

EIS assessment report

Baralaba South Project

March 2026

Prepared by: Environmental Impact Assessment,
Department of the Environment, Tourism
Science and Innovation.

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March 2026

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Executive summary

This assessment report evaluates the environmental impact statement for the Baralaba South Project (the project) under the *Environmental Protection Act 1994*. It includes assessment of the potential impacts on the controlling provisions under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The project, proposed by Baralaba South Pty Ltd, involves the construction, operation, decommissioning and rehabilitation of a greenfield, open cut, metallurgical coal mine and supporting infrastructure. The project is proposed to be located approximately 8 kilometres south of Baralaba and 115 kilometres west of Rockhampton, in the lower Bowen Basin region of Central Queensland. Production is expected to achieve up to 2.5 million tonnes per annum of run of mine coal over an operational life of approximately 23 years. Product coal would be transported 40 kilometres south via Moura–Baralaba Road to an existing train load-out facility east of Moura and then moved by rail to the Port of Gladstone for export.

Key environmental considerations included:

- landform changes including impacts on cultural practices, land use, flooding, geomorphology of Dawson River and Banana Creek, groundwater dependant ecosystems and ecology
- surface and groundwater interactions including impacts during and post operations associated with mine affected water, sediment dams and residual void
- amenity for the surrounding community including flooding, noise, dust, airblast overpressure, other air emissions and transport impacts
- biodiversity, including impacts to matters of state and national environmental significance, rehabilitation and post-mining land use.

The environmental impact statement assessment process supports the key approvals required for the project. These include an environmental authority under the *Environmental Protection Act 1994*, approval of the social impact assessment under the *Strong and Sustainable Resource Communities Act 2017* and a decision under the *Environment Protection and Biodiversity Conservation Act 1999*.

The project is considered suitable to proceed. This decision is based on:

- the implementation of the report's recommendations, including conditions attached to relevant approvals
- the resolution of outstanding matters on key approvals
- the proponent progressing the project and fulfilling commitments stated in the environmental impact statement.

The effective implementation of these measures is necessary to ensure the identified impacts are appropriately avoided, minimised and managed.

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1 Introduction

This Environmental Impact Statement (EIS) assessment report evaluates the EIS pursuant to Chapter 3 of the *Environmental Protection Act 1994* (EP Act) for the Baralaba South Project (the project). The project is proposed by Baralaba South Pty Ltd (the proponent). The Department of the Environment, Tourism, Science and Innovation (DETSI) as the administering authority of the EP Act, coordinates the EIS process.

The project was declared a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) by the Australian Government Minister for the Environment and Water on 18 October 2012 (referral number 2012/6547). The EP Act EIS process assesses the potential impacts of the project on the controlling provisions under the Bilateral Agreement between the Australian Government and the State of Queensland under section 45 of the EPBC Act (DETSI n.d.).

The objectives of this assessment report are to:

- assess the adequacy of the EIS in addressing the final Terms of Reference (TOR)
- make recommendations about the suitability of the project
- recommend any conditions for approval required for the project
- address the matters prescribed in the Environmental Protection Regulation 2019 (EP Regulation).

This assessment report provides a summary of the key matters identified through the EIS process. It details those issues of particular concern that were not resolved or require specific conditions for the project to proceed. Based on the information presented in the EIS, relevant legislation and the regulatory requirements under the EP Act, I have formed the view that the project is suitable to proceed.

The giving of this assessment report to the proponent and the Australian Government completes the EIS process under the EP Act. This assessment report will inform the Australian Government Minister for the Environment and Water in making a decision about the proposed action and any conditions that should be applied under Part 9 of the EPBC Act.

2 Project description

The proponent proposes to develop a greenfield, open cut, metallurgical coal mine extracting up to 2.5 million tonnes per annum (Mtpa) of run of mine (ROM) coal. Over the life of the project, approximately 49 million tonnes (Mt) of ROM metallurgical coal would be mined to produce approximately 36 Mt of low volatile pulverised coal injection (PCI) product coal for export to the international steel manufacturing industry.

Mining would occur within Mining Lease Application (MLA) 700057, covering 2,214 hectares (ha). Overburden and interburden would be disposed of in-pit as part of progressive rehabilitation and in the adjacent out-of-pit waste rock emplacement (WRE).

Product coal would be transported via road trains 40 kilometres (km) south along Moura-Baralaba Road to the existing train load out (TLO) facility east of Moura and then shipped by rail to the Port of Gladstone for export to international markets.

The water management system for the project proposes water release/extraction infrastructure to the Dawson River. Power would be supplied via an electricity transmission line (ETL) from Baralaba Substation to the north, and a 4.5 km realignment of the Moura-Baralaba Road, part of the Banana Shire Council rural road network, from within the MLA area to the east of the MLA boundary, subject to Council agreement. Final alignments of third-party infrastructure would require separate approvals under the *Planning Act 2016*.

The maximum area proposed for disturbance within the MLA footprint is 1,196 ha. Additional disturbance outside the MLA includes the ETL (~16 ha disturbance), the access easement for the pump station and water pipeline (~1 ha disturbance) and the Moura-Baralaba Road realignment (~14 ha disturbance).

Rehabilitation is proposed to occur progressively over the mine life in accordance with the environmental authority (EA). Refer to section 6.17 of this assessment report for further information on rehabilitation.

2.1 Places affected by the project

The project is proposed within the lower Bowen Basin region of central Queensland. It would be located approximately 8 km south of Baralaba township, within the Banana Shire Council local government area (refer to Figure 1). The towns of Moura and Banana are located just over 30 km to the south and south-east of the project, respectively.

The project would be adjacent to Mount Ramsay on the east and near the confluence of Banana Creek with the Dawson River on the west (refer to Figure 2).

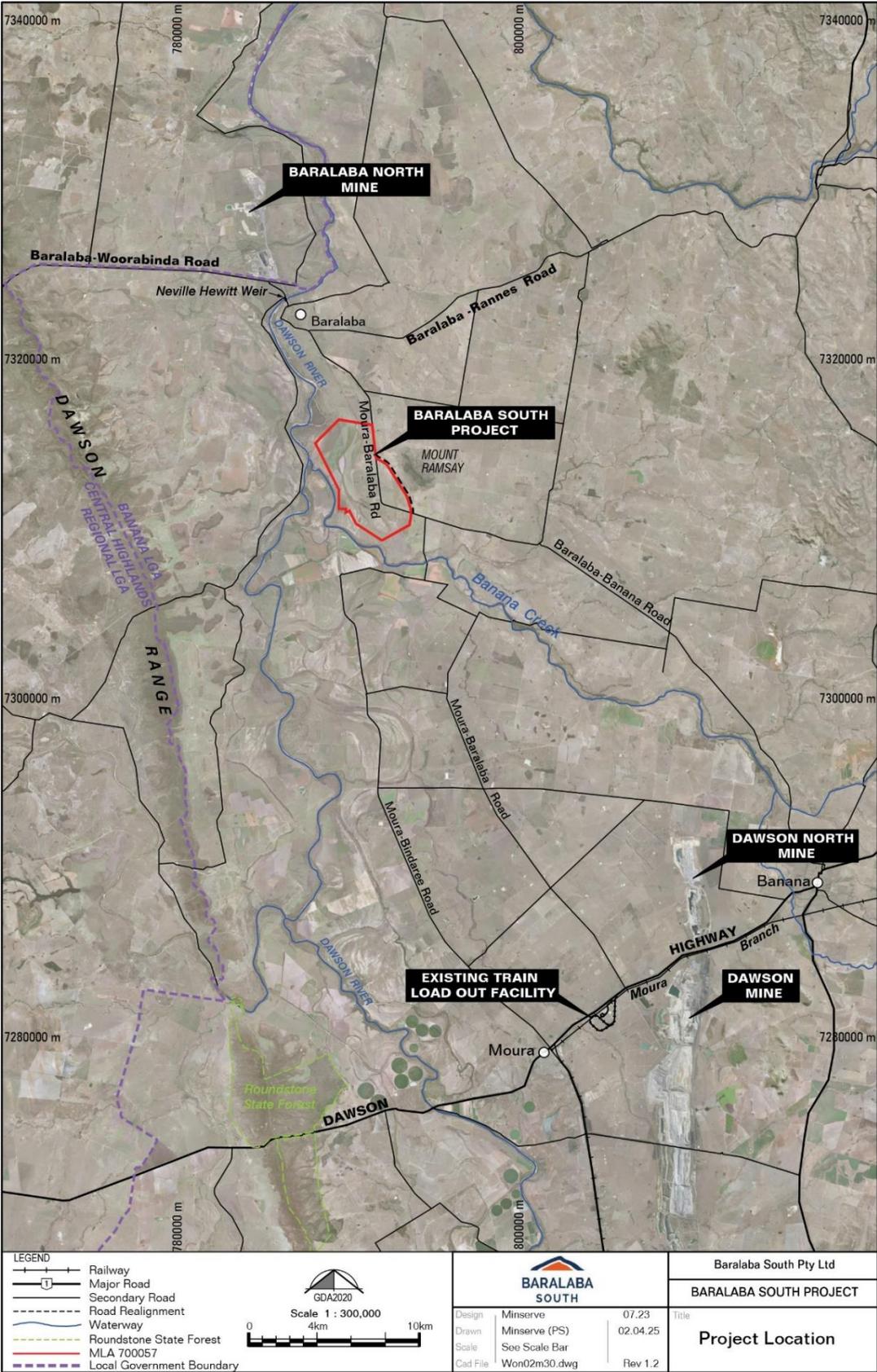


Figure 1 Baralaba South Project location (source: EIS Figure ES.2)



Figure 2 Baralaba South Project proposed final landform (source: EIS Figure 3.13)

3 Statutory requirements

This assessment report considers the EP Act (version dated 6 December 2016), and the former Environmental Protection Regulation 2008 (EP Regulation, version dated 27 January 2017), both in effect on 6 February 2017 when the proponent submitted the draft TOR for the EIS. I consider this to be the relevant date for the EIS based on the application of section 20 of the *Acts Interpretation Act 1954*.

This section outlines the statutory requirements for the project and its EIS process, including:

- approvals needed for the project to operate
- matters the EIS was required to address
- considerations I was required to take into account when preparing this assessment report
- content requirements for this assessment report.

3.1 Project approvals

Key approvals and declarations required for the project are summarised in Table 1. Recommended conditions for some of these approvals are provided in section 8 of this assessment report.

Table 1 Key approvals required for the Baralaba South Project

Approval	Legislation (administering authority)	Detail
Environmental authority (EA) granted by Queensland Government		
EA	EP Act (DETSI)	<p>The project would require a site-specific EA for environmentally relevant activity (ERA) 13 – Mining Black Coal, as listed under schedule 3 of the EP Regulation.</p> <p>The EA would also cover the following ancillary ERAs that are directly associated with, or facilitate or support, the mining activities, and which would otherwise require approval under the EP Act as ‘prescribed ERAs’, listed under schedule 2 of the EP Regulation:</p> <ul style="list-style-type: none"> • ERA 8(1)(C) – Chemical Storage; storing 500 cubic meters or more of chemicals of class C1 or C2 combustible liquids under Australian Standard 1940 or dangerous goods class 3 • ERA 31(2)(2)(b) – Mineral Processing; processing, in a year, the following quantities of mineral products, other than coke – more than 100,000 tonnes (t) • ERA 33 (1)– Crushing, Milling, Grinding or Screening; crushing, milling, grinding or screening - more than 5000 t of material in a year

		<ul style="list-style-type: none"> • ERA 60(3)(2)(h) – Waste Disposal: operating a facility for disposing of, in a year, the following quantity of waste - more than 200,000 t • ERA 63 (3)– Sewage treatment or operating a sewage pumping station with a total design capacity of more than 40 kilolitre (kL) in an hour (100 to 1,500 equivalent persons with treated effluent discharged through an irrigation scheme). <p>The following notifiable activities prescribed under schedule 3 of the EP Act would be authorised under the EA:</p> <ul style="list-style-type: none"> • notifiable activity 1 – Abrasive Blasting • notifiable activity 7 – Chemical Storage • notifiable activity 15 – Explosives Production or Storage • notifiable activity 24 – Mine Wastes • notifiable activity 29 – Petroleum Product or Oil Storage • notifiable activity 37 – Waste Storage, Treatment or Disposal. <p>Under the <i>Environmental Offsets Act 2014</i> (EO Act) an offset condition would be required for significant residual impacts to matters of state environmental significance (MSES) that are not also matters of national environmental significance (MNES).</p> <p>The EA would also require Estimated Rehabilitation Costs to be lodged prior to commencing any activities authorised under an EA (under the <i>Mineral and Energy Resources (Financial Provisioning) Act 2018</i>).</p>
Other approvals granted by Queensland Government or local government		
Grant of mining lease	<i>Mineral Resources Act</i> (MR Act) (Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (DNRMMRRD))	<p>The project would require the following forms of tenure under the MR Act:</p> <ul style="list-style-type: none"> • mining lease under section 234(1)(a) of the MR Act, 'to mine specified minerals'.
Water allocation – for taking water (existing approval)	<i>Water Act 2000</i> (Water Act) (Department of Local Government, Water and Volunteers (DLGWV)) Water Plan (Fitzroy Basin) 2011 (Water Plan)	Required to allow for the take of water from the Dawson River.

Permit to take water (temporary)	Water Act (DLGWV)	Required for the temporary take of surface water for construction water supply.
Regional Interests Development Approval	<i>Regional Planning Interest Act 2014</i> (Department of State Development, Infrastructure and Planning)	Required to impact on Strategic Cropping Land.
Temporary road closure permit	<i>Transport Operations (Road Use Management) Act 1995</i> (Department of Transport and Main Roads (TMR))	Required to transport large, indivisible loads to the project site using over dimensional vehicles.
Social impact assessment	<i>Strong and Sustainable Resource Communities Act 2017</i> (SSRC Act) (Coordinator-General)	Required for social impacts for resource projects assessed by an EIS process.
Development Application - Operational Works Permit	<i>Planning Act 2016 (Planning Act)</i> (State Assessment Referral Agency and Banana Shire Council)	Required for works outside of the mining lease, including the realignment of Moura-Baralaba Road (including the intersections with the north and south mine access roads), an electricity transmission line from Baralaba Substation, and a pipeline and access track extending approximately 670 m off lease.
Species Management Program (SMP)	<i>Nature Conservation Act 1992</i> (NC Act) (DETSI)	Required for tampering with a protected animal breeding place.
Cultural heritage management plan (CHMP)	<i>Aboriginal Cultural Heritage Act 2003</i> (Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism)	Required to manage potential impact on Aboriginal cultural heritage.
Development Application - Waterway Barrier Works	<i>Fisheries Act 1994</i> (State Assessment Referral Agency and Department of Primary Industries)	Required for waterway barrier works on mapped waterways providing for fish passage, outside of the mining lease and where accepted development requirements do not apply.
Approvals granted by Australian Government		
Approval to undertake an action that is likely to have significant impacts on a MNES: <ul style="list-style-type: none"> - Listed threatened species and communities (sections 18 and 18A) - Listed migratory species (sections 20 and 20A) - A water resource in relation to coal seam 	Commonwealth (Cwlth) EPBC Act (DCCEEW)	A copy of this assessment report will be given to the Australian Government Minister for the Environment and Water to assist in deciding whether or not to approve the project and any conditions that should apply under Part 9 of the EPBC Act, if approved.

gas development and large coal mining development (sections 24D and 24E).		
Offset requirements for MNES and MSES	<p>Cwlth EPBC Act; Cwlth Environmental Offsets Policy 2012 (DCCEEW)</p> <p>Queensland EO Act; Environmental Offsets Regulation 2014; Queensland Environmental Offsets Policy (DETSI)</p>	<p>Offsets would be required for significant residual impacts to MNES, including those that are also MSES.</p> <p>Under the EO Act an offset condition cannot be required by the state if the Australian Government has imposed a condition for the same, or substantially the same, impact on the same matter OR if the Australian Government has decided an offset is not required. Consequently, any conditions for offsetting that overlap jurisdictions would be placed on the Australian Government's approval.</p>

3.2 Criteria considered

I have taken all criteria listed in section 58 of the EP Act into account when preparing this assessment report and forming my recommendations. These criteria include:

- a) the final TOR for the EIS
- b) the submitted EIS
- c) all properly made submissions and any submissions accepted by the chief executive
- d) the standard criteria in Schedule 4 of the EP Act
- e) any other matter prescribed under a regulation.

The final TOR (criterion a) is available either on the Queensland Government's [Environmental impact statement process](#) webpage (under 'Baralaba South') or via the Public Register Portal (under 'environmental impact statement'; search for the project using ID 'EIS100736502').

Documents considered for criteria (b) and (c) are described below. For criterion (e), this assessment report considered whether the EIS adequately addressed matters prescribed in Schedule 1 of the EP Regulation.

3.2.1 Submitted EIS

The submitted EIS, considered in preparing this assessment report, comprised the following documents and will hereafter be referred to as the EIS:

- the original EIS (EIS version 1) submitted on 20 January 2020
- the amended EIS (EIS version 2) submitted on 19 December 2023 (publicly notified)
- the amended EIS (EIS version 3) and Response to Public Submissions submitted on 3 September 2025.

3.2.2 Submissions on the EIS

The EIS was open for public submission from 4 March 2024 to 1 May 2024. During this period, 716 submissions were received from government agencies, regional bodies, non-government organisations and members of the community. Although not all were properly made, all submissions

were accepted under section 55 of the EP Act and considered in preparing this assessment report and forming my recommendations.

Submissions were received from members of the public and the following stakeholders (government agency names reflect those in place at the time of submission):

- Department of Climate Change, Energy, the Environment and Water
- Department of Environment, Science and Innovation (now DETSI)
- Department of State Development and Infrastructure
- Department of Agriculture and Fisheries
- Department of Child Safety, Seniors and Disability Services
- Department of Housing, Local Government, Planning and Public Works
- Department of Employment, Small Business and Training
- Department of Regional Development, Manufacturing and Water
- Department of Resources
- Department of Tourism and Sport
- Department of Transport and Main Roads
- Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts
- Queensland Ambulance Service
- Queensland Health (Central Queensland Public Health Unit)
- Queensland Police Service
- Australian Coral Reef Society
- Baralaba and District Progress Association Inc.
- Environmental Advocacy in Central Queensland
- Ergon Energy
- Federal Member for Flynn
- Institute for Energy Economics and Financial Analysis
- Lock the Gate
- Mackay Conservation Group
- Protect the Bush Alliance
- Queensland Conservation Council
- Save the Dawson.

EIS Appendix AC (Submission Summary Report) provided a summary analysis of submissions received during the public notification period. The EIS was subsequently revised in response to submissions to provide greater clarity, additional information and corrections where necessary.

The EIS stated that properly made submissions were predominately campaign letters signed by individuals (78%), as well as submissions from government agencies (4%), individuals (15%), organisations (2%), businesses (1%). The EIS identified nineteen broad categories of perceived environmental issues across all submissions. The issues most frequently raised related to potential social, economic, surface water and greenhouse gas impacts, as well as in principle objection to coal mining.

DETSI sought specialist technical advice on the project from the Independent Expert Scientific Committee on Unconventional Gas Development and Large Coal Mining Development (IESC). The IESC advice ([IESC 2024-148](#)) was provided to DETSI on 16 April 2024 and published on the [IESC website](#). The IESC advice informed DETSI's submission on the EIS.

Following the public submission period, I sought additional information from government agencies to clarify critical matters raised in the proponent's response to submissions. This informed the preparation of this assessment report and the development of my recommendations.

For most contemporary projects, public notification of an EIS meets the public notification requirements for the associated EA. In these cases, the EIS process provides the main opportunity for comment on a project, and a separate EA notification stage is not required.

That process does not apply to this project because the EA application was submitted at a different time in the assessment process, with a different project description. As a result, the EA for the project will be publicly notified separately, following completion of the EIS process. When this occurs, members of the community will have the opportunity to make submissions on the EA.

Importantly, submitter rights won't carry across from the EIS to the EA. If a member of the public wishes to have submitter rights in relation to the EA, including being notified of the appeal process, they must make a submission during the EA notification period.

3.3 Required content

I have prepared this assessment report in accordance with section 59 of the EP Act, which specifies the required content of an assessment report. The report must:

- (a) address the adequacy of the EIS in addressing the final TOR (see section 6 of this assessment report)
- (b) address the adequacy of any environmental management plan for the project (see section 6 of this assessment report)
- (c) make recommendations about the suitability of the project (see section 7 and references throughout this assessment report)
- (d) recommend any conditions on which any approval required for the project may be given (see section 8 and appendices A - C of this assessment report)
- (e) contain another matter prescribed under a regulation.

Regarding item (e), section 9 of the EP Regulation prescribes additional matters that this assessment report must contain, including:

- (a) a description of the following
 - (i) the project
 - (ii) the places affected by the project
 - (iii) any MNES likely to be affected by the project
- (b) a summary of the project's relevant impacts
- (c) a summary of feasible mitigation measures or changes to the project or procedures to prevent or minimise the project's relevant impacts, proposed by the proponent or suggested in a relevant submission
- (d) to the extent practicable, a summary of feasible alternatives to the project identified in the assessment process and the likely impact of the alternatives on MNES
- (e) to the extent practicable, a recommendation for any conditions of approval for the project that may be imposed to address impacts identified in the assessment process on MNES.

Section 2 of this assessment report describes the project and the places affected by the project (section 9(a)(i)–(ii) of the EP Regulation). Section 6 summarises the project's relevant potential impacts and mitigation measures (section 9(b)–(c)). Section 6.18 addresses MNES likely to be affected by the

project (section 9(a)(iii) and 9(d)). Appendix C recommends, to the extent practicable, conditions of approval to address potential impacts on MNES (section 9(e)).

4 The EIS Process

An application was made by the proponent under section 70 of the EP Act for a voluntary EIS for the proposed project. Under section 72 of the EP Act, it was determined on 16 August 2011 that assessment of the project would be by EIS.

4.1 EPBC Act controlling provisions

The Australian Government determined the project to be a controlled action pursuant to section 75 of the EPBC Act (referral number 2012/6547). The controlling provisions for the project are:

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

This EP Act EIS process assesses the potential impacts of the project on the controlling provisions under the Bilateral Agreement under section 45 of the EPBC Act. Section 6.17 of this assessment report assesses whether the EIS adequately addressed the impact on the controlling provisions.

This assessment report will assist the Australian Government Minister for the Environment and Water to decide whether to approve the project and any conditions that should apply under Part 9 of the EPBC Act, if approved.

4.2 EIS process timeline

Table 2 outlines the stages, timing and actions undertaken in the EIS process for the project.

Table 2 Timeline of key steps undertaken during the Baralaba South Project EIS process

Step in the EIS process	EP Act section	Complete
The proponent submitted an application for a voluntary EIS	70	10 August 2011
DETSI approved the voluntary EIS application for the project and issued a notice about the decision to the proponent	72	16 August 2011
The proponent referred the project to the Australian Government; it was declared to be a controlled action under the EPBC Act. Additional controlling provisions (sections 24D and 24E) were added to the referral	N/A	18 October 2012; 22 October 2013
The proponent submitted a draft TOR and prescribed fee for the project	41(1) & 41(2)	19 October 2012
DETSI gave the proponent the TOR notice	42(1) & 42(2)	2 November 2012
DETSI published the TOR notice in the newspaper	43(1)	3 November 2012
The 30 business day draft TOR comment period commenced	42(3)	5 November 2012
The 30 business day draft TOR comment period ended	42(3)	14 December 2012
DETSI gave the proponent 26 sets of comments received	44	11 January 2013
The proponent responded to the comments on the draft TOR	45	1 March 2013
DETSI considered the proponent's response, produced the final TOR, and gave a copy of the final TOR to the proponent.	46	2 April 2013

The proponent did not submit a draft EIS within the required period of two years from release of the TOR	46	2 April 2015
TOR lapsed suspending the EIS process	67	2 April 2015
The proponent submitted a draft TOR and prescribed fee	41(1) & 41(2)	6 February 2017
EIS process recommenced	67	6 February 2017
DETSI gave the proponent the TOR notice	42(1) & 42(2)	27 February 2017
DETSI published the TOR notice in newspapers	43(1)	3 March 2017; 4 March 2017
The 30 business day draft TOR comment period commenced	42(3)	6 March 2017
The 30 business day draft TOR comment period ended	42(3)	18 April 2017
DETSI gave the proponent 32 sets of comments received during the comment period	44	4 May 2017
The proponent responded to the comments on the draft TOR	45	29 June 2017
DETSI considered the proponent's response, produced the final TOR, and gave a copy of the final TOR to the proponent.	46	21 July 2017
The proponent requested a six-month extension to submit the EIS	47(1)(b)	24 June 2019
DETSI agreed to the longer period. The new date for the decision was set at 18/02/2020	47(1)(b)	28 June 2019
The proponent submitted a site-specific EA application	124	25 October 2019
The proponent submitted the EIS	47	20 January 2020
DETSI advised the proponent that there were matters in the TOR that the EIS had not adequately addressed.	49(3)	13 February 2020
DETSI agreed to a longer period of nine months for deciding whether the EIS was suitable to proceed. The new date for the decision was set at 16 December 2020	49(2)	18 February 2020
The proponent requested a six-month extension to submit the EIS (due to COVID-19 pandemic)	47(1)(b)	21 October 2020
DETSI decided to allow a longer period. The new date for the decision was set at 31 May 2021	47(1)(b)	2 November 2020
The proponent's consultant advised DETSI by telephone that the proponent would not be submitting the EIS on 30 April 2021 and would also not be providing a written response advising DETSI of this decision. The parent company, Liberty Mutual, was quoted in the media that it was not going to submit an EIS 'at this stage' (ABC News, 7 May 2021).	-	28 April 2021
DETSI was advised that AMCI acquired the project as part of the acquisition of Baralaba Coal Company which completed on 17 December 2021	-	12 January 2022
The new proponent requested a period longer in which to submit the EIS (due to change of ownership and reduction in project size)	47(1)(b)	13 January 2022
DETSI decided to allow a longer period. The new date for the decision was set 6 February 2023	47(1)(b)	14 January 2022
The proponent requested a period longer in which to submit the EIS (due to need to complete additional field work)	47(1)(b)	21 October 2022
DETSI decided to allow a longer period. The new date for the decision was set at 19 December 2023	47(1)(b)	31 October 2022
The proponent submitted an amended EIS	66	18 December 2023
DETSI gave the proponent a notice of decision that the EIS was suitable to proceed to public notification	49(6)	9 February 2024
The proponent gave a copy of the EIS notice to interested and affected persons and published the EIS notice in the newspaper. DETSI published the notice on DETSI's website. The EIS was made available in full on the proponent's website	51(2)(a) & 51(2)(b)	4 March 2024

The EIS submission period commenced	52(2)	4 March 2024
The proponent gave DETSI a declaration of compliance stating that a copy of the EIS notice had been given to interested and affected persons and that the EIS notice had been published in an appropriate newspaper	53	5 March 2024
The EIS submission period closed	52(2)	1 May 2024
DETSI forwarded to the proponent submissions that were received and accepted during the submission period	55 & 56(1)	16 May 2024
DETSI agreed to a longer period for submitting a response to submissions and amended EIS. The new date for the decision was set at 15 June 2026	56(2) & 56(3)	30 May 2024
The proponent submitted a summary of submissions, a response to submissions and the amended EIS	56(2)	3 September 2025
DETSI agreed to a longer period for submitting a response to submissions and amended EIS to respond to a request for further information. The new date for the decision was set at 29 April 2026	56A(3)	1 October 2025
The proponent submitted a response to the request for additional information and a further amended EIS	56A(3)	20 November 2025
DETSI considered the EIS and the proponent's response to submissions and decided to allow the EIS to proceed	56A(2) & 56A(4)	18 December 2025
DETSI issued to the proponent a notice of the decision to proceed	56(A)(5)	16 January 2026
DETSI gave a copy of the completed EIS assessment report to the proponent and the Australian Government	57(2)	2 March 2026

5 Consultation program

5.1 Public consultation

In addition to the statutory requirements for advertising the TOR and EIS notices and providing them to interested and affected parties, the proponent conducted community consultation with members of the public and other stakeholders during EIS development and in the submission period.

EIS Attachment 3 (Public Consultation Report) outlined the consultation undertaken by the proponent and described how responses from the community and stakeholders were considered in the preparation of the EIS and incorporated into the design and outcomes of the project. The EIS stated that through engagement the project design evolved to be smaller and avoid flooding areas, include commitments for biodiversity offsets, improve air quality and greenhouse gas emission management, leave post-mining landforms that respect the First Nations visual amenity value of Wandoo Mountain (Mount Ramsay), and reflect predominantly cattle grazing activities of the neighbours.

5.2 Advisory body

DETSI invited the following organisations to assist with the development of the TOR and the assessment of the EIS as members of the projects' advisory body (agency names reflect those at the time of EIS submission):

- Department of Climate Change, Energy, the Environment and Water
- Department of Environment, Science and Innovation (now DETSI)
- Department of State Development and Infrastructure
- Department of Regional Development, Manufacturing and Water
- Department of Agriculture and Fisheries
- Department of Resources
- Department of Transport and Main Roads

- Department of Child Safety, Seniors and Disability Services
- Department of Tourism and Sport
- Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts
- Department of Housing, Local Government, Planning and Public Works
- Queensland Health (Central Queensland Public Health Unit)
- Queensland Police Service
- Queensland Ambulance Service
- Department of Employment, Small Business and Training
- Department of Education
- Department of Communities and the Arts
- Queensland Fire Department
- Banana Shire Council.

Hereon references to Queensland Government agency names throughout this report refer to their current titles. Any previous iterations are reflected through the Administrative Arrangements Orders re-issued or amended when a change in the structure of government occurs.

5.3 Public notification

In accordance with statutory requirements, DETSI published the draft TOR notice in The Weekend Australian and Courier Mail newspapers. A copy of the draft TOR was made available on the [DETSI project website](#). In addition, DETSI's website displayed notices advising the availability of the draft TOR and EIS for public comment.

The proponent published the EIS notice in The Weekend Australian newspaper and made a copy of the EIS available on the [Baralaba South Project website](#). Submissions received during public notification are summarised in section 3.2.2 of this assessment report.

6 Adequacy of the EIS in addressing the TOR

I have focused on the critical environmental matters which the TOR stated I must give priority. These matters were: ecology, water quality, water resources, flooding, regulated dams, air quality, noise and vibration, transport, land and MNES. I consider that the EIS adequately addressed most components of the TOR.

In the following sections I discuss the findings of the EIS, summarise the relevant impacts and outline those environmental protection commitments made by the proponent that are recommended as conditions. Matters that require clarification or confirmation are discussed in detail. I have also included further recommended management measures and environmental protection conditions, as appropriate.

Those aspects of the EIS that are considered adequate are generally not discussed in detail in this assessment report, except where they were of particular importance for assessing the project, such as requiring modification of, or addition to conditions.

6.1 Introduction to the EIS

The EIS provided an adequate introduction to the project, its objectives and scope. It adequately identified the key approvals required for the project and outlined the assessment and approval processes.

6.2 Project description

The EIS adequately described the location, scope and phases of the project. An outline is provided in section 2 of this assessment report.

6.3 Project need and alternatives

The EIS adequately addressed the commercial need for the project. It also addressed how its operations would contribute to the local, regional, state and national economies through royalties, taxes, charges, and wages. In addition, the EIS addressed how the project would help sustain employment and create opportunities for small business, regional development and investment.

The EIS adequately addressed how there are no feasible alternatives to the location of the project, which is dictated by the location of the coal resource.

The EIS adequately presented two project alternatives together with a 'do nothing' alternative, from which the current project proposal was developed. For each alternative, key strategic decisions were evaluated, based on previous project plans, feedback from regulators and responsible economic and resource stewardship options.

The project was originally proposed as a 5 Mtpa operation utilising the entire MLA area. Feedback from various government agencies (including DETSI) and stakeholder consultation identified concerns relating to environmental and social impacts arising from the size and location of the project on the floodplain. By reducing the size and scale of operations to the current 2.5 Mtpa project configuration, located largely outside of the floodplain, I consider the proponent effectively addressed this issue.

6.4 Climate

Section 2.3 (Climate) of EIS Chapter 2 (Project Description) adequately described how the climate could affect the project, its potential for environmental impacts and the management of operations at the site.

The EIS provided a review of long-term meteorological data to describe the local climate and forecasted predictions for the project site, including rainfall; temperature; humidity; evaporation; and wind speed and direction. It also provided climate change projections and assessed bushfire risk.

Further analysis of climate change impacts was provided in EIS Chapter 6 (Flooding and Regulated Dams), Appendix B (Groundwater Modelling and Assessment), Appendix C (Flood Impact Assessment) and Appendix L (Air Quality and Greenhouse Gas Assessment).

6.5 Land

The EIS described aspects of the site and project relevant to the existing and proposed qualities and characteristics of the land. This was adequate for the EIS process in meeting the TOR requirements. However, consultation identified that additional information would be required to support the necessary Regional Interest Development Approval (RIDA) for the project. The EIS also adequately

addressed how those qualities and characteristics of the land would interact with, and influence, the potential impacts of the project.

6.5.1 Topography

EIS Chapter 10 (Land and Visual Amenity) adequately described the existing topography and impacts to topography from the project. EIS Figure 10.1 illustrated the topography of the project and surrounding area.

The land surrounding the project is predominately flat with slightly undulating slopes at between elevations of 75 metres Australian Height Datum (mAHD) and 110 mAHD. The most prominent natural landscape features in the local area are Mount Ramsay (430 mAHD) and the Dawson River.

The WRE would run approximately parallel to the eastern MLA boundary and rise approximately 60 – 70 metres (m) above the existing ground level. The proposed location of the WRE and final void are shown as Figure 3.10 of the EIS, with a final landform 3D visualisation provided in EIS Figure 10.9.

The project would result in a final void, with projected physical parameters set out in EIS Table 3.2. The EIS stated that its surface area has been minimised, as far as practicable, to maximise the area available for rehabilitation to a grazing landscape. This is further discussed in section 6.17 of this assessment report.

Both the existing and proposed final topography of the project are relevant to the propagation of noise and air pollution. The EIS adequately incorporated topographic data into the modelling of air quality and noise impacts (refer to section 6.9 and section 6.10 of this assessment report).

Similarly, the final, rehabilitated topography was adequately incorporated into the assessment of water resources and visual amenity (refer to section 6.6 and section 6.5.5 of this assessment report).

6.5.2 Geology and geomorphology

EIS Chapter 10 (Land and Visual Amenity) and Appendix D (Geomorphologic Assessment) adequately described the geology and geomorphology of the site and its surrounding area.

The project geology is well described, with the site located on the rising limb of the Mimosa Syncline. Permian rock layers, including the Baralaba Coal Measures, sub-crop in this region, bringing the coal seams close to the surface. Eight seams are consistently present within the Baralaba South deposit, although seam thickness varies. The project area includes several north-west-trending thrust faults that influence groundwater movement.

At the surface, the target coal measures (located within the Baralaba Coal Measures Formation) are largely covered by a thin veneer of Quaternary alluvial and colluvial sediments, consisting of sands, gravels, clays and soils, which thicken westwards towards the Dawson River. The tertiary Rewan Formation, comprising siltstone and mudstone, overlies and abuts the coal seams to the west due to the syncline. The Clematis Sandstone, located to the west of the project site, is the most easterly aquifer of the Great Artesian Basin (GAB) in the region.

The EIS adequately assessed the potential connection between the Dawson River and Banana Creek alluvium and the Baralaba Coal Measures that would be mined by the project. That connection was satisfactorily assessed in the EIS as it relates to water resources in Chapter 5 (Groundwater) and Appendix B (Groundwater Modelling and Assessment). This is further discussed in section 6.6.3 of this assessment report.

6.5.3 Soils and land suitability

EIS Chapter 10 (Land and Visual Amenity) described the soils and land suitability of the project site to the satisfaction of the EIS process.

The project would require a RIDA under the *Regional Planning Interests Act 2014* (RPI Act) for impacts to mapped strategic cropping land (SCL). The Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (DNRMMRRD) indicated that additional information would be required to support the RIDA, above what was provided in the EIS.

