	Describe the ecological water-dependent assets in and near the proposed development area, including: - water-dependent fauna and flora and their habitats, including GDEs (see Doody et al. 2019) - their current condition and environmental values	

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
	stressors that currently affect each ecological water-dependent asset, including stressors that alter the quantity and/or quality of water required by each asset in and near the proposed development area.	
Environmental impact assessment		
General		
A4-15	Describe the intensity, duration, magnitude, timing and geographic extent of each potential impact, specifying the impact's significance and consequences, especially on the environmental condition and human values of each water resource.	
A4-16	For proposed expansions or modifications, distinguish potential impacts from those of the existing project, and include the likely contribution of the proposed expansion to potential cumulative impacts.	
A4-17	Assess the significance of each impact with reference to the range of system behaviour found under predevelopment conditions and natural environmental and climatic variability.	
Risk-based assessment		
A4-18	Identify and assess all potential environmental risks to water resources and water-related assets, and their possible impacts. In selecting a risk-assessment approach, consideration should be given to the complexity of the project and the probability and potential consequences of the project's impacts.	
A4-19	Describe the consultation with relevant stakeholders and regulators about the likely risks to water resources and water-related assets. This initial engagement should include agreement about the nature of the action, which assets (including water resources) may be impacted, and the likely sources of impacts and the receptors that may be affected.	
A4-20	The risk assessment should include a systematic and evidence-based assessment of: - the sources of environmental impacts in the project area - the exposure pathways by which impacts may be transferred from these sources to water resources (receptors), presented as one or more IPDs based on ecohydrological conceptualisation (see Box 2) - the likely response of each receptor, especially when the impact(s) may be severe and likely to cause irreversible damage (posing a high risk) 'hot spots', or areas in the project area (e.g., where vulnerable receptors occur close to impact sources) where risks are especially high 'hot moments', or periods during and after the project (e.g., when activities are likely to generate major impact) when risks are especially high.	
A4-21	Specify where and how each risk can be avoided or mitigated (or, as a last resort, requires appropriate offsets and/or a conservation payment), and:	

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
	- provide evidence (preferably from equivalent activities and regions) for the feasibility and effectiveness of mitigation or offset methods - describe how monitoring will be able to demonstrate the effectiveness of the mitigation measures.	
A4-22	Describe the risks of potential cumulative impacts of all past, present and reasonably foreseeable actions and activities that are likely to impact on water resources, including from multiple stressors arising from the proposed action.	
A4-23	Specify all sources of uncertainty in the assessments of each risk and describe how information has been and will be collected to reduce this uncertainty.	
A4-24	Investigate relevant context for the risk assessment, such as bioregional assessments, Commonwealth and state water resource plans (e.g., Murray–Darling Basin Plan, Hunter River Salinity Trading Scheme) and state processes such as those that apply in the Surat Cumulative Management Area and the Commonwealth’s Joint Industry Framework on Coal Seam Gas.	
A4-25	Assess residual risks remaining after the implementation of the proposed mitigation and management options, to determine whether these effectively reduce risks to an acceptable level based on the identified environmental objectives.	
Modelling of water storage and movement		
A4-26	Incorporate causal mechanisms and pathways identified in the risk assessment (e.g., IPDs) in conceptual and numerical modelling. Use the results of these models to update the risk assessment.	
A4-27	Provide a detailed description of all analytical, numerical and conceptual models used, and any methods and evidence (e.g., expert opinion, analogue sites) employed in addition to modelling.	
A4-28	Explain the conceptualisation of the system(s), including multiple conceptual models if appropriate. Describe the data and information, including field data, on which the models are based; all key assumptions; and model limitations and their consequences.	
A4-29	Calibrated models require adequate monitoring data from either the project area or sites representative of local conditions, ideally with calibration targets related to model predictions. Summarise the extent to which parameterisation is consistent with expectations based on literature values, outcomes of field or laboratory investigations, or with values obtained by calibration in similar nearby applications.	
A4-30	Where possible, verify models by using past and/or existing site monitoring data that were not used for calibration.	
A4-31	Assess the quality of, and risks and uncertainty inherent in, the data used to establish baseline conditions and in modelling, particularly with respect to	