DNRMMRRD advised that the mapping of unique mapping areas (UMAs) for soil mapping and land suitability assessment follows a different methodology than that used for SCL compliance checks. When conducting a land suitability evaluation at a property scale, individual UMAs with a single slope class can be mapped and delineated. However, for SCL purposes, it is acceptable to map a single UMA if the slope consistently exceeds the compliance threshold of >3%, provided the appropriate site density and other relevant requirements are met which demonstrate consistency.

DNRMMRRD noted that any inaccuracies in soil descriptions, particularly those regarding soil drainage, land suitability and agricultural land class (ALC) would need to be rectified in the RIDA application. DNRMMRRD also advised that the application may require the collection of new site data for areas that challenge the SCL criterion, if site data collected to date is insufficient. I recommend that these issues be discussed during pre-lodgement meetings with DNRMMRRD. I also recommend consultation with the Department of State Development Infrastructure and Planning (DSDIP), as the Chief Executive administering the RPI Act.

Importantly, the EIS process does not confirm compliance with the RPI Act or effect any changes to the statutory SCL Trigger Map. Nor does it authorise any stripping, stockpiling or disturbance to SCL. Any such disturbance must be authorised through a RIDA under the RPI Act.

While DNRMMRRD would require additional information to inform the RIDA, I consider the land mitigation and management measures outlined in EIS Chapter 10 are appropriate for the purposes of the EIS process. These include measures to manage land disturbance, erosion and stability, topsoil and land contamination. I support the implementation of these measures, as committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.5.4 Land use

EIS Chapter 10 (Land and Visual Amenity), Chapter 2 (Project Description) and Chapter 3 (Rehabilitation) provided a comprehensive description of existing land uses within the project area and assessed the associated temporary and permanent changes. The EIS also appropriately addressed potential land use incompatibilities within and adjacent to the project site.

The project is located on land predominantly used for rural grazing, within a broader landscape that also accommodates existing coal mining operations and associated infrastructure. The site is zoned Rural under the Banana Shire Planning Scheme, where mining is an anticipated use subject to environmental, amenity and separation requirements. The assessment concluded that the project would generally be consistent with regional land use planning intent and regional land use patterns.

During construction and operations, up to approximately 1,196 ha within the MLA area would be temporarily disturbed by open-cut mining, waste rock emplacement and mine infrastructure. Additional disturbance would occur outside the MLA for supporting infrastructure such as the Moura-Baralaba Road realignment, ETL, and water pipeline easements. These areas would be unavailable for

rural uses for the duration of mining. Separation distances and management of off-lease infrastructure are proposed to minimise conflicts with adjoining properties and public assets.

The project would permanently alter landform and land capability in some areas. However, disturbed land is proposed to be rehabilitated to a safe, stable and non-polluting post-mining landform. The primary nominated post-mining land use is improved pasture grazing, reflecting the pre-mining land use and agricultural suitability. The final void is proposed as a non-use management area (NUMA). Further details are provided in section 6.17 of this assessment report.

The EIS identified potential risks of land use incompatibility during operations, including disruption to existing rural activities, changes to access arrangements, and amenity impacts where mining interfaces with public roads and adjacent properties. Mitigation measures proposed include maintaining access to surrounding properties, realigning infrastructure such as the Moura–Baralaba Road to ensure continued functionality and implementing progressive rehabilitation to reduce the extent and duration of disturbed land at any one time. The assessment concluded that temporary land use conflicts are largely confined to the project footprint and are manageable with these measures, and unacceptable long-term land use conflict is not anticipated.

I support the mitigation and management measures outlined above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.5.5 Landscape character and visual amenity

EIS Chapter 10 (Land and Visual Amenity) adequately described and assessed the potential impacts on the existing landscape character and visual amenity. Final landform visualisations from above and from a variety of vantage points depicted the project visual impacts.

The assessment found that localised changes to the landscape, would occur particularly around areas where vegetation clearance, new infrastructure, and the mine pit would be visible. The WRE, rising up to 70 m, would be a prominent feature in an otherwise flat landscape. Sensitive viewpoints, such as nearby residences, public roads, and recreational areas, would experience noticeable changes in views.

Proposed mitigation measures include progressive rehabilitation of disturbed areas (particularly the WRE), vegetated buffers where feasible, and infrastructure design to blend into the landscape. Rehabilitation would aim to restore a condition consistent with the existing rural setting, softening visual contrasts over time. With these measures in place, the EIS concluded that local viewsheds would be altered but overall visual amenity would be manageable and not significant at a regional scale.

I support the visual amenity mitigation and management measures outlined above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.6 Water

6.6.1 Surface water

Generally, EIS Chapter 4 (Surface Water) and Appendix A (Surface Water Impact Assessment) adequately addressed the TOR with respect to surface water resources and quality.

6.6.1.1 Existing environment

The project is located within the Dawson River freshwater catchment, a major sub-catchment of the Fitzroy Basin in Central Queensland. The catchment includes regionally significant perennial

groundwater-fed springs upstream of the project, which sustain river baseflows year-round, including during extended dry periods. The Dawson River channel adjacent to (but outside) the MLA is approximately 150 m wide and 10 m deep, bordered by a floodplain extending approximately 1.5 – 3 km on either side. Multiple anabranch channels indicate lateral activity and river complexity.

The project site itself is located near (but outside) the confluence of Banana Creek and the Dawson River. Several unnamed tributaries are present within the site, with Tributary 8 (refer to EIS Chapter 4 Figure 4.5) identified as the most significant. Banana Creek, an ephemeral waterway, is located ~500 m from the MLA boundary, while an anabranch of the Dawson River flows within 400 m to the northwest. Part of the project site lies within the natural floodplain (refer to section 6.6.2 of this assessment report).

Several instream water storages have been constructed along the lower reaches of the Dawson River, altering natural flow patterns. These include Moura Weir (~40 km upstream) and Neville Hewitt Weir (~8 km downstream). The Neville Hewitt Weir also supports recreational activities and supplies potable water to Woorabinda Aboriginal Shire Council and Baralaba township. Crop irrigation is another major water use.

Water extraction entitlements are managed by the Dawson Valley Water Supply Scheme and the Water Plan (Fitzroy Basin) 2011, includes provisions for environmental water flow releases to protect aquatic ecosystems. Minimum environmental flow objectives (EFOs) were presented for seasonal flow regimes, including base flows, medium to high flows, and first post-winter events, to sustain and protect the river's aquatic ecosystems. Dawson River at Beckers (Node 2), approximately 24 km downstream, is the closest EFO node to the project site.

The EIS identified the environmental values (EVs) to be protected for surface waters affected by the project, in line with Schedule 1, column 1 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP (Water and Wetlands Biodiversity) (Queensland Government 2019) and established the water quality guideline principles to guide the assessment. The project site falls within the 'Lower Dawson main channel – regulated reaches' (DEHP 2011). The relevant water quality objectives (WQOs), and management intent for aquatic ecosystems (classified as moderately disturbed) were also identified (DEHP 2011).

The EIS identified and assessed sensitive receptors, wetlands, and baseline water quality and flows (refer to section 6.8 of this assessment report). The surface water quality baseline assessment undertaken between June 2019 and August 2023, collected 16 water quality samples from nine individual monitoring locations across the Dawson River, Banana Creek and Tributary 8. This assessment was supplemented by historical baseline datasets from neighbouring mine complexes and established gauging stations to support and contextualise the site-specific monitoring program.

The EIS (Table A.1 of EIS Appendix A (Surface Water Impact Assessment)) identified that most water quality indicators met the relevant WQOs except for some isolated exceedances and variability in several indicators, including total suspended solids, turbidity, ammonia, nutrients, and on occasions, dissolved metals (aluminium, copper, iron and nickel). The EIS acknowledged that the baseline assessment to date was not fully suitable to justify locally derived triggers values (LDTVs). On this basis, I consider the scheduled EPP (Water and Wetlands Biodiversity) WQOs remain applicable at this location, until further stream-specific data is collected and presented in accordance with the relevant guidelines.

6.6.1.2 Potential impacts

The EIS adequately assessed the project's potential impacts on surface water resources in accordance with the relevant guidelines and the EPP (Water and Wetlands Biodiversity), including:

- the release of mine-affected water (MAW) and other contaminants to surface waters, either directly or indirectly during operations
- potential wastewater management failures, spills or other contaminant inputs
- direct disturbance or removal of streams mapped as drainage features, associated with construction of the mine pit and supporting infrastructure (further assessed in section 6.8 of this assessment report)
- effects of mine pit development, water extraction, and creek diversion on catchment reduction, overland flow and subsequent changes to surface water hydrology
- effects of operational pit development on groundwater drawdown and subsequent alterations to any interconnected surface water regimes
- erosion and sedimentation during operations and construction.

6.6.1.3 Impact assessment, mitigation, management and monitoring

6.6.1.3.1 Water infrastructure, water balance and management strategies

The EIS provided an adequate description and modelling of surface water management, including water demand, supply, and hydrological impacts.

For the Dawson River, the EIS predicted minimal impacts on stream flow volume and duration during both operations and post-closure. Compliance with EFOs were modelled, with negligible effects anticipated on water availability for users or the health of riparian vegetation.

For Tributary 8, localised hydrological changes were identified, with a temporary 33% reduction in the PW2 wetland catchment area during operations. This impact reduces to 13% post-closure after rehabilitation processes re-instate catchments. Tributary 8 is already modified by farm dams.

The project is predicted to face water deficits in most years, with worst-case raw water demand of 771 ML in year 3, declining to <400 ML/year after year 7. Median annual raw water needs were much lower, typically <50 ML/year after year 7. Existing Baralaba North Mine water allocations would be accessed via a proposed Dawson River pipeline. No additional allocations or entitlements were proposed in the EIS.

I consider the Water Management System and approaches largely align with the EP Regulation's environmental objectives and performance outcomes, and the wastewater management hierarchy. It includes a Mine Water Dam (MWD), Environmental Water Dam (ED), in-pit storage, tailings storage, and sediment dams. The system aims to minimise raw water use and maximise MAW reuse for operations like coal handling and preparation plant (CHPP) supply and dust suppression. Clean runoff would be diverted around disturbed areas to limit inflows into the mine pit and MAW system.

However, I disagree with the proponents' position in the EIS that sediment dam water containing contaminants beyond sediments can be classified as non-MAW based on written criteria from the relevant model conditions. Runoff from, or seepage via, active mine disturbance areas (e.g. unrehabilitated spoil, interburden, co-mingled tailings, or mine related waters exceeding WQOs for contaminants (other than for suspended sediments)) clearly meets the written definition of MAW.

The EIS acknowledged that dissolved contaminants may exceed WQOs in the proposed sediment dams. While the analysis and modelling are described as conservative, some exceedances were notable (including for dissolved arsenic). The EIS did not provide robust evidence that this water type would only contain sediment. Instead, it provided multiple lines of evidence suggesting the potential

presence of contaminants of concern at levels which would confirm that this is MAW under the definitions. While this sediment dam associated MAW is not likely to be as highly contaminated as other types of MAW sourced on site (e.g. groundwater inflows), it is MAW.

The impact assessment relied on a qualitative assumption that dilution would mitigate WQO exceedances during sediment dam overtopping events. However, these dams are not designed to treat or minimise dissolved contaminants, instead they are proposed to release water in an uncontrolled and unmonitored manner, with limited compliance monitoring and reporting. They would also overtop into ephemeral Tributary 8 and connected systems, with the mine operational development planned to reduce natural flows into Tributary 8, and hence any assumed dilution.

In response to DETSI's and other submitter's concerns on these issues, the amended EIS committed to ongoing sediment dam water quality monitoring under the water management plan (WMP), although the data was not proposed to be made available under the EA. It also proposed to intermittently pump water from sediment dams to the MAW system, reducing potential impacts to Tributary 8 and the associated general environmental significance (GES) wetland while minimising the needs for raw water take for operations.

I recommend including conditions in Schedule F, Appendix A of this assessment report, requiring monthly monitoring of sediment dams, including provisions to transfer water to the MAW system when conservative WQO-based triggers are exceeded.

Over time, the monitoring program may allow a reduction in the number of contaminants of concern (COCs) measured (refer to Schedule, Appendix A of this assessment report), provided sufficient evidence of low prevalence is presented. If this was to occur, I consider ongoing monitoring under the WMP for the life of the project would be important.

6.6.1.3.2 Mine affected water releases to the Dawson River

The proposal for controlled MAW releases to the Dawson River anabranch via release point 1 (RP1), was adequately assessed in the amended EIS but remains subject to recommended conditions. This was a key concern raised in EIS submissions, particularly in relation to impacts on EVs and the nearby downstream drinking water and irrigation supplies. I note that adequate dilution and mixing is particularly important at this location due to the potential for periodic stagnation in receiving impoundment-related waters. There is a need to ensure adequate flow, dilution, turbulence and rapid near- and mid- field mixing of MAW with natural freshwater stream flows, at any time a MAW transient release is made.

I acknowledge that substantive improvements were made during the EIS process in response to submissions, which included:

- relocation of the streamflow trigger gauge station (MP4) 300 m upstream of RP1 to address concerns about the previously proposed location at Beckers, 24 km downstream
- mixing zone modelling for electrical conductivity (EC) and evidence of adequate dilution for EC and likely for other contaminants present in MAW
- evidence of minimising salinity stratification (denser saline water separating and settling to the riverbed), with further design optimisation planned
- cumulative impact assessment showing minimal effects for water quality.

The conservatively modelled RP1 release strategy was considered low risk to the EVs of receiving waters primarily based on the 1:400 dilution ration proposed. Near-field mixing zone modelling showed plume EC decreasing from 10,000 micro Siemens per centimetre ($\mu\text{S}/\text{cm}$) at the outfall to an

average of 409 $\mu\text{S}/\text{cm}$ within 10 m of the outfall, posing minimal risk to aquatic ecosystems and other EVs. Further downstream, plume EC was predicted to fall below the low flow WQO (340 $\mu\text{S}/\text{cm}$) at 800 m, unlikely to impact untreated drinking water offtakes prior to water treatment for potable water supplies.

The EIS proposed detailed design assessments of the RP1 discharge outlet to optimise plume mixing and further characterise the Dawson River's hydrodynamics at the anabranch. I support these measures which will further characterise the Dawson River channel dimension, hydrodynamic velocity profiles and comprehensively assess outfall diffuser configurations.

To protect receiving waters, aquatic ecosystems and EVs, I recommend conditions in Schedule F, Appendix A of this assessment report, which include:

- establishing a continuous EC monitoring point within 1.1 km downstream of the RP1 end-of-pipe (EOP) (outfall) (designated MP10)
- ensuring the upstream MP4 operates as a as a continuous flow rate and EC monitoring station to enable responsive cessation of releases and provide high frequency upstream data
- correcting technical errors or making appropriate updates to the EA to reflect the amended EIS chapters, including for triggers and limits
- redesigning the instream licensed monitoring locations to focus on RP1 and reduce regulatory requirements for less relevant waterways, such as Banana Creek, where no water quality impacts are expected
- including Tributary 8 monitoring upstream and downstream in the Receiving Environmental Monitoring Program (REMP) to monitor potential impacts near the mine disturbance area.

Relocating the flow-trigger gauge station upstream, in response to submissions, may have reduced the frequency and duration of available MAW release opportunities compared to original EIS modelling at Beckers, which predicted flows exceeding the 100 cubic metres per second (m^3/s) approximately 5% of the time (or 18 days per year). However, the proponent is evaluating additional release scenarios with lower EOP ECs, which could improve opportunities for controlled MAW releases. Any changes would require further assessments post the EIS process.

6.6.1.3.3 Dust suppression

The EIS did not specifically assess risks associated with repeated use of MAW for dust suppression. I recommend ongoing water quality monitoring of MAW storages and adherence to WMP criteria, to manage and prevent high EC MAW impacting surface or groundwater, particularly in areas with colluvial deposits.

6.6.1.3.4 Great Barrier Reef Catchment waters

As the project is located within the Great Barrier Reef river basins, the EIS considered the *Reef discharge standards for industrial activities* (ESR/2021/5627) (DETSI 2024). Modelling concluded no residual increase in fine sediment loads relative to existing conditions, primarily due to lower projected discharge volumes compared with natural runoff.

6.6.2 Flooding

EIS Chapter 6 (Flooding and Regulated Dams) and Appendix C (Flood Impact Assessment) adequately described flooding impacts. Early consultation identified community concern regarding flood impacts to properties and livelihoods, and local council concerns about potential townships, roads and levees.

In response, the mine was redesigned to largely avoid the floodplain, reducing impacts and removing the need for a flood protection levee.

The EIS included updated flood mapping for the revised layout, modelling existing and mine-developed scenarios, including flood afflux, depth, velocity, and inundation duration for various Annual Exceedance Probability (AEP) events. Modelling showed the planned open cut pit is located outside of the pre-mining 0.1% AEP flood extent and does not require artificial landforms for flood immunity.

This aligns with section 41C(3) of the current EP Regulation, reflecting consideration of contemporary standards. For long-term void immunity, conservative modelling of a probable maximum flood (PMF) including climate change, indicated a final landform bund would be required to exclude extreme floodwaters. This would require bund heights of 97.6 mAHD and 97.8 mAHD for the northwest and southeast pit extents, respectively.

For a 1% AEP event, modelling predicted up to 50% of the MLA would be inundated, though <16% of the proposed disturbance area would be affected. The pit / final void would not be inundated. A small section of the northern WRE (constructed from inert material with rock armouring) would be impacted. This final landform embankment would be retained to provide protection against higher magnitude flood events (>0.1% AEP) under longer term climate-change modelling.

The modelling concluded that the project would have negligible impacts on flood inundation duration, peak flows, flood peak travel time, high ecological significance (HES) wetlands, roads and community infrastructure for events with a 1% AEP. Localised increases in stream power and bed shear stress may occur within the MLA.

Similarly, for flood events with a 1% AEP, localised impacts would be expected to flood afflux within the MLA of up to 20 centimetres (cm). At habitable dwellings, afflux greater than 1 cm is not expected. Minor flood afflux impacts between 1 - 3 cm was predicted at five non-habitable structures in the 1% AEP flood event, including 'Riverland', 'Alberta' and 'Mount Ramsay'. While some land areas experience higher afflux, increases would remain below the proposed flood impact objective of 20 cm for cropping and 40 cm for grazing land.

6.6.3 Groundwater

EIS Chapter 5 (Groundwater) and Appendix B (Groundwater Modelling and Assessment) adequately described groundwater and assessed potential impacts. However, I consider that data gaps remain, and additional monitoring bores are required to improve understanding of potential and actual impacts (refer to section 6.6.3.5 of this assessment report).

6.6.3.1 Geology and hydrogeology

Project geology is addressed in section 6.5.2 of this assessment report.

The project lies between the Dawson River (approximately 700 m to the west at the nearest point) and Mount Ramsay (approximately 1.2 km to the east), an igneous intrusion rising to 433 mAHD. Banana Creek, a tributary of the Dawson River, flows near the mining lease boundary.

The channels of both waterways adjacent to the site are incised below the pit crest levels (~90 – 100 mAHD) presented in the EIS. Consequently, groundwater levels in the Baralaba Coal Measures are similar to those in adjacent alluvium due to upthrust above the floodplain to the west.

However, the maximum pit depth at year 23 is approximately -205 mAHD, well below the river and its adjacent and underlying alluvium.

6.6.3.2 Groundwater hydrology

The hydrogeological conceptual model identified two main water-yielding units near the project: being the alluvium close to the Dawson River and the Baralaba Coal Measures.

The EIS concluded neither is a significant aquifer for human use. The nearest major aquifer is the Clematis Sandstone in the GAB, more than 10 km to the west of the project.

The EIS described alluvial recharge from rainwater and streamflow, noting that the impounded waters of Neville Hewitt Weir extend upstream of the site within the Dawson River and approximately 1.8 km into the lowest reaches of Banana Creek. Monitoring showed higher alluvial groundwater levels near the river and increasing salinity away from it, indicating a losing river system. Permian groundwater salinities are higher than the alluvium at most monitoring points and depths, at levels that would preclude use for stock water.

Hydraulic testing of the alluvial strata indicated variable permeability and connectivity between surface water and alluvial groundwaters. The alluvium comprises sand and gravel lenses separated by lower permeable clays. The deeper basal alluvium hosting the regional water table is generally deeper than incised watercourses or water features. However, the EIS confirmed some surface water-groundwater connectivity and quantified potential surface water and alluvial losses (refer to section 6.6.3.5 of this assessment report).

6.6.3.3 Groundwater assets

Three private landholder bores were confirmed by survey in the vicinity of the project, with only one currently equipped for use. The low number was attributed to generally unsuitable groundwater quality (likely in the Permian) and the availability of reliable surface water from Neville Hewitt Weir.

The HES wetland east of Banana Creek and west of the proposed open cut pit was determined to be a perched system, accessing water in sand lenses confined by alluvial clays characteristic of the Dawson River floodplain in the area and hydraulically disconnected from the regional water table 15 m below ground level. Leaf water potential was measured, and xylem isotope sampling of the wetland habitat were compared with regional groundwater properties. Very low leaf water potential, a lack of overlap between isotopes from tree material and alluvial and Permian groundwaters, and the depth to groundwater were presented as evidence that this wetland is not a groundwater dependent ecosystem (GDE).

The EIS assessed 12 possible GDEs within and adjacent to the project area, based on the Bureau of Meteorology's GDE Atlas and other woody vegetation in the project area, using the same methods as for the wetland (refer to EIS Appendix H Figure 12 for GDE areas targeted for field assessment). The EIS stated that not all riparian vegetation was groundwater dependent noting that the impounded waters of Neville Hewitt Weir provide sustained surface water recharge to the basal alluvium in the Dawson River and lower reaches of Banana Creek. The weir also maintains soil moisture within clays of the unsaturated zone in and fringing the channels. Limitations of the investigation included diurnal sampling timing, soil sampling at representative sites only and a preceding dry spell.

While leaf water potentials above -1.5 millipascals were recorded at seven sites, the EIS concluded that, based on adjacent bore groundwater salinities and stable isotope analysis, there were only three sites with likely GDEs. These were: GDE Area 1 and GDE Area 10 (in flood overflow routes of the Dawson River) and GDE Area 6 (on the main channel of Banana Creek). Alluvial groundwater was

considered too saline and too deep for GDEs except directly adjacent to incised stream channels (GDE Area 6) where impounded surface waters recharge underlying aquifers at the banks, and within perched aquifers on overflow paths (GDE Areas 1 and 10).

Stygofauna are discussed in section 6.8.1.3 of the assessment report.

6.6.3.4 Groundwater model

The EIS presented a peer reviewed numerical groundwater model to describe the existing groundwater resources and predict the potential impacts of the project. The initial 2023 model was revised in 2025 following submissions and peer review recommendations. Key updates included: extensions to the model domain, change from a structured grid to an unstructured mesh that provided more detail in areas of interest, improved representation of the Mount Ramsay intrusion and updated mapping of alluvium. Concerns were also raised about impacts on GAB aquifers to the west of the project. The model domain was marginally updated, but evidence in the EIS indicated that the Rewan formation acts as a sufficient aquitard to mitigate possible drawdown impacts.

Calibration included groundwater level data, head differences and mine inflow estimates and uncertainty analysis incorporated pilot points. The best calibrated realisations were used in the predictive phase of the modelling, including for drawdown and mine inflow. Results of the predictions for drawdown were then provided for 50th percentile (most likely) and 95th percentile (likely worst case). Results for predicted mine inflow were presented for 5th, 50th and 95th percentiles.

However, I note that groundwater level inputs in some locations and key fluxes were not calibrated to quantified data. Measures of model calibration improved between the 2023 and 2025 models although the error in correlation between observed and modelled groundwater levels, expressed as the Scaled Root Mean Square percentage (SRMS%), was still above the generally targeted upper range of 5 - 10% (at 11.4% for the whole model and 10.9% for the project area).

I consider the modelling provides reasonable guidance for impact prediction and post-closure conditions, but limitations remain. There are shortcomings in the modelled groundwater levels matching vibrating wire piezometer (VWP) data at lower levels in the deeper units. Deep groundwater levels rely primarily on VWP data, without corroborating standpipe bores. VWPs by themselves are unable to be validated.

Due to the potential issues with the VWPs at lower levels, I recommend the installation of the following monitoring bores:

- two additional standpipe bores in the Baralaba Coal Measures, adjacent to the existing VWP3 and Rewan standpipe bore POB3
- one deeper bore into the Rewan Formation, adjacent to VWP5, drilled to a depth of between 140 – 180 m depending on where water is struck
- additional bores proposed in the EIS, including:
 - one deeper monitoring bore (Proposed-P4) south of the pit in the Baralaba Coal Measures
 - three new monitoring bores in the alluvium, A3 (for monitoring potential impacts on Banana Creek), GDE#1 and GDE#6 (for potential impacts on GDEs including the HES wetland).

These bores should be constructed prior to the commencement of mining and meet minimum construction requirements to ensure usable data.

As the model outputs would have compliance applications and support further modelling and verification, I recommend including conditions E11 - E18, Appendix A of this assessment report in the

project's EA to capture all proposed and recommended additional monitoring bores set out in the EIS and this report.

I also support the EIS recommendation (Appendix B Groundwater Modelling and Assessment) for periodical revision of the groundwater model. To implement this, I recommend including conditions E5 - E8, Appendix A in the EA, which stipulate review of the groundwater model and incorporation of additional and recent groundwater monitoring data.

6.6.3.5 Groundwater impacts

Groundwater inflow and drawdown, including climate change scenarios were modelled. Mine dewatering was identified as the key driver of groundwater balance changes, with an average predicted take of 0.7 megalitres per day (ML/day) and peak inflows up to 1.8 ML/day.

The EIS presented predicted drawdown contours in the alluvium and Baralaba Coal Measures for the following scenarios: the project alone, cumulative with existing mining, climate change conditions; during and after mining. Drawdown would be largely confined to the Baralaba Coal Measures. Alluvial drawdown is not expected to extend below or to the west of the Dawson River, reflecting the influence of the weir and river's losing nature. In the worst case 95th percentile post-mining scenario, alluvial drawdown contours extend across Banana Creek and into the Dawson alluvium on the east of the river, with a maximum of 5 m. Climate change effects were not significant. Drawdown in the Rewan and Gyranada formations were not presented.

EIS submissions raised that surface water-groundwater connectivity was understated in the original EIS. The revised EIS confirmed alluvial groundwater and surface water connectivity. It predicted that mining-related groundwater drawdown would increase leakage from the Dawson River into adjacent alluvial sediments, starting early in the mine life and gradually increasing beyond the end of mining. Peak losses are estimated at approximately 0.14 ML/day around 2090, partly due to the presence of a final void, representing <0.1% of the Dawson River's average flow and <1% of median flow, and these were considered sustainable. Predicted losses from Banana Creek are much smaller (~0.003 ML/day), occurring when the creek flows (~20% of the time), and are <0.01% of average flow and up to 0.14% of median flow.

The EIS concluded that mining would pose minimal risk to alluvial aquifers sustaining GDEs. Mining-related drawdown in the alluvium would intersect with GDE Area 1 (5 m) and GDE Area 6 (2 m). At GDE Area 6, drawdown would occur when the alluvium is saturated, inducing some leakage of surface water to the groundwater table. However, the fixed head from the impounded waters in the downstream end of Banana Creek would ensure that rates of groundwater recharge exceed the drawdown, making this leakage negligible. GDE Area 1 relies on Dawson River flood flows for perched aquifer recharge, but EIS flood modelling predicted negligible changes to river or floodplain flows from the mine.

Seepage from rock spoil was predicted to be low in salinity and the mine pit and void were predicted to act as a permanent sink for saline groundwater from Permian strata. Mine WMP and erosion control measures would minimise uncontrolled releases from the mine site. However, GDE Area 6 is located near the mine workings and up to a 33% of overland flows into GDE Area 1 may be lost, potentially reducing recharge to the perched system. Based on this, I support the EIS recommendations to monitor GDE health, validate model predictions and implement a project GDE Monitoring and Management Plan (GDEMMP).

I also support the proposal to construct additional alluvial bores near GDE Area 6 (bore GDE#6) and GDE Area 1 (bore GDE#1) to collect additional baseline and ongoing monitoring data. While there were

some disparities in the EIS as to the need for water quality collection at proposed bores GDE#1 and GDE#2, I consider this essential for the monitoring network and have it as a requirement in Table E1 Appendix A. To ensure appropriate management and monitoring of GDEs, I recommend including conditions E33 - E34, Table E4 and amended Table E1 in Appendix A in the EA for the project.

Within the Baralaba Coal Measures the cone of depression is extensive due to the high permeability of the confined coal seams and limited surface water recharge. Predicted drawdown of up to 10 m extends beyond model's western and southern boundaries. There is one nearby private bore (Webb Bore), located in the overlying Rewan Formation. Make-good measures may be required, although the bore is currently unregistered and unused. The depth of the Rewan Formation (several hundred metres represented as a single model layer) reduces this risk. No overlap of drawdown effects with other Baralaba region mines was predicted. Impacts on GAB bores to the west were predicted to be negligible as the Rewan Formation acts as a substantial aquitard between the GAB aquifer and the Baralaba Coal Measures.

During and after mining, the final void is predicted to act as a long-term hydraulic sink, drawing in saline groundwater and concentrating salts through evaporation. Under the 'additional inputs' scenario where additional runoff is diverted into the void, the equilibrium level is predicted to be about 13 mAHD, 55 – 67 m below pre-mining standing groundwater levels. Groundwater inflows to the final void are expected to decline to approximately 0.06 ML/day at equilibrium (400 years post-mining). Surface water leakage is predicted to be up to 0.07 ML/day in the Dawson River upstream of Neville Hewitt Weir, reducing to less than 0.001 ML/day upstream of the Banana Creek confluence, and less than 0.001 ML/day in Banana Creek.

While the EIS quantified impacts from the final void under the 'additional inputs' scenario, this does not reflect the likely management approach. EIS Appendix AA (Draft Progressive Rehabilitation and Closure Plan) indicated that minimal runoff would be diverted to the void, and the clean water diversion drain would be retained. Chapter 3 similarly implies that the 'additional inputs' scenario is not preferred. Therefore, I recommend that the groundwater assessment in EIS Appendix B (Groundwater Modelling and Assessment) is repeated to assess the 'base case' scenario and that conditions H7 – H9, Appendix A, be included in the EA.

6.6.3.6 Groundwater monitoring and management

While the groundwater modelling (as discussed in sections 6.6.3.4 and 6.6.3.5) provides a reasonable basis for impact assessment, I consider that additional data from existing and proposed monitoring bores is required to strengthen confidence in predictions. Further monitoring would also improve understanding of potential and actual impacts on groundwater levels and quality associated with mine operations, spoil storage and the final void.

To enable this, I recommend including conditions E11 - E18 of Schedule E, Appendix A of this assessment report in the EA for the project and that:

- additional bores in Table 3 are incorporated into the groundwater monitoring network to detect variations from model predictions. This includes the addition of interpretation bores for each relevant hydrogeological unit in locations not predicted to be impacted by mining, to monitor natural variability and provide comparison data
- additional bores in Table 3 are constructed and monitored in accordance with conditions E11 - E18, Appendix A and included in Table E1, Appendix A of the assessment report
- water quality and water level data are collected from the additional bores in accordance with Tables E1 - E3, Appendix A of this assessment report

- for existing bores, quarterly monitoring of water quality parameters is undertaken to enable distinction between seasonal variations and project impacts on groundwater in accordance with Table E1
- for proposed bores in Table E1 Appendix A, bimonthly (every two months) monitoring of water quality is undertaken during baseline assessment (at least 18 months) and then quarterly monitoring once adequate data has been collected to derive groundwater quality limits
- for all bores requiring baseline water level data collection, monthly monitoring of water levels is undertaken to enable sufficient data points to be collected prior to commencement of the activity (refer to conditions E15 - E16 and Table E1, Appendix A of this assessment report).

Table 3 Additional water quality and water level monitoring bores

Bore Number	Longitude	Latitude	Unit	Approx depth (m)	Comments
Compliance					
A3*	149.885	-24.305	Alluvium	5-20	South of MLA700057 southern boundary, adjacent to Banana Creek to monitor potential interactions with the Creek (recommend both water levels and water quality)
A4	149.8545	-24.2355	Alluvium/ colluvium	20	Downgradient from pit and final void lake so at potential risk from contamination. Fills gap in water quality and water level monitoring network.
GDE#1*	149.860	-24.284	Alluvium	5-20	Adjacent to potential GDEs within modelled drawdown. Collect baseline data and changes to groundwater (recommend both water levels and water quality) that might impact GDEs including HES wetland.
GDE#6*	149.845	-24.279	Alluvium	5-20	
G1	149.8545	-24.2355	Gyranda Formation	60	Downgradient from pit and final void lake so at potential risk from contamination. Fills gap in water quality and water level monitoring network.
P4*	149.887	-24.290	Permian coal measures	200	South of the pit. Verify geology and permeability. Fill gap in monitoring network (recommend both water levels and water quality).

P5	149.8559	-24.2744	Baralaba Coal Measures - coal	TBD	Southwestern extent of mine in the vicinity of P-OB3. Verify deep coal seam water levels and provide water quality data. Confirm if this site needs moving to a nearby location out of the disturbance footprint.
P6	149.8757	-24.2975	Baralaba Coal Measures - coal	200	Adjacent PWVP3 at what appears to be a low point so a potential contamination pathway. Verify deep coal seam water levels and provide water quality data.
R1	149.853	-24.291	Rewan Formation	140-180	Adjacent PWVP5. Verify deep water levels in Rewan and provide water quality data.
Interpretation					
A5	TBD	TBD	TBD	TBD	Interpretation bores located in hydrogeological unit/s that are not modelled to be impacted by mining activities. To establish and continue to monitor unimpacted groundwater to gain an understanding of natural variation and for comparison purposes.
P7	TBD	TBD	TBD	TBD	
P8	TBD	TBD	TBD	TBD	
R2	TBD	TBD	TBD	TBD	
G2	TBD	TBD	TBD	TBD	

Table notes: *EIS proposed additional bores

The EIS proposed both triggers and limits for an appropriate suite of groundwater quality indicators. However, I consider that only limits should be used for compliance purposes. The proposed compliance approach for groundwater quality in EIS Chapter 19 is not supported as I consider it runs a high risk of false non-compliances. Instead, I recommend a consecutive exceedance approach, modified from *Using monitoring data to assess groundwater quality and potential environmental impacts* (DES 2021). Under this approach, Limit A (80th percentile of 5 consecutive samples for physico-chemical parameters) and Limit B (95th percentile of 3 consecutive samples for toxicants) would be applied to Table E2 in Appendix A of this assessment report.

My preference is for site-specific guideline values to be applied where sufficient data is available. I consider that the EIS did not adequately justify grouping bores for limit calculations. Where data is insufficient or unavailable, I support the EIS proposal to use relevant shallow (alluvium and colluvium) and deep (Permian-Triassic) WQOs for physio-chemical indicators until that dataset is available. Likewise for toxicants, where data is not available or is insufficient for deriving site-specific guideline values, the *Australian and New Zealand guidelines for fresh and marine water quality* (ANZG 2018) default values for 95% level of species protection for aquatic ecosystems should be used with the potential for review once adequate data has been collected.

Table E2 in Appendix A of this assessment report reflects these adjustments to the EIS proposed water quality limits. Condition E15 includes the requirement to derive or update limits as additional baseline data becomes available. I recommend including these in the EA for the project.

6.7 Regulated structures

EIS Chapter 6 (Flooding and Regulated Dams) section 6.5 and Appendix A (Surface Water Impact Assessment) section 9 adequately described all proposed regulated structures. The EIS also adequately assessed the potential impacts of the regulated structures in accordance with the current relevant guidelines, including a preliminary consequence category assessment for each project dam.

Proposed avoidance measures outlined in the EIS included siting water infrastructure outside the 0.1% AEP floodplain and clean water diversions.

6.7.1 Landform bund

While the final void would be located outside of the pre-mining 0.1% AEP, a 1.5 - 5 m final landform bund is proposed 0.5 m above the year 2090 predicted climate change 0.1% AEP. This bund aims to protect against ingress into the southern extent of the final pit landform for this predicted future 23% increased, flood scenario. Submissions raised that this bund could meet levee requirements as a regulated structure. However, EIS Appendix C (Flood Impact Assessment) clarified that it would serve only post-closure purposes, not ERA operations. I agree that the landform bund (for this purpose alone) does not function in a way that is relevant for assessment as a regulated structure.

During detailed design, the suitably qualified and experienced person conducting and certifying the final Consequence Category Assessment must confirm if this bund would have function as a levee for the operation of the ERA and if so, identify if it is a regulated structure. Regardless of regulated structure status, geotechnical assessment of the landform bund by an appropriately qualified person would be required to ensure long-term geotechnical stability as part of the Progressive Rehabilitation and Closure Plan (PRC plan) as discussed in section 6.17 of this assessment report.

I recommend conditions for the identification and management of regulated structures in Schedule I, Appendix A of this assessment report be included in the EA for the project.

6.7.2 Dams

A preliminary assessment of the water management infrastructure was undertaken in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933) (DETSI 2025) (the Manual). The consequence assessment identified dam break to be significant for the MWD and ED due to potential for general environmental harm. Notably once the modelled dam break flow reaches Banana Creek and the Dawson River, flows are contained within the main channel.

Sediment and clear water dams Consequence Category Assessments were assessed as low consequence and were therefore not identified as regulated structures by the EIS. The preliminary Consequence Category Assessment would need to be updated and finalised to reflect the final water management design as discussed in section 6.6.1.3 of this assessment report. The EIS identified that regulated structures would require:

- design to include wet season containment at 5% AEP, extreme storm storage 10% AEP 72 hour with a spillway design capacity of 1 - 0.1% AEP
- certification by suitably qualified and experienced persons in accordance the requirements prescribed in the Manual
- inspections carried out for each regulated dam, by a suitably qualified and experienced person to assess the condition and adequacy of the dams
- progressive rehabilitation in accordance with an PRC plan.

To ensure these mitigation measures are enforceable, I recommend including the conditions in Schedule I, Appendix A of this assessment report in the EA for the project.

6.8 Ecology

EIS Chapter 7 (Flora and Fauna), Chapter 9 (MNES), Appendix F (Terrestrial Ecology Assessment), Appendix G (Aquatic Ecology Assessment) and Appendix I (Stygofauna Assessment) adequately identified the terrestrial and aquatic ecological values of the project site and the surrounding area using desktop and field studies. These chapters adequately assessed the potential impacts on those values. Together with the above noted appendices, Appendix J (Biodiversity Offset Strategy) Appendix AD (MNES Management Plan) and Appendix AE (Stygofauna Management Plan) provided strategies to mitigate, manage and/or offset negative impacts on ecological values as required by the TOR.

6.8.1 Existing environmental values

The ecology study area covers approximately 5,268 ha and includes the project site (MLA 700057), water release / extraction infrastructure, the proposed Moura-Baralaba Road realignment, ETL study area and additional investigation area. The 2,214 ha project site is predominantly cleared grazing land mapped as non-remnant vegetation. Only 26.4 ha of remnant vegetation occurs within the project site comprising two eucalypt woodland regional ecosystems (RE) and one semi-evergreen vine thicket RE. Small patches of non-remnant or high-value regrowth (HVR) are scattered throughout the project site. A further 11 REs have been mapped across the broader study area.

The additional of 3,054 ha investigation area extends west, east and south of the project and includes areas potentially subject to indirect impacts.

The project is located in the Dawson River Downs sub-region of the Brigalow Belt South bioregion. The western portion of the project site comprises Quaternary alluvium floodplains associated with Banana Creek and the Dawson River, while the eastern portion consists of colluvial deposits at slightly higher elevations.

Baseline desktop and field surveys have been undertaken since 2017 and 2018. The most recent field surveys conducted for the EIS were for the post-wet and dry seasons of 2020, dry season of 2024 and post-wet season of 2025.

Two seasonal aquatic ecology surveys were undertaken at ten sites located on the Dawson River, Banana Creek, Shirley's Gully, minor unnamed waterways/drainage lines and mapped wetlands within the MLA. A supplementary site inspection in 2023 verified no major changes in habitat condition and availability since earlier surveys.

6.8.1.1 Regulated vegetation

Field validated mapping of remnant vegetation within the project area was found to be inconsistent with Queensland Government mapping. A map modification request was submitted to the Queensland Herbarium in December 2024 to reflect the field-validated vegetation mapping and accepted in full in 2025.

The EIS identified 13 remnant and HVR regional ecosystems within the study area, as listed in Table 4.

Table 4 Remnant and high-value regrowth regional ecosystems within the study area

Regional ecosystem	Description	VM Act* status	Biodiversity status	Remnant area (ha)	HVR area (ha)
Project site					
11.3.3	<i>Eucalyptus coolabah</i> woodland on alluvial plains	Of concern	Of concern	16.6	6.0
11.3.3a	<i>Melaleuca bracteata</i> woodland on alluvial plains	Of concern	Of concern	0.0	6.8
11.5.9	<i>Eucalyptus crebra</i> and other <i>Eucalyptus</i> spp. And <i>Corymbia</i> spp. Woodland on Cainozoic sand plains and/or remnant surfaces	Least concern	No concern at present	8.7	5.3
11.5.15	Semi-evergreen vine thicket on Cainozoic sand plains and/or remnant surfaces	Least concern	Endangered	1.1	0.0
Water release/ extraction infrastructure					
11.3.25	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	Least concern	No concern at present	0.1	0.0
ETL study area					
11.4.9a	<i>Acacia harpophylla</i> , <i>Lysiphyllum carronii</i> +/- <i>Casuarina cristata</i> open forest to woodland	Endangered	Endangered	0.0	7.6
Additional investigation area					
11.3.1	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on alluvial plains	Endangered	Endangered	23.5	1.5
11.3.3	<i>Eucalyptus coolabah</i> woodland on alluvial plains	Of concern	Of concern	344.6	71.7
11.3.4	<i>Eucalyptus tereticornis</i> and/or <i>Eucalyptus</i> spp. Woodland on alluvial plains	Of concern	Of concern	15.5	0.0
11.3.25	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	Least concern	No concern at present	286.5	0.0
11.3.27	Freshwater wetlands	Least concern	Of concern	7.9	0.0
11.7.2x3	<i>Acacia rhodoxylon</i> tall shrubland to scrub on Cretaceous igneous rocks	Least concern	No concern at present	107.0	0.0

11.9.1	<i>Eucalyptus cambageana</i> woodland to open forest with <i>Acacia harpophylla</i> on fine-grained sedimentary rocks	Endangered	Endangered	5.7	0.0
11.12.1	<i>Eucalyptus crebra</i> woodland on igneous rocks	Least concern	No concern at present	81.2	0.0
11.12.4a	Semi-evergreen vine thicket with open patches of <i>Acacia fasciculifera</i> , <i>Archidendropsis thozetiana</i> , <i>Pleiogynium timorensis</i> and various other species	Least concern	No concern at present	96.5	0.0

Table notes: Table adapted from BSP EIS Chapter 7 Table 7-5

*VM Act: *Vegetation Management Act 1999*

Two threatened ecological communities (TECs) defined under the EPBC Act were identified within the project site: Brigalow (*Acacia harpophylla* dominant and codominant) (Brigalow TEC) and Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions TEC (Coolibah – Black Box Woodlands TEC). The Brigalow TEC comprises RE 11.3.1, and 11.4.9a with 14.0 ha identified in the study area. The Coolibah – Black Box Woodlands TEC comprises RE 11.3.3 with 22.6 ha within the project site. An additional 428.7 ha of RE 11.3.3 occurs in the broader study area but lies outside the disturbance footprint. These communities are discussed in section 6.18 of this assessment report.

Remnant and regrowth vegetation centrally located within the project area is mapped as essential habitat for *Bertya pedicellata*. This species was not recorded during four separate field surveys over several years. The EIS considered that the record the mapping is based on is likely to be erroneous.

6.8.1.2 Connectivity areas

The Landscape Fragmentation and Connectivity Tool (LFC tool) was used to assess the significance of impacts to the matters of state environmental significance (MSES) connectivity areas. The LFC tool uses a calculation that considers regional impacts within a 20 km buffer and local scale impacts within a 5 km buffer of the project site. Due to already fragmented remnant vegetation at regional and local scales, the LFC tool determined that proposed clearing of core remnant areas would result in a significant residual impact.

6.8.1.3 Wetlands and watercourses

Minor waterways and drainage lines occur within the project site. Surveys described in-stream habitat condition as generally poor, with limited structural complexity and connectivity. Aquatic ecosystems are rated as 'moderately disturbed' under the EPP (Water and Wetland Biodiversity) reflecting historic land clearing, cattle access and agricultural runoff.

Aquatic macroinvertebrate communities were typical of the region, dominated with tolerant taxa indicative of slightly degraded water quality conditions. Aquatic flora diversity and abundance were low to moderate and consistent with regional conditions. No threatened aquatic flora species recorded.

Stygofauna surveys across 12 alluvial and coal measure sites (five survey events) recorded low diversity and abundance. No stygofauna were detected in the Permian coal measures. Three taxa (24 individuals) were collected at four sites associated with the Dawson River channel. None are conservation listed.

GDE surveys at 12 sites identified evidence of groundwater dependency at three locations. GDEs are described more fully in section 6.6.3 and section 6.18 of this assessment report.

The aquatic plant species recorded within and around the project area are typical of the region and indicate a low to moderate diversity and abundance of aquatic flora in the study area. A total of 32 species of plants from 20 families were recorded during surveys with no listed threatened species identified.

Freshwater turtle surveys in Banana Creek, Shirley's Gully and the Dawson River used baited fyke nets, seine nets, spotlighting, electrofishing (observation and incidental catch) and habitat assessments. Two common turtle species, the Krefft's River Turtle, *Emydura krefftii*, and the Saw-Shell Turtle, *Wollumbina latisternum*, were recorded. No nests were observed at any site. The White-throated Snapping Turtle, *Elseya albagula*, has a moderate potential to occur within the Dawson River. The Fitzroy River turtle, *Rheodytes leukops*, a MNES species, has been recorded at the Neville Hewitt Weir and 20km downstream of the study area and is assessed in section 6.18.

Within the project site, one lacustrine wetland (a farm dam) and three palustrine wetlands (one HES and two GES) were identified. One GES wetland (PW2) supports regrowth vegetation, RE 11.3.3a, with habitat condition rated as fair. Field surveys state that aquatic ecological values are present within the waterway channel which is part of Tributary 8.

A mapped wetland protection area / HES wetland (~35 ha) occurs at the south-western corner of the MLA boundary. Targeted surveys were undertaken when the ephemeral wetland was dry. Evidence of extensive beds of aquatic plants in two of the three surveys indicated that the site is occasionally subject to inundation from overland flow and would provide suitable habitat conditions for aquatic flora and fauna. The wetland also has connectivity to the nearby Dawson River anabranch. It is noted that the vegetation survey determined that the vegetation community was not a wetland but RE 11.3.3, a woodland dominated by *Eucalyptus coolabah* on alluvial plains.

6.8.1.4 Protected wildlife habitat

Terrestrial flora surveys using the Queensland Herbarium methodology recorded *Xerothamnella herbacea* and *Solanum elachophyllum*, both listed as MSES protected plants and endangered under the NC Act. *X. herbacea* is also listed as endangered under the EPBC Act) and is addressed in section 6.18. Approximately 90 *X. herbacea* individuals were recorded at ten locations in 2020. The species was not detected during dry-season surveys in 2024–2025. A subsequent survey was undertaken in 2025 following rainfall which recorded 13 individuals at four locations representing 2.8 ha of suitable habitat.

A population of *S. Elachophyllum* was recorded within the same area where *X. herbacea* was recorded. This population consisted of approximately 89 individuals during the 2017 dry season survey where unseasonably high rainfall occurred in the region prior to the survey. Numbers increased to 117 individuals during the 2018 survey. A second smaller population of 42 individuals was recorded in the northern portion of the ETL study area in 2020.

Terrestrial fauna surveys (2017-2025) recorded 193 species of terrestrial vertebrate species (28 mammals (including 18 micro-bats), 129 birds, 17 reptiles and 13 amphibians with eight of these exotic). Three fauna species of conservation significance (listed under the EPBC Act) were recorded consisting of the ornamental snake, *Denisonia maculata*, squatter pigeon (southern), *Geophaps scripta scripta*, and the koala, *Phascolarctos cinereus*. These, along with the Australian painted snipe are addressed in section 6.18.

The short-beaked echidna, *Tachyglossus aculeatus*, listed as MSES and a special least concern species under the NC Act, was recorded on five occasions within 26.5 ha of remnant habitat.

Three EPBC migratory species have a moderate potential to occur in the project area, the glossy ibis, *Plegadis falcinellus*, Latham's snipe, *Gallinago hardwickii*, and the white-throated needletail, *Hirundapus caudacutus*, and are assessed in section 6.18 of this assessment report. The white-throated needletail was not listed as a threatened species under the EPBC Act at the time of the controlled action decision but subsequently has been listed as 'vulnerable' in addition to being listed as a migratory species.

The Southern greater glider, *Petauroides volans volans*, and yellow-bellied glider, *Petaurus australis australis*, were listed under the EPBC Act after the referral decision (endangered and vulnerable respectively). The greater glider was recorded ~ 1 km north-west of the project site in riparian vegetation (RE 11.3.25) along an anabranch of the Dawson River. A potential yellow-bellied glider record was recorded ~ 1 km south-west of the project site. The observation lacks detail and occurs outside its known regional distribution and typical habitat. Approximately 767.5 ha of remnant alluvial vegetation within the study area provides potential habitat for these species.

Suitable habitat for the white-throated snapping turtle, *Elseya albagula*, was considered to exist in the upper reaches of weir pools in the Dawson River. Potential habitat for the species was stated to occur in the vicinity of the project associated with the Dawson River anabranch, and the lower reaches of Banana Creek and Shirleys Gully. Targeted surveys were undertaken for the Fitzroy River turtle, *Rheodytes leukops*, a sympatric species, with no detections. The EIS stated that no key habitat features existed including the presence of sandy alluvial banks considered to be optimal for nesting.

The platypus, *Ornithorhynchus anatinus*, listed as a MSES and a special least concern species under the NC Act, was not recorded. Suitable habitat for the platypus was stated to exist in the Dawson River Anabranch, and the lower reaches of Banana Creek and Shirleys Gully including permanent pool habitats and instream structures.

6.8.1.5 Waterway providing for fish passage

Baseline surveys (2017-2018) recorded 21 native fish species typical of the Fitzroy Basin and Dawson River sub-basin. Fish diversity is low within the project area, while the major waterways surrounding the project area support higher biodiversity including three species endemic to the Dawson River sub-basin.

A waterway providing for fish passage is an MSES that is defined and mapped under the *Fisheries Act 1994*. An assessment of mapped waterways (such as rivers, creeks or drainage lines) determined that stream order 1, 2 and 3 waterways (classified as low, moderate and high risk of adverse impacts to fish movements) are within the study area. Field surveys determined the waterways to be generally poorly defined, disturbed and of poor habitat quality. No fish were recorded within the disturbance area waterways. Of eight surveyed waterways, Tributaries 4 and 8) met the definition of waterways providing for fish passage (MSES).

6.8.2 Impacts on aquatic and terrestrial ecosystem values

Direct impacts from the construction stage of the project would include disturbance from clearing for mine infrastructure that includes the CHPP and mine infrastructure area (MIA), product and ROM stockpile areas, dams, access roads, haul road and ETL. Approximately 10.0 ha of remnant vegetation and up to 5.4 ha of high-value regrowth vegetation would be cleared or disturbed for the project, some of which provides suitable habitat for threatened species.

Indirect impacts from the project would include:

- changes to hydrology and surface water flows such as minor, localised changes to surface water flows and flooding characteristics, including reductions in catchment area and flow volumes in minor waterways, with limited influence on riparian, floodplain and wetland vegetation

- groundwater drawdown and water quality impacts are expected to be limited in extent with no measurable changes to groundwater quality and negligible impacts on GDEs or riparian vegetation
- surface water quality changes due to surface water runoff from disturbed areas and mine stockpiles and releases of MAW to the receiving environment
- localised habitat fragmentation and edge effects, potentially restricting fauna movement and reducing connectivity within an already highly fragmented landscape
- increased disturbance or mortality risks to fauna from vehicle movements, noise, vibration and artificial lighting, potentially resulting in short-term behavioural changes or injury to individual animals
- localised dust generation, erosion and sedimentation, with potential indirect effects on nearby vegetation and fauna habitat, and
- disturbance and altered habitat conditions that may influence the distribution or abundance of existing introduced species, although no new weed, pest animal or invasive aquatic species are expected to be introduced.

MSES impacts were assessed against the *Queensland Environmental Offsets Policy Significant Residual Impact Guideline* (DEHP 2014). MNES impacts are addressed in section 6.18.

6.8.2.1 Regulated vegetation

Total disturbance to Brigalow is 1.9 ha (1.3 ha within MLA and 0.6 ha in the ETL and water discharge/intake study area outside the MLA). Brigalow TEC impacts are addressed in section 6.18.

No significant residual impact to regulated vegetation is proposed. Approximately 10.0 ha of least concern remnant vegetation (that is not a class of regulated vegetation) is proposed to be cleared for the project. Proposed clearing of 0.1 ha of remnant RE 11.3.3 classed as of concern is below the threshold for determining a significant residual impact (SRI) under the SRI guideline.

Proposed clearing of vegetation within a defined distance of a wetland is not triggered for the GES wetland PW2. This is due to the vegetation community RE 11.3.3a classed as HVR and not remnant. Similarly, minor clearing of remnant vegetation within a defined distance of a watercourse are under SRI thresholds.

6.8.2.2 Connectivity areas

Use of the LFC tool identified a significant residual impact to 10.0 ha to connectivity areas (RE 11.3.25 (0.5 ha), RE 11.5.9 (8.4 ha) and RE 11.5.15 (1.1 ha)). This would require an offset under the EO Act and the Queensland Environmental Offsets Policy (QEOP) and must be in accordance with Schedule J of Appendix A of this assessment report.

6.8.2.3 Wetlands and watercourses

Aquatic ecosystem values would be impacted through removal and modification of aquatic habitats within the disturbance area including ephemeral watercourses, drainage lines and wetlands and loss of 3.5 ha of farm dams and GES wetlands within the disturbance area.

There would be a small area of disturbance of approximately 0.5 ha within RE 11.3.25 on the banks of the Dawson River for construction of water infrastructure. No canopy trees are proposed to be cleared.

Wetland PW1 (~1 km from the northern waste rock emplacement) remains outside direct disturbance. The hydrological regime of the wetland is expected to remain as an ephemeral system where it experiences dry conditions more than 70% of the time. Minor increases in peak flood velocities, duration and depth are not expected to result in significant impacts to aquatic flora and fauna.

6.8.2.4 Protected wildlife habitat

The significance of impacts of the project to ornamental snake, *Denisonia maculata*, *Xerothamnella herbacea*, Australian painted snipe, *Gallinago hardwickii*, koala, *Phascolarctos cinereus*, squatter pigeon (southern), *Geophaps scripta scripta*, and migratory birds, which are all both MNES and MSES, are addressed in section 6.18.

Significant residual impacts (SRI) were recognised for three protected wildlife species listed under the NC Act – the koala, *Phascolarctos cinereus*, the ornamental snake, *Denisonia maculata*, and the squatter pigeon, *Geophaps scripta scripta*. As these three species are also listed as MNES under the EPBC Act, the impact and mitigation assessment is provided in section 6.18.

Solanum elaeagnifolium, greater glider, yellow-bellied glider (south-eastern), short-beaked echidna, white-throated needletail, platypus, and white-throated snapping turtle were all assessed for SRI as MSES only. I note that the greater glider and white-throated needletail have been listed under the EPBC Act since the project's referral decision.

The project would impact approximately 159 individual *S. elaeagnifolium* plants. The EIS stated that the proposed clearing is unlikely to significantly impact the species due to the populations in the project area being small, isolated, and not considered to represent ecologically significant locations of this species.

An area of approximately 0.5 ha of greater glider and yellow-bellied glider habitat would be cleared for the water extraction / release infrastructure to the Dawson River. Only understory and ground layer clearing would occur with canopy trees retained for maintaining habitat connectivity. The EIS concluded that there would be no significant residual impact to the greater glider or yellow-bellied glider.

Approximately 10.0 ha of habitat for the short-beaked echidna is expected to be impacted. However, this is considered a relatively small area of habitat given the prevalence of this species in the region, the overall maintenance of connectivity of habitat in the region, and the mobility of the species across a broad range of habitats. The EIS stated that the proposed clearing of potential habitat was unlikely to result in a significant impact to the species.

Approximately 16.7 ha of potential overfly foraging habitat for the white-throated needletail would be impacted by the project. As the species is largely aerial and hardly ever seen perching, the EIS considered that the loss of ground habitat would not result in a significant impact to the species.

The EIS considered that there is no suitable habitat for the white-throated snapping turtle within the project area and that minor changes to water levels, water flows and water quality would not result in a significant impact to the species. The EIS acknowledged that elevated EC levels and contaminants such as metals would be released in the nearfield mixing zone of the release pipe. The EIS stated that MAW releases had the potential to impact aquatic fauna but considered impacts would be short-term and reversible. An assessment of this issue is provided in section 6.18.

The EIS stated that there would be no significant impact to the platypus due to the minor clearance of potential habitat at the water extraction / release infrastructure site. No significant impacts were predicted to occur to water quality or changed hydrology due to the project.

6.8.2.5 Waterway providing for fish passage

Tributary 8 provides fish passage within the disturbance area with the headwaters mapped as having a low risk of impact and the downstream reaches (generally not in the proposed disturbance area) mapped as moderate and high risk of impact. Culverts for the Moura–Baralaba Road realignment would be designed in accordance with DPI *Accepted development requirements for operational work that*

is constructing or raising waterway barrier works (DPI 2025) to ensure that fish passage is maintained and to partially mitigate impacts.

The project would permanently remove 1.32 ha of waterways (tributaries 4, 7 and 8) and restrict passage to a further 0.71 ha upstream on Tributary 8 (total 2.03 ha). This constitutes a significant residual impact requiring offsets under the EO Act and the QEOP and in accordance with Schedule J of Appendix A of this assessment report.

6.8.3 Proposed mitigation measures

Mitigation and management measures proposed for disturbance to aquatic and terrestrial ecology values include:

- vegetation clearing protocols including retention of habitat features, timing works to avoid breeding seasons for threatened fauna species and implementation of environmental buffer areas around watercourses and wetlands
- pre-clearing inspections by fauna spotter catchers for threatened species, fauna and breeding places, and
- retaining hollow-bearing trees or salvaging fallen logs to be used in rehabilitation areas
- using native flora species when rehabilitating watercourses and drainage features
- development and implementation of a Species Management Program under the NC Act and Weed and Pest Management Plan under the *Biosecurity Act 2014*.

Mitigation and management measures proposed for the operational phase focus on specific strategies for:

- 1) water management to reduce potential harm to the receiving environment from poor water quality via erosion and sediment controls, surface water monitoring and implementing a controlled release strategy. Proposed management plans include the implementation of the following:
 - a) an Erosion and Sediment Control Plan would be required by the EA to minimise the release of sediment and to meet pollution load reduction requirements. It must be consistent with the latest version of the *International Erosion Control Association Best Practice Erosion and Sediment Control* guidelines (IECA 2025).
 - b) a Receiving Environment Monitoring Plan including groundwater and surface water monitoring and associated mitigation measures.
 - c) a Water Management Plan to:
 - i. manage, contain and reuse project MAW
 - ii. manage downstream water quality impacts by diverting runoff from undisturbed areas around disturbed areas
 - iii. capture and treat runoff from disturbed areas, and
 - iv. progress rehabilitation undertaken to reduce sedimentation.
- 2) providing an MNES Management Plan that would monitor and recommend management measures to minimise the potential impacts to the MNES species (that are also MSES – protected wildlife habitat): Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC; *Xerothamnella herbacea*, koala, *Phascolarctos cinereus*, ornamental snake, *Denisonia maculata*, squatter pigeon (southern), *Geophaps scripta scripta*, Australian painted snipe, *Gallinago hardwickii*, and the Fitzroy River turtle, *Rheodytes leukops*.

In addition, the EIS acknowledged that a GDEMMP would likely be an approval condition. I support this. A GDEMMP would monitor relevant biophysical parameters of GDEs and develop triggers for corrective actions.

To ensure the above mitigation measures are enforceable, I recommend including conditions in Schedule J, Appendix A of this assessment report in the EA for the project.

6.8.4 Proposed offsets

MSES offsets were assessed under the Queensland environmental offsets framework. The EO Act effectively restricts the state from imposing an offset condition if the same, or substantially the same, impact has been assessed under the EPBC Act. As the EIS for the project was accredited under the Bilateral Agreement, s.15 of the EO Act applies. MNES offset requirements for ornamental snake, *Denisonia maculata*, squatter pigeon (southern), *Geophaps scripta scripta*, and the koala, *Phascolarctos cinereus* are detailed in section 6.18 of this assessment report.

Based on the SRI assessments, biodiversity offsets would be required under the EO Act and QEOP for the following MSES prescribed matters:

- connectivity areas (10.0 ha)
- waterways providing for fish passage (2.03 ha).

The Biodiversity Offsets Strategy (BOS) only addresses MNES offsets. The EIS proposes that the non-remnant regenerating areas contained within the MNES offset could acquit the offset area for impacts to connectivity areas. An alternative to this land-based offset is to provide a financial settlement offset.

The waterways providing for fish passage is proposed to be offset with a financial offset payment. The QEOP financial settlement offset calculator estimated a total financial settlement payment of \$150,750 for acquitting both the connectivity areas and the waterways providing for fish passage offsets.

I recommend including conditions addressing significant residual impacts to MSES in Schedule J, Appendix A of this assessment report in the EA for the project.

6.8.5 Summary of impacts on MSES

The EIS adequately identified the existing ecological values of the project site and additional investigation area. The construction, operation and decommissioning of the project would have the potential to cause the following significant impacts on MSES listed in Table 5.

Table 5 Summary of MSES significant residual impacts

Prescribed environmental matter	Area impacted by the project (ha)
Connectivity areas	10.0
Waterways providing for fish passage	2.03
Protected wildlife habitat	Refer to assessment in section 6.18

6.8.6 Biosecurity

EIS Chapter 8 (Biosecurity) adequately addressed the biosecurity requirements of the TOR. This included the biosecurity risks associated with the project, focusing on the potential introduction and spread of weeds, pests, diseases, pathogens and contaminants.

Surveys identified existing biosecurity risks in the area, including six introduced terrestrial fauna species (e.g. feral pigs, feral cats and cane toads), 54 introduced flora species (including restricted weeds such as parthenium and prickly pear), and pest aquatic species (mosquitofish and goldfish). The region is also within the cattle tick biosecurity zone, with associated risks of vector-borne diseases such as Ross River Virus, Dengue and Japanese Encephalitis.

The EIS recognised that project activities, particularly land disturbance, vehicle and machinery movements, vegetation clearing and the creation of food and water sources, could exacerbate existing biosecurity risk, potentially affecting agricultural productivity, biodiversity and human health. However, it concluded that with appropriate mitigation, these risks can be effectively managed through appropriate mitigation.

Proposed mitigation includes development and implementation of a Weed and Pest Management Plan consistent with Department of Primary Industry's requirements. This plan would cover vegetation clearance protocols, control of food and water sources, staff training, vehicle wash-down procedures, prioritised treatment of declared and high-risk species, and periodic weed and pest surveys. Vector-borne disease risks would be managed through mosquito management, (removal of breeding sites, use of personal protective measures such as insect repellent and protective clothing, and monitoring and reporting of any disease symptoms in workers). A structured monitoring program involving regular, seasonal and opportunistic inspections would support early detection and control.

The EIS concluded that with implementation of these measures, biosecurity risks would be reduced to acceptable levels and meet legislative obligations.

I support the implementation biosecurity mitigation and management measures noted above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.9 Air quality

EIS Chapter 11 (Air Quality, Greenhouse Gas and Decarbonisation), Appendix L (Air Quality and Greenhouse Gas Assessment) and Appendix M (Air Quality Management Plan) adequately described the existing air environment for the project and the surrounding airshed.

The EIS adequately identified relevant air emissions sources and presented sufficient assessment of point and diffuse sources, including satisfactory emissions inventories and likely COC. The EIS adequately identified relevant EVs and air quality objectives.

Air quality modelling assessed contaminant dispersal, dust deposition and potential contamination of water sources from airborne metals. It was undertaken for years 1 (construction), 3 (operation), and 11 (operation), representing scenarios with the highest potential impact on sensitive receptors. The modelling was adequate for assessing potential impacts on human health and wellbeing, and health and biodiversity of ecosystems in the surrounding area.

The potential impacts resulting from the project were assessed in accordance with the air quality objectives of the Environmental Protection (Air) Policy 2019 EPP (Air), the *National Environmental Protection (Ambient Air Quality) Measure* (NEPC 2021) (NEPM), and other relevant DETSI guidelines. The EIS acknowledged the January update to EPP (Air) reducing PM_{2.5} objectives. I consider sufficient data was provided to allow conditioning of this parameter.

Modelling predicted compliance with the EPP (Air) air quality objectives at sensitive receptors outside the MLA for all modelled years (years 1, 3, 11) for both isolated and cumulative scenarios. Although elevated levels of particulates were modelled beyond the MLA boundary, exceedances at sensitive receptors are not expected. The EIS concluded that dust and particulate emissions from the project are unlikely to affect vegetation, livestock, or water sources (water tanks).

Within the MLA, modelling predicted exceedances of suspended particulates (total suspended particles (TSP), PM₁₀ and PM_{2.5}) at four sensitive receptors (SR1, SR2, SR3 and SR14), two of which are

owned by the proponent. SR9, (partially within the MLA), is predicted to reach up to 98% of the PM₁₀ 24 hr average criteria in year 3. The EIS stated that compensation agreements would be finalised for the five sensitive receptors prior to grant of the mining lease.

The EIS concluded there would be no cumulative impact at sensitive receptors located between the project and Baralaba North Mine, because weather conditions that could cause impacts are unlikely to occur at both sites at the same time.

The EIS noted that emissions from the TLO would continue to be managed under a separate EA and supporting management plan, with TLO emissions expected to remain below relevant limits. Dust impacts to sensitive receptors along the sealed haul road route were assessed as negligible.

Key mitigation measures proposed include:

- watering of roads and dust generating equipment
- covering haul roads (gravel, sheeting or surfactants)
- personnel training and operational controls
- reducing material drop heights, using of wind breaks and considering location during loading and unloading
- enclosing the ROM hopper
- implementing drilling and blasting controls to avoid dust blowing towards sensitive receptors
- rehabilitating and vegetating disturbed areas as soon as practicable.

Continuous monitoring of meteorological and atmospheric conditions, PM₁₀ and dust deposition is proposed with reactive monitoring in response to complaints. EIS Appendix L (Air Quality and Greenhouse Gas) recommended PM₁₀ monitoring at least every sixth day for the first year of operation, with subsequent review. SR9, SR16, and SR20 are currently included in the dust deposition monitoring network, and SR9 and SR16 are included in the PM₁₀ monitoring network. PM_{2.5} and annual TSP are proposed to be estimated from PM₁₀ data.

I support the continuous monitoring and recommend including SR20 in the PM₁₀ monitoring network to ensure potential health impacts are captured.

I recommend a monitoring network of at least four continuous monitoring stations, to determine upwind and downwind PM₁₀ and meteorological conditions, as determined by an appropriately qualified person. This would enable attribution of exceedances and provide transparency and public reassurance.

To ensure these mitigation measures and limits are enforceable, I recommend including air quality conditions in Schedule B, Appendix A of this assessment report in the EA for the project.

6.9.1 Greenhouse gas emissions

EIS Chapter 11 (Air Quality, Greenhouse Gas and Decarbonisation) and Appendix L (Air Quality and Greenhouse Gas) generally addressed the TOR in relation to greenhouse gas (GHG) emissions.

The EIS estimated Scope 1, 2 and 3 emissions and included a decarbonisation plan outlining measures to avoid or minimise GHG emissions and proposed offsetting mechanisms. It considered broad reporting obligations under the National Greenhouse and Energy Reporting (NGER) Scheme and noted GHG reduction requirements under the Queensland GHG guideline (ESR/2024/6819) (DETSI 2025) and the Commonwealth Safeguard Mechanism.

With average annual Scope 1 emissions predicted to exceed 156,000 t CO₂-e, the project would be classified as a high emitter under the GHG guideline. A GHG Abatement Plan was not included in the EIS, as the TOR pre-dated the 2024 GHG guideline and the 2023 amendments to the Commonwealth Safeguard Mechanism. However, these requirements would apply to the EA and Safeguard Mechanism. In accordance with the GHG guideline, the EA is expected to include conditions requiring the proponent to implement and comply with a GHG Abatement Plan. In addition to the predicted emissions and proposed mitigations presented in the EIS decarbonisation plan, this GHG Abatement Plan would include calculated emission reductions from the proposed mitigations to project how the project would meet an annually reducing emission trajectory.

Concerns relating to fugitive methane abatement and carbon sequestration estimates are outlined below in section 6.9.1.1. To address these matters and ensure a GHG Abatement Plan consistent with contemporary expectations is in place as outlined in section 6.9.1.2, I recommend including GHG conditions B19 to B21 in Schedule B, Appendix A of this assessment report in the project's EA.

6.9.1.1 Calculation of emissions

The estimated life of mine GHG emissions for the project, under both unabated and abated scenarios, are summarised in Table 6.

Table 6 Estimated life of mine GHG emissions

	Unabated (t CO ₂ -e)	Abated (t CO ₂ -e)
Scope 1 emissions ¹	3,628,000	2,118,000 ²
Scope 2 emissions	576,000	288,000
Scope 3 emissions	99,240,000	NA

Table notes:

1. Includes emissions from vegetation clearing and carbon sequestered through rehabilitation as calculated in the EIS
2. If fugitive methane abatement is proven infeasible, life of mine Scope 1 emissions would increase to 3,248,200 t CO₂-e under the Abated scenario.

The project's predicted peak emissions would occur in year six, with total emissions of about 218,000 CO₂-e, equating to 0.058% of Australia's annual emissions and 0.18% of Queensland's annual emissions. Combined Scope 1, 2 and 3 project emissions are estimated at 0.015% of the global carbon budget, 0.09% of the national carbon budget, and 0.3% of the state carbon budget. The referenced global carbon budget corresponds to a 67% probability of limiting global warming to 2°C; lower temperature targets or higher probability assumptions would reduce the budget and increase the project's proportional contribution.

Fugitive emissions were estimated using Method 1 under the NGER (Measurement) Determination 2008, resulting in approximately 1.5 Mt CO₂-e over the 23 year life of mine. The proponent is undertaking further coal seam gas assessment to support a transition to Method 2 reporting, and preliminary information suggests lower emissions factors may apply. However, the abated scenario assumes a minimum 75% reduction in methane emissions through improved quantification and oxidation, which is considered overly optimistic, particularly as the EIS indicates that gas drainage and harvesting are unlikely to be feasible at the site.

Scope 2 emissions were estimated using a constant Scope 2 emissions factor. Actual life of mine Scope 2 emissions may be lower, noting the Queensland electricity grid emissions factor is expected to decline over time with increasing renewable energy generation.

The Scope 3 emissions inventory appears reasonable, with appropriate activity data and emissions factors applied. While no direct mitigation measures were proposed, the EIS noted that intended coal customers are located in jurisdictions that are Paris Agreement signatories and have committed to net-zero emissions targets between 2050 and 2070.

Carbon sequestration was estimated under like-for-like revegetation and Acacia woodland revegetation scenarios to offset land clearance emissions. However, carbon sequestration from like-for-like rehabilitation is generally not eligible under Australian Carbon Credit Unit (ACCU) methods, as rehabilitation required under the EP Regulation is not considered additional. Revegetation using Acacia woodland may be eligible for carbon offsets provided the requirements of the ACCU method are met by being additional to the rehabilitated landform or by demonstrating that the rehabilitated land has been grazed, cropped, or fallowed for five years post mining rehabilitation. I recommend that the carbon sequestration from revegetation be excluded from emissions reduction calculations until all relevant ACCU requirements can be demonstrated.