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
	predicted potential impact scenarios. Identify key gaps in data and knowledge and describe how they can be addressed.	
A4-32	Describe the various stages of the proposed project (construction, operation and rehabilitation) and their incorporation into the model. Provide predictions of changes and recovery in each water resource for the life of the project and beyond, including an assessment of the impacts of climate change where applicable, and cumulative impacts.	
A4-33	Provide a program for reviewing and updating models as more data and information become available, including reporting requirements.	
Groundwater		
A4-34	Undertake groundwater modelling in accordance with the Australian groundwater modelling guidelines (Barnett et al. 2012), including independent peer review.	
A4-35	Describe each hydrogeological unit as incorporated in the groundwater model, including the thickness, storage and hydraulic characteristics, and hydraulic linkages between units, if any.	
A4-36	Describe the existing recharge/discharge pathways of the units and the changes that are predicted to occur upon commencement, throughout, and after completion of the proposed project.	
A4-37	Select and justify appropriate boundary conditions across the model domain to enable a comparison of groundwater model outputs to seasonal field observations.	
A4-38	Where possible, calibration should incorporate measurements of both potentiometric head (or pressure) and flux, such as measured mine inflows or measured discharges to streams or springs.	
A4-39	Undertake sensitivity analysis of boundary conditions and hydraulic and storage parameters, and justify the conditions applied in the final groundwater model. Where the interaction between surface water and groundwater is important, parameters describing their connectivity, such as riverbed conductance, should be assessed.	
A4-40	Assess the potential impacts of the proposal, including how impacts are predicted to change over time and any residual long-term impacts. Consider and describe: • any hydrogeological units that will be directly or indirectly dewatered or depressurised (including lateral effects), interactions between water resources (inter-aquifer connectivity), and connectivity with sea water • the magnitude, extent and change over time of drawdown/mounding, including the time for post development equilibrium to be reached • the extent of impacts on surface water/groundwater connectivity, water-dependent assets, flow direction and surface topography, including resultant impacts on the groundwater balance	

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
	- the potential range of drawdown at each affected bore, and clearly articulate the spatial and temporal scales of impacts on other water users - the potential impacts on hydraulic and storage properties of hydrogeological units, including changes in storage, potential for physical transmission of water within and between units, and estimates of likelihood of leakage of contaminants through hydrogeological units - the possible fracturing of and other damage to confining layers.	
A4-41	Undertake an uncertainty analysis of key predictive outputs (i.e., quantities of interest as per Peeters and Middlemis 2023).	
A4-42	For each relevant hydrogeological unit, describe the proportional increase in groundwater use and impacts as a consequence of the proposed project, including an assessment of any consequential increase in demand for groundwater from towns or other industries resulting from associated population or economic growth due to the proposal.	
Surface water		
A4-43	For flood estimation, use methods in accordance with the most recent publication of <i>Australian rainfall and runoff</i> (Ball et al. 2019); for rainfall-runoff modelling, use methods as outlined by Vaze et al. (2012); and for the modelling of water and salt balances related to mine water management, refer to the water accounting framework (Minerals Council of Australia 2022). Consider the relevance of regional information (see Nathan and McMahon 2017). It is expected that flood risks are assessed for annual exceedance probabilities of at least 1% (i.e., 1 in 100); however, in many instances it may be necessary to estimate floods with rarer annual exceedance probabilities, such as 0.1% (i.e., 1 in 1,000), or events which have a negligible chance of being exceeded (the probable maximum flood).	
A4-44	Describe all potential impacts of the proposed project on surface waters. Include a clear description of the impact on the resource and the likelihood and consequences of the impact. Consider: - impacts on streamflow under the full range of flow conditions, focusing on metrics that are most relevant to ecologically important flow components (e.g., the timing, frequency and variability of zero- and lowflow days, low flows exceeded 90% of the time, flow pulses related to ecological processes such as spawning and migration) as well as those relevant to water supply reliability - impacts associated with surface water diversions - impacts on water quality, including consideration of mixing zones (i.e., areas downstream of discharges where water quality objectives do not apply) if applicable - the quality, quantity and ecotoxicological effects of operational and emergency discharges of water (including saline water) at different flows, and the likely impacts on water resources and water-dependent assets	

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
	landscape modifications such as subsidence, voids, post-rehabilitation landform collapses and on-site earthworks (including disturbance of acid-forming or sodic soils, roadway and pipeline networks), and describe how these could affect surface water flow, surface water quality, erosion and sedimentation within and downstream of the project area.	
A4-45	Identify processes to determine surface water quality guidelines and quantity thresholds which incorporate seasonal variation but provide early indication of potential impacts on assets.	
A4-46	Assess the risks of flooding (including channel form and stability, water level, depth, extent, velocity, shear stress and stream power) and the impacts of flooding on water-dependent assets, project infrastructure and the final project landform.	
A4-47	Identify and evaluate the quality (including uncertainty) and other aspects of streamflow and other hydrological data, such as proximity to rainfall stations and stream gauges, duration of data records, and whether missing data have been patched.	
A4-48	Develop and describe a plan for ongoing ecotoxicological monitoring, including direct toxicity assessment of discharges to surface waters where appropriate.	
Ecology		
A4-49	Assess direct and indirect impacts of the proposed project (e.g., landscape modifications such as voids, onsite earthworks, roads, pipelines and stream-channel diversions, mine dewatering, operational releases of water affected by mining or CSG activities) on water-dependent ecological assets such as flora and fauna dependent on surface water and groundwater, including springs and other GDEs.	
A4-50	Using suitable IPDs based on an initial ecohydrological conceptualisation, describe the likely cause–effect mechanism(s) from impact sources to each receptor. Consider: - direct and indirect impacts on aquatic and water-dependent terrestrial populations, species and communities, including those whose water dependence may not yet be demonstrated (e.g., terrestrial GDEs) - how predicted alterations of the hydrological regime (especially ecologically relevant components such as durations, timing and frequency of periods when no surface water is present; and timing and duration of overbank flooding) in standing and flowing waters might affect each water-dependent ecological asset in and near the project area at a range of temporal scales (e.g., seasonal, annual, decadal) - how predicted alterations of water quality (including water temperature and salinity) might affect each water-dependent ecological asset in and near the project area at a range of temporal scales (e.g., seasonal, annual, decadal)	

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	- how interactions of predicted alterations of quantities and quality of surface water and/or groundwater might affect each water-dependent ecological asset in and near the project area at a range of temporal scales (e.g., seasonal, annual, decadal) - the likely cumulative impacts of the proposed development with those of pre-existing water-intensive activities and other drivers such as climate change.	
A4-51	For ecological risk-based assessment, evaluate the likelihood and consequences of the impacts and their pathways based on the impact assessment and IPDs (outlined above), particularly for highly valued receptors and in 'hot spots' where impacts are especially likely. Consider that some impacts may be especially likely during particular phases of the proposed development, and describe these 'hot moments' and their associated risks to water-dependent ecological assets.	
Water and salt balances		
A4-52	Describe the proposed development's water requirements and on-site water management infrastructure, including modelling to demonstrate the infrastructure's adequacy under a range of potential climatic conditions, including extremes associated with predicted climate change.	
A4-53	Provide salt balance modelling that includes stores and the movement of salt between stores, and takes into account seasonal and long-term variation.	
A4-54	Indicate the vulnerability to contamination (e.g., from salt production and salinity) of, and the likely impacts of contamination on, the identified water-dependent ecological assets.	
A4-55	Identify how produced water, brine and waste from water treatment plants that are stored on site during operations will be managed and disposed of after operations cease, where applicable.	
A4-56	Provide a quantitative site-level water balance model describing the total water supply and demand under a range of rainfall conditions and allocations of water for mining activities (e.g., dust suppression, coal washing), including all sources and uses.	
A4-57	Provide estimates of the quality and quantities of operational discharges under dry, median and wet conditions, potential emergency discharges due to unusual events, and the likely impacts on water-dependent ecological assets.	
Geochemistry (e.g., acid-sulfate soils)		
A4-58	Identify the presence and potential exposure of acid-sulfate soils (including from oxidation arising during groundwater drawdown) and other geochemical sources of contaminants and extreme pH.	
A4-59	Identify the presence and volume of potentially acid-forming waste rock and fine-grained amorphous sulfide minerals and describe coal reject/tailings material and potential exposure pathways.	