6.9.1.2 GHG guideline and Safeguard Mechanism obligations

As a new Safeguard facility, the project would be subject to the best practice emissions intensity of 0.00592 t CO₂-e per tonne of ROM coal. DETSI's analysis of proposed production shows that the calculated baseline would fall below the threshold. However, the minimum baseline rule would apply, setting the baseline at 100,000 t CO₂-e. Given that pre-drainage is likely not feasible for the project, the proponent would likely rely heavily on purchasing and surrendering carbon offsets to comply with the Safeguard Mechanism. Under the unabated emissions scenario, with estimated annual Scope 1 emissions of approximately 193,000 t CO₂-e, the proponent would likely need to surrender approximately 93,000 ACCUs or Safeguard Mechanism Credits (SMCs) annually. The EIS committed to sourcing Queensland-based ACCUs where available and cost-effective.

The presented Scope 1 emissions reduction targets do not meet the GHG guideline expectations as activity-level targets were provided instead of the required facility-level Scope 1 and 2 reduction targets. This would require updating. I recommend including GHG conditions B19 - B21 in Schedule B, Appendix A of this assessment report in the EA for the project.

6.10 Noise and vibration

EIS Chapter 12 (Noise and Vibration) adequately identified potential sources of noise and vibration, including low-frequency noise, cumulative effects, airblast overpressure, and ground vibration from blasting.

Baseline noise monitoring was conducted in 2018 for the MLA (Appendix N to the EIS) and in 2019 for the haul route to the TLO facility (Appendix O to the EIS). Project-specific noise and vibration criteria were developed in consideration of the Environmental Protection (Noise) Policy 2019 (EPP (Noise)), *Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration* (ANZEC 1990), the existing EA noise criteria for Baralaba North, and background levels.

Submissions raised concerns that the proposed noise limits were high for a rural setting. The amended EIS reduced the $L_{A1,adj15min}$ limit at sensitive places by 2 decibels (dB). However, I consider the revised limits remain inadequate. I recommend more conservative limits as per condition D1 in Schedule D, Appendix A of this assessment report. These limits were calculated using the model

mining condition method (ESR/2016/1936) and background levels and represent reductions of 5 dB for sensitive places and 2 dB for commercial places.

Although the EIS proposes noise limits for commercial places, none were identified. While rural properties may operate commercial enterprises, protection of health and wellbeing at the highest level is appropriate. Therefore, I do not consider that increased limits for commercial places are justified.

The EIS noise modelling was adequate for assessing potential noise and vibration impacts. Modelling was undertaken using SoundPLAN (version 8.2) with CONCAWE2 algorithms, assessing neutral, adverse daytime and adverse night conditions for years 1, 3 and 11 and included noise emissions from mining plant and equipment.

Based on the modelling and having regard to the EIS's proposed limits, only one potential exceedance was identified. The nearest offsite sensitive receptor (Receptor 9 'Mount Ramsay', located approximately 0.9 km north of the proposed mining activities) is predicted to exceed the proposed limits in years 1 and 3 without mitigation measures. Exceedances were modelled to be minor under adverse daytime conditions but significant under adverse night-time conditions.

Management options identified included removing the receptor through a compensation agreement. Alternatively, modelling predicted that the EIS's proposed (less conservative) limits could be achieved by fitting noise-reducing equipment to haul trucks and dozers, reducing machinery numbers, and limiting night-time operations during years 1 and 3. However, even with these measures in place, exceedances of up to 5 dB against my recommended limits are predicted. Substantial bunding (10–15 m) may reduce impacts, though optimisation has not yet demonstrated compliance.

I support the implementation of the noise management measures noted above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments). I am also satisfied that compliance with my recommended limits at all sensitive receptors can be achieved through the preparation and implementation of a Noise and Blast Management Plan. I recommend including conditions D12 and D13 of Schedule D, Appendix A of this assessment report, in the EA for the project.

If my recommended limits are imposed on the EA, receptors 10, 11, 13, 16, and 20 may experience night-time exceedances of up to 4 dB. Continuous monitoring of atmospheric condition and site noise would therefore be required to enable reactive management. I recommend that condition D2 in Schedule D, Appendix A of this assessment report be included in the EA for the project.

Haul route modelling indicates traffic noise increase would remain well below the +3 dB(A) threshold of a perceptible change. The EIS concluded that noise mitigation measures are unnecessary for the haul route and instead recommends occasional monitoring during early operations. I accept this approach, as modelling predicts no significant noise impacts at receptors along the haul route.

The EIS adequately assessed cumulative impacts and concluded that cumulative noise is not expected to be an issue for the project.

The EIS adequately modelled potential vibration and airblast overpressure impacts from blasting within the pit. The nearest sensitive receptors are approximately 3 km from the blasting area, and airblast levels are expected to comply with the 115 dB (Lin Peak) limit under most site conditions. Vibration levels are predicted to be compliant across the full range of expected site conditions.

The EIS identified the Benleith Water Scheme as infrastructure requiring protection from blasting and associated risks. While the EIS concluded that the risk to this infrastructure would be low, it proposed

make good measures should impacts occur. However, the modelling did not fully account for these environmental values for protection with respect to the EPP (Air), which affords aesthetic protection for buildings and built infrastructure. Near field infrastructure, such as underground pipes within 100 m of the pit, and two water tanks approximately 1 km from the pit, was not adequately considered; instead, the assessment focused on receptors at 3 km. Modelling for distances <500 m is uncertain, with respect to ground vibration. At 500 m, modelled ground vibration levels would reach up to 11.8 mm/sec with the recommended protection levels for in ground pipes at 100 m a minimum peak particle velocity of 34 mm/sec. Similarly, the risks for airblast overpressure are predicted to meet the proposed limit of 115 dB (Lin Peak) at distances of greater than 1 km with infrastructure protection levels considered to be 133 dB (Lin Peak).

While the project is predicted to generate low-frequency noise, the EIS considered the L_{Aeq} criteria to be the critical parameter. As a result, the EIS used the 55 dB(Z) limit as an assessment criterion but did not propose including it in the EA. Since modelling predicts compliance under all scenarios, I agree that a specific low-frequency noise condition is not required in the EA.

Noise and vibration mitigation measures for the project would be in accordance with the management hierarchy under section 8 of the EPP (Noise) including attenuation for haul trucks and D11T dozers, routine maintenance, sound suppression, bunding, monitoring, and corrective actions in response to exceedances. The EIS also stated that a Noise and Blast Management Plan would be prepared outlining management, mitigation, and monitoring (including auditing) measures to control noise, vibration, and blasting during mining activities. I recommend that the Noise and Blast Management Plan also identify and monitor the Benleith Water Scheme infrastructure as per conditions D13 – D14 of Schedule D, Appendix A of this assessment report.

To ensure that the mitigation measures and limits for noise and vibration are enforceable, I recommend including conditions in Schedule D, Appendix A of this assessment report in the EA for the project.

6.11 Waste

EIS Chapter 14 (Waste Management) adequately identified the main waste streams that would be produced by the project, described waste disposal methods and proposed satisfactory mitigation measures to avoid or minimise impacts.

The EIS identified the following key waste streams:

- waste rock: 636 million bank cubic metres (Mbcm)
- coal rejects: 9 Mt and tailings <2 Mbcm from the CHPP
- mine-affected water: refer to section 6.6.1 of this assessment report
- wastewater/effluent: 53.6 cubic metres per day (m^3/day) (construction stage) to 104.2 m^3/day (operational stage)
- regulated wastes, recyclable/repurposed wastes and general wastes (including food scraps, used packaging, etc.): various.

Overburden and interburden (termed spoil) exhibit high to very high sodicity. Given the large volumes managed during operations and incorporated into the final landform, spoil presents risks of erosion and elevated turbidity in runoff if poorly managed. Due to the volume of spoil material and the absence of alternatives that would provide a more suitable stable landform, mitigation measure proposed include reduced slopes for all final landforms and progressive rehabilitation to establish

vegetation cover and maximise soil stability. Non-sodic topsoils would be stripped and retained for rehabilitation to a depth of 0.2 m, with no predicted shortfall across the site.

Spoil would initially be placed in out-of-pit dump transitioning to progressive in-pit disposal from year three. Although spoil emplacement would be elevated above the natural landform and the majority of the slopes would not drain to the pit, operational controls including stormwater diversions and sediment dams, are proposed to contain mine-affected runoff during rehabilitation.

Coal rejects and tailings present a minor to moderate acid general potential based on geochemical testing. This risk represents a small proportion of total waste volume and would be mitigated by co-mingled with spoil possessing sufficient acid neutralising capacity. The highest risk would occur during operations, particularly while tailings are drying and most concentrated. I consider the EIS identified appropriate controls and performance outcomes for reject and tailings storages.

Cleared vegetation, while of a small volume, is proposed to be burnt. This is inconsistent with the waste management hierarchy, particularly given the availability of suitable onsite reuse options and the need for organic matter in rehabilitation. To address this, I recommend that condition C2, Schedule C, Appendix A of this assessment report, which prohibits burning of all waste, be included in the EA for the project.

The EIS adequately quantified the expected production of 53.6 m³/day (268 workers) of treated sewage (including grey water) during construction and up to 104.2 m³/day (521 workers) during operations. The nominated irrigation area is expected to be mined through at around year six requiring recalculation of area and capacity based on soil variability, slope, ameliorants and revegetation needs of rehabilitated landform or alternate irrigation areas. Appropriate irrigation sizing, buffers, monitoring and wet weather storage were identified in the EIS.

Regulated wastes (e.g. sewage sludges, batteries, used oils) would be removed from site, tracked and disposed of or recycled at appropriately licenced facilities. General and recyclable wastes would also be transported offsite by contractors for recycling or disposal at licenced facilities. An exception is regulated waste tyres, proposed for disposal within the mining lease in the WRE.

To ensure waste management mitigation measures are enforceable, I recommend including conditions in Schedule C, Appendix A of this assessment report in the EA for the project.

6.12 Hazards and safety

EIS Chapter 17 (Hazards and Safety) adequately addressed the hazards and safety requirements of the TOR. This included the potential hazards and risks to people and property from the project as well as the risk of potential adverse impacts on the surrounding community and project workforce.

The EIS considered both natural and anthropogenic hazards, including bushfire, flooding, climate change, workplace incidents, hazardous materials, mine wastes and emissions, with attention also given to sensitive receptors in the surrounding community.

A structured risk assessment process, consistent with AS ISO 31000:2018, was used to evaluate likelihood and consequence, leading to the classification of risks. Out of 48 risks, the EIS identified no Class IV (very high) risks and three Class III (high) risks. These related to occupational health and safety hazards, increased vehicle movements affecting road safety and amenity, and dust impacts on sensitive receptors.

The EIS determined that most risks were low to moderate and could be managed through standard operational controls and industry practices. For the higher-level risks, targeted mitigation measures were proposed, including monitoring of occupational health and safety performance with specific risk assessments as required, road safety initiatives such as fatigue management and driver awareness training, and dust suppression measures (e.g. watering haul roads, rescheduling blasting and applying reactive dust controls).

To ensure risk management throughout the project lifecycle, a Safety and Health Management System would be implemented in line with the *Work Health and Safety Act 2011* and ISO 45001 standards, with clear objectives around compliance, communication, training, incident response and continuous improvement. An Emergency Response Plan (ERP) would also be prepared for all project phases, detailing potential emergency scenarios, responsibilities, equipment and coordination with external emergency services. The ERP would include procedures for fire, spills, bushfires, spontaneous combustion, vehicle accidents and medical emergencies, with regular training and testing to maintain preparedness.

The EIS concluded that with the proposed mitigation and management measures, the hazards and risks associated with the project could be effectively managed to protect workers, the community and the environment.

I support the implementation of the hazards, risks and safety mitigation and management measures noted above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.13 Cultural heritage

6.13.1 Aboriginal cultural heritage

EIS Chapter 15 (Cultural Heritage) adequately addressed the Aboriginal cultural heritage requirements of the TOR.

The EIS stated that the project is located wholly within the Gaangalu Nation People's registered native title claim area (QC2012/009). The EIS acknowledged that the area, including significant features such as Wandoo Mountain (Mount Ramsay), holds deep cultural importance to Traditional Owners with connection to Country.

Database searches of the Queensland Cultural Heritage Register and Database did not identify recorded Aboriginal heritage sites within the project area. However, statutory duty of care under the *Aboriginal Cultural Heritage Act 2003* (ACH Act) applies to all Aboriginal cultural heritage, regardless of whether it has been previously identified or registered.

The EIS noted that cultural heritage surveys have already been undertaken ahead of exploration and that further surveys would be required prior to mining and associated land disturbance to confirm the presence or absence of cultural heritage items.

The EIS recognised that extensive ground disturbance present a risk of harm to Aboriginal cultural heritage items, including previously unidentified subsurface materials and cultural significance places. To address these risks, the EIS stated that the project would be managed under a Cultural Heritage Management Plan (CHMP). The CHMP was first established under a Cultural Heritage Investigation and Management Agreement (CHIMA) with the Gaangalu People in 2012, which was later approved by the state and subsequently extended to cover the Gaangalu Nation People as the registered

Aboriginal party. The CHMP has been formally assigned to the proponent and applies to the entire project area, including associated infrastructure such as the Moura–Baralaba Road realignment.

The CHMP provides a framework to ensure compliance with the ACH Act and to protect Aboriginal cultural heritage in a culturally appropriate manner. It establishes a Coordinating Committee to oversee implementation, procedures for issuing Works Program Notices before ground disturbance, and requirements for site-specific Indigenous Cultural Heritage Assessments where necessary. These assessments aim to identify and document cultural heritage, evaluate potential impacts, and develop avoidance or mitigation measures. The CHMP also includes protocols for the discovery of cultural heritage items or human remains, requiring work to stop immediately in the vicinity and appropriate notifications to be made in accordance with the ACH Act, the *Coroner's Act 2003*, and the *Criminal Code Act 1899*. Furthermore, the EIS stated that the proponent has committed to raising awareness among workers by including Indigenous cultural heritage obligations and values in induction and training programs.

The EIS concluded that the project could progress without compromising Aboriginal heritage values, contingent on the effective implementation of the CHMP and ongoing collaboration with the Gaangalu Nation People to ensure avoidance and mitigation measures are rigorously applied.

I support the implementation of cultural heritage mitigation and management measures noted above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.13.2 Non-Indigenous cultural heritage

EIS Chapter 15 (Cultural Heritage) and EIS Appendix R (Non-Indigenous Cultural Heritage Assessment) adequately described the known and potential historical cultural and landscape heritage values of the area potentially affected by the project. The EIS also outlined strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts, as required by the TOR.

The EIS highlighted the area's association with pastoral settlement, coal exploration and mining, and the development of transport and communication infrastructure, particularly the Dawson Valley Railway. Although no sites within the project area are listed on state, national, or local heritage registers, a total of 13 places of potential local heritage significance were identified within or adjacent to the revised project footprint. These included pastoral-era features such as dams, turkey nests, and two homestead complexes (including the Dovedale Homestead Complex), as well as infrastructure associated with communication and transport, such as a remnant telephone line, the Dawson Valley Railway, and a survey tree. Each site was assessed against the Burra Charter and the *Queensland Heritage Act 1992*, with most found to have nil or low significance, apart from the telephone line, which was assessed as having moderate local significance due to its rarity.

Of the 13 recorded sites, 11 would be directly impacted by the project and two could be partially affected by mining infrastructure. Potential impacts include the disturbance or removal of features linked to the pastoral industry, such as homestead complexes and water management structures, as well as items associated with historical transport and communication networks, including the railway and telephone line. While none of these places met thresholds for state heritage listing, the EIS presented that they contribute to the broader historical landscape of the Dawson Valley and provide evidence of regional settlement patterns and industry development. To mitigate these impacts, all 13 sites have been comprehensively documented and recorded, with the EIS stating that detailed recording is an appropriate mitigation measure given their assessed low significance.

The EIS stated that disturbance to higher-value elements, such as the Dovedale Homestead Complex and the survey tree, would be avoided where practicable. For those features where disturbance is unavoidable, including the Dawson Valley Railway and the remnant telephone line, detailed recording has been undertaken. The EIS also committed to offering representative material from the telephone line (e.g. insulators or brackets) to an appropriate museum collection, such as the Telstra Museum or the Cardwell Bush Telegraph Heritage Centre. Additional mitigation measures proposed included the implementation of an Incidental Finds Procedure to manage any unrecorded heritage items uncovered during construction, as well as cultural heritage awareness training for staff.

The EIS concluded that although several non-Indigenous cultural heritage sites would unavoidably be disturbed, none are of state or national significance. The proposed measures, documentation, monitoring, staff training, and artefact donation, represent proportionate and effective mitigation.

I consider that the proposed mitigation approaches adequately address potential impacts to non-Indigenous cultural heritage matters for the project.

I support the implementation of the cultural heritage mitigation and management measures noted above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.14 Social

The EIS included a social impact assessment (SIA) for the project that was consistent with the requirements of the *Strong and Sustainable Resource Communities Act 2017* (SSRC Act) and the Coordinator-General's SIA Guideline (DSDMIP 2018). The SIA was developed in consultation with the Office of the Coordinator-General, Department of State Development, Infrastructure and Planning.

The Coordinator-General has undertaken an evaluation of the social impacts of the project, which is available at: [Social impact assessments for resource projects | State Development and Infrastructure](#).

As part of the evaluation, the Coordinator-General decided to state conditions under section 11 of the SSRC Act. Further, the Coordinator-General decided, under section 12 of the SSRC Act, to nominate the project as a large resource project for which the 100 per cent fly-in, fly-out (FIFO) prohibition and anti-discrimination provisions of the SSRC Act apply to the project's construction workforce.

The SIA has adequately addressed the impacts, and provided mitigation measures, to address the five key matters as defined by the SIA Guideline:

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

6.14.1 Key matters

The proponent proposes to develop an open cut metallurgical coal mine and associated infrastructure in the lower Bowen Basin. The project is proposed within the Banana Shire local government area (LGA) and is approximately 8 km south of Baralaba and 115 km west of Rockhampton, in Queensland.

In line with SSRC Act definitions, eight communities are defined as nearby regional communities (NRCs), with Baralaba, Banana, Moura and Woorabinda within a safe commuting distance from the

project's main access, and therefore able to provide local workforce to the project. Baralaba would be the community most affected, both positively and negatively, by the project.

The town features a multipurpose health centre, a private clinic, an aged care facility, sporting facilities utilised by community groups and a P-10 state school. However, like comparable towns, many of these services are fully subscribed and there is a lack of formal childcare facilities and limited housing options (housing availability and quality is heavily influenced by mining cycles). The community and council have strong fears that an influx of over 500 non-resident workers would put further pressures on their system without providing the necessary growth to justify increases in housing and social service development.

The project is forecast to contribute approximately \$13.5 million per annum to gross regional product (GRP) in the regional catchment during construction, \$170.2 million per annum during operations, and \$1.6 million per annum during post-mine rehabilitation. The project's capital expenditure is estimated at \$157 million. In addition to direct employment and economic activity, the proponent has committed to providing ongoing support for community initiatives, local procurement, and Indigenous participation, and would maintain a dedicated Community Relations Officer and Community Consultative Committee to facilitate engagement and address community concerns.

The Gaangalu Nation People represent the Traditional Owners of the region. The SIA did not identify any specific impacts on cultural or social values. However, engagement with First Nations peoples could have been more in-depth. Representatives of the Gaangalu Nation People are part of the Community Consultative Committee, but the original SIA lacked engagement with Woorabinda Aboriginal Shire Council, which would see potential impacts and opportunities from the project. Further engagement occurred between 2019 and 2023 but ongoing improvements to First Nations' engagement and participation are required.

The SIA adequately outlined the community consultation and engagement undertaken to inform the impact assessment, but the high number of submissions during public consultation related to social matters highlight a need for ongoing improvement. Initial engagement occurred between 2017 and 2019, with additional engagement following stakeholder feedback, ongoing to 2025. Evidenced through the SIA, community engagement activities decreased during periods of project transition and ownership change, and not all previous issues and recommendations provided by state agencies have been fully addressed. While the continuation and membership of the Community Consultative Committee is positive, there is a need for a more genuine, transparent, and adaptive approach to engagement moving forward. The Coordinator-General will require the development of an updated Community and Stakeholder Engagement Plan, which ensures all relevant stakeholders and informed about the project and potential social impacts are effectively managed and monitored.

The SIA identified the intended workforce profile. The SIA notes that workforce arrangements would mostly transition from the current operation in the existing Baralaba North mine to the new operations in Baralaba South, with workforce numbers not 'significantly exceeding' existing operations. This is positive in that existing employment would be maintained for a further 23 years with opportunities for new local employment. There would likely be increased short term impacts when operations at Baralaba North and Baralaba South are scheduled to overlap for a two-year period (2029 – 30), with a combined peak workforce of 710 workers. Non-local workforce would be accommodated in the existing workforce accommodation camp, while local workforce would be supported to live in towns within a safe driving distance.

The proponent is committed to a recruitment hierarchy, where preference would be given to recruiting employees from local and regional communities and those who choose to relocate to local

communities. This extends to principal and major contractors, with consistency with the workforce management plan be part of the procurement and contracting process. Nearby towns, including Baralaba, Banana and Moura would need to be maintained as an attractive option, retaining social amenity, community support and social services, for new workers who choose to live locally. The proponent's recruitment strategy and workforce management practices, in combination with fulfillment of the Coordinator-General's conditions, would minimise the proportion of workers engaged in FIFO arrangements. However, this would need to be monitored to ensure that the local workforce is maximised, adjusting the 'live local' strategies in social impact management plan (SIMP) revisions where further action may be required. The Coordinator-General requires that, in addition to existing commitments, targeted and measurable participation targets for First Nations people, women and people living with a disability are developed and monitored appropriately.

The SIA adequately identified workforce accommodation for the construction and operational workforce for the project. In line with the SIA guidelines, the EIS included an assessment of the potential impacts of the project on the local housing market, including the housing requirements of FIFO workers. The SIA stated that the development of a housing and accommodation plan aims to ensure housing and accommodation for project workforce does not significantly impact affordability and availability of housing. Accommodation in local and regional communities are well planned, enhance worker wellbeing and do not place an excessive burden on existing infrastructure, facilities and services used by local and regional communities.

The proponent noted that it is expected that a peak combined Baralaba North operation/Baralaba South construction workforce would occur in 2029, reaching some 710 employees. Haulage and TLO contractors would reside in Moura, leaving 667 employees that would require temporary accommodation. The worker accommodation village (WAV) currently has 32 rooms under construction which would accommodate future Baralaba South operational staff, factoring in shift cycles. To cover the peak at transition it is estimated that up to 255 units of temporary accommodation would be required. The SIA anticipates that the WAV is able to expand appropriately. Additionally, adjoining the WAV, a caravan park is available for workforce who wishes to travel and live within their caravan. It has been clarified that this use is exclusive and does not restrict the ability of the public to use other caravan parks for tourist purposes.

The proponent also has committed to maintaining the eight company owned houses in the region at an appropriate level, investing \$100,000 for renovations and up to \$25,000 annually for ongoing maintenance. All eight houses are currently occupied by employees of the proponent, which are intended to be transitioned to employment at the project following the closure of Baralaba North.

The proponent has assured that, given the availability of space in the existing workforce accommodation camp and the company housing stock, the additional workforce needed to construct and operate the project would be able to reside in the existing WAV, therefore limiting impacts on local rental availability. At the same time however, while the proponent focusses on limiting impacts on housing availability, a commitment has been made to assist new employees to move to the region if they choose to do so. No new houses are being constructed to accommodate this potential new influx, neither are existing proponent houses available. Given the information provided in the Housing and Accommodation Plan and the EIS, it is unclear how these two conflicting commitments would be achieved, and how impacts on local housing and accommodation availability would be managed in cases where proponent support for individuals choosing to live local is not sufficient to build new housing. Therefore, the Coordinator-General requires that the Housing and Accommodation Plan be updated and include appropriate measures ensuring workers choosing to live locally do not negatively impact the local housing market.

The SIA adequately identified strategies to enable local business and industry involvement, including additional opportunities for First Nations owned businesses throughout all stages of the project. It included an analysis of local and regional supplier capability and capacity, with a particular focus on procurement opportunities able to be met by First Nations owned businesses, including in Woorabinda Aboriginal Shire.

The SIA included a profile of the skills and services needed for the project, including an analysis of local and regional supplier capability and capacity relevant to the project, existing local procurement opportunities and an assessment of potential social impacts on local and regional suppliers. Given the existing operations in Baralaba North, procurement relationships in the region are developed and the extensive mining activities mean there are well established networks and supply chains for project procurement. This would likely result in overall benefits for local businesses. The proponent has developed a Local Business and Industry Procurement Plan that gives preference to contractors optimising local content when comparing commercially and technically similar bids. In addition, they committed to achieving a 25% local and First Nations procurement goal. While this is commendable, local procurement and First Nations procurement are two distinct concepts and need to be considered separately. The Coordinator-General requires that an updated Local Business and Industry Procurement Plan be developed prior to construction that includes separate procurement goals for local and First Nations business procurement and identifies measures to address potential negative impacts of labour draw on other local businesses.

The SIA adequately identified the impacts and opportunities for community health and wellbeing, including emergency services, health services, childcare services and road safety. While not inherently a community health matter, a large number of submissions addressed the impact of flooding patterns potentially associated with the project and their impact on the environment and mental health of affected parties. The proponent addressed these issues through a change in the proposed final landform in their PRC plan. However, further risk communication protocols would be required to ensure community concerns regarding flood awareness are satisfied. The management measures identified in the SIA are adequate to address project impacts. However, their effectiveness would depend on transparent, adaptive management and genuine community engagement. The Coordinator-General requires that an updated Community Health and Wellbeing Plan be developed that demonstrates the project does not negatively impact childcare, primary healthcare and social housing service levels, as well as institute a risk communication protocol during extreme weather events that addresses community concerns regarding flooding and other affected services.

In conclusion, the Coordinator-General is satisfied the potential social impacts of the project can be adequately managed and minimised and has conditioned the proponent that all proposed management measures and proponent commitments are captured in the SIMP and implemented accordingly. If the stated outcomes are not achieved, the SIMP is to be amended to appropriately mitigate impacts. The Coordinator-General requires that conditions 1 to 8 in Appendix B of this assessment report are applied to the project to address social impacts.

6.15 Economic

Section 16.3 (Economics) of EIS Chapter 16 (Social and Economic) and EIS Appendix Y (Economic Impact Assessment) adequately evaluated the potential economic impacts of the project on the local, regional and state economies.

The EIS stated that the project would generate substantial direct and indirect economic benefits through employment opportunities, procurement of goods and services, royalties, and contributions to gross regional and state product. EIS Appendix Y (Economic Impact Assessment) quantified these

benefits, projecting approximately 430 full-time equivalent (FTE) jobs during construction and approximately 500 FTE jobs during operation, with further indirect employment supported through supply chains and local businesses. It also estimated an annual contribution of about \$74 million to Gross Regional Product (GRP) and \$140 million to Gross State Product (GSP), with royalties and taxes providing an additional contribution to Queensland's economy.

The EIS noted potential negative economic impacts, including pressures on housing availability, increased demand for community services, and the risk of inequitable distribution of benefits if employment and procurement opportunities are not accessible to local communities. EIS Appendix Y further emphasised that workforce sourcing and accommodation models would influence these impacts, with scenarios highlighting the importance of housing management and labour planning to avoid adverse social and economic pressures.

To mitigate potential adverse effects, the EIS proposed measures such as prioritising local employment and procurement where possible, implementing workforce management strategies to reduce housing and cost-of-living pressures, and engaging with local councils and stakeholders to ensure that economic benefits are shared equitably. Ongoing monitoring and reporting on local economic contributions would also form part of the management approach.

The EIS provided draft workforce and procurement plans, including a Draft Housing and Accommodation Plan (EIS Appendix V), Draft Workforce Management Plan (EIS Appendix W), and Draft Local Business and Industry Procurement Plan (EIS Appendix X). I recommend the finalisation and implementation of these plans, in line with the conditions outlined by the Coordinator General in Appendix B of this assessment report, to mitigate potential adverse effects of the project on the local community's economy.

The EIS concluded that the project would deliver economic benefits at the local, regional and state levels, with risks manageable through the proposed mitigation strategies and proactive management of workforce and procurement planning. This is further discussed in section 6.14 of this assessment report.

Further, I support the implementation of social and economic mitigation and management measures noted above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.16 Transport

EIS Chapter 13 (Transport) and Appendix P (Traffic Impact Assessment) adequately described the project's total transport task, including the movement of supplies, products, and workforce across the construction, operation, and decommissioning phases. The assessment adequately addressed road, rail, air and sea transport modes, evaluating transport options to promote efficiency and minimise community impacts, and assessing potential impacts on existing local and regional infrastructure.

Road transport would experience the greatest impact with approximately 4.5 km of the existing Baralaba Mine Haul Route on the council-controlled Moura-Baralaba Road to be realigned immediately east, outside the MLA boundary. Temporary construction disruptions may occur. The realignment would require separate approval under the *Planning Act 2016*. The EIS committed to consult with Banana Shire Council and prepare an updated traffic impact assessment to support approvals.

The project's routes, including Moura–Baralaba Road (the key haulage route), are expected to have significant spare capacity to accommodate the project's proposed traffic movements. Based on background traffic and projected development traffic, a minimum 32% capacity remains available.

The EIS used turn warrant assessments and SIDRA modelling to confirm that existing intersections can accommodate haulage to 2030, operating well within performance thresholds for priority-controlled intersections. Proposed safety treatments include basic left and right turn provisions at the north and south access points. At the southern access, this includes a short left-turn lane, a channelised right-turn treatment and rural auxiliary turn treatments to manage heavy vehicle demand safely.

No new rail level crossings would be required, and coal haulage to the TLO facility would not intersect existing rail crossings. An early-stage pavement impact assessment concluded impacts would be insignificant; this would be updated during detailed design when inputs are refined.

The EIS committed to preparing a Road Use Management Plan in accordance with the existing Coal Haulage Road Use and Infrastructure Agreement (CHRUIA) and associated Traffic Management Plan for Baralaba North. The CHRUIA between Baralaba Coal Pty Ltd, Wonbindi Coal Pty Ltd and Banana Shire Council establishes allowable haulage activities, maintenance obligations and related standards. The EIS committed to renegotiating and amending the CHRUIA to incorporate revised haulage routes and forecast traffic. Associated management plans would be updated to address school bus interactions, stock movements, road safety risks, driver training and fatigue management.

Given that Baralaba South would use the same haulage routes as Baralaba North, I agree that adopting a revised and amended CHRUIA and associated management plans, is an appropriate transport management framework.

Rail and sea transport impacts would be minimal, as the project would utilise available capacity within the existing Moura Rail System and Port of Gladstone infrastructure. The EIS estimated that only 5% of the project workforce is expected to travel by air via Rockhampton, Gladstone, and Thangool airports, all of which have sufficient capacity.

While additional information would be needed to support traffic approval applications, I consider that the information and commitments provided are adequate for assessment of transport impacts for the purposes of the EIS process.

I support the implementation of the transport mitigation and management measures outlined above and committed to in Table 18.1 of EIS Chapter 18 (Proposed Environmental Management and Monitoring Commitments).

6.17 Rehabilitation

EIS Chapter 3 (Rehabilitation) and Appendix AA (Draft Progressive Rehabilitation and Closure Plan) adequately described the proposed approach to rehabilitation and mine closure. The assessment quantified the extent of land disturbance associated with mining activities, the suitability of proposed post-mining land uses, landform design, soil management, revegetation methods and long-term land stability.

6.17.1 Post-mining land use

The EP Act requires land disturbed by mining to be progressively rehabilitated to support approved post-mining land uses (PMLUs). The EIS presented that the project would result in extensive but largely temporary disturbance to land predominantly used for cattle grazing on improved pastures. It assessed changes between existing land uses and proposed post-mining land uses, concluding that

the majority of disturbed land could be progressively rehabilitated and returned to a grazing PMLU broadly consistent with pre-mining land capability. A range of PMLUs were initially identified and evaluated, including improved pasture grazing, cropping, agricultural use of void water, a pit lake as an aquatic ecosystem, native terrestrial ecosystem, dry final landforms without a final void, renewable energy production and water for water trading.

Following consideration of EIS submissions, further modelling of long-term final void water quality, landform design and evaluation of relevant research, DETSI advised that the originally proposed pit lake aquatic ecosystem and highwall 'natural' ecosystem PMLUs were not suitable post-mining land uses for the final void. In particular, the final void as an aquatic ecosystem was unlikely to meet the criteria provided in the Queensland Government's guidance document *Aquatic ecosystems in postmining landscapes: Technical Paper* (Office of the Queensland Mine Rehabilitation Commissioner 2025). As a result, the PMLU strategy was revised, with the final void proposed as a NUMA in the amended EIS. The remaining disturbed land would be rehabilitated to a grazing PMLU.

The EIS stated that the final landform was designed with regard to the pre-mining landscape, visual amenity and the requirements of the proposed grazing post-mining land use. Rehabilitated areas designated for grazing are proposed to be reprofiled to an *overall slope* of ≤ 9 degrees (15.84% gradient), measured from toe to crest. However, the slopes would comprise relatively level contour banks and short, stepped slopes of up to 10 degrees (17.63% gradient). This proposed slope design exceeds the recommended gradients in the *Regional land suitability framework for beef cattle grazing PMLU rehabilitation in the Bowen Basin*, in the Queensland Government's guidance document *Rehabilitated mined land suitability for beef cattle grazing in the Bowen Basin Technical Paper 1* (Office of the Queensland Mine Rehabilitation Commissioner 2025b).

The framework states that land suitable for grazing should have a gradient of $\leq 15\%$ and slopes greater than 15% are considered unsafe and unsuitable. Accordingly, I recommend that the completion criteria for the grazing land outcome outlined in Table H1 (Rehabilitation Objectives and Completion Criteria), Appendix A of this assessment report limit individual slope gradients to $\leq 15\%$ in the EA for the project.

The final void, proposed as a NUMA, would comprise steeper slopes evaluated through detailed geotechnical analysis, with highwall slopes of up to 40 degrees, bunding and fencing to ensure public safety, and design features to manage flooding and climate change-related impacts. While the geotechnical assessment demonstrates that the NUMA landform can remain stable in perpetuity with an appropriate factor of safety, portions of the low wall designated for grazing were identified as exceeding suitable slope gradients. I recommend further refinement of the final landform design to ensure all areas proposed for grazing are compatible with long-term land use objectives and safety requirements.

6.17.2 Progressive Rehabilitation and Closure Plan

A PRC plan was not required by the TOR, as the project predates the 2018 legislative amendments requiring a PRC plan. However, the proponent voluntarily provided a draft PRC plan as EIS Appendix AA, which included a rehabilitation planning part and a PRCP schedule.

Rehabilitation would be undertaken progressively through staged reshaping, careful management and reuse of topsoil, and revegetation using direct seeding or tube stock as appropriate. Revegetation would be timed to coincide with favourable seasonal conditions to maximise establishment success. Interspersed native vegetation would be incorporated within grazing areas to provide shade, visual relief and habitat value. The EIS noted that rehabilitation reference or analogue sites had not yet been

identified and recommended that suitable reference sites be established early in the project to enable benchmarking of rehabilitation success. I support this recommendation.

The draft PRC plan addressed proposed PMLUs and their locations, rehabilitation and management milestones, milestone criteria, and indicative timeframes for achieving those milestones. While these elements provided a structured framework and generally met the statutory information requirements of the EP Act and the Progressive Rehabilitation and Closure Plan Guideline (ESR/2019/4964) (DETSI 2024), the milestones and criteria were high-level and did not adequately meet SMART (Specific, Measurable, Achievable, Relevant and Time-bound) requirements. Insufficient detail, information gaps, and outstanding matters prevent a complete assessment of the PRC plan in the EIS.