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A4-60	Identify other sources of contaminants, such as high metal concentrations in groundwater, leachate generation potential and seepage paths. Where identified, quantify potential contaminants in coal rejects and leachate with appropriate testing methods.	
A4-61	Assess the potential impacts on and risks to water-dependent ecological assets, taking into account dilution factors and including solute transport modelling where relevant; representative and statistically valid sampling; and appropriate analytical techniques.	
A4-62	Describe proposed measures to avoid or mitigate risks of impacts on water resources, water users and water-dependent ecosystems and species, and provide evidence for the likely feasibility and effectiveness of these measures. Specify handling and storage plans for acid-forming materials (e.g., co-disposal, tailings dam, encapsulation) to reduce their risks to water-dependent ecological assets.	
Subsidence		
A4-63	Provide predictions of subsidence impacts on surface topography, water-dependent assets, groundwater (including enhanced connectivity between aquifers) and the movement of water across the landscape (see CoA 2014b; CoA 2014c). Consider multiple methods of prediction and apply the most appropriate method. Consider the limitations of the applied method, including the adequacy of empirical data and site-specific geological conditions, and justify the selected method. Consider the timing of subsidence impacts, identifying whether impacts will occur rapidly or develop over the longer term.	
A4-64	Describe subsidence monitoring methods, including the use of remote or on-ground techniques, and explain the predicted accuracy of such techniques.	
A4-65	Assess both conventional and unconventional subsidence. For project expansions, provide an evaluation of past or current effects of geological structures on subsidence and the implications for water resources and water-dependent assets.	
A4-66	Consider geological strata and their properties (strength/hardness/fracture propagation) in the subsidence analysis and/or modelling. Anomalous and near-surface ground movements with implications for water resources and compaction of unconsolidated sediment should also be considered.	
Chemicals		
A4-67	List the chemicals proposed for use in drilling and hydraulic stimulation of CSG production bores, including: • proprietary names (trade names) of compounds (e.g., fracturing fluid additives) being produced	

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	- chemical names and CAS numbers of each additive used in each of the fluids - general purpose and function of each of the chemicals used - mass or volume of each of the chemicals proposed for use and its maximum concentration (mg/L or g/kg) - ecotoxicology - any material safety data sheets for the chemicals or chemical products used.	
A4-68	The use of drilling and hydraulic fracturing chemicals should be informed by appropriately tiered deterministic and/or probabilistic hazard and risk assessments, based on ecotoxicological testing consistent with Australian Government testing guidelines (see CoA 2012; NRMHC-EPHC-NHMRC 2009).	
A4-69	Chemicals for use in drilling and hydraulic fracturing must be identified as being approved for import, manufacture or use in Australia (i.e., listed on the Australian Inventory of Industrial Chemicals; see CoA 2020b).	
A4-70	Propose waste management measures (including salt and brines) during both operations and legacy after closure.	
Drilling and hydraulic stimulation		
A4-71	Describe the scale of fracturing (number of wells, number of fracturing events per well), types of wells to be stimulated (vertical versus horizontal), and other forms of well stimulation (e.g., cavitation, acid flushing).	
A4-72	Describe proposed measurement and monitoring of fracture propagation, and specify associated uncertainties and challenges.	
A4-73	Identify water source(s) for drilling and hydraulic stimulation, and specify the volumes of fluid and mass balance (quantities/volumes).	
A4-74	Describe the rules (e.g., water sharing plans) covering access to each water source to be used for drilling and hydraulic stimulation, and how the project proposes to comply with them.	
A4-75	Quantify and describe the quality and toxicity of flowback and produced water and how it will be treated and managed.	
A4-76	Assess the potential for inter-aquifer leakage or contamination, and describe the risks to water-dependent assets if such leakage or contamination occurs.	
Closure, rehabilitation and post-development final landforms and voids		
A4-77	Describe the timing and processes planned for cessation of operations and the closure of the development, particularly any risks of impacts on water-dependent assets that may arise during this phase (e.g., when dismantling and removing infrastructure). Explain how such risks will be avoided or mitigated.	

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A4-78	If appropriate, qualitatively describe the various final landform options that were considered and their likely legacy impacts on water resources. This context will be useful for justifying the choice of the proposed final landform and how it avoids or mitigates risks of legacy impacts on water resources.	
A4-79	Ideally, describe how land disturbed by mining activities will be progressively rehabilitated to a safe and stable landform that does not cause environmental harm to water resources and is able to sustain one or more approved post-mining land uses (PMLUs). Give details of the consultation with regulators and the community about the intended PMLUs, the targets associated with their achievement, and how achievement of these targets may be hampered by, for example, site geology and climatic extremes.	
A4-80	If requested by regulators, specify and justify the methods and techniques that will be used to achieve particular rehabilitation targets and milestones. Explain how these methods may be constrained by project specific features (e.g., topography, climate, geology and hydrology).	
A4-81	If appropriate, describe how the effectiveness of the proposed rehabilitation methods and techniques for protecting or restoring water resources will be monitored, and present details (e.g., parameters, sampling frequency) of a monitoring program for demonstrating successful achievement of the targeted PMLUs across the project area after mining or CSG extraction has finished. These monitoring programs should be linked to explicit milestones for completion of progressive stages of rehabilitation, and should include appropriate baseline data against which to judge the effectiveness of the rehabilitation.	
A4-82	Describe the final landform and any voids that may remain after closure, and specify the predicted legacy impacts that may persist, such as ongoing effects on surface water and groundwater movements and water quality, erosion and sedimentation, and habitat fragmentation of water-dependent species and communities. Evaluate the adequacy of the modelling underlying these predictions, especially all sources of uncertainty.	
A4-83	Assess qualitatively the likely long-term risks of impacts on water resources and water-dependent assets posed by various options for the final landform design, including complete or partial backfilling of mining voids. Assessment of the final landform for which approval is being sought should consider: • stability (e.g., resistance to erosion and slumping), soil geochemistry and quality (relevant for post-closure establishment of vegetation) and the likely effects of the final landform on long-term surface water and groundwater behaviour (e.g., fluxes and runoff) and on water quality, including salinity, pH, toxicity and concentrations of contaminants • geochemistry and its potential effects on seepage through waste rock (e.g., fully or partially refilled voids, remnant rock dumps) and on the quality of water exiting from mine adits and other post-closure sources	

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
	- groundwater behaviour and rate and depths of water table recovery, including timeframe and final levels of stabilisation - available measures (and their likely effectiveness and feasibility) to avoid or mitigate legacy impacts from - the final landform and any voids on water resources and water-dependent assets.	
Baseline data		
A4-84	For groundwaters, surface waters and ecological water-dependent assets that have been identified in the risk based assessment, present data that are sufficient to establish pre-development (baseline) conditions and that have been collected at an appropriate sampling frequency and spatial coverage of monitoring sites, ideally over a period sufficiently long to characterise the impacts of climatic variability.	
Groundwater		
A4-85	Provide data from surveyed boreholes to demonstrate the varying depths of the hydrogeological units and associated standing water levels or potentiometric heads, including directions of groundwater flow, contour maps and hydrographs.	
A4-86	Present information from site-specific studies (e.g., geophysical, coring/wireline logging) to characterise the local stress regime and fault structure (e.g., damage zone size, open/closed along fault plane, presence of clay/shale smear, fault jogs or splays).	
A4-87	Provide site-specific values for hydraulic parameters (e.g., vertical and horizontal hydraulic conductivity and specific yield or specific storage characteristics, including the data from which these parameters were derived) for each relevant hydrogeological unit. In situ observations of these parameters should be sufficient to characterise the heterogeneity of these properties for modelling.	
A4-88	Provide hydrochemical characterisation (e.g., acidity/alkalinity, electrical conductivity, metals and major ions) and a suitable suite of environmental tracers (e.g., heat; stable isotopes of water; tritium, helium, strontium isotopes) (e.g., Kurukulasuriya et al. 2022; OWS 2020) commensurate with the risks of the proposed development to water resources and water-dependent assets.	
A4-89	Provide sufficient data on physical aquifer parameters and hydrogeochemistry to establish pre-development conditions, including fluctuations in groundwater levels at time intervals relevant to aquifer processes. This should include time-series data for water levels and water quality that represent seasonal and climatic cycles.	
A4-90	Provide long-term groundwater monitoring data, including a comprehensive assessment of all relevant chemical parameters to inform changes in groundwater quality and detect potential contamination events.	