With respect to the proposed NUMA, it is noted that while the technical assessment demonstrated that the void can be designed to be safe and stable, adequate consultation specific to the NUMA has not been clearly demonstrated in the EIS. Section 126(1)(d)(i) of the EP Act requires evidence of the extent to which the proposed NUMA is consistent with the outcome of community consultation in developing the PRC plan. I consider that there is insufficient evidence that all stakeholders with a genuine interest were consulted on the introduction of the NUMA and that the PRC plan is consistent with the outcome of consultation. Therefore, further targeted consultation would be required through the PRC plan process to ensure the NUMA is appropriately understood, supported and integrated into the final PRC plan. This consultation should be undertaken in accordance with *Community consultation for Progressive Rehabilitation and Closure Plan* (ESR/2019/5101) (DETSI 2025).

Overall, I consider that the EIS adequately described rehabilitation for the project and largely demonstrated that the EVs of land can be protected through minimisation of disturbance, progressive rehabilitation and achievement of a safe and stable final landform. Subject to refinement of rehabilitation milestones to meet SMART criteria and appropriate guidelines, further consultation regarding the proposed NUMA, and appropriate conditioning of the EA, the project is capable of achieving acceptable rehabilitation outcomes and compliant closure consistent with the requirements of the EP Act.

I recommend including the rehabilitation conditions in Schedule H, Appendix A of this assessment report in the EA for the project. These revised conditions better align with PRC plan outcomes and provide clear, enforceable requirements. Although the transitional PRC plan is not required until six months after the EA is issued, these conditions will be incorporated into the final PRCP schedule to ensure consistency with the statutory framework.

6.18 Matters of national environmental significance

This section of the assessment report assesses the following requirements:

- a description of the environment
- MNES controlling provisions
- feasible alternatives for the project
- summary of the relevant impacts
- measures to avoid, mitigate or manage impacts
- environmental offsets
- recommended conditions of approval.

In accordance with the Bilateral Agreement, this section addresses the matters protected under the EPBC Act and prescribed in section 9 of the EP Regulation. The Bilateral Agreement enables the EIS to meet the impact assessment requirements of both the EP Act and EPBC Act.

In relation to the social and economic matters of the project as required by the TOR, refer to section 6.14 and section 6.15 of this assessment report.

This information has been prepared for the Australian Minister for the Environment and Water to help the Minister make an informed decision under section 133 of the EPBC Act about the identified and potential impacts on MNES from the project, whether the project should proceed, and if so, relevant conditions of approval.

6.18.1 Description of the environment

The project is located in the Dawson River Downs sub-region of the Brigalow Belt South bioregion. The project site consists of Quaternary alluvium floodplains on the western side associated with Banana Creek and the Dawson River, and colluvial deposits in the slightly higher elevations to the east. The site is within the Bowen Basin, an area that contains the largest coal reserves in Australia and is located approximately 11 km south of the proponent's operational coal mine, Baralaba North Mine.

The study area for assessing impacts to ecology values from the project is approximately 5,268 ha and consists of the project site (equating to MLA 700057) and surrounding areas for the water release/extraction infrastructure, the proposed Moura-Baralaba Road realignment, ETL study area and additional investigation area. The project site of 2,214 ha is predominantly cleared grazing land mapped as non-remnant vegetation. Only 26.4 ha of remnant vegetation occurs within the project site consisting of two eucalypt woodland RE and one semi-evergreen vine thicket RE. A number of small patches of non-remnant or high-value regrowth are scattered throughout the project site. An additional 11 REs have been mapped across the larger area.

The additional investigation area of 3,054 ha includes areas to the west, east and south of the project that encompass areas potentially subject to indirect impacts.

The project is within the Dawson River drainage sub-basin of the Fitzroy Basin. Banana Creek is a large stream-order 5 tributary of the Dawson River that is located adjacent to the southern and western boundaries of the project site. Banana Creek joins the Dawson River approximately 0.5 – 1 km west of the project. The Dawson River is a large perennial river system with an associated floodplain that is approximately 1.5 km to 3 km wide. The Dawson River discharges to the ocean via the Fitzroy River approximately 380 km downstream of the project site.

An unnamed stream-order 3 watercourse near the northern boundary is referred to as 'Shirley's Gully' and this joins the Dawson River anabranch approximately 2.5 km downstream of the project site. Minor waterways and drainage lines also exist within the project site. Benleith Creek is within the ETL study area. The aquatic ecosystems associated with the project's watercourses are rated as 'moderately disturbed' due to existing land uses under the EPP (Water and Wetland Biodiversity) (Queensland Government 2019).

A 35 ha wetland mapped as both a wetland protection area and a HES wetland is located in the south-west corner of the project site.

Baseline desktop and field surveys of the project site and wider terrestrial ecology study area (that includes an area referred to as an 'additional investigation area') have been undertaken since 2017 and 2018. The most recent field surveys conducted for the EIS were for the post-wet and dry seasons of 2020, dry season of 2024 and post-wet season of 2025.

Flora surveys using the Queensland Herbarium methodology identified one species of endangered plant, *Xerothermella herbacea*, (*X. herbacea*) within the project site. Two TECs listed under the EPBC Act, Brigalow TEC and Coolibah – Black Box Woodlands TEC, were also recorded in the project site.

Fauna surveys identified 202 species of terrestrial vertebrate species over the period 2017 to 2025. This comprised 27 mammals (including 18 micro-bats), 129 birds, 25 reptiles and 13 amphibians. Eight of these species were exotic.

6.18.2 MNES controlling provisions

The project is to construct and operate an open cut coal mine and associated infrastructure, approximately 10 km south of Baralaba in the Bowen Basin, Queensland (refer to EPBC Act referral 2012/6547). The relevant controlling provisions for the project are:

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

The project has the potential to significantly impact the following environmental values that are covered by the controlling provisions:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC
- Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions TEC
- Koala, *Phascolarctos cinereus*
- Ornamental snake, *Denisonia maculata*
- Squatter pigeon (southern), *Geophaps scripta scripta*
- Australian painted snipe, *Rostratula australis*.

6.18.3 Summary of feasible alternatives

This section provides a summary of feasible alternatives to the project identified in the EIS.

An initial maximised mine proposal of 5 Mtpa was reduced to 2.5 Mtpa based on the modelled impacts from flooding and groundwater drawdown impacts to surface flows, watercourses, wetlands and associated riparian vegetation. An alternative 5 Mtpa mine footprint would cover all of the MLA and encroach onto the Dawson River floodplain. It would reduce the catchment to the HES wetland by 13% as well as result in a maximum groundwater drawdown of 6 m within the alluvium strata. The mine and the proposed flood levee along the western boundary would lead to changed flood behaviour resulting in higher flood levels to neighbouring properties and greater impacts to threatened species habitat.

The reduction in size by approximately 1,018 ha and contraction to the eastern side of the MLA for the current 2.5 Mtpa mine plan has reduced impacts by 50 - 60% to large areas of ornamental snake, koala, squatter pigeon, and Australian painted snipe habitat. Impacts to the Coolibah – Black Box TEC were significantly reduced from a potential 55.8 ha impact area to a 0 ha impact area.

Avoidance of significant impacts to regulated vegetation was achieved via placement of the water release/ extraction infrastructure and the proposed installation of pipes through the narrowest portion of riparian vegetation. The realignment of Moura-Baralaba Road was also designed to avoid impacts to regulated vegetation and high value regrowth vegetation. The smaller mine plan has also avoided the clearing of 10 ha of wetland habitats, and 7.2 ha of a GDE mapped as RE 11.3.3a.

The likely impacts on MNES of the alternatives are outlined in sufficient detail to demonstrate why the preferred alternative was chosen. Additionally, it is noted that significant community consultation and

feedback from potentially affected stakeholders opposed the 5 Mtpa plan due to the likely direct social, economic and environmental impacts from flooding.

6.18.4 Summary of the project's relevant impacts

The construction, operation, and decommissioning of the project have the potential to cause the following significant impacts on MNES.

6.18.4.1 Listed threatened species and ecological communities

6.18.4.1.1 Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC

The Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC (Brigalow TEC) occurs in four small, fragmented patches across the project site and two small patches within the ETL study area. Seasonal surveys in accordance with *Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (NCS/2016/2534) (DETSI 2025) identified Brigalow TEC patches as comprising RE 11.3.1 and RE 11.4.9a.

An assessment in accordance with key diagnostic and condition thresholds of the *Brigalow TEC Conservation Advice* (Department of the Environment 2013) identified 14 ha of Brigalow TEC within the project site, with 1.9 ha in the project footprint, 0.3 ha (ETL option 1) and 0.5 ha (ETL option 2) in the ETL study area. Patches were in poor condition due to cattle intrusion.

Proposed avoidance and mitigation measures include avoiding Brigalow TEC to the greatest extent possible when siting infrastructure (such as tower pads for the ETL), establishing vegetation clearing protocols, managing runoff via an Erosion and Sediment Control Plan (ESCP), and adopting a Weed and Pest Management Plan to limit weed and pest animal invasions into the Brigalow TEC.

After avoidance and mitigation measures, a total of 1.9 ha of Brigalow TEC identified as high value regrowth RE 11.4.9a is proposed to be cleared for the project. The EIS stated that the TEC would not be significantly impacted due to the minor impact and that the existing Brigalow TEC patches are small and isolated across the project area.

Conclusion

I am satisfied that the EIS has adequately considered the potential impacts that the project could have on the Brigalow TEC. I note that the community is subject to a range of existing threats and that these small patches are surrounded by cleared and highly modified grazing areas that are dominated by the exotic weed Buffel grass, *Cenchrus ciliaris*. Project design has largely avoided the potential for direct clearing to patches of the Brigalow TEC by locating power transmission infrastructure outside the area of disturbance. I recognise that any clearing that may occur would only be of a minor nature.

I consider that an offset condition is not required for the Brigalow TEC. However, to ensure that significant impacts on the Brigalow TEC are avoided, I recommend conditions related to clearance limits and mitigation measures to the Australian Minister for the Environment and Water (refer to Appendix C of this assessment report).

6.18.4.1.2 Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions TEC

The Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions TEC (Coolibah – Black Box Woodlands TEC) within the project area is comprised of three patches of RE 11.3.3, *Eucalyptus coolabah* woodland on alluvial plains. This consists of a northern patch of 33.2 ha, a southern patch of 16.6 ha and a regrowth patch of 6 ha, totalling 55.8 ha. An additional

428.7 ha of the TEC is within the ecology study area and associated with Banana Creek and the Dawson River.

No patches of the Coolibah – Black Box Woodlands TEC are proposed to be significantly impacted due to the patches being located outside of the disturbance footprint. Field GDE surveys assessed the potential for indirect impacts to this TEC from impacts associated with mining-related groundwater drawdown. The EIS stated that the dominant tree of this TEC (*Eucalyptus coolabah*) would be unlikely to utilise groundwater due to the presence of heavy clay substrates that would physically restrict tree roots from accessing groundwater.

Proposed mitigation measures include development of a WMP, managing runoff via an ESCP, monitoring water quality via a REMP, and monitoring identified GDE Areas via a GDEMMP.

Conclusion

I am satisfied that the EIS has adequately considered the potential impacts that the project could have on the Coolibah – Black Box Woodlands TEC. I note that the community is outside of the project footprint and that potential impacts associated with groundwater drawdown are considered by the EIS to be low. No significant impact to the TEC is proposed and I consider that an offset condition is not required for the Coolibah – Black Box Woodlands TEC.

6.18.4.1.3 *Xerothamnella herbacea*

The endangered plant *X. herbacea* is a native perennial herb that was recorded within non-remnant *Eucalyptus cambageana* and *Acacia harpophylla* woodland to open forest (RE 11.4.8). Seasonal surveys were conducted in accordance with the *Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner et al. 2019) and the timed meander method of the *Flora Survey Guidelines - Protected Plants* (DETSI 2025).

Approximately 90 individual plants were identified in ten locations within the RE 11.4.8 woodland in 2017. The 2025 survey identified 13 individual plants that would be subject to clearing within an area of 2.3 ha. The EIS stated that the variability in abundance over the eight years may have been due to either low rainfall or a population decline. However, I consider that variability in the number of individual plants would also be influenced by the viability of dormant seeds in the seedbank over different seasons.

The entire patch of *X. herbacea* of 2.3 ha is proposed to be cleared due to its central eastern location within the proposed open-cut mine.

Proposed mitigation measures for the project site include translocating and managing the population of *X. herbacea* to a 22.9 ha site along Banana Creek located approximately 2 km south of the project boundary. The EIS stated that the proposed recipient site met suitable habitat characteristics for the species. This includes being located within a Brigalow TEC with adequate soil moisture, and under the shade of trees near drainage lines and ephemeral creeks. Additionally, seed collection and propagation are proposed prior to a whole sod translocation. I note that this is largely experimental and will require observation of seed set throughout the year and then germination trials of the collected seed.

To mitigate the risk of failure, the EIS has proposed that a monitoring program is established to assess the success of the translocation methods and the ongoing viability of the *X. herbacea* population in the recipient site, and that monitoring reports are reviewed by an ecologist. I support the proposed translocation actions and monitoring program noting that these actions form part of the proposed mitigation measures and are not related to the proposed offset.

Mitigation measures also include the control of invasive weeds for the project site via a Weed and Pest Management Plan. Managing known sites for *X. herbacea* and preventing the introduction of the invasive weeds Green Panic, *Megathyrsus maximus* and Buffel Grass, *Cenchrus ciliaris*, is a priority recovery and threat abatement action identified in the approved Conservation Advice for the species (TSSC 2008). Additionally, the EIS committed to management measures within the recipient site including weed control and watering of plants.

Despite the proposal to undertake a salvage translocation of the impacted plants, an offset is proposed for the entire population of *X. herbacea* subject to a significant residual impact from the proposed clearing. The proposed offset of a 6.7 ha area adjacent to Kianga Creek is detailed in section 6.18.5. I support that the EIS adopted the conservative figure of 90 individual plants that were recorded in 2017 as the total number of plants requiring an offset, instead of the 13 individual plants recorded in the most recent survey. Offset success criteria should include that the species recruitment persists across multiple seasons and establishes a self-sustaining population.

Conclusion

I am satisfied that the EIS has adequately considered the potential impacts that project clearing would have on the local *X. herbacea* population. However, I note the concerns expressed by DCCEEW that the salvage of seed from the remaining plants would be an important objective prior to their clearing.

I also note and support the intention of the proponent to translocate all the individual plants subject to clearing to a 22.9 ha area along Banana Creek which would be outside of the commitment to provide an offset. However, the translocation of the local *X. herbacea* population presents a high-risk of failure and the specific habitat requirements for the persistence of this ephemeral species would require close and ongoing management.

Therefore, I recommend a condition relating to specific mitigation measures for clearing *X. herbacea* habitat that includes whole sod translocation and the collection of seeds from individual plants prior to clearance and their subsequent propagation, planting and management. I also recommend an offset condition for the significant impact to 90 individual plants across 2.3 ha of *X. herbacea* habitat to the Australian Minister for the Environment and Water (refer to Appendix C of this assessment report).

6.18.4.1.4 Koala, *Phascolarctos cinereus*

Seasonal surveys across the period 2017 to 2025 used a range of appropriate survey methods to detect koalas including the Koala Spot Assessment Technique at 34 sites. No koalas were detected within the project site. Koala scratch marks were observed on *Eucalyptus tereticornis* in riparian vegetation at four locations associated with Banana Creek in the 2020 survey. The closest location was within 300 m of the western boundary of the project site. Records of koalas also exist in the wider landscape.

The EPBC Act conservation status of the koala was vulnerable at the date of the controlled action decision in 2012. The EPBC Act conservation status of the koala was uplisted from vulnerable to endangered in 2022. An updated Conservation Advice (DCCEEW 2022) states that human activities including mining have resulted in habitat loss, fragmentation, and degradation. The Conservation Advice recognises that where habitat is used to meet essential life cycle requirements such as foraging, breeding and dispersal along corridors, it should constitute habitat critical to the survival of the species. The Australian Government for the Environment and Water in making approval decisions must have regard to the current Conservation Advice.

A likelihood of occurrence assessment was conducted for the koala. It concluded that it is possible for koalas to cross approximately 2 km of cleared land from the riparian habitat associated with Banana Creek to small patches of suitable vegetation (both remnant and non-remnant) on the project site.

The EIS assessed koala habitat based on the description provided in the updated Conservation Advice and *A review of koala habitat assessment criteria and methods* (Youngentob et al. 2021). It confirmed that the project site consisted of locally important koala trees and ancillary habitat trees.

Approximately 78 ha of koala habitat was calculated within the project site of which 24.1 ha is proposed to be cleared including 0.5 ha within the water release/ extraction infrastructure site. No koala habitat was mapped in the ETL study area or proposed road realignment area. The EIS concluded that the project site did not contain koala habitat that was critical to the survival of the species due to the fragmented patches of habitat, lack of refuge habitat and the limited connection it has to the Dawson River corridor. Groundwater drawdown impacts of 2 m to GDEs associated with Banana Creek at GDE Area 6 were considered to have negligible impacts to riparian river red gum trees, *Eucalyptus camaldulensis*.

The additional investigation area to the east of the project site was requested by DETSI and DCCEEW to establish whether koala habitat was present on Mount Ramsay and whether that would attract potential koala movement across the project site from the high-quality habitat associated with the Dawson River and Banana Creek. No koala habitat was detected on Mount Ramsay in the survey undertaken in the post-wet season of 2020. Additionally, no large remnant patches of koala habitat occur to the east of Mount Ramsay. The EIS stated that it was therefore unlikely that Mount Ramsay provided a movement pathway for the koala.

Proposed avoidance and mitigation measures include an ESCP, a Weed and Pest Management Plan, an SMP under the NC Act, and standard vegetation clearing protocols.

The significant impact assessment stated that the koala possibly occurs on site, but it is not considered an important population. Additionally, the EIS stated that there is no habitat critical to the survival of the koala on the project site. However, I note and support that the significant impact assessment has ultimately concluded that the clearing of 24.1 ha of koala habitat may result in a significant impact to the species and that this should be compensated via an environmental offset (refer to section 6.18.6 of this assessment report).

Conclusion

I am satisfied that the EIS has adequately considered the potential impacts that the project would have on the koala. I note that the clearing of koala habitat cannot be avoided due to its location above the coal seam and the proposed open-cut pit. Therefore, I recommend an offset condition to the Australian Minister for the Environment and Water for the significant impact to 24.1 ha of koala habitat. I also recommend a condition for specific mitigation measures related to the clearing of koala habitat (refer to Appendix C of this assessment report).

6.18.4.1.5 Ornamental snake, *Denisonia maculata*

Surveys detected the presence of ornamental snake on the project site within non-remnant and remnant *Eucalyptus coolabah* woodland on alluvial plains (RE 11.3.3) in 2017 and 2025. Suitable habitat for ornamental snake was defined as per the Species Profile and Threats (SPRAT) database. A total of 116.2 ha of suitable habitat was mapped within the study area. Approximately 34.8 ha would be subject to clearing within the disturbance footprint (with 0.4 ha cleared within the water release / extraction site and up to 0.5 ha cleared within the ETL study area).

Proposed avoidance and mitigation measures include locating project infrastructure in the ETL corridor to avoid or reduce direct disturbance of habitat and mitigating impacts to the species via establishing vegetation clearing protocols, an SMP, ESCP, and a Weed and Pest Management Plan.

The EIS significant impact assessment concluded that the clearing of 34.8 ha of ornamental snake habitat would adversely impact an important population of the ornamental snake. A direct land-based offset is proposed to compensate for the significant impact (refer to section 6.18.6 of this assessment report).

Conclusion

I am generally satisfied that the EIS has adequately considered the potential impacts that the project could have on the ornamental snake. I recommend an offset condition to the Australian Minister for the Environment and Water for the significant impact to 34.8 ha of ornamental snake habitat. I also recommend specific mitigation conditions and conditions to avoid and mitigate harm within an MNES management plan (refer to Appendix C of this assessment report).

*6.18.4.1.6 Squatter pigeon (southern), *Geophaps scripta scripta**

The survey timing, methodology and effort for detecting squatter pigeons largely met regulatory guideline standards. Squatter pigeons, listed as vulnerable under the EPBC Act, were recorded in seasonal surveys in the project site undertaken in 2017, 2020 and 2025. Squatter pigeons were recorded in site surveys undertaken in the project site, water release / extraction site, ETL study area and the additional investigation area.

The EIS categorised habitat categories for the squatter pigeon into foraging habitat within 3 km of a waterbody, and breeding – foraging habitat within 1 km of a waterbody. These categories were based on habitat definitions for the squatter pigeon in DCCEEW's Species Profile and Threats Database (SPRAT). Approximately 84.8 ha of suitable habitat for breeding and foraging for the squatter pigeon was mapped within the project site of which 21.6 ha is within the disturbance footprint.

No suitable habitat was stated by the EIS to exist within the ETL study area despite surveys recording squatter pigeons within this area. The EIS considered that the fundamental habitat requirements of this species (well-drained sandy soils with a patchy, tussock-grassy understorey) were absent from the ETL study area. The species was observed in cleared areas and is known to use highly modified or degraded habitats for foraging.

The EIS significant impact assessment stated that the project is unlikely to result in a significant impact to the squatter pigeon due to the species remaining common and that the project area was unlikely to support critical habitat or an important population of the species. Similarly, no indirect impacts to the species were identified as a result of mining activities such as vehicle strike, erosion and sedimentation, noise and lighting. Impacts to the squatter pigeon would be subject to avoidance and mitigation measures including an ESCP, a Weed and Pest Management Plan, an SMP, and standard vegetation clearing protocols.

However, I note and support that the EIS significant impact assessment concluded that the clearing of 21.6 ha of squatter pigeon habitat would ultimately result in a significant impact to the species. A direct land-based offset is proposed and the EIS stated this would compensate for the significant impact (refer to section 6.18.6 of this assessment report).

Conclusion

I am generally satisfied that the EIS has adequately considered the potential impacts that the project would have on the squatter pigeon.

I recommend an offset condition for the significant impact to 21.6 ha of squatter pigeon habitat to the Australian Government Minister for the Environment and Water. I also recommend a condition for specific mitigation measures related to the clearing of squatter pigeon habitat (refer to Appendix C of this assessment report).

6.18.4.1.7 Australian painted snipe, *Rostratula australis*

The Australian painted snipe is a cryptic wading bird that inhabits shallow freshwater wetlands. It is highly dispersive with movements responding to rainfall and availability of food. Prolonged and widespread declines in the estimated population have resulted in its conservation status of endangered under the EPBC Act.

The species was not recorded in the project site during seasonal surveys. Approximately 99.6 ha of suitable foraging habitat exists on the project site in the form of disturbed gilgai areas, wetlands and drainage lines with fringing vegetation. Of this total, approximately 34.8 ha is proposed to be cleared within the disturbance footprint which includes 0.4 ha in the water release / extraction infrastructure area and up to 0.5 ha in the ETL area.

The significant impact assessment considered that the majority of impacted habitat was marginal foraging habitat and therefore did not meet habitat critical to the survival of the species.

Proposed avoidance and mitigation measures include locating project infrastructure in the ETL corridor to avoid or reduce direct disturbance of habitat and mitigating impacts to the species via establishing vegetation clearing protocols, an SMP, ESCP, and a Weed and Pest Management Plan.

Conclusion

I agree with the EIS conclusion that the project is unlikely to significantly impact the species. I note that the project site does not provide the high-quality wetland habitats required for the species breeding requirements. The loss of marginal foraging habitat associated with disturbed gilgai is unlikely to significantly impact the species and therefore I have not recommended an offset condition.

6.18.4.2 Listed migratory species

The EIS stated that approximately 11 species of migratory birds listed under the EPBC Act have been identified in desktop surveys within 25 km of the project site. However, seasonal surveys across the period of 2017 to 2025 failed to record any species of migratory bird within the project site. A likelihood of occurrence assessment concluded that three species of migratory birds were likely to occur within the project study area (glossy ibis, Latham's snipe and white-throated needletail).

Glossy ibis, *Plegadis falcinellus*, is listed as migratory under the EPBC Act. It is a widespread wetland specialist. The species was not recorded in surveys, but suitable habitat was identified in the project site including the disturbed gilgai, farm dams and wetlands. The EIS stated that the quantum of potential habitat for the glossy ibis is difficult to calculate due to the temporary and opportunistic use of these variable habitats.

Latham's snipe, *Gallinago hardwickii*, is listed as vulnerable and migratory under the EPBC Act. It was not listed as threatened in 2012 when the controlled action decision for the project was made. It is a migratory species that spends the non-breeding period in eastern Australia and is a wetland specialist. The species was not recorded in surveys, but potential habitat was calculated to consist of 31.1 ha of wetland and drainage line habitat, and 68.5 ha of modified gilgai habitat (this also comprised the same impact areas as that of the Australian painted snipe).

The EIS significant impact assessment determined that the project site and ETL study area were unlikely to provide important habitat for any migratory species or to support an ecologically significant proportion of the population of a migratory species. The EIS stated that the project would clear 1 ha of wetland and drainage line habitat and an additional 33.9 ha of modified gilgai habitat that could not be avoided due to the location of the coal seam. The EIS concluded that the proposed clearing would not result in a significant residual impact to the glossy ibis or Latham's snipe.

The white-throated needletail, *Hirundapus caudacutus*, is listed as vulnerable and migratory under the EPBC Act. It was not listed as threatened in 2012 when the controlled action decision for the project was made. It is a migratory species that is widespread in eastern Australia and almost exclusively aerial. The EIS stated that 16.7 ha of overfly habitat for the species would be impacted. The EIS concluded that the proposed clearance of remnant vegetation would not fragment the habitat of this highly mobile species and that the project is unlikely to have a significant impact on the white-throated needletail.

Proposed mitigation measures include the provision of a Weed and Pest Management Plan. Control measures focussed on the feral cat, wild dogs and foxes are likely to benefit the wetland specialist's glossy ibis and Latham's snipe.

6.18.4.2.1 Conclusion

I agree with the EIS conclusion that the project is unlikely to significantly impact migratory species and therefore I have not recommended an offset condition. I note that the modified gilgai habitats subject to clearing exist within the broader region and are not considered to provide important habitat for migratory birds. However, I consider that general mitigation measures within recommended condition 4 of Appendix C of this assessment report relating to vehicle speed restrictions, the use of spotter-catchers in clearance procedures, and light pollution controls would also benefit the glossy ibis and Latham's snipe.

6.18.4.3 A water resource, in relation to coal seam gas development and large coal mining development

The EPBC Act includes a water resource in relation to coal seam gas and large coal mining (the water trigger) as an MNES. An action which involves a large coal mining development requires approval from the Australian Government Minister for the Environment and Water if the action has, will have, or is likely to have a significant impact on a water resource.

6.18.4.3.1 Groundwater dependent ecosystems

Desktop assessment of GDE mapping from the GDE Atlas ([BOM 2025](#)) shows that there is a low potential for terrestrial GDEs within the project site and along Banana Creek and the Dawson River. A site-specific GDE assessment was undertaken for the EIS over five days in August 2020. Parameters for identifying GDEs included leaf water potential, soil moisture potential from soil auger holes, and stable isotope analysis.

GDE surveys were conducted on 12 sites to provide representative coverage within and adjacent to the project site. The surveys identified three types of GDEs as present:

- type 1 GDEs which are aquatic ecosystems that rely on the surface expression of groundwater such as rivers, wetlands and springs. These are associated with the watercourses of Banana Creek and the Dawson River
- type 2 GDEs which are terrestrial ecosystems that rely on the subsurface presence of groundwater. These are generally associated with riparian vegetation along Banana Creek and the

Dawson River, although not all riparian vegetation is groundwater dependent

- type 3 GDEs which are subterranean ecosystems supporting stygofauna that rely on groundwater in aquifer systems below ground level. Stygofauna were recorded in three groundwater monitoring bores close to the Dawson River.

Four GDE areas provided very high to high water availability results from leaf water potential and soil moisture potential measurements indicating that the source of moisture used by trees in these locations is below the depth of the augur hole. The assessment stated that these areas are therefore likely to represent GDEs. Stable isotope analyses from soil and plant xylem sampling concluded that only three of these areas (GDE Area 1, GDE Area 6 and GDE Area 10) exhibit evidence of groundwater dependency.

The regional groundwater table was stated to be generally hydraulically disconnected from fresh groundwater resources that were conceptualised as perched sandy lenses discontinuously located within the alluvium and reliant on seasonal replenishment of groundwater.

The project does not propose to clear any of the 12 surveyed GDE areas. The EIS provided an assessment of potential indirect impacts to GDEs from the proposed mining activities and concluded that there would be no change to the ecological function of the three identified GDE areas. The wetland protection area / HES wetland and the majority of the Coolibah woodlands located on the upper terraces of the Dawson River were surveyed by the EIS and confirmed not to be GDEs. The impacts to GDEs associated with groundwater drawdown are discussed in the groundwater drawdown subsection below.

6.18.4.3.2 Stygofauna

A baseline stygofauna survey consisting of four sampling events between 2018 and 2019 sampled 12 bores representing the site's major habitats and the alluvium aquifer. The EIS stated that a previous study in 2014 had concluded, in line with regional studies, that the Permian Blackwater Group coal measures do not contain stygofauna. The IESC commented that a more contemporary baseline should be undertaken to collect up-to-date data.

Stygofauna (consisting of 24 individuals in three taxa) were recorded within the Dawson River Alluvium aquifer in three adjacent bores close to the Dawson River and Banana Creek confluence. No stygofauna species listed as conservation significant under Queensland or Commonwealth legislation were detected.

The stygofauna recorded close to the Dawson River were within a water level of approximately 13 m below ground level (mbgl) in relatively fresh water consisting of very fine sand and clay sediments. The three bores within this alluvial aquifer recorded low electrical conductivity and slightly acidic to neutral pH. One aquatic invertebrate (an aquatic worm from the family Naididae) was recorded and two species of terrestrial invertebrates (stygophiles) were recorded from the family Campodeidae (primitive insects) and the family Haplodesmidae (millipedes). The stygophiles were considered by the EIS to have been coincidentally recorded in the groundwater and were surmised to have either fallen into the bore or been living above the water table.

The EIS stated that the stygofauna recorded had low ecological values due to the low overall numbers and diversity of subterranean animals recorded from the sampling. The subterranean ecosystem was also considered to be sustained by the river water system and that groundwater on the alluvial plain was too deep and too salty to sustain aquatic and terrestrial GDEs.

The assessment concluded that depauperate, sporadic and localised populations of stygofauna of low ecological value are present in the alluvial aquifer adjacent to the Dawson River. The risk of impacts to

stygofauna from the mining activity was stated to have low ecological risk due to the direction of flow of groundwater moving from the river to the alluvium. According to the EIS, the alluvial river channel is far enough from the mining area to make any impact on the stygofauna population unlikely.

6.18.4.3.3 Groundwater drawdown

Groundwater monitoring bores were established within and outside the project site and recorded water quality values from a three-year period from December 2017 to March 2020. Twelve monitoring bores were located within the alluvium strata within or close to the project site. Six bores monitored the Permian Baralaba Coal Measures. Data informed a groundwater model that indicated groundwater is largely confined to the Baralaba coal measures and that low-permeability units in the interburden act as an aquitard providing limited connectivity to the adjacent alluvium.

The alluvium groundwater varied from relatively fresh water quality close to the influence of the Dawson River to highly salty water on the floodplain to the east. Groundwater in the alluvium was stated to be recharged from rainfall, surface runoff and overbank flooding events. The alluvial groundwater table across the floodplain ranged from approximately 12.7 mbgl to 22.3 mbgl and registered very high salinity levels. Trees dependent on groundwater such as River Red Gum, *Eucalyptus camaldulensis*, and Coolabah, *Eucalyptus coolabah*, are considered unlikely to access groundwater at depths greater than 10 mbgl. Additionally, heavy clay soils act as a barrier to tree root penetration.

Modelled groundwater drawdown in the alluvium predicts impacts of approximately 2 m within the majority of the project site. Minor drawdown of the groundwater table is modelled for the Dawson River floodplain toward the open cut mining pit face. The EIS stated that there may be minor groundwater drawdown from Banana Creek only when it is saturated i.e. when it flows, however, drawdown would be nullified by the rates of groundwater recharge.

One of the GDE areas (GDE Area 1), a floodplain depression of approximately 7.2 ha consisting of high-value regrowth RE 11.3.3 (with some mature trees), is in close proximity to the mining activity. The EIS considered that this GDE area was likely sustained by a perched groundwater source above the regional groundwater table. Recharge of this sandy lens in the alluvium was stated to occur from seasonal overbank flow events from flooding. The EIS stated that impacts from a 5 m groundwater drawdown at this location were unlikely to impact this GDE due to the hydraulic disconnection of the perched sandy lens to the regional groundwater table.

GDE Area 6, located on the Banana Creek floodplain, would also be subject to a 2 m groundwater drawdown.

The wetland protection area / HES wetland mapped as RE 11.3.3 was surveyed as GDE Area 4. GDE survey results indicated that this wetland was likely disconnected from the regional groundwater aquifer. The EIS stated that the Coolabah woodlands of this wetland were unlikely to be a GDE due to the depth and salinity of the alluvial aquifer and that the heavy clay soils would impede the tree's tap roots from penetrating to a sufficient depth.

6.18.4.3.4 Surface flow impacts

The Integrated Quality and Quantity Model (IQQM) was used to assess the reduction in streamflow volumes and flow duration to the Dawson River. Only a minor reduction in streamflow volume (<0.07% of mean annual flow) and duration for the Dawson River is predicted by the model and the expected changes to riparian vegetation and river morphology was stated to be negligible. Minor watercourses within the project site would be subject to loss of catchment due to the mining activities clearing

1,053 ha. The EIS noted that the project watercourses were located on cleared grazing land and had no significant environmental values that would be impacted.

EIS Appendix C (Flood Impact Assessment) appropriately considered climate change impacts on peak flows in modelling scenarios representing the intermediate and worst-case scenarios. The assessment identified the major risk from flooding would be associated with the mining landform at the end of the operational period and post mining. This was stated to be due to the elevated final landform obstructing the Dawson River floodplain resulting in the largest modelled flood impacts. Up to 200 mm flood depths are modelled for areas close to the mine within the MLA for the 2% AEP and 1% AEP flood events. Only 10 - 20 mm flood afflux is modelled for the 1% AEP event to the west of the MLA. Flood afflux associated with Banana Creek is predicted to result in an increase of up to 30 mm in the area between the MLA and Banana Creek.

A TUFLOW model was used to assess the potential changes to flood timing, flood travel time and flood inundation duration resulting from the mining activity. Results indicate there is negligible peak flow rate changes and no change in flood peak travel time or inundation duration for all flood events up to the 1% AEP event between the Bindaree and Beckers gauging stations on the Dawson River. A geomorphic impact assessment concluded that there would be no change to the morphology of the Dawson River, and that sediment transport and erosion potential would not change.

The flooding impact assessment identified peak flood depths for the wetland protection area / HES wetland (PW1) and the GES wetland (PW2) increasing by 200 mm for a 1% AEP flood event but stated this would have a negligible impact to the condition of the wetlands. Peak flood velocity is predicted to be unchanged presenting no increased risk of erosion. In addition, the catchment area of PW2 would be reduced by approximately 364 ha due to the mining disturbance footprint with a consequent reduction of streamflow of 33%. The EIS considered the reductions in streamflow duration and volume as modest and unlikely to significantly impact the environmental values of the wetland.

Mitigation measures for flooding emphasised the project design change to move the mine to the east of the initial location within the MLA. This would result in the mine and associated infrastructure largely being located above the Dawson River 0.1% AEP pre-mining peak flood level and therefore significantly reducing the risk of flood impacts to water resources.

6.18.4.3.5 Water quality impacts

Mine-affected water (MAW) comprises groundwater ingress from the open-cut pit, runoff and recycled water used in the MIA, water from 14 sediment dams (when stored water cannot meet WQOs and be released to the receiving environment), runoff from ROM stockpile pads, and excess water from tailings drying cells. MAW would be managed through a WMP to prevent it from being released to the receiving environment. However, controlled releases are planned from a MWD and ED during periods of medium-high natural streamflow events.

Controlled releases of MAW are expected to occur in <25% of the operational mining years and would be transported via a pipeline to the Dawson River in medium to high flow events in accordance with release limits conditioned in Table F2 and Table F3 of Schedule F of Appendix A of this assessment report. The EIS stated that contaminants in MAW such as EC and TDS are not expected to significantly impact water resource values such as aquatic fauna, flora and associated habitats due to dilution factors that would reduce their concentrations and therefore their potential harm.

The cumulative impacts of combined releases to the Dawson River for the project, the Dawson Mine located 27 km to the south, and the Baralaba North Mine located 11 km north of the project have been

calculated for EC. The worst-case scenario indicates an EC of 300 $\mu\text{S}/\text{cm}$ for the Dawson River in high flow events which is slightly below the baseline aquatic ecosystems WQO.

DCCEEW, in submission comments, expressed concern about the potential impacts of MAW releases on the endangered Fitzroy River turtle, *Rheodytes leukops*. Seasonal targeted surveys did not record the presence of the Fitzroy River turtle. However, records of the species upstream and downstream of the site are associated with the large, deep weir pool from the Neville Hewitt Weir on the Dawson River. The EIS therefore considered that the Dawson River and anabranch, Banana Creek and Shirley's Gully provide potentially suitable habitat for the species. The indirect impacts of MAW releases within the mixing zone on the species were considered by the EIS to be minor.

In response to submissions, the EIS undertook an assessment of the release mixing zone to determine the limits of the nearfield and farfield mixing zones in relation to high salinity. Elevated EC concentrations are expected in the release plumes that mix with natural streamflow. The worst-case scenario of 10,000 $\mu\text{S}/\text{cm}$ at the release point discharge outlet is modelled to be reduced to 409 $\mu\text{S}/\text{cm}$ within the first 10 m. The EIS stated that no significant impacts to aquatic ecosystems are expected despite the level being above the WQO for this parameter. Proposed mitigation measures include the use of optimised diffuser heads or multiple diffusers to augment the diffusion of MAW.

The EIS stated that there was a low probability of uncontrolled releases and that these events would be unlikely to result in a significant impact to water resources due to the significant dilution factor.

The IESC stated that other parameters of concern within MAW such as metals and metalloids should have been assessed. Overflows from sediment dams are modelled to occur in approximately 30% of the operational mining years. Four sediment dams (A to D) are located close to the base of the WRE and are likely to receive runoff with a high TSS concentration and slightly elevated contaminant levels of aluminium, arsenic, molybdenum, selenium and vanadium above default guideline WQOs. The EIS considered the risk to downstream EVs as low due to the significant dilution factor associated with flood events. Mitigation measures include the proposed use of sediment traps that would be pumped to prevent the accumulation of contaminants such as metals and metalloids. In addition, spillway control structures such as the use of rock chutes, rock aprons and level spreaders would act to reduce overtopping velocities and subsequent scour to flow paths.

An ESCP would be implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater. One aspect of the ESCP to protect water resources from the impacts of flood velocity, scouring and high sediment loads, is the provision of erosion protection works such as rock mulching and establishing floodplain vegetation.

An WMP is proposed to manage all aspects of water use for the project including the water management system, water release strategy and site water balance details. An overarching objective is to reduce risks to EVs and WQOs to acceptable levels, noting the site's baseline environmental values. The WMP proposes to effectively manage actual and potential environmental impacts resulting from the release of contaminants.

Monitoring of the key water quality parameters pH, EC, TSS, and turbidity would be undertaken quarterly for all mine water storages. Corrective actions for water quality exceedances may require modification of activities or the water management system, or maintenance / management of erosion and sediment controls. Monitoring within the receiving waters of the Dawson River and connected or surrounding waterways would be in accordance with a REMP. The REMP would identify, describe and monitor any adverse impacts to surface water environmental values, altered flows, and surface water

quality. The REMP would also require an assessment of any changes to aquatic flora and fauna and riparian vegetation.

Post mining, the rehabilitated areas would drain back to the receiving waters apart from the residual void catchment area. Contaminant modelling was undertaken for the residual void created by the mining pit. Groundwater inflows are modelled to have a high TDS concentration of 23,400 mg/L. The void lake water quality is expected to decline over time due to the effects of evapo-concentration. An EC of 25,600 $\mu\text{S}/\text{cm}$ at 300 years post-closure is predicted when the void lake level reaches equilibrium. Additionally, calcium, magnesium, molybdenum and sulfate are modelled to exceed the stock WQOs for cattle.

6.18.4.3.6 Conclusion

The EIS assessment has determined that there would be no significant impact or risk to the water resources from mining activity impacts such as changed water quality, the loss of watercourse catchments, stream diversions, groundwater drawdown or changed flood levels and velocities.

I am satisfied that the proponent has appropriately assessed the risks to water resources from the impacts associated with groundwater drawdown and changes to surface flows and water quality. I note that flood depths, velocities and inundation extents resulting from the project were concluded not to be a significant impact on the hydrological characteristics of water resources due to the relatively minor, localised, and limited duration of impacts.

In relation to impacts on groundwater quality and levels, I support the EIS proposed additional nine bores to the groundwater monitoring network in accordance with the conditions in Schedule E of Appendix A of this assessment report. I also recommend an additional five interpretation bores for each relevant hydrogeological unit in the area. These should be installed in locations not predicted to be impacted by mining activities and used to monitor and establish an understanding of natural variation and for comparison purposes.

I note the additional assessment for the MAW release mixing zone and support the proposed improvements to the discharge out arrangements. In relation to potential impacts on aquatic animals, I note the inclusion of the Fitzroy River turtle within the draft MNES Management Plan. I support the proposed mitigation and management measures such as pest management of feral pigs and foxes to reduce predation of turtle nests, and the monitoring of water extraction and setting trigger levels in drought conditions for actions to maintain environmental flows.

I recommend the requirement for a GDEMMP as detailed in the conditions in Schedule E of Appendix A of this assessment report. I also support the EIS recommendation that two years of GDE baseline monitoring data should be collected in order to develop appropriate triggers and assessment parameters, prior to commencement of construction. I support the development of a GDE habitat quality monitoring program for each of the seven proposed GDE monitoring areas. I note that baseline conditions and trigger values for stygofauna have not yet been established. The GDEMMP would provide protocols for adaptive management actions once thresholds have been triggered. I recommend specific GDEMMP conditions to ensure that EIS commitments and draft management plan requirements are in place.

In relation to the release of MAW to the Dawson River, trigger levels for potential metals and metalloid contaminants are to be within the release limits stipulated in Table F3, Schedule F of Appendix A of this assessment report. These limits would conform to the default guideline values for 95% level of species protection for aquatic ecosystems (ANZG 2018).

I support the development of a WMP that would describe the baseline EVs and WQOs of the receiving waterways, provide trigger levels for the water release strategy, the release monitoring requirements and proposed corrective actions and contingency procedures. The WMP is proposed to operate to effectively capture and re-use MAW and sediment runoff for site demands. The WMP would be in accordance with the conditions in Schedule F, Appendix A of this assessment report.

A REMP would provide triggers for action once any adverse changes to surface water quality and quantity are detected. The development of a REMP must be in accordance with the conditions in Schedule F, Appendix A of this assessment report.

The development and implementation of an ESCP is required to adequately minimise the release of sediment to receiving waters. The ESCP would be in accordance with the conditions in Schedule F, Appendix A of this assessment report.

6.18.5 Summary of avoidance and mitigation measures

The EIS proposed to implement the following measures to avoid or mitigate impacts on MNES:

- the larger open-cut mine partially located within the floodplain has reduced the potential clearing of remnant vegetation and potential adverse impacts to downstream water quality
- avoiding or minimising clearing of remnant vegetation by siting the MIA on the eastern boundary of the site that has already been cleared, siting the water extraction and release pipe to largely avoid the loss of remnant vegetation and optimising the location of electricity infrastructure in previously disturbed areas
- an MNES Management Plan that would monitor and recommend management measures to minimise the potential impacts to the MNES species: Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC; *Xerothamnella herbacea*, Koala (*Phascolarctos cinereus*), Ornamental Snake (*Denisonia maculata*), Squatter Pigeon (southern) (*Geophaps scripta scripta*), Australian painted snipe (*Rostratula australis*), and Fitzroy River turtle (*Rheodytes leukops*)
- a WMP that aims to maximise the reuse of MAW and sediment runoff within mine activities and to reduce controlled releases to receiving waterways
- a REMP that aims to monitor and assess the potential impacts on water quality in the receiving environment from project activities such as controlled and uncontrolled releases of MAW
- an ESCP that would manage the containment of sediment loads in water runoff through measures such as limiting land disturbance, managing sediment dams, and implementing drainage control measures, and revegetation and rehabilitation
- a PRC plan that aims to rehabilitate the mine site to a safe and stable landform that does not cause environmental harm. The PMLU is cattle grazing and the site will retain a residual void as a NUMA.

In addition, the EIS acknowledged that a GDEMMP would likely be an EPBC Act approval condition. A GDEMMP would monitor relevant biophysical parameters of GDEs and develop triggers for corrective actions.

After implementing all avoidance and mitigation measures, the EIS has calculated the disturbance impacts to the following listed threatened species and ecological communities in Table 7.

Table 7 Maximum disturbance limits to habitat for listed threatened species and ecological communities

Listed threatened species or TEC	EPBC Act status	Total impact (ha)
Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) TEC	Endangered	1.9
<i>Xerothamnella herbacea</i>	Endangered	2.3
Koala (<i>Phascolarctos cinereus</i>) (combined populations of Qld, NSW and the ACT)	Vulnerable*	24.1
Ornamental snake (<i>Denisonia maculata</i>)	Vulnerable	34.8
Squatter pigeon (southern) (<i>Geophaps scripta scripta</i>)	Vulnerable	21.6

Table notes: *Conservation status at controlled action decision date in 2012

6.18.6 Environmental offsets

6.18.6.1 MNES Biodiversity Offsets Strategy

A BOS quantifies significant impacts for MNES on the impact area and details a range of proposed offset sites, recommended management measures, and the proposed offset outcomes. The BOS has determined the significant impacts to four MNES (*X. herbacea*, koala, ornamental snake and squatter pigeon(southern)) within the project disturbance area using habitat quality scoring methods and then used the Offsets Assessment Guide (DCCEEW 2012) to calculate offset area obligations.

6.18.6.2 Impact areas

Habitat quality scoring was undertaken on the project site in the field survey periods conducted in 2024 and 2025 for the four significantly impacted MNES values. Assessment used the *Guide to determining Terrestrial Habitat Quality*, v.1.3 (DES 2020) and DCCEEW's Modified Habitat Quality Assessment methodology (in relation to the species stocking rate for fauna and flora species). The Offsets Assessment Guide (DCCEEW 2012) was then used to calculate potential offset scores.

6.18.6.3 Offset areas

The EIS identified six properties as offset areas likely needed to meet the significant residual impacts for the four MNES. All properties are within 32 km of the project site and are located within the same subregion. However, securing the individual properties has not currently been achieved.

Offset properties were surveyed and scored using the same habitat quality methods used for the impact areas. Field surveys consisted of preliminary scoping, plot-based assessments and targeted searches for the ornamental snake over the period 2020 - 2021. Using a combination of five of the six properties was considered by the EIS as potentially able to acquit the offset obligations.

The proposed land-based offset areas meet offset principles as they are situated in close proximity to the area of impact and contain the habitat attributes of the impacted MNES. The offset areas are proposed to be legally secured in perpetuity, but the method of securement has not been nominated at this stage.

6.18.6.4 Offset area management plan

The purpose of an offset area management plan (OAMP) is to provide specific improvements in ecological habitat values for each matter impacted by the project. An OAMP is required to adequately meet TOR requirements including offset completion criteria, management actions, interim milestones,

and monitoring. The BOS has only provided a brief overview of the requirements of an OAMP. No draft OAMP was provided for assessment at the EIS stage; however, it would be required to be developed for assessment and approval by the Australian Government prior to project commencement.

6.18.6.5 Offset for *Xerothamnella herbacea*

The impact area habitat quality score of 4 out of 10 reflected the poor condition of the small, isolated patch of non-remnant vegetation. There were 10 locations of the species within the 2.3 ha patch, and 90 individual plants were identified.

Offsets are proposed for 2.3 ha of significant impact to *X. herbacea*. One offset property when surveyed contained over 2,000 individual plants adjacent to Kianga Creek. The plants are located across a total area of 6.7 ha within three patches of regenerating Brigalow woodland (RE 11.3.1).

Proposed management actions in the offset area include eliminating high intensity grazing and trampling by livestock, revegetation of the site, weed control and management of feral animals. Further details on these measures are proposed to be provided in an OAMP.

The EIS states that active management of the offset area over a period of 20 years would result in an expansion in the coverage of the offset area and in the number of *X. herbacea* plants. It is unclear how the offset area adjacent to Kianga Creek would be protected from potential flooding disturbances. Therefore, I recommend an offset condition to manage potential flood risk to the offset area.

6.18.6.6 Offset for Koala, *Phascolarctos cinereus*

The impact area habitat quality score of 5 out of 10 reflected the degraded quality of the small, isolated patches of habitat in a wider fragmented landscape.

Offsets are proposed for 24.1 ha of significant impact to the koala. Suitable habitat for the koala was identified within patches of remnant and regenerating vegetation adjacent to the Dawson River. Koala scratch marks were observed in vegetation adjacent to this area. A total of 13.94 ha of koala habitat is proposed to be offset in one location, which is adjacent to the project site.

Proposed management actions in the offset area include controlled grazing by livestock to reduce fuel loads, habitat enhancement of the site, weed control and management of feral animals. Further details on these measures are proposed to be provided in an OAMP.

6.18.6.7 Offset for Ornamental snake, *Denisonia maculata*

The impact area habitat quality score of 5 out of 10 reflected the degraded quality of the isolated patches of habitat that have been subject to historic and ongoing land clearing, blade ploughing, cattle grazing and weed invasion.

Offsets are proposed for 34.8 ha of significant impact to the ornamental snake. Suitable habitat for the ornamental snake was identified within patches of regenerating Brigalow woodland, with three ornamental snakes also recorded in the survey period. A total of 32.4 ha of ornamental snake habitat is proposed to be offset in three locations north of the township of Baralaba.

Proposed management actions in the offset area include controlled grazing by livestock to promote natural regeneration and to reduce fuel loads, habitat enhancement of the site, weed control and management of feral animals. Further details on these measures are proposed to be provided in an OAMP.

6.18.6.8 Offset for Squatter pigeon (southern), *Geophaps scripta scripta*

The impact area habitat quality score of 6 out of 10 reflects the moderate stocking rate of the species within the impact area and surrounding region. Foraging habitat was also considered moderate due to the quality, availability and diversity of grass species. Offsets are proposed for 21.6 ha of significant impact to the squatter pigeon.

Suitable habitat for the squatter pigeon was identified in one proposed offset location, which is adjacent to the project site. The species was recorded in the survey period within the offset area. The offset area contains patches of remnant and regenerating vegetation in close proximity to permanent water. A total of 13.94 ha of squatter pigeon habitat is proposed to be offset.

Proposed management actions in the offset area include controlled grazing by livestock to promote natural regeneration and to reduce fuel loads, habitat enhancement of the site, weed control and management of feral animals. Further details on these measures are proposed to be provided in an OAMP.

6.18.6.9 Summary

The significant impacts for MNES and the proposed offset areas are summarised in Table 8.

Table 8 Significant impacts on MNES and proposed offsets

MNES	Significant impact (ha)	Proposed offsets (ha)*
<i>Xerothamnella herbacea</i>	2.3	0.92
Koala, <i>Phascolarctos cinereus</i>	24.1	12.05
Ornamental snake, <i>Denisonia maculata</i>	34.8	17.4
Squatter pigeon (southern), <i>Geophaps scripta scripta</i>	21.6	12.96

Table notes: *As proposed by the EIS using the Offsets Assessment Guide (DCCEE 2012). Note that proposed offset properties to acquit offsets have not been secured.

7 Suitability of the project

Section 59(c) of the EP Act requires I make a recommendation in this assessment report about the suitability of the project to proceed. I have completed my assessment using the information available to me, including the Baralaba South Project TOR, the submitted EIS, all submissions on the submitted EIS and I have made my recommendation in accordance with relevant legislation and regulatory requirements, being the standard criteria under the EP Act.

The detailed information provided in this EIS process about the project and its potential impacts on the identified environmental values, have been assessed by representatives of the Australian, state and local governments, industry, interest groups and members of the public through an open, public review process.

In section 6 of this assessment report I discuss the findings of the EIS, summarise the relevant impacts and outline those environmental protection commitments made by the proponent that I recommend as conditions. I also recommend further management measures and environmental protection conditions (refer to section 8 of this assessment report).

The EIS has not identified impacts of sufficient magnitude to prevent the project from proceeding. Provided that the recommendations of this assessment report are fully implemented by imposing conditions on the necessary approvals.

The project is considered suitable to proceed. This decision is based on:

- the implementation of the report's recommendations, including conditions attached to relevant approvals
- the resolution of outstanding matters on key approvals
- the proponent progressing the project and fulfilling commitments stated in the environmental impact statement.

The effective implementation of these measures is necessary to ensure the identified impacts are appropriately avoided, minimised and managed.

8 Recommended conditions

Section 59(d) of the EP Act requires this assessment report to recommend conditions on which any approval required for the project may be given where possible.

Key approvals and declarations that would be required for the project are summarised in section 3.1 of this assessment report. The project requires the following key approvals relevant to the EIS assessment that are issued by the Queensland Government:

- EA under the EP Act
- Approval of the social impact assessment under the SSRC Act.

As a declared controlled action, the project also requires approval from the Australian Government under the EPBC Act.

The following sections of this assessment report discuss and makes recommendations on the conditions relevant to these approvals.

8.1 Environmental authority

Recommended draft EA conditions are provided as Appendix A—Recommended conditions for the environmental authority, to this assessment report and have been drafted based on the information presented in the EIS, including the proponent's proposed EA conditions in EIS Chapter 19 (Proposed Environmental Authority Conditions). Submissions made pursuant to section 54 of the EP Act about the submitted EIS have also been considered in the drafting of conditions.

8.2 Social impact assessment approval

Conditions stated by the Coordinator-General under section 11(2) of the SSRC Act to address social impacts are provided in Appendix B—Coordinator-General's stated conditions under the *Strong and Sustainable Resource Communities Act 2017*. In accordance with section 11(3)(a) of the SSRC Act, these conditions are enforceable conditions under the *State Development and Public Works Organisation Act 1971*.

8.3 Australian Government approval

In accordance with the Bilateral Agreement, section 6.18 of this assessment report has assessed the matters protected under the EPBC Act. This information has been prepared to support the Australian Government Minister for the Environment and Water to make an informed decision about the potential impacts on MNES from the project, when deciding whether to grant an approval under the EPBC Act.

To ensure the mitigation measures and offsets summarised in sections 6.18.5 and 6.18.6 of this assessment report are enforceable, I have recommended conditions addressing the MNES controlling provisions of listed threatened species and ecological communities; listed migratory species and a water resource in Appendix C—Recommended conditions for the Australian Government’s approval of this assessment report.

9 Completion of the EIS process

This assessment report is given to the proponent by the delegate of the chief executive.

In accordance with section 60(1) of the EP Act, the giving of this assessment report to the proponent completes the EIS process for the project.

Christopher Loveday

Signature

Christopher Loveday

Director, Technical and Assessment Services

Environmental Services and Regulation

Department of the Environment, Tourism, Science and Innovation

Delegate of the Chief Executive

Environmental Protection Act 1994

2 March 2026

Date

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Appendix A—Recommended conditions for the environmental authority

The recommended draft environmental authority conditions incorporate the following schedules:

Schedule A	General Conditions
Schedule B	Air
Schedule C	Waste Management
Schedule D	Noise
Schedule E	Groundwater
Schedule F	Water
Schedule G	Sewage Treatment
Schedule H	Rehabilitation
Schedule I	Regulated Structures
Schedule J	Biodiversity

Definitions

Figures

Other permits required

If approved, this permit would only provide an approval under the EP Act. In order to lawfully operate you may also require permits/approvals from your local government authority, other business units within DETSI, other State Government agencies or the Commonwealth Environment Department (for significant impacts on matters of national environmental significance).

Schedule A—General Conditions

A1 General

All reasonable and practicable measures must be taken to prevent or minimise environmental harm caused, or likely to be caused, by the activities.

This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.

A2 Unless specifically authorised by a condition of this environmental authority, this environmental authority does not authorise a relevant act which is:

- (a) an act that causes serious or material environmental harm or an environmental nuisance; or
- (b) an act that contravenes a noise standard; or
- (c) a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG of the *Environmental Protection Act 1994*.

A3 Authorised activities

In carrying out the authorised activity, disturbance must not exceed the maximum disturbance area for each mine domain listed in **Table A1. Maximum disturbance area for each mine domain** and depicted in **Figure A1 – Project Layout: Authorised Maximum Disturbance Areas**.

For the purposes of this condition only, the following activities are not relevant to this condition:

- (a) Installation and operation of monitoring equipment;
- (b) Monitoring or sampling required by a plan or program required by a condition of this environmental authority; and
- (c) Exploration activities conducted in accordance with the eligibility criteria and the standard conditions in the '*Eligibility criteria and standard conditions for exploration and mineral development projects*' and located outside of mapped prescribed environmental matters.

A4 No more than **2.5 million tonnes per annum (Mtpa)** of run-of-mine (ROM) coal is to be extracted from the site.

A5 No more **2.5 Mtpa** of ROM coal is to be processed on site.

Table A1. Maximum disturbance area for each mine feature

RA	Mine Domain	Maximum Disturbance Area (ha)
RA1	Waste Rock Emplacements (WREs) Ex Pit	429.16
RA1	In Pit WRE	394.93
IA1/IA2	Pit Floor/Highwall	114.20
RA3	Admin And Mine Infrastructure Area (MIA)	11.39
RA3	Run-of-Mine (ROM) Pad	13.76
RA3	Product Pad	5.54
RA3	Coal Handling and Processing Plant (CHPP)	2.66
RA2	Mine-affected Water Dams	32.74
RA2	Water Management Infrastructure (including Clean Water Drain)	46.45
RA3	Haul Roads	5.88
RA1	Temporary Haul Road (Covered by WRE Ex-pit)	11.29
RA4	Residual Landform Bund	11.74
RA5	Minor Disturbance/Safety Bund	127.42
	Off lease Minor Disturbance	3.46
	Exploration	As per the eligibility criteria and the standard conditions in the most recent version of the <i>Eligibility criteria and standard conditions for exploration and mineral development licence activities</i> (ESR/2016/1985) and located outside of mapped prescribed environmental matters.
	Total (all Mine Domains excl. temporary haul road)	1199.33
	Total (all Mine Domains excl. temporary haul road and off lease disturbance)	1195.84

A6 Contravention of conditions

Unless specifically authorised by a condition of this environmental authority, details of any contravention of a condition of this environmental authority, or an emergency or incident which results in the release of contaminants not in accordance with the conditions of this environmental authority, must:

- (a) be reported to the administering authority within **24 hours** of becoming aware of the contravention; and

- (b) include the nature and circumstances of the contravention and any immediate actions taken.

A7 As soon as reasonably practicable but no later than **20 business days** of a report made under condition **A6** (or a longer period agreed to in writing by the administering authority), an investigation must be undertaken to determine:

- (a) the potential circumstances and actions that may have contributed to the contravention, incident or emergency; and
- (b) reasonable and practicable measures that will be implemented to address the cause of the contravention, incident or emergency to prevent future occurrence of this nature.

A8 As soon as reasonably practicable but no later than **twenty (20) business days** after submitting the report required under condition **A7** (or a longer period agreed to in writing by the administering authority), the reasonable and practicable measures identified under condition **A7 (b)** must be implemented. The report must include:

- (a) Results and interpretation of any samples taken and analysed.
- (b) Outcomes of actions taken at the time to prevent or minimise unlawful environmental harm.
- (c) Proposed actions to prevent a recurrence of the emergency or incident

A9 The outcome of the investigation carried out under condition **A7**, and the reasonable and practicable measures implemented under condition **A8**, must be recorded.

A10 Maintenance of plant and equipment

The environmental authority holder must:

- (a) install all reasonable and practicable measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
- (b) maintain such measures, plant and equipment in a proper and efficient condition;
- (c) operate such measures, plant and equipment in a proper and efficient manner; and
- (d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

A11 Records of installation, calibration and maintenance carried out under condition **A10** must be kept in accordance with **Table A2 – Record keeping requirements**.

A12 Record keeping

Unless otherwise specified by a condition of this environmental authority, copies of all records, plans and other documentation required by this environmental authority must be:

- (a) kept for a period of not less than that outlined in **Table A2 – Record keeping requirements**; and

- (b) provided to the administering authority upon request and in the format requested within 10 business days or a longer period agreed to in writing by the administering authority.

Table A2 – Record keeping requirements

Description of records	Retention requirement
Monitoring results	Retain for 15 years .
All other records, plans and other documentation	Retain for 5 years .

A13 Chemical storage

Chemicals and fuels in containers of greater than **15 litres** must be stored within a secondary containment system.

A14 Plans, reports and programs

Any plans, procedures, reports or programs required by a condition of this environmental authority must be developed and reviewed by an appropriately qualified person.

A15 Monitoring

All monitoring and sampling required by the conditions of this environmental authority must be carried out, interpreted, and recorded by an appropriately qualified person.

A16 All water and biological monitoring and sampling and determinations of water quality and water flow must be performed in accordance with the methods prescribed in the latest edition of the administering authority's *Monitoring and Sampling Manual: Environmental Protection (Water) Policy* (DES 2018).

A17 All water quality monitoring data must be provided to the administering authority via WaTERS by <DAY MONTH to reflect date of first issue of EA> each calendar year.

A16 Unless otherwise authorised in writing by the administering authority, all laboratory analyses required under this environmental authority must be carried out by a laboratory that has National Association of Testing Authorities (NATA) accreditation for such analyses.

The only exception to this condition is for in situ monitoring of dissolved oxygen, pH, electronic conductivity, and turbidity.

A18 Environmental risk management procedures

For all stages of the authorised activity, prior to the commencement of the relevant stage of the authorised activity, written procedures must be developed and implemented that ensure:

- (a) all potential risks to the environment from the carrying out of the activity are identified and assessed, including:
 - (i) during routine operations; and

- (ii) outside routine operations (e.g., maintenance, start up and shut down); and
- (iii) during preparation, rehabilitation, and closure; and
- (iv) in an emergency (e.g., fire, flood or other natural disaster); and
- (b) for each potential risk identified, any necessary measures to prevent or minimise the potential for environmental harm are implemented; and
- (c) staff understand their obligations under this environmental authority and the *Environmental Protection Act 1994*; and
- (d) environmental risk management procedures are continually reviewed and improved, based on a reasonable risk-management approach.

A19 Notification of emergencies, incidents and exceptions

The holder of the environmental authority must notify the administering authority by written notification within **twenty-four (24) hours** after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.

A20 Complaints

The following details must be recorded for all complaints received and provided to the administering authority upon request:

- (a) date and time the complaint was received;
- (b) if authorised by the person making the complaint, their name and contact details;
- (c) nature and details of the complaint;
- (d) investigations undertaken;
- (e) conclusions formed;
- (f) actions taken to resolve the complaint;
- (g) any abatement measures implemented; and
- (h) person responsible for resolving the complaint.

A21 As soon as reasonably practicable but no later than **five (5) business days** after receiving a complaint (or a longer period agreed to in writing by the administering authority), an investigation must be undertaken to determine:

- (a) the potential circumstances and actions on site that may have contributed to the basis of the complaint; and
- (b) reasonable and practicable measures that will be implemented to address the complaint.

A22 The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm.

A23 As soon as reasonably practicable but no later than **5 business days** of investigating a complaint under condition **A21** or condition **A22** (or a longer period agreed to in writing by the administering authority), the reasonable and practicable measures identified in the investigation must be implemented.

A24 The outcome of the investigation carried out under condition **A21** or condition **A22** and the reasonable and practicable measures implemented under condition **A23** must be recorded and provided to the administering authority within **5 business days** of implementing the measures under condition **A23**.

A25 Third-party reporting

The holder of this environmental authority must:

- (a) within **one (1) year** of the grant of any relevant tenure of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;
- (b) obtain further such reports at regular intervals, not exceeding **3-yearly** intervals, from the completion of the report referred to in condition **A25(a)**; and
- (c) provide each report to the administering authority within **90 days** of obtaining the report.

A26 Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must:

- (a) comply with the amended or changed standard, policy or guideline within **2 years** of the amendment or the change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to a condition, the time specified in that condition; and
- (b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

A27 Non-Sensitive Location Agreement(s)

The environmental authority holder may enter into agreements with the owner of a sensitive place (e.g., non-sensitive location agreements).

A28 The holder of this environmental authority must notify the administering authority of any non-sensitive location agreement upon the commencement, amendment, transfer, extension, and conclusion of the agreement.

A29 The holder of this environmental authority must establish and maintain a register of non-sensitive location agreements.

A30 Commencement of mining activities

Within **48 hours** of commencing any mining activities, the holder must provide the administering authority with written notification of commencement.

For the purposes of this condition only, the following activities are not relevant to this condition:

- (a) installation and operation of monitoring equipment;
- (b) monitoring or sampling required by a plan or program required by a

- condition of this environmental authority; and
- (c) exploration activities conducted in accordance with the eligibility criteria and the standard conditions in the 'Eligibility criteria and standard conditions for exploration and mineral development projects'(ESR/2016/1985).

Schedule B—Air

- B1** The release of odour, dust, particulate matter or any other airborne contaminant resulting from the mining activities must not cause environmental harm or nuisance at any sensitive place or commercial place.
- B2** The environmental authority holder must conduct continuous monitoring of PM₁₀ and dust deposition to commence within **6 months** of the grant of ML700057, or prior to commencement of mining activities, whichever occurs first.
- B3** Monitoring for condition B2 must be carried out using the monitoring standards and frequency shown in **Table B1 – Air quality limits and monitoring methods**.

Table B1 – Air quality limits and monitoring methods

Air Quality Determination / Indicator	Air quality limit	Averaging period	Frequency	Monitoring standard
Dust deposition.	120 mg/m ² /day	One month	Monthly	<i>Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method.</i>
PM ₁₀ .	50µg/m ³	24 hours	Continuous	Australian standard AS3580.9.8 – <i>Methods for sampling and analysis of ambient air: Determination of suspended particulate matter-PM10 continuous direct mass method using tapered element oscillating microbalance analyser;</i> or Australian standard AS3580.9.11 <i>Methods for sampling and analysis of ambient air, Method 9.11: Determination of suspended particulate matter — PM10 beta attenuation monitors;</i> or Any alternative method agreed to by the administering authority.
PM _{2.5}	20µg/m ³	24 hours	Continuous	Australian Standard AS3580.9.13 – <i>Methods for sampling and analysis of ambient air: Determination of suspended particulate matter – PM2.5 continuous direct mass method using a tapered element oscillating microbalance monitor;</i> Australian Standard AS3580.9.12 - <i>Methods for sampling and analysis of ambient air, Method 9.12: Determination of suspended particulate matter — PM2.5 beta attenuation monitors</i>

Total suspended particulate matter (TSP)	90µg/m ³	One year	1 day in every 6	<i>AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.</i>
Meteorological data (including but not limited to wind speed and direction, relative humidity, temperature, precipitation and rainfall intensity, solar radiation)	N/A	Continuous (minimum 1-hour average period)	Continuous	(1) <i>Australian Standard AS3580.14 Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications;</i> or (2) An alternative method approved by the administering authority.

B4 Air quality monitoring for a sensitive place or commercial place must be undertaken either:

- (a) at that place; or
- (b) at the monitoring location representative (whether by reason of correlation or otherwise) of the sensitive place or commercial place.

B5 Monitoring for condition **B2** must be carried out at the locations listed in **Table B2 (Monitoring locations)**.

Table B2 (Monitoring locations)

Site ID	Location name	UTM Coordinates (WGS84 Z55)	
		Easting	Northing
SR9	Mount Ramsay	790694	7317563
SR16	Riverland	787625	7310449
SR20	Harcourt	788702	7308881

B6 To demonstrate continuous monitoring, instrument availability and data quality must be maintained to ensure that 75% of hourly averages in each calendar quarter and 75% of 24 hour averages are valid when assessed in accordance with AS3580.19 *Methods for sampling and analysis of ambient air - Method 19: Ambient air quality data validation and reporting.*

- B7** When requested by the administering authority or as a result of a complaint, air emissions monitoring must:
- (a) be undertaken at the locations and frequency specified by the administering authority, or relevant to the complaint, and the results thereof provided to the administering authority within **14 days** following completion of the monitoring. This includes providing interim reports if the monitoring lasts for more than one month; and
 - (b) be carried out in accordance with the monitoring standard for each relevant air quality indicator stated in **Table B1 – Air quality limits and monitoring methods**, unless otherwise specified by the administering authority.

B8 **Air quality monitoring exceedance**

If the monitoring carried out in accordance with Condition **B2** indicates an exceedance of the relevant limits in **Table B1 – Air quality limits and monitoring methods**, then the environmental authority holder must immediately investigate whether the exceedance is due to emissions from the activity.

- B9** If the investigation carried out under condition **B8** determines that the mining activity is the cause of the exceedance, then the environmental authority holder must:
- (a) immediately implement measures to reduce the contributions resultant from the mining activities conducted under this environmental authority to levels below those specified in **Table B1 – Air quality limits and monitoring methods** and to ensure air emissions from the mining activities do not result in further exceedances, and
 - (b) notify the administering authority within **24 hours** of an exceedance of the relevant limits in **Table B1 – Air quality limits and monitoring methods**, and include the following information:
 - (i) the location and time of the exceedance;
 - (ii) the type of air emission and concentration recorded; and
 - (iii) if any complaint was received in association with the exceedance.

- B10** Within **14 days** of notifying under condition **B9(b)**, the environmental authority holder must submit a report to the administering authority that details:
- (a) the air quality data at the sensitive place or commercial place;
 - (b) a description of meteorological conditions recorded in accordance with **Table B1 – Air quality limits and monitoring method** occurring at the time;
 - (c) the air quality data upwind of the mining activities;
 - (d) measures taken to reduce dust generated by the mining activities; and
- the contribution of the mining activities to the concentration at the sensitive or commercial place.

- B11** Upon request from the administering authority, an Air Quality Report must:
- (a) be prepared by appropriately qualified and experienced person;
 - (b) include a summary of results of all monitoring completed in the previous 12-month period;
 - (c) provide an analysis of the monitoring results against the limits contained within **Table B1 – Air quality limits and monitoring methods**, consistent with Australian Standard 3580.19:2020 *Methods for sampling and analysis of ambient air - Method 19: Ambient air quality data validation and reporting*;
 - (d) provide a recommendation of any changes that should be made to plant, equipment or procedures to further improve the air quality management performance of the site and ensure that all measures comply with current best practice; and
 - (e) be provided by the date requested by the administering authority.

B12 Air Quality Management Plan

The holder of this environmental authority must develop and implement an Air Quality Management Plan prior to commencement of mining activities.

- B13** The Air Quality Management Plan required by Condition **B12** must:
- (a) include a map identifying any sensitive and commercial place/s that may be impacted by air emissions from the mining activities, including any location subject to a Non-Sensitive Location Agreement under condition **A27**;
 - (b) provide for the effective management of air emissions generated by the activities authorised under this environmental authority;
 - (c) identify all sources of air emissions that may occur as a result of the mining activities;
 - (d) the collection of air quality and meteorological data at locations and using the monitoring methods described in **Table B1 – Air quality limits and monitoring method**;
 - (e) detail the locations, and the considerations made in determining the location, for the continuous monitoring of PM₁₀ and meteorological conditions as determined by condition **B15**;
 - (f) detail a system to identify adverse meteorological conditions likely to produce elevated levels of dust, PM₁₀ and PM_{2.5} at a sensitive place or commercial place due to the mining activities;
 - (g) detail mitigation and control measures to prevent environmental nuisance and the limits specified in **Table B1 – Air quality limits and monitoring method** being exceeded, at any sensitive place or commercial place;
 - (h) include a Trigger Action Response Program that uses a combination of predictive meteorological forecasting and real time air monitoring data to guide the day-to-day planning of mining operations and implementation of both proactive and reactive mitigation measures to ensure compliance with the conditions of this environmental authority and the air quality limits in **Table B1 – Air quality limits and monitoring method**; and
 - (i) detail roles and responsibilities of the personnel responsible for the effective implementation of the plan.