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Surface water		
A4-91	Provide data for the hydrological regime of all watercourses, standing waters and springs across the site, including: • spatial, temporal and seasonal trends in streamflow and/or standing water levels • spatial, temporal and seasonal trends in water quality data (such as turbidity, acidity, salinity, relevant organic chemicals, metals, metalloids and radionuclides).	
Ecology		
A4-92	Provide clear statements of the goals of the baseline data, specifying how the information will address knowledge gaps (e.g., current ecological condition of water-dependent assets in the project area, potential impact pathways) and justifying the choice of parameters and measures.	
A4-93	Describe and justify the sampling program (e.g., sampling frequency, locations of impact and control sites) and collection methods for gathering appropriate baseline data on all ecological water-dependent assets that have been identified in the risk-based assessment. The data and methods used may also help address information gaps in the IPDs and be used to monitor responses to predicted impacts of the development and the effectiveness of mitigation measures.	
A4-94	Ensure ecological sampling methods reflect best practice, are quantitative if needed, and comply with relevant state or national monitoring guidelines (e.g., Queensland Government (2015) for sampling stygofauna). Identify plants and animals (including stygofauna and aquatic invertebrates) to the lowest feasible taxonomic resolution to optimise the value of the baseline data. Where possible, make baseline data publicly available.	
A4-95	Identify potential aquatic and terrestrial GDEs, using the method outlined by Eamus et al. (2006) and information from the GDE Toolbox (Richardson et al. 2011), the GDE Atlas (CoA 2023) and the GDE Explanatory Note (Doody et al. 2019).	
A4-96	Present information on the distribution of potential aquatic and terrestrial GDEs within and near the project area, and explain how their groundwater dependence has been ground-truthed and on which hydrogeological units they are likely to depend (see Doody et al. 2019).	
Monitoring and management		
A4-97	Describe the rationale for selected monitoring parameters and their sampling duration, frequency and methods, including the use of satellite or aerial imagery to identify and monitor large-scale impacts. Target monitoring programs to address key areas of uncertainty, especially for valued assets and water resources that are at greater risk of impacts from the proposed development.	

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
A4-98	Ensure water quality monitoring complies with relevant National Water Quality Management Strategy guidelines (ANZG 2018) and relevant legislated state protocols (e.g., Queensland Government 2018).	
A4-99	Identify and justify monitoring sites representative of the diversity of potentially affected water-dependent assets and the nature and scale of potential impacts. Match suitably replicated control and reference sites (BACI design, Downes et al. 2002) to enable detection and monitoring of potential impacts.	
A4-100	Describe the processes employed to determine impact thresholds for water-dependent assets (e.g., threshold at which a significant impact on an asset may occur).	
A4-101	Describe proposed mitigation and management actions, and their adequacy, for each significant impact identified, including any proposed mitigation or offset measures for long-term impacts post mining.	
A4-102	Identify modifications or alternatives to avoid, minimise or mitigate potential cumulative impacts, and provide evidence of the likely success of these measures (e.g., case studies).	
A4-103	Propose adaptive management measures and management responses, giving details of trigger action response plans (TARPs) for valued assets and water resources that are at greater risk of impacts from the proposed development.	
Groundwater		
A4-104	Describe a robust groundwater monitoring program using dedicated groundwater monitoring bores – including nested arrays where there may be connectivity between hydrogeological units – and targeting specific aquifers, providing information on the groundwater regime and on recharge and discharge processes and identifying changes in quantities and quality of groundwater over time.	
A4-105	Where reinjection schemes are proposed to manage wastewater (e.g., managed aquifer recharge), the monitoring program should include components specifically targeted at identifying any potential impacts from this management action.	
Surface water		
A4-106	Identify and justify dedicated sites to monitor hydrology, water quality, and channel and floodplain geomorphology before, during and for a suitable period after the proposed development.	
A4-107	Describe a surface water monitoring program that will collect sufficient data to detect and identify the cause of any changes from established baseline conditions, and assess the effectiveness of mitigation and management measures. The program should:	