- B14** The Air Quality Management Plan required by condition **B12** must be reviewed annually by an appropriately qualified person and any recommendations incorporated into the Air Quality Management Plan.
- B15** At least **4** continuous monitoring stations must be installed prior to the commencement of mining activities to monitor PM₁₀ concentrations and meteorological conditions at locations, as determined by an appropriately qualified person, for:
- (a) the real-time monitoring and determination of air emissions resultant from activities conducted under this environmental authority; and
 - (b) to guide the day-to-day planning of mining operations and implementation of both proactive and reactive mitigation measures to ensure compliance with the conditions of this environmental authority; and
 - (c) to determine the PM₁₀ concentrations upwind and downwind of mining activities conducted under this environmental authority.
- B16** **Public availability of monitoring data**
- All continuously monitored parameters required by condition **B2** must be made publicly available online and in real-time, presented:
- (a) spatially; and
 - (b) real-time rolling 1-hour average across all sites that can be drilled into for each location to provide:
 - (i) real-time rolling 1-hour average data for the previous 24 hours;
 - (ii) daily 24-hour average data;
 - (iii) links to historical data on a 1-hour basis; and
 - (iv) links to historical 24-hour data.
- B18** The real-time, online publication of monitoring parameters in accordance with condition **B16** must commence within **3 months** of the commencement of mining activities.
- B19** For continuous monitoring required by condition **B3**, **B5** and **B10**, instrument availability and data quality must be maintained to ensure that 75% of hourly averages in each calendar quarter and 75% of 24 hour averages are valid when assessed in accordance with AS3580.19 *Methods for sampling and analysis of ambient air - Method 19: Ambient air quality data validation and reporting*.

Upon request from the administering authority, an Air Quality Report must:

- (a) be prepared by appropriately qualified and experienced person;
- (b) include a summary of results of all monitoring completed in the previous 12-month period;
- (c) provide an analysis of the monitoring results against the limits contained within Table A2 – *Air quality limits and monitoring*, consistent with Australian Standard 3580.19:2020 *Methods for sampling and analysis of ambient air - Method 19: Ambient air quality data validation and reporting*;
- (d) provide a recommendation of any changes that should be made to plant, equipment or procedures to further improve the air quality management performance of the site and ensure that all measures comply with current best practice; and
- (e) be provided by the date requested by the administering authority.

B20 Odour nuisance

The release of noxious or offensive odour or any other noxious or offensive airborne contaminant resulting from the mining activities must not cause an environmental nuisance at any sensitive place or commercial place.

B21 If the administering authority determines the odour released to constitute an environmental nuisance, then the environmental authority holder must:

- (a) address the complaint including the use of appropriate dispute resolution if required; and
- (b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance

B19 Greenhouse Gas abatement plan

A greenhouse gas (GHG) abatement plan must be developed prior to the commencement of mining activities and implemented for all stages of the authorised activity. The GHG abatement plan must be developed in accordance with the contents requirements specified in 'Appendix A – Greenhouse gas abatement plan' of the administering authority's guideline titled *Greenhouse Gas Emissions* (ESR/2024/6819) or most recent version, including:

- (a) Project details.
- (b) Emissions projections and commencing abatement measures.
- (c) GHG emissions reference point.
- (d) Emission reduction targets.
- (e) GHG emission reduction program.
- (f) Advancing technologies and opportunities.
- (g) Monitoring and auditing.

B20 The GHG abatement plan required by condition **B17** must be reviewed annually by an appropriately qualified person and any recommendations incorporated into the GHG abatement Plan.

B21 The results of the program conducted under condition **B17(e)** must be made publicly available on an environmental authority holder's website and any other website requested by the administering authority.

Schedule C—Waste Management

- C1** Unless otherwise authorised by the conditions of this environmental authority, all waste generated in carrying out the activity must be lawfully reused, recycled or removed to a facility that can lawfully accept the waste.
- C2** Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
- C3** Waste must only be disposed of in accordance with **Table C1 – Mining Waste**.

Table C1 – Mining Waste

Waste type	Authorised Disposal Location	Handling requirements/ limiting conditions
Tyres	Waste Rock Emplacement	Scrap tyres must be stored and disposed of in accordance with the latest version of the administering authority's <i>Operational Policy: Disposal of scrap tyres at mine sites (ESR/2016/2380)</i> .
Green waste	Within the ML boundary	Mulched and/or placed in timber stacks for reuse onsite during rehabilitation.

C4 Non-Mineral Waste Management Plan

A Non-Mineral Waste Management Plan must:

- (a) be developed prior to the commencement of mining activities and implemented for all stages of the authorised activity; and
- (b) be reviewed at regular intervals, not exceeding **2 years**.

C5 The Non-Mineral Waste Management Plan required by condition **C4** must include:

- (a) a description of the activities that may generate waste;
- (b) waste management strategies including:
 - (i) recording of the types and amounts of wastes generated by the mining activity;
 - (ii) segregation of the wastes;
 - (iii) storage of the wastes;
 - (iv) transport of the wastes;
 - (v) disposal of waste including leachate management; and
 - (vi) monitoring and reporting matters concerning the waste;
- (c) the hazard characteristics of the wastes generated including disposal procedures for regulated wastes;
- (d) a program for reusing, recycling or disposing of all wastes reassessed at an annual frequency;
- (e) how waste will be managed in accordance with the waste and resource management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices

- in the waste management hierarchy (i.e., avoidance, reuse, recycling, energy recovery, disposal);
- (f) how the waste will be stored, handled and transferred in a proper and effective manner;
 - (g) procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed;
 - (h) procedures for dealing with accidents, spills, and other incidents that may impact on waste management;
 - (i) details of any accredited management system employed, or planned to be employed, to manage waste;
 - (j) how often the performance of the waste management practices will be assessed;
 - (k) indicators or other criteria on which the performance of the waste management practices will be assessed; and
 - (l) staff training and induction to the waste management program.

C6 Mineral waste management plan

Mineral waste (inclusive of tailings, coarse rejects and waste rock/spoil) must be managed in accordance with procedures contained within a Mineral Waste Management Plan. These procedures must include provisions for:

- (a) a program for the effective characterisation of mineral waste to predict, under the proposed placement and disposal strategy, the quality of runoff and seepage generated concerning salinity, acidity, alkalinity and dissolved metals, metalloids, and non-metallic inorganic substances;
- (b) a program of progressive sampling and characterisation to identify dispersive and nondispersive spoil, the salinity and metal/metalloid concentrations of waste rock and the salinity, sulphate, acid and alkali producing potential and metal concentrations of co-disposed coal rejects;
- (c) a materials balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock and coal rejects will be selectively placed and/or encapsulated to minimise the potential generation of acid mine drainage;
- (d) a disposal plan demonstrating how highly sodic and dispersive waste rock is identified and selectively placed and/or encapsulated to ensure that it will not report to final landform surfaces and will not be used for construction activities;
- (e) a disposal plan demonstrating how rejects has been preferentially emplaced in-pit;
- (f) a methodology for the containment of coal rejects, including encapsulation by at least **5 metres** of waste rock/spoil;
- (g) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid-forming and acid-forming waste, and/or highly sodic and dispersive waste rock;
- (h) details regarding the management of seepage and leachates both during operation and the foreseeable future;

- (i) a methodology for maintaining records of the relative locations of coal rejects including fine and coarse rejects disposed within the out-of-pit and in-pit emplacement areas and implementation of record keeping;
- (j) rehabilitation strategy that is consistent with any relevant requirement stated in **Table H1 - Rehabilitation Objectives and Completion Criteria**; and
- (k) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid and metalliferous drainage, erosion minimisation and establishment of vegetation cover.

C7 The Mineral Waste Management Plan required under condition **C6** must:

- (a) be developed prior to the commencement of mining activities and implemented for all stages of the authorised activity; and
- (b) be reviewed at regular intervals, not exceeding **2 years**.

Schedule D—Noise

D1 Noise limits

Noise from the activity must not exceed the limits in **Table D1 - Noise limits** at any sensitive place or commercial place.

Table D1 - Noise limits

Noise measured at a sensitive place			
Noise level dB(A) measured as:	Monday to Sunday		
	7am to 6pm	6pm to 10pm	10pm to 7am
L _{Aeq, adj, 15 mins}	30	35	30
L _{A1, adj, 15 mins}	45	45	40
Noise measured at a commercial place			
Noise level dB(A) measured as:	Monday to Saturday		
	7am to 6pm	6pm to 10pm	10pm to 7am
L _{Aeq, adj, 15 mins}	45	45	40

D2 Noise monitoring

At least **2** continuous monitoring stations must be installed prior to commencement of mining activities to monitor noise emissions at location(s), as determined by an **AQP** for:

- (a) the real-time monitoring and determination of noise emissions resultant from activities conducted under this environmental authority; and
- (b) to guide the day-to-day planning of mining operations and implementation of both proactive and reactive mitigation measure to ensure compliance with the conditions of this environmental authority.

- D3** The environmental authority holder must, at location(s) determined by condition **D2**, continuously monitor noise emissions resultant from mining activities conducted under this environmental authority.
- D4** **Monitoring requirements**
- The following must be recorded when undertaking monitoring of noise emissions from the activity:
- (a) All equipment in operation at the time of the noise measurement; and
 - (b) The mode of operation at the time of the noise measurement.
- D5** Noise measurements must be taken using a class 1 sound level meter as classified under AS IEC 61672; or otherwise approved in writing by the administering authority.
- D6** All monitoring of noise emissions from the activity must be undertaken in accordance with the most recent version of Queensland Government's 'Noise Measurement Manual' (ESR/2016/2195), the relevant Australian Standard and the Environmental Protection Regulation 2019 (Chapter 5, Part 4).
- D7** When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the administering authority), noise monitoring must be undertaken, and the results thereof notified to the administering authority within **14 days** following completion of monitoring.
- D8** In response to a request or a complaint under condition **D7**, the environmental authority holder must:
- (a) engage an AQP to undertake:
 - (i) continuous noise monitoring of not less than **7 days** to capture weather-related variations in different operational conditions on site;
 - (ii) undertake the monitoring at a place or places relevant to the potentially affected noise sensitive place as agreed upon with the administering authority; and
 - (b) provide a report to the administering authority within **14 days** following completion of monitoring which includes the following information:
 - (i) the results of monitoring carried out under **D8(a)**
 - (ii) an assessment of compliance with the noise limits stated in **Table D1 - Noise limits**; and
 - (iii) the contribution of the mining activities to the noise emissions measured at the noise sensitive place; and
 - (iv) measures taken to reduce noise emissions generated by the mining activities.

- D9** If monitoring conducted under condition **D2** or condition **D8** or both, reveals that noise caused by the mining activity exceeds the limits in **Table D1 - Noise limits**, then the holder of this environmental authority must:
- (a) immediately implement noise abatement measures to ensure noise emissions from the mining activity do not result in further exceedances; and,
 - (b) address any relevant complaint.¹

D10 Blasting must not result in any physical damage to the infrastructure associated with the Benleith Water Scheme.

D11 Blasting limits

Blasting must not cause the limits prescribed in **Table D2 – Blasting limits** to be exceeded at a sensitive place or commercial place.

Table D2 – Blasting limits

Blasting parameter	Sensitive or commercial place limits	
	Monday to Friday 7am to 6pm Saturday, Sunday and Public Holidays 9 am to 6 pm	6pm to 7am
Airblast overpressure	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time	No blasting
Ground vibration peak particle velocity (vector sum)	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

- D12** A blast monitoring program must be developed prior to commencement of mining activities and implemented for all stages of the authorised activity to monitor compliance with **Table D2 – Blasting Limits** for:
- (a) at least 90% of all blasts undertaken on this site in each year at the nearest sensitive place or commercial place; and
 - (b) all blasts conducted during any time period specified by the administering authority at the nearest sensitive place or commercial place.

D13 Noise and Blast Management Plan

A Noise and Blast Management Plan must be:

- (a) developed prior to the commencement of mining activities and implemented for all stages of the authorised activity; and
- (b) reviewed at regular intervals, not exceeding **2 years**.

D14 The Noise and Blast Management Plan required by Condition **D13** must include:

- (a) a map identifying the Benleith Water Scheme infrastructure, any sensitive place and commercial place that may be impacted by noise and blasting emissions from the mining activities, including any location subject to a Non-Sensitive Location Agreement under condition **A27**;

- (b) a description of noise and blasting mitigation measures that would be implemented to ensure best practice management, which are regularly reviewed in line with contemporary requirements to ensure continual improvement;
- (c) include a Trigger Action Response Program that uses a combination of predictive meteorological forecasting and continuous noise monitoring data to guide the day-to-day planning of mining operations and implementation of both proactive and reactive mitigation measures to ensure compliance with the conditions of this environmental authority
- (d) a detailed description of the proposed monitoring programs implemented to ensure compliance with condition **D10, Table D1 - Noise limits** and **Table D2 - Blasting limits**;
- (e) a protocol for determining exceedances of the limits in **Table D1 - Noise limits** and **Table D2 - Blasting limits** that complies with the latest version of the *Noise Measurement Manual (ESR/2016/2195)* and *Guideline: Noise and vibration from blasting (ESR/2016/2169)*;
- (f) a protocol for determining the contribution of mining activities, conducted under this environmental authority, to the exceedance of any limit;
- (g) a protocol for recording and responding to complaints;
- (h) detail roles and responsibilities of the personnel responsible for the effective implementation of the plan; and
- (i) any updates as recommended following each review conducted under condition **D12**.

Schedule E—Groundwater

- E1** Contaminants from the activity must not be released to groundwater.
- E2** **Groundwater Monitoring and Management Program**
A Groundwater Monitoring and Management Program (GMMP) must be developed prior to the commencement of mining activities and implemented and maintained for all stages of the authorised activity.
- E3** The GMMP required by condition **E2** must:
 - (a) include the locations listed in **Table E1 – Groundwater monitoring locations and frequency**; and
 - (b) identify all potential sources of contamination to groundwater from the activities; and
 - (c) identify all environmental values that may be impacted; and
 - (d) detail groundwater levels in all identified hydrogeological units present across and adjacent to the site to confirm existing groundwater flow paths; and
 - (e) ensure all potential groundwater impacts due to the activities authorised under this environmental authority are identified, monitored and mitigated; and

- (f) document groundwater management and monitoring methodologies undertaken for the duration of all the activities authorised under this environmental authority; and
- (g) ensure adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:
 - (i) establish baseline datasets from existing monitoring bores; and
 - (ii) detect any changes to groundwater levels due to the activities authorised under this environmental authority; and
 - (iii) detect any impacts to groundwater quality due to the activities authorised under this environmental authority; and
 - (iv) determine compliance with condition **E18**; condition **E19**; condition **E20** and condition **E27**; and
 - (v) determine trends in groundwater quality; and
 - (vi) determine trends in groundwater level; and
 - (vii) determine any interaction or impact from groundwater on surface water; and
- (h) provide an appropriate quality assurance and quality control program; and
- (i) provide a conceptual and numerical groundwater model; and
- (j) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.

E4 The GMMP required by condition **E2** must be reviewed annually by an appropriately qualified person to determine if it continues to meet the requirements stated in condition **E3**, and the GMMP must be updated as required by the outcomes of the review, including updates as required by reviews of the monitoring data, GMMP or numerical groundwater model.

Groundwater Model

E5 The numerical groundwater model required by condition **E3(i)** must be reviewed and updated by an appropriately qualified person before the commencement of mining, and every **5 years** thereafter.

E6 The groundwater model review required by condition **E5** must:

- (a) include all hydrogeological units potentially impacted by the activities authorised under this environmental authority; and
- (b) be undertaken in accordance with the most recent version of the 'Australian Groundwater Modelling Guidelines' (2012); and
- (c) be validated and recalibrated with all recent monitoring data; and
- (d) be documented and recorded.

- E7** Within **90 days** of completion of a review under condition **E5**, the environmental authority holder must submit a report to the administering authority that includes the following details:
- (a) any changes to predicted operational, post-mining and end of mine life standing water level (SWL) in all major hydrogeological units; and
 - (b) any changes to the model predictions of impacts to environmental values; and
 - (c) any changes to predicted post mining void water levels and water quality; and
 - (d) recommended amendments to EA conditions and/or the PRCP schedule.
- E8** Upon submission of the report required by condition **E7**, all comments given by the administering authority must be incorporated into the groundwater model required by condition **E5**.

Annual Groundwater Monitoring Report

- E9** An Annual Groundwater Monitoring Report (AGMR) must be:
- (a) completed within **one year** after commencing mining activities; and
 - (b) subsequently completed each year by the same date for the previous year's groundwater monitoring.
- E10** The AGMR required by condition **E9** must include:
- (a) a review of all the groundwater quality and SWL data of all groundwater bores listed within **Table E1 – Groundwater monitoring locations and frequency**; and
 - (b) an assessment of groundwater quality and SWL trends for all data from all groundwater bores listed in **Table E1 – Groundwater monitoring locations and frequency**; and
 - (c) a comparison with historical data to determine changes or trends over time, including timeseries plots; and
 - (d) details of any review undertaken of the conceptual or numerical model; and
 - (e) updates as required by reviews of the monitoring data, GMMP or numerical groundwater model; and,
 - (f) an assessment of any impacts on groundwater quality and level due to the mining activities; and
 - (g) comparison with receiving environment surface water quality monitoring results to determine any interaction or impact from groundwater on surface water.

Additional and Replacement Monitoring Bores

- E11** A minimum of **18 months** prior to the commencement of mining activities, the environmental authority holder must install:
- (a) **14** additional monitoring bores at, or within 100 m of, the locations identified as Proposed A3, Proposed A4, Proposed A5, Proposed P4, Proposed P5, Proposed P6, Proposed P7, Proposed P8, Proposed R1, Proposed R2, Proposed G1, Proposed G2, Proposed GDE#1 and Proposed GDE#6 in **Table E1 Groundwater monitoring locations and frequency**.
 - (b) replacement bores for A-OB7 and A-OB8 in **Table E1 Groundwater monitoring locations and frequency**.
- E12** The bores required by condition **E11** must be suitable to monitor for the parameters identified in **Table E2 - Groundwater quality limits** and be capable of targeting the hydrogeological unit specified in **Table E1 - Groundwater monitoring locations and frequency**.
- E13** Within **28 days** of the installation of any bore under condition **E11**, provide the administering authority with a report that includes:
- (a) All available details for **Table E1 - Groundwater monitoring locations and frequency** and **Table E3 - Groundwater standing water level trigger threshold** and any updates required to **Figure E1 - Groundwater monitoring locations**; and
 - (b) Detail of the actions and timeframes for the establishment of limits for **Table E2 - Groundwater quality limits** in accordance with the methodology and matters stated in the most recent version of the administering authority's *Using monitoring data to assess groundwater* (DES 2021).
- E14** Within **3 months** of the completion of the actions required under condition **E13(b)**, provide a report of the data collection for all additional and replacement bores along with any updates required to **Table E1 - Groundwater monitoring locations and frequency** and **Table E3 - Groundwater standing water level trigger threshold**.
- E15** Prior to the commencement of mining activities, for bores identified with table note '^' in **Table E1 - Groundwater monitoring locations and frequency**, the EA holder must achieve:
- (a) a minimum 12 data points over a minimum of **12 months** of the standing water level; and
 - (b) propose limits for quality characteristics in **Table E2 - Groundwater quality limits**, established in accordance with the methodology and matters stated in the most recent version of the administering authority's *Using monitoring data to assess groundwater* (DES 2021) and the compliance approach set out in condition E19 and E20.

- E16** The pre-mining baseline standing water level for all bores identified with table note '^' as determined by condition **E15** must be provided to the administering authority prior to the commencement of mining activities along with all details required by **Table E3: Groundwater standing water level trigger threshold**.
- E17** For bores identified with table note '^' in **Table E1 - Groundwater monitoring locations and frequency**, the Level Trigger Thresholds (m AHD) specified in **Table E3: Groundwater standing water level trigger threshold** must be reviewed and provided to the administering authority with accompanying model outputs for justification, no more than **18 months** after commencement of mining activities.
- E18** **Groundwater Monitoring**
- Groundwater quality and standing water level (SWL) must be monitored:
- (a) at the locations specified in **Table E1 - Groundwater monitoring locations and frequency**, as illustrated in **Figure E1 - Groundwater monitoring locations**; and
 - (b) at the frequencies specified in **Table E1 - Groundwater monitoring locations and frequency**; and
 - (c) for quality characteristics listed in **Table E2 - Groundwater quality limits**.
- E19** **Groundwater Quality**
- Groundwater quality measured from compliance bores specified in **Table E1 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit A specified in **Table E2 - Groundwater quality limits** on any **5** consecutive monitoring occasions.
- E20** Groundwater quality measured from compliance bores specified in **Table E1 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit B specified in **Table E2 - Groundwater quality limits** on any **3** consecutive monitoring occasions.
- E21** If groundwater from compliance bores identified in **Table E1 - Groundwater monitoring locations and frequency** exceed the corresponding Limit A on 5 consecutive occasions or Limit B on 3 consecutive occasions specified in **Table E2 - Groundwater quality limits**, the holder of the environmental authority must notify the administering authority via WaTERS within **24 hours** of receiving the results.

E22 Exceedance Investigation

If monitoring results from water quality compliance bores listed in **Table E1 - Groundwater monitoring locations and frequency** exceed any of the Contaminant Limits specified in **Table E2 - Groundwater quality limits** on any **5** consecutive monitoring occasions for Limit A or on any **3** consecutive monitoring occasions for Limit B, the EA holder must complete an investigation within **14 days** of receiving the results to determine if the exceedance is a result of:

- (a) activities authorised under this environmental authority; or
- (b) natural variation; or
- (c) neighbouring land use resulting in groundwater impacts.

E23 The holder of this environmental authority must provide a report of the investigation to the administering authority via WaTERS within **14 days** of completion of the investigation under condition **E22**.

E24 If the investigation under condition **E22** determines that the exceedances were the result of activities authorised under this environmental authority, then a further investigation must be completed within **28 days** of provision of the report under condition **E23**.

E25 The investigation must determine the source, cause and extent of contamination (environmental harm) and implement appropriate mitigation and management measures to address any groundwater contamination and prevent recurrence of groundwater contamination. Any investigation must consider the groundwater model, the specific bore, hydrogeological unit, and quality characteristic which has been exceeded; the relevance to specific environment values, and the results from the interpretation bores listed in **Table E1 - Groundwater monitoring locations and frequency**.

E26 The further investigation report must be provided to the administering authority via WaTERS within **28 days** of completion.

E27 Groundwater Levels

Groundwater levels when measured at the monitoring locations specified in **Table E1 - Groundwater Monitoring Locations and Frequency** must not exceed the Level Trigger Threshold specified in **Table E3 - Groundwater standing water level trigger threshold**.

E28 If a Level Trigger Threshold of groundwater measured at water level compliance bores specified in **Table E1 - Groundwater monitoring locations and frequency** exceeds any of the corresponding Level Trigger Thresholds specified in **Table E3 - Groundwater standing water level trigger threshold**, the holder of the environmental authority must notify the administering authority via WaTERS within **24 hours** of becoming aware.

- E29** Within **10 business days** of any exceedance under condition **E27**, the holder of the environmental authority must complete an investigation into the cause of the exceedance.
- E30** If the investigation carried out under condition **E29** determines that the mining activities are a potential cause or contributor to the exceedance, the holder of the environmental authority must:
- (a) notify the administering authority via WaTERS within **24 hours** of making the determination; and
 - (b) within **10 business days** notify the administering authority of the actions taken to ensure compliance with condition **E27** of this environmental authority.
- E31** **Bore Construction and Maintenance and Decommissioning**
- The construction, maintenance, operation and decommissioning of each groundwater monitoring bore must be undertaken by an appropriately qualified person in a manner that:
- (a) is in accordance with the most recent edition of the *Minimum Construction Requirements for Water Bores in Australia* (National Uniform Drillers Licensing Committee 2020); and,
 - (b) prevents contaminants entering the groundwater; and
 - (c) ensures representative groundwater samples and water levels from the target hydrogeological unit.
- E32** A bore report must be kept for each monitoring bore which includes:
- (a) a unique identification reference number and geographic coordinate location; and
 - (b) construction information including the depth of bore, depth and length of casing, depth and length of screening and bore sealing details; and
 - (c) stratigraphy and target hydrogeological unit of the bore; and
 - (d) depth at which groundwater was intercepted and the final standing water level (SWL) after bore development.

Table E1 - Groundwater monitoring locations and frequency

Hydrogeological Unit	Bore ID	Longitude (GDA2020)	Latitude (GDA2020)	Surface Level (mAHD)(1)	Screened interval (mbgl)	Monitoring frequency	
						Water level monitoring	Water quality
Compliance bores⁽²⁾							
Alluvium	A-OB1^	149.831	-24.255	88.9	9.5 - 21.5	D	Q
Alluvium	A-OB2^	149.835	-24.260	88.3	11.3 - 17.3	D	Q
Alluvium	A-OB3^	149.840	-24.258	87.9	12.0-30	Q	Q
Alluvium	A-OB6	149.871	-24.300	91.4	9.0 – 18.0	D	Q
Alluvium	A-OB7^	149.876	-24.297	91.7	11.0 – 26.0	D	Q
Alluvium	A-OB8^	149.882	-24.295	91.4	12.0 – 23.0	D	Q
Alluvium	A-OB11^	149.829	-24.263	86.2	9.0 - 15.0	D	Q
Alluvium	A-OB12^	149.829	-24.263	87.2	9.6 - 15.6	D	Q
Alluvium	Proposed A3^	149.885#	-24.305#	~94	~5-20	D	B
Alluvium/ colluvium	Proposed A4^	149.8545#	-24.2355#	TBD	~5-20	D	B
Baralaba Coal Measures (interburden)	P-PB1^	149.835	-24.260	88.3	136-178	M	Q
Baralaba Coal Measures (coal seam)	P-OB1^	149.841	-24.239	87.4	30-60	M	Q
Gyranda formation	P-OB2^	149.888	-24.280	105.3	30-60	M	Q
Baralaba Coal Measures (coal seam)	P-OB5^	149.883	-24.294	91.4	66-69	M	Q
Permian coal measures	Proposed P4^	149.887#	-24.290#	~100	~200	D	B
Baralaba Coal Measures - coal	Proposed P5^	149.8559#	-24.2744#	TBD	TBD	D	B
Baralaba Coal Measures - coal	Proposed P6^	149.8757#	-24.2975#	TBD	~200	D	B
Rewan Formation	Proposed R1^	149.853#	-24.291#	TBD	~140-180	D	B
Gyranda Formation	Proposed G1^	149.8545#	-24.2355#	TBD	~60	D	B
Alluvium	Proposed-GDE#1^	149.860#	-24.284#	91.5	5.0 - 20	D	B
Alluvium	Proposed-GDE#6^	149.845#	-24.279#	90.5	5.0 - 20	D	B

Alluvium	A-PB1^	149.835	-24.260	88.4	11.5 - 23.5	M†	-
Baralaba Coal Measures - Interburden	P-OB3*^	149.856	-24.274	89.6	30 - 60	M*	-
Reference bores⁽²⁾							
Rewan Formation	P-VWP1	149.831	-24.256	89	38	D	-
Baralaba Coal Measures - Interburden					105	D	
Baralaba Coal Measures - Interburden					147	Q	
Rewan Formation	P-VWP2	149.834	-24.260	88.51	29	Q	-
Rewan Formation					76	D	
Baralaba Coal Measures - Interburden					184	D	
Baralaba Coal Measures - Interburden					234	D	
Rewan Formation	P-VWP3	149.876	-24.298	91.6	55	D	-
Rewan Formation					121	D	
Baralaba Coal Measures - Interburden					155	Q	
Baralaba Coal Measures - Interburden					175	D	
Gyranda Formation	P-VWP4	149.864	-24.246	101.0	25	D	-
Gyranda Formation					80	D	
Gyranda Formation					150	D	
Gyranda Formation					200	D	
Rewan Formation	P-VWP5	149.853	-24.291	90.4	66	D	-
Rewan Formation					138	D	
Rewan Formation					185	D	
Alluvium	A-PB2	149.876	-24.298	91.5	12.0 - 24.0	Q†	-
Alluvium	A-OB4*	149.849	-24.254	87.5	8.0 - 17.0	Q*	-
Alluvium	A-OB10*	149.849	-24.269	87.5	8.0 - 20	D*	-
Baralaba Coal Measures (coal seam)	P-OB4*	149.848	-24.254	87.1	75 - 78	Q	-

Interpretation bores ⁽²⁾⁽³⁾							
Alluvium	Proposed A5	TBD	TBD	TBD	TBD	TBD	B
Baralaba Coal Measures (Interburden)	Proposed P7	TBD	TBD	TBD	TBD	TBD	B
Baralaba Coal Measures (coal seam)	Proposed P8	TBD	TBD	TBD	TBD	TBD	B
Rewan Formation	Proposed R2	TBD	TBD	TBD	TBD	TBD	B
Gyranda formation	Proposed G2	TBD	TBD	TBD	TBD	TBD	B

Table notes:

(1) Monitoring is not required where a bore has been removed as a direct result of the mining activity.

(2) RL must be measured to the nearest 1cm from the top of the bore casing.

(3) To be located in an area where impacts from mining are not predicted.

* within disturbance footprint, to monitor for baseline data only, no triggers to be applied.

† Near other existing bores therefore water level monitoring proposed only.

D = Daily – bore equipped with level logger/VWP.

Q = Quarterly.

M = Monthly

B = Bi-monthly, (every two months) until adequate data has been collected to derive GW quality limits, upon which time they can return to quarterly monitoring.

mbgl = metres below ground level.

TBD = to be determined and provided to the administering authority in accordance with condition **E13**.

locations to be updated upon installation for all proposed bores with condition **E13**.

^ to be updated in accordance with the requirements of conditions **E15** to **E17**.

Table E2 - Groundwater quality limits

Quality Characteristic	Bore	Contaminant Limit	
		Limit A (80 th Percentile)	Limit B (95 th Percentile)
pH – field (pH units)	A-PB1, A-OB1, A-OB2, A-OB3, A-OB11, A-OB12, Proposed GDE#1, Proposed GDE#6	6.33 – 8 ^(d)	-
	A-OB6, A-OB7, A-OB8, Proposed A3	6.28 – 8 ^(d)	-
	P-OB1, P-OB2, P-OB5, P-PB1, Proposed A4 [^] , Proposed P4 [^] , Proposed P5 [^] , Proposed P6 [^] , Proposed R1 [^] , Proposed G1 [^] .	6.27 - 8 ^(d)	-
Electrical conductivity -field (µS/cm)	A-OB3, Proposed GDE#1, Proposed GDE#6, A-OB6, Proposed A3	8,910 ^(a)	
	A-PB1	830 ^(d)	
	A-OB1	646 ^(d)	
	A-OB2	662 ^(d)	
	A-OB11	426 ^(d)	
	A-OB12	375 ^(d)	
	A-OB7	20,560 ^(d)	
	A-OB8	29,500 ^(d)	
	P-OB1	34,200 ^(d)	
	P-OB2	19,140 ^(d)	
	P-OB5	28,840 ^(d)	
	P-PB1	15,800 ^(d)	
	Proposed A4, Proposed P4 [^] , Proposed P5 [^] , Proposed P6 [^] , Proposed R1 [^] , Proposed G1 [^]	16,000 ^(b)	
Sulphate as SO ₄ (mg/L)	A-PB1, A-OB2, A-OB11	8 ^(d)	
	A-OB3, Proposed GDE#1, Proposed GDE#6, A-OB6, Proposed A3	318 ^(a)	
	A-OB1	53 ^(d)	
	A-OB12	44 ^(d)	
	A-OB7	609 ^(d)	

	A-OB8	1,248 ^(d)	
	P-OB1	1,760 ^(d)	
	P-OB2	587 ^(d)	
	P-OB5	661 ^(d)	
	P-PB1	2 ^(d)	
	Proposed A4 [^] , Proposed P4 [^] , Proposed P5 [^] , Proposed P6 [^] , Proposed R1 [^] , Proposed G1 [^]	398 ^(b)	
Aluminium (dissolved, mg/L)	All bores	-	0.055 ^(c)
Arsenic (dissolved, mg/L)	All bores	-	0.013 ^(c)
Boron (dissolved, mg/L)	All bores	-	0.37 ^(c)
Cadmium (dissolved, mg/L)	All bores	-	0.0002 ^(c)
Chromium (dissolved, mg/L)	All bores	-	0.001 ^(c)
Cobalt (dissolved, mg/L)	All bores	-	0.001 ^(c)
Copper (dissolved, mg/L)	All bores	-	0.0014 ^(c)
Lead (dissolved, mg/L)	All bores	-	0.0034 ^(c)
Mercury (dissolved, mg/L)	All bores	-	0.0006 ^(c)
Molybdenum (dissolved, mg/L)	All bores	-	0.034 ^(c)
Nickel (dissolved, mg/L)	All bores	-	0.011 ^(c)
Selenium (dissolved, mg/L)	All bores	-	0.005 ^(c)
Uranium (dissolved, mg/L)	A-PB1, A-OB1, A-OB2, A-OB3, A-OB11, A-OB12, Proposed GDE#1, Proposed GDE#6, A-OB6, Proposed A3, P-OB1, P-OB2, P-OB5, P-PB1, Proposed A4, Proposed P4 [^] , Proposed P5 [^] , Proposed P6 [^] , Proposed R1 [^] , Proposed G1 [^]	-	0.0005 ^(c)
	A-OB7	-	0.008 ^(d)
	A-OB8	-	0.0723 ^(d)
Zinc (dissolved, mg/L)	A-PB1, A-OB1		0.076 ^(d)
	A-OB2	-	0.09 ^(d)
	A-OB3, Proposed GDE#1, Proposed GDE#6, A-OB6	-	0.008 ^(c)
	Proposed A4	-	0.008 ^(c)

	A-OB11	-	0.042 ^(d)
	A-OB12	-	0.128 ^(d)
	A-OB7	-	0.119 ^(d)
	A-OB8	-	0.231 ^(d)
	P-OB1	-	0.335 ^(d)
	P-OB2	-	0.249 ^(d)
	P-OB5	-	0.207 ^(d)
	P-PB1	-	0.121 ^(d)
	Proposed P4 [^] , Proposed P5 [^] , Proposed P6 [^] , Proposed R1 [^] , Proposed G1 [^]		0.317 ^(b)

Table notes:

- (a) Dawson River Sub-basin Environmental Values and Water Quality Objectives (EHP 2011) for Fitzroy groundwater, Zone 34, shallow (aquatic ecosystem).
- (b) Dawson River Sub-basin Environmental Values and Water Quality Objectives (EHP 2011) for Fitzroy groundwater, Zone 34, deep (aquatic ecosystem)
- (c) Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018)
- (d) Site-specific guideline value.

[^] these bores are yet to be established, and limits should be reviewed once adequate data has been collected.