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	- include baseline monitoring data for physico-chemical parameters, as well as contaminants (e.g., metals) - compare physico-chemical data to national/regional guidelines or to site-specific guidelines derived from reference condition monitoring if available - identify baseline contaminant concentrations and compare these to national guidelines, allowing for local background correction (e.g., bioavailability) if required.	
Ecology		
A4-108	Provide clear statements of the goals of the monitoring program, specifying how the information will address knowledge gaps about, for example, changes in abundance, composition and condition of ecological water-dependent assets in and near the project area. Ensure that the monitoring program is powerful enough to detect relevant changes that indicate significant impacts or where management and mitigation measures are not working as predicted.	
A4-109	Describe and justify the monitoring program (e.g., sampling frequency, locations of impact and control sites) and collection methods for gathering appropriate monitoring data on all ecological water-dependent assets that have been identified in the risk-based assessment. Where possible, match the methods to those used in the baseline surveys so that the data are directly comparable and can be used to monitor responses to predicted impacts of the development and the effectiveness of mitigation measures.	
A4-110	Ensure that all proposed ecological monitoring uses standard sampling methods that reflect best practice and are quantitative if needed. Identify plants and animals (including stygofauna and aquatic invertebrates) to the lowest feasible taxonomic resolution to optimise the value of the monitoring data, and strive to make these data publicly available.	
A4-111	Describe how the monitoring data will be analysed and reported, specifying how the information will feed back into regular assessment of whether (and where) impacts are occurring and whether mitigation measures are being effective. Ensure that this information is explicitly linked to TARPs that guide adaptive management of impacts of the proposed development on ecological water-dependent assets in and near the project area during and for a suitable period after the proposed development.	
A4-112	Specify and justify all proposed management and mitigation measures to protect ecological water-dependent assets that were identified in the risk-based assessment. Present relevant evidence to demonstrate the likely effectiveness of these measures. Specify how the data to be collected in the monitoring program will illustrate the effectiveness of these management and mitigation measures, and present relevant TARPs describing this adaptive management.	
Cumulative impacts		

IESC information guidelines requirements: Centurion North Development (EPBC 2026/10419)		MNES/EIS chapter reference
A4-113	Assess the condition and likely responses of all water-dependent assets and water resources likely to be cumulatively impacted by the proposed development combined with all developments (past, present and/or reasonably foreseeable) and other water-intensive activities.	
A4-114	Assess the cumulative impacts on potentially affected water-dependent assets and water resources, considering: • the full extent of potential impacts from the proposed project (including whether there are alternative options for infrastructure and mine configurations which could reduce impacts) • all stages of the development, including exploration, operations and post-closure/rehabilitation • the likely spatial magnitude and timeframe over which cumulative impacts will occur (ensuring that the analysis has sufficiently broad geographic and temporal boundaries to include all potentially significant impacts) • opportunities to work with other water users to avoid or mitigate potential cumulative impacts to meet specified environmental objectives.	

Appendix 5 - Documents relevant to assessment of MNES

Listing advice, conservation advice, and recovery plans

For listing advice, conservation advice, and recovery plans please refer to the DCCEEW website and the Species Profile and Threats Database (SPRAT), available at www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

Other Commonwealth documents

- [Significant Impact Guidelines 1.1 - Matters of National Environmental Significance - DCCEEW](#)
- [Significant Impact Guidelines 1.3: Coal seam gas and large coal mining developments - impacts on water resources - DCCEEW](#)
- [EPBC Act environmental offsets policy - DCCEEW](#)

Appendix 6 - Matters that must be addressed by draft public environment report and environmental impacts statement (*Schedule 4 of the EPBC Regulations 2000*)

General information

- (1) 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.

Description

- (2) 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.

Relevant impacts

- (3) Information given under paragraph 2 (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.

Proposed safeguards and mitigation measures

- (4) Information given under paragraph 2 (e) must include:
 - (a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures
 - (b) any statutory or policy basis for the mitigation measures
 - (c) the cost of the mitigation measures
 - (d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing
 - (e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program and
 - (f) a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including mitigation measures proposed to be taken by State governments, local governments or the Proponent.

Other approvals and conditions

- (5) Information given under paragraph 2 (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 Australian Government 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.

Environmental record of person proposing to take the action

- (6) 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.
- (7) If the person proposing to take the action is a corporation — details of the corporation's environmental policy and planning framework.

Information sources

- (8) For information given the PER 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.

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