Table E3: Groundwater standing water level trigger threshold

Bore	Hydrogeological Unit	Top of casing elevation (mAHD)	Pre-mining baseline standing water level (mAHD)	Level Trigger Threshold (mAHD)
A-PB1	Alluvium	88.6	75.48	73.48 ⁽¹⁾
A-OB1	Alluvium	89.46	75.87	73.87 ⁽¹⁾
A-OB2	Alluvium	88.6	75.25	73.25 ⁽¹⁾
A-OB3	Alluvium	88.46	75.13	69.53 ⁽¹⁾
A-OB7	Alluvium	92.12	69.7	67.5 ⁽¹⁾
A-OB8	Alluvium	91.75	71.82	69.32 ⁽¹⁾
A-OB11	Alluvium	86.7	77.82	75.82 ⁽¹⁾
A-OB12	Alluvium	87.63	77.96	75.96 ⁽¹⁾
P-OB3	Baralaba Coal Measures (interburden)	88.46	74.32	60.42 ⁽¹⁾
P-OB1	Baralaba Coal Measures (coal seam)	87.95	74.17	67.87 ⁽¹⁾
P-OB5	Baralaba Coal Measures (coal seam)	91.84	77.5	56.3 ⁽¹⁾
P-OB2	Gyranda Formation	106.06	80.87	66.27 ⁽¹⁾
P-PB1	Baralaba Coal Measures (interburden)	88.7	74.17	67.87 ⁽¹⁾
Proposed A3	Alluvium	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾
Proposed A4	Alluvium/ colluvium	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾
Proposed P4	Permian coal measures	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾
Proposed P5	Baralaba Coal Measures - coal	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾
Proposed P6	Baralaba Coal Measures - coal	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾
Proposed R1	Rewan Formation	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾
Proposed G1	Gyranda Formation	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾
Proposed-GDE#1	Alluvium	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾
Proposed-GDE#6	Alluvium	TBD ⁽²⁾	TBD ⁽²⁾	TBD ⁽¹⁾

Table notes: (1) Groundwater level trigger (as maximum predicted drawdown) to be reviewed and provided in accordance with condition **E17**.

(2) Top of casing' and 'Pre-mining baseline standing water level' to be provided in accordance with condition **E13**.

Groundwater Dependent Ecosystems

- E33** The activities authorised under this environmental authority must not cause environmental harm to any aquatic, terrestrial or subterranean groundwater dependent ecosystems (GDEs), including but not limited to those specified in **Table E4 – Identified Groundwater Dependant Ecosystems**, and as illustrated in **Figure E2: Groundwater Dependent Ecosystems Locations**.
- E34** A Groundwater Dependent Ecosystem Management and Monitoring Plan (GDEMMP) must be developed prior to the commencement of mining activities and implemented and maintained for all stages of the authorised activity to ensure compliance with condition **E33**.

Table E4 – Identified Groundwater Dependant Ecosystems

GDE	Type	Location (decimal degrees, GDA2020)	
		Latitude	Longitude
GDE Area 1	Terrestrial	-24.285204	149.860504
GDE Area 6	Terrestrial	-24.279039	149.845096
GDE Area 10	Terrestrial	-24.238613	149.828081
A-OB1	Subterranean (stygo fauna)	-24.255	149.831
A-OB2	Subterranean (stygo fauna)	-24.260	149.835
A-OB3	Subterranean (stygo fauna)	-24.258	149.840

Schedule F—Water

- F1** **Contaminant Release**
- Contaminants must not be released to any waters unless otherwise permitted by a condition of this environmental authority.
- F2** The release of mine affected water to waters must only occur from the release points specified in **Table F1 - Mine affected water release points** and depicted in **Figure F1 – Surface water monitoring locations** attached to this environmental authority.
- The release of mine affected water to internal water management infrastructure installed and operated in accordance with a water management plan that complies with conditions **F27** to **F30** inclusive is permitted.
- F3** The release of mine affected water to waters from the release points must be monitored end-of-pipe or at an appropriate location associated with release water quality at the locations specified in **Table F1 - Mine affected water release points** for each quality characteristics and at the frequency specified in **Table F2 - Mine affected water release limits** and **Table F3 - Release contaminant trigger investigation levels**.

Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response, in the event condition **F5** is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.

- F4** The release of mine affected water to waters in accordance with condition **F2** must not exceed the release limits stated in **Table F2 - Mine affected water release limits** when measured at the monitoring points specified in **Table F1 - Mine affected water release points** for each quality characteristic.
- F5** **Mine affected water release events**
- The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows and electrical conductivity at the locations and flow recording frequency specified in **Table F4 - Mine Affected Water Release During Flow Events**.
- F6** Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition **F2** must only take place during periods of natural flow events in accordance with the receiving water flow criteria for discharge specified in **Table F4 - Mine Affected Water Release During Flow Events** for the release point(s) specified in **Table F1- Mine affected water release points**.
- F7** The daily quantity of mine affected water released from each release point must be measured and recorded at the monitoring points in **Table F1 - Mine affected water release points**.
- F8** Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters or cause a material build-up of sediment in such waters.
- F9** **Notification of release event**
- The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than **24 hours** after commencing to release mine affected water to the receiving environment. A separate notification must be submitted for each release point and include the following information:
- (a) Release commencement date/time
 - (b) Expected release cessation date/time
 - (i) Release point/s
 - (ii) Release volume (estimated)
 - (iii) Release flow rate
 - (iv) Release quality including electrical conductivity, turbidity and pH
 - (c) Receiving water/s including the natural flow rate and electrical conductivity; and
 - (d) Any details (including available data) regarding likely impacts on the receiving water(s).

F10 The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than **24 hours** after cessation of a mine affected water release event notified under condition **F9** and within **28 days** provide the following information in writing:

- (a) Release cessation date/time.
- (b) Natural flow rate in receiving water during the release period.
- (c) Volume of water released.
- (d) Details regarding the compliance of the release with the conditions of Schedule F: Surface Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume).
- (e) All in-situ water quality monitoring results.
- (f) Any other matters pertinent to the water release event.

Note: Successive or intermittent releases occurring within **24 hours** of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with condition **F9** and condition **F10**, provided the relevant details of the release are included within the notification provided in accordance with condition **F9** and condition **F10**.

F11 The holder of this environmental authority must within **28 days** after cessation of a release event notified under condition **F9** provide a report and supporting raw data to the administering authority via WaTERS, which must include the following information:

- (a) all continuous and in-situ water quality monitoring results (including laboratory analyses); and
- (b) any further matters pertinent to the water release event.

F12 **Release limit exceedance**

If the release limits defined in **Table F2 - Mine Affected Water Release Limits** are exceeded, the holder of the environmental authority must notify the administering authority via WaTERS within **24 hours** of receiving the results.

F13 The environmental authority holder must, within **28 days** of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:

- (a) the reason for the release;
- (b) the location of the release;
- (c) the total volume of the release and which (if any) part of this volume was non-compliant;
- (d) the total duration of the release and which (if any) part of this period was non-compliant;
- (e) all water quality monitoring results (including all laboratory analyses);
- (f) any general observations
- (g) identification of any environmental harm as a result of the non-compliance;
- (h) all calculations; and
- (i) any other matters pertinent to the water release event.

F14 Release trigger exceedance

If quality characteristics of the release exceed any of the trigger levels specified in **Table F3 - Release contaminant trigger investigation levels** during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in **Table F6 - Receiving Waters Contaminant Trigger Levels** for sodium and in **Table F3 - Release contaminant trigger investigation levels** for all other water quality characteristics, and:

- (a) where the trigger values are not exceeded then no action is to be taken; or
- (b) where the downstream results exceed the trigger values, compare the results of the downstream site to the data from background monitoring sites and:
 - (i) if the result is less than the background monitoring site data, then no action is to be taken; or
 - (ii) if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within **28 days** of receiving the result, outlining:
 - (1) details of the investigations carried out; and
 - (2) actions taken to prevent environmental harm

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **F14(b)(ii)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic (within the same release event).

F15 If an exceedance in accordance with condition **F14(b)(ii)** is identified, the holder of the environmental authority must notify the administering authority in writing within **24 hours** of receiving the result.

Table F1 - Mine affected water release points

Release point (RP)	Latitude (decimal degree, GDA2020)	Longitude (decimal degree, GDA2020)	Mine affected water source and location	Monitoring point (for water quality)	Receiving waters description
RP1	- 24.2516	149.8284	Mine affected water system (Mine Water Dam (MWD))	Sampling tap on release pipeline or along the pipeline near where the pipe enters the Dawson River.	Dawson River

Table notes:

- All **Table F2 - Mine Affected Water Release Limits** and **Table F3 - Release Contaminant Trigger Investigation Levels, Potential Contaminants** water quality monitoring for RP1 must occur end of pipe, or along the pipeline and near where the pipe enters the Dawson River or demonstrated representative infrastructure-based location (i.e., RP1-based water quality monitoring cannot occur in-stream).
- Where the spatial co-ordinates for RP1 is different from that of the sampling tap on the release pipeline, the location of the sampling tap takes precedence to ensure compliance with condition **F3**.
- The spatial co-ordinates for RP1 in Table F1 must reflect the specific end-of-pipe outfall location. Where required, any updated spatial co-ordinates for RP1 outfall must be provided by the applicant and amended in Table F1 (by grant of tenure).

Table F2 - Mine Affected Water Release Limits

Quality characteristic	Release limits	Monitoring frequency
Electrical conductivity ($\mu\text{S}/\text{cm}$)	10,000	Daily during release (the first sample must be taken within two hours of commencement of release)
pH (pH units)	6.5 (min) – 9.0 (max)	Daily during release (the first sample must be taken within two hours of commencement of release)
Sulfate (mg/L)	400	Daily during release (the first sample must be taken within two hours of commencement of release)
Total Suspended Solids (mg/L)	100	Daily during release (the first sample must be taken within two hours of commencement of release)
Turbidity (NTU)	250	Daily during release (first sample within two hours of commencement of release)

Table F3 - Release Contaminant Trigger Investigation Levels, Potential Contaminants

Quality characteristic	Trigger levels	Comment on trigger level	Monitoring frequency
Aluminium (µg/L)	55	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	Commencement of release and thereafter weekly during release
Arsenic (µg/L)	13	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Cadmium (µg/L)	0.2	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Chromium (µg/L)	1	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Copper (µg/L)	1.4	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Iron (µg/L)	280	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Lead (µg/L)	3.4	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Mercury (µg/L)	0.2	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Nickel (µg/L)	11	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Zinc (µg/L)	8	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Boron (µg/L)	940	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Cobalt (µg/L)	1.4	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Manganese (µg/L)	1,900	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).	
Molybdenum (µg/L)	34	For aquatic ecosystem protection, sourced from ANZG (2018).	
Selenium (µg/L)	5	Default guideline value for 99% level of species protection for aquatic ecosystems, sourced from ANZG (2018). To account for the bioaccumulating nature of this toxicant.	

Silver (µg/L)	0.05	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).
Uranium (µg/L)	0.5	For aquatic ecosystem protection, sourced from ANZG (2018).
Vanadium (µg/L)	6	For aquatic ecosystem protection, sourced from ANZG (2018).
Ammonia (µg/L)	900	Default guideline value for 95% level of species protection for aquatic ecosystems, sourced from ANZG (2018).
Nitrate (µg/L)	2,400	<i>Updating nitrate toxicity effects on freshwater aquatic species</i> (NIWA 2013).
Petroleum Hydrocarbon (C6–C9)	20	LOR is Limit of Reporting for typical analytical method.
Petroleum Hydrocarbon (C10–C36)	100	LOR is Limit of Reporting for typical analytical method.
Fluoride (total) (µg/L)	1,000	Dawson River Sub-basin Environmental Values and Water Quality Objectives (EHP 2011) for Long-term trigger value (LTV) in irrigation water (up to 100 years).
Sodium (mg/L)	1,000	Value shown has been determined based on modelled release water quality and consideration of minimum dilution of the release (Table F4 - Mine Affected Water Release During Flow Events).

Table notes:

- (a) All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
- (b) LOR (limit of reporting) – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.
- (c) The quality characteristics required to be monitored as per **Table F3 - Release Contaminant Trigger Investigation Levels, Potential Contaminants** can be reviewed once the results of at least two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk. It may be determined that a reduced monitoring frequency is appropriate or certain quality characteristics can be removed from **Table F3 - Release Contaminant Trigger Investigation Levels, Potential Contaminants** by amendment.

Table F4 - Mine Affected Water Release During Flow Events

Release Points	Receiving Water	Gauging Station	Gauging Station Latitude (GDA2020)	Gauging Station Longitude (GDA2020)	Receiving water flow recording frequency	Receiving water flow rate criteria for discharge	Maximum release rate
RP1	Dawson River	MP4	-24.2541	149.8297	Continuous (minimum daily) at MP4	$\geq 100 \text{ m}^3/\text{s}$ at MP4	$\leq 0.25 \text{ m}^3/\text{s}$ at end-of-pipe RP1

F16 Receiving environment monitoring and contaminant trigger levels

The quality of the receiving waters must be monitored at the locations specified in **Table F5 -Receiving water upstream background sites and downstream monitoring points** for each quality characteristic and at the monitoring frequency stated in **Table F6 - Receiving waters contaminant trigger levels**.

F17 If a water quality characteristic measured at the downstream compliance monitoring site specified in **Table F5 - Receiving water upstream background sites and downstream monitoring points** exceeds any the trigger levels specified in **Table F6 - Receiving waters contaminant trigger levels** the environmental authority holder must compare this result to the applicable control site and:

- (a) If the quality measured at a downstream compliance monitoring point is equal to or less than the quality measured at the applicable upstream control monitoring point, no further action is required; or
- (b) If the quality measured at a downstream compliance monitoring point is greater than the quality measured at the applicable upstream control monitoring point, complete an investigation into the cause of the deterioration in water quality and the potential for environmental harm and submit a written report to the administering authority within **28 days** outlining:
 - (i) details of the investigation carried out including any assumptions and limitations of the investigation
 - (ii) findings of the investigation including an explanation of the cause identified
 - (iii) recommendations of the investigation; and
 - (iv) actions taken to comply with the conditions of the environmental authority and to prevent environmental harm.

Table F5 - Receiving Water Upstream Background Sites and Downstream Monitoring Points

Monitoring Points	Receiving waters location description	Latitude (decimal degree, GDA2020)	Longitude (decimal degree, GDA2020)
Upstream control monitoring points			
Monitoring Point 1 (MP1) ¹	Banana Creek, adjacent to the site, 3.6km upstream of RP1.	-24.276	149.844
Monitoring Point 3 (MP3) ¹	Dawson River ~10,331 m upstream of RP1	-24.325	149.794
Monitoring Point 4 (MP4) ¹	Dawson River / Banana Creek Confluence 300 m upstream of RP1	-24.2541	149.8297
Downstream compliance monitoring points			
Monitoring Point 6 (MP6) ¹	Dawson River at Baralaba DR1 (Baralaba North Mine SWMP), 7 km downstream of RP1.	-24.208	149.819
Monitoring Point 10 (MP10) ¹	Immediately downstream at RP1 (within 1.1 km of the end of pipe release point location and within the same anabranch as RP1).	TBC by applicant (by grant of tenure)	TBC by applicant (by grant of tenure)

Table notes:

¹ MP4 upstream and MP10 downstream are the key applicable MPs for condition **F17(a)** and **F17(b)**. MP1/MP3 as replacement upstream back-ups (for EC) only if MP4 continuous EC monitoring is not functional, MP 6 as an important additional downstream MP to assist in compliance assessment (for protection of human drinking water supply impoundment).

²The EC or other water quality data from MP4/MP3 must not be used for condition **F17(a)** and **F17(b)** where affected by releases from other mines.

Table F6 - Receiving Waters Contaminant Trigger Levels

Quality characteristic	Trigger level	Monitoring frequency
pH (pH Units)	6.5–8.5 ^(a)	Daily during the release
Electrical Conductivity (µS/cm)	340 ^(a)	Continuous monitoring at MP4 and MP10 (minimum 30 minute mean) or daily grab sample if continuous monitoring equipment is not functional. Daily during the release for MP1, MP3 and MP6.
Turbidity (NTU)	Interpretation purposes only	Daily during the release
Total Suspended Solids (mg/L)	Interpretation purposes only	Daily during the release
Sulfate (SO ₄ ²⁻) (mg/L)	25 ^(a)	Daily during the release
Sodium (mg/L)	180 (for MP10)	Daily during the release
Sodium (mg/L)	30 (for MP6 and compared to upstream site MP4 (not MP10))	Daily during the release

Table notes:

^(a) Dawson River Sub-basin Environmental Values and Water Quality Objectives (EHP 2011).

F18 Water storage monitoring

All water storages, including erosion and sediment control structures, must be monitored monthly for:

- (a) all quality characteristics specified in **Table F2 - Mine affected water release limits** and **Table F3 - Release contaminant trigger investigation levels**.
- (b) include the volume of the water storage in ML at the time of monitoring.

F19 If water storage monitoring required by condition **F18**, for any erosion and sediment control structure, identifies an exceedance of any of the following parameters, all water in that structure must be transferred to a storage listed in **Table F1 - Mine-affected water release points**.

Parameters:

- (a) a water quality characteristic above the trigger level specified in **Table F3 - Release contaminant trigger investigation levels** (excluding sodium trigger from **Table F3**, replaced with **F19(e)** trigger value).
- (b) a pH range outside of 6.5 – 8.5;
- (c) an electrical conductivity of >340 $\mu\text{S}/\text{cm}$;
- (d) Sulfate >25 mg/L; or
- (e) Sodium >180 mg/L.

F20 Receiving Environment Monitoring Program (REMP)

Prior to the commencement of mining activities, a Receiving Environment Monitoring Program (REMP) Design Document must be:

- (a) prepared in accordance with condition F23; and,
- (b) submitted to the administering authority.

For the purposes of the REMP, the receiving environment refers to the waters of the Dawson River and connected or surrounding waterways within **10km** downstream of the mining activity.

F21 Any comments made by the administering authority on the REMP Design Document must be addressed to the reasonable satisfaction and within a timeframe specified by the administering authority.

F22 A REMP that has been prepared in accordance with the REMP Design Document must be implemented prior to the commencement of mining activities.

F23 The REMP must at a minimum:

- (a) address and comply with the latest version of the administering authority's guideline *Receiving environment monitoring program guideline (ESR/2016/2399)*; and
- (b) identify and describe all environmental values of the receiving environment; and
- (c) identify, describe and monitor any adverse impacts to surface water environmental values, quality, and flows; and
- (d) include an assessment of the potential impacts of the activity and propose appropriate mitigation measures; and

- (e) assess the long-term condition or state of surface waters, sediment, and aquatic ecosystem health; and
- (f) assess the status of and any change to aquatic ecosystem health including aquatic flora and fauna within and immediately surrounding the project area; and
- (g) assess the status of and any change to riparian vegetation health within and immediately surrounding the project area; and
- (h) include the locations listed in **Table F5 - Receiving water upstream background sites and downstream monitoring points** as well as MP7 (downstream Dawson River near Baralaba township and Neville Hewitt Weir), MP5 (upstream tributary 8) and MP9 (downstream tributary 8); and
- (i) assess the receiving environment monitoring results against quality indicators and objectives in **Table F6 - Receiving Waters Contaminant Trigger Levels, Table F3 - Release contaminant trigger investigation levels and scheduled water quality objectives**; and
- (j) apply procedures and/or guidelines from ANZG (2018) and other relevant standards and guideline documents; and
- (k) describe sampling and analysis methods and quality assurance and control; and
- (l) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.

F24 A REMP Annual Report must be prepared annually by **1 August** and submitted to the administering authority on request.

F25 The REMP Annual Report required by condition **F24** must:

- (a) be prepared by an appropriately qualified person; and
- (b) outline the findings of the REMP, including but not limited to:
 - (i) an assessment of long-term upstream water quality with consideration of flow condition; and
 - (ii) an assessment of the long-term condition or state of surface waters, sediment and aquatic ecosystem health with consideration of flow condition and release periods; and
 - (iii) recommendations for further investigation or actions; and
 - (iv) recommendations for changes or improvements to the monitoring program; and
 - (v) potential changes to management of the authorised activity to minimise impacts; and
 - (vi) all monitoring results; and
- (c) a description of all conclusions formed.

F26 Water Management Plan

Prior to commencement of mining activities, a Water Management Plan must be developed by an appropriately qualified person and implemented for all stages of the authorised activity.

- F27** The Water Management Plan required by condition **F26** must:
- (a) provide for effective water management of actual and potential environmental impacts resulting from the mining activity; and
 - (b) include at least the following:
 - (i) a description of the baseline condition including environmental values and water quality objectives of the receiving environment.
 - (ii) identification of the source of actual and potential contaminants; and
 - (iii) a water balance model for the site; and
 - (iv) a description of the water management system for the site; and
 - (v) details of the locations and design standards of all water management infrastructure; and
 - (vi) measures to prevent, manage and reduce saline and acid mine drainage; and
 - (vii) adaptive management measures to avoid or minimise impacts to environmental values
 - (viii) contingency procedures for incidents and emergencies; and
 - (ix) a program for monitoring and review of the effectiveness of the water management plan.
- F28** The Water Management Plan must be reviewed by <DAY MONTH to reflect date of first issue of EA>.
- The review must be documented and:
- (a) include a statement that the Water Management Plan has been reviewed by an appropriately qualified person; and
 - (b) assess the plan against the requirements under condition **F27**; and
 - (c) include recommended actions to ensure actual and potential environmental impacts are effectively managed; and
 - (d) provide details and timelines of the actions to be taken; and
 - (e) identify any amendments to be made to the Water Management Plan.
- F29** A copy of the Water Management Plan must be kept up to date following each annual review and must be provided to the administering authority on request.
- F30** **Erosion and sediment control plan**
- Prior to commencement of mining activities, an Erosion and Sediment Control Plan must be developed and implemented for all stages of the authorised activity.
- F31** The Erosion and Sediment Control Plan must demonstrate how erosion and sediment control measures detailed in the plan adequately minimise the release of sediment to receiving waters and must include at least the following:
- (a) an assessment of the size and characteristics of all catchment areas; and
 - (b) an assessment of relevant properties of soils and waste materials; and
 - (c) identification of receiving waters environmental values, water quality objectives and management intent; and
 - (d) specification of minimum design criteria for erosion and sediment control structures to achieve the management intent of receiving waters; and
 - (e) locations and descriptions of all erosion and sediment control measures;

and

- (f) an audit schedule to ensure erosion and sediment control measures are maintained.

- F32** The Erosion and Sediment Control Plan must be reviewed by <DAY MONTH to reflect date of first issue of EA>. The review must be documented and must:
- (a) include a statement that the Erosion and Sediment Control Plan has been reviewed by an appropriately qualified person; and
 - (b) assess the plan against the requirements of condition **F31**; and
 - (c) include recommended actions to ensure actual and potential environmental impacts are effectively managed; and
 - (d) provide details and timelines of the actions to be taken; and
 - (e) identify any amendments made to the Erosion and Sediment Control Plan.
- F33** A copy of the Erosion and Sediment Control Plan must be kept up to date following each annual review and must be provided to the administering authority on request.

Schedule G—Sewage Treatment

- G1** Unless otherwise permitted by this environmental authority, the only contaminant permitted to be released to land is treated sewage effluent in accordance with the limits stated in **Table G1 - Treated effluent release limits to irrigation area**.
- G2** All treated sewage effluent released to land must be monitored at the frequency and for the parameters specified in **Table G1 - Treated effluent release limits to irrigation area**.

Table G1 - Treated effluent release limits to irrigation area

Contaminant	Unit	Release limit	Limit type	Frequency
Volume	m ³ /day	53.6 (Construction period) 104.2 (Operational period)	Maximum	Daily
5 day Biochemical oxygen demand (BOD)	mg/L	20	Maximum	Monthly
Total suspended solids	mg/L	30	Maximum	Monthly
Total Nitrogen (TN)	mg/L	30	Maximum	Monthly
Total Phosphorus (TP)	mg/L	10	Maximum	Monthly
Enterococci / E.coli	CFU/100ml	1,000	Maximum	Monthly
pH	pH units	5.0–8.5	Range	Monthly
Electrical conductivity	µS/cm	1,600	Maximum	Monthly

Table notes: (1) Monitoring must be undertaken when treated sewage effluent is being irrigated, unless irrigation has ceased for longer than the relevant parameters specified minimum frequency (e.g. if Total Suspended Solids (TSS) was only required to be monitored once a week, then a TSS sample would not be required after the first week following cessation of the release).

- G3** The following information must be recorded in relation to all monitoring conducted for condition **G2**:
- (a) the date on which the sample was taken;
 - (b) the time at which the sample was taken;
 - (c) the monitoring point at which the sample was taken;
 - (d) the measured or estimated daily flow of effluent at the time of sampling; and
 - (e) the results of all monitoring.
- G4** The daily volume of sewage effluent release to land must be measured and records kept of the volumes of effluent released.
- G5** Treated sewage effluent may only be released to land in accordance with the conditions of this environmental authority within the effluent disposal area(s) identified in **Figure G1 - Sewage treatment plant and effluent disposal**.
- G6** A minimum land area of **2.1ha** for the construction period of the project, and **3.9ha** for the operational period, excluding any necessary buffer zones, must be utilised for the irrigation of treated sewage effluent.
- G7** The effluent disposal area(s) identified in condition **G5** must be fenced to:
- (a) prevent public access; and
 - (b) maintain a minimum buffer distance of 100m.
- G8** No less than **6 months** prior to any planned mining through the effluent disposal area(s) identified in condition **G5**, the environmental authority holder must complete an investigation into suitable alternative effluent disposal area(s) and prepare an updated *Baralaba South Land Based Effluent Disposal Assessment Report and MEDLI 2.5 Modelling* (Stantec 2025).
- G9** The outcomes of the investigation and the updated *Baralaba South Land Based Effluent Disposal Assessment Report and MEDLI 2.5 Modelling* (Stantec 2025) required by condition **G8** must be submitted to the administering authority within **28 days** of receiving the report.
- G10** Treated effluent released to land must be undertaken in a manner that ensures:
- (a) drainage to groundwater and subsurface flows of contaminants to surface waters are prevented;
 - (b) surface pondage and run-off of effluent is prevented;
 - (c) degradation of soil structure is minimised;
 - (d) soil sodicity and the build-up of nutrients and heavy metals in the soil and subsoil are minimised;
 - (e) spray drift or overspray does not carry beyond effluent disposal areas;
 - (f) effluent disposal areas are maintained with an appropriate crop in a viable state for transpiration and nutrient uptake; and
 - (g) sufficient buffer zones are maintained between irrigation sites and sensitive environmental receptors.

(h) The irrigated pasture must be harvested at least annually. Any biomass harvested/removed from plants growing on irrigated land must not be disposed of on the irrigated land.

- G11** When circumstances prevent the irrigation of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store or lawfully dispose of effluent.
- G12** Wet weather storage as required under condition **G11** with a minimum volume of 161m³ (construction period) and 313m³ (operational period) must be installed and maintained on the site for the storage of treated effluent.
- G13** Wet weather storage required by condition **G12** must be fenced and signed to prevent public access.

Schedule H—Land and Rehabilitation

H1 Rehabilitation

Land disturbed by the activity must be rehabilitated in accordance with **Table H1: Rehabilitation Objectives and Completion Criteria, Table H2: Final Land Use** and **Figure H1 - Post Mine Land Use Areas and Non-Use Management Areas**.

H2 Rehabilitation must commence progressively as soon as the land is available or within **6 years** of commencement of the operational period, whichever is the soonest.

H3 All exploration activities carried out under this environmental authority must be rehabilitated in accordance with the standard conditions in the *Eligibility criteria and standard conditions for exploration and mineral development projects* (ESR/2016/1985).

H4 Contaminated Land

Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under Condition H1.

H5 Topsoil management plan

A Topsoil Management Plan must be developed prior to the commencement of mining activities and implemented for all stages of the authorised activity.

- H6** The Topsoil Management Plan required by condition **H5** must describe:
- (a) topsoil requirements for the site and how topsoil will be managed for use in rehabilitation;
 - (b) procedures of a topsoil inventory which identify any topsoil deficits including availability of suitable topsoil and how any deficits will be managed for successful rehabilitation; and
 - (c) a strategy for stripping topsoil in advance of mining activities;
 - (d) how topsoil stockpiles are to be established and managed, so they do not become sterile;
 - (e) a strategy to place topsoil directly onto areas requiring rehabilitation wherever possible; and
 - (f) management of topsoil and topsoil stockpiles in accordance with the Erosion and Sediment Control Plan.

H7 Base case groundwater scenario

The holder must, no later than <6 months following the effective date of the environmental authority>, submit to the administering authority an updated numerical groundwater model and an updated long-term water balance model which have been recalibrated and had predictions rerun by an appropriately qualified person.

- H8** The updated models required under condition H7 must:
- (a) model the final landform 'Base case' without the 'Additional inputs case' scenario specified in the Groundwater Modelling and Assessment (Watershed HydroGeo Pty Ltd 2025); and
 - (b) predict the cumulative, long-term impact on water quality and levels in residual voids due to mining; and
 - (c) predict the post-mining drawdown and groundwater elevation in the alluvium, Rewan Formation, Baralaba Coal Measures and Gylanda Formation; and
 - (d) demonstrate that the outputs from each model have been used to assist in the modelling of post-mining conditions by the other model.

- H9** Where either updated model under conditions H7 and H8 indicates a potential risk of not being able to achieve the requirements of Table H1 - Rehabilitation Objectives and Completion Criteria, an amendment application must be submitted to the administering authority to address the risk within three (3) months of the risk being identified.

Table H1: Rehabilitation Objectives and Completion Criteria

Mine domain(s)	Land Outcome	Rehabilitation goals / objectives	Indicators	Completion criteria
<ul style="list-style-type: none"> Waste Rock Emplacements (in-pit and ex-pit). Low Walls and Ramps (above equilibrium water level). Infrastructure areas including Mine Infrastructure Area, ROM Pad, Product Pad, CHPP and haul roads. Mine affected water dams. Water Management Infrastructure (including dams, clean water drain/s). Final landform / flood protection bund. Minor disturbance area (topsoil stockpiles) 	Grazing	Site safe for humans and animals	<ol style="list-style-type: none"> Infrastructure removed or retained subject to landholder agreement. Erosional, geotechnical and flood stability. Slope analysis. Engineering supervision and design. Safety assessment. 	<p>All mine domains</p> <p>(a) With the exception of any infrastructure to remain as part of the post-mining land use (PMLU) or where infrastructure is agreed to be retained by the landholder as evidenced by a signed landholder agreement, the following are complete:</p> <ol style="list-style-type: none"> All services disconnected and removed; All buildings and associated infrastructure dismantled and removed offsite. All hardstand, concrete areas and roads (bitumen, blue metal, aggregate etc) removed. All fencing that is not part of the PMLU removed. All pipelines drained and removed. All waste not authorised to be disposed of on-site under this Environmental Authority removed. All surface water drainage infrastructure that does form part of the non use management area (NUMA) is removed. All drillholes, bores, sediment ponds and sumps decommissioned. All machinery and equipment, not required for rehabilitation works, removed from site. All dams dewatered, desilted and liners removed. All regulated dams decommissioned as per the advice of a suitably qualified and experienced person, including contaminated sediment along with synthetic liners removed and disposed of lawfully. <p>(b) All major earthworks (including reshaping, pushing/trimming) are completed in accordance with the design specification provided by an AQP.</p> <p>(c) Geotechnical assessment undertaken by an AQP confirms that the landform design will achieve long-term stability, meaning there is a low likelihood of mass failure.</p> <p>(d) Constructed landform achieves geotechnical stability with a Factor of Safety (FOS) ≥ 1.5, which includes consideration of flood stress.</p> <p>(e) Safety hazards in the rehabilitation area are assessed as being not significantly different to surrounding unmined landscapes subject to the same land use.</p>
	Grazing	Stable	(1) Erosional stability	<ol style="list-style-type: none"> Disturbed slopes not steeper than 15%. The land is structurally and erosionally stable. Selective placement of non-erosive materials and/or rock armouring to ensure landform stability during any flood event up to and including 0.1% AEP as per AQP's advice. With respect to erosion: <ol style="list-style-type: none"> No evidence of erosion classified as 'moderate' or 'severe' as defined below; Any erosion present will not compromise the achievement of a PMLU to a stable condition; and Erosion requiring intervention has been remediated and does not impact achieving the PMLU.

				<table border="1"> <thead> <tr> <th>Erosion classification</th> <th>Minor</th> <th>Moderate</th> <th>Severe</th> </tr> </thead> <tbody> <tr> <td>Sheet erosion</td> <td>Shallow soil deposits downslope.</td> <td>Partial exposure of roots; moderate soil deposits downslope.</td> <td>Loss of surface horizon; subsoil exposure; root exposure; substantial soil deposits downslope.</td> </tr> <tr> <td>Rill</td> <td><15 rills per transect*</td> <td>15–30 rills per transect*</td> <td>>30 rills per transect*</td> </tr> <tr> <td>Gully erosion</td> <td>Absent</td> <td>Absent</td> <td>Present</td> </tr> <tr> <td>Tunnel erosion</td> <td>Absent</td> <td>Absent</td> <td>Present</td> </tr> <tr> <td>Mass movement</td> <td>Absent</td> <td>Absent</td> <td>Present</td> </tr> </tbody> </table> <p>Source: NCST (2024) <i>Australian Soil and Land Survey Field Handbook, 4th edition</i>. The National Committee on Soil and Terrain. CSIRO Publishing, Collingwood, Australia.</p> <p>*Transect 100 m across the contour (Source: Tongway, D. J. and Hindley, N. L. 2005. <i>Landscape Function Analysis: Procedures for Monitoring and Assessing Landscapes</i>. CSIRO Publishing, Canberra, Australia.</p> <p>Additional criteria for final landform / flood protection bund:</p> <p>(f) Design report prepared by an AQP which confirms that the landform achieves stability under flood events up to and including PMF, including a sensitivity allowance for climate change.</p> <p>(g) Final landform bund and flood protection measures designed and constructed consistent with the findings of design report.</p> <p>(h) Minimum crest height to provide protection from inundation or overtopping in a Probable Maximum Flood (PMF) event including a sensitivity allowance for climate change.</p> <p>(i) Flood velocity at bund toe does not exceed 2 m/s unless suitably armoured.</p>	Erosion classification	Minor	Moderate	Severe	Sheet erosion	Shallow soil deposits downslope.	Partial exposure of roots; moderate soil deposits downslope.	Loss of surface horizon; subsoil exposure; root exposure; substantial soil deposits downslope.	Rill	<15 rills per transect*	15–30 rills per transect*	>30 rills per transect*	Gully erosion	Absent	Absent	Present	Tunnel erosion	Absent	Absent	Present	Mass movement	Absent	Absent	Present																	
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Grazing	Non-polluting	<p>(1) Surface water quality monitoring.</p> <p>(2) Groundwater monitoring.</p> <p>(3) Contaminated land assessment.</p> <p>(4) Technical design and certification of the final landform.</p>	<p>(a) Surface water runoff from rehabilitated areas and downstream results do not exceed the limits specified in the following:</p> <table border="1"> <thead> <tr> <th>Quality characteristic (units) ⁽¹⁾⁽²⁾⁽³⁾</th> <th>Limit ⁽²⁾⁽³⁾</th> <th>Comment on limit</th> </tr> </thead> <tbody> <tr> <td>pH</td> <td>6.5–8.5</td> <td>Lower Dawson River Sub-basin fresh waters WQO</td> </tr> <tr> <td>Electrical Conductivity (µS/cm)</td> <td>340</td> <td>Lower Dawson River Sub-basin fresh waters WQO. Baseflow</td> </tr> <tr> <td>Suspended Solids (mg/L)</td> <td>10</td> <td>Lower Dawson River Sub-basin fresh waters WQO</td> </tr> <tr> <td>Sulfate (mg/L)</td> <td>25</td> <td>Lower Dawson River Sub-basin fresh waters WQO</td> </tr> <tr> <td>Aluminium - dissolved (µg/L)</td> <td>55</td> <td>ANZG 2018</td> </tr> <tr> <td>Antimony - dissolved (µg/L)</td> <td>9</td> <td>ANZG 2018</td> </tr> <tr> <td>Arsenic - dissolved (µg/L)</td> <td>13</td> <td>ANZG 2018</td> </tr> <tr> <td>Boron - dissolved (µg/L)</td> <td>940</td> <td>ANZG 2018</td> </tr> <tr> <td>Cadmium - dissolved (µg/L)</td> <td>0.2</td> <td>ANZG 2018</td> </tr> <tr> <td>Chromium- dissolved (µg/L)</td> <td>1</td> <td>ANZG 2018</td> </tr> <tr> <td>Cobalt - dissolved (µg/L)</td> <td>1.4</td> <td>ANZG 2018</td> </tr> <tr> <td>Copper- dissolved (µg/L)</td> <td>1.4</td> <td>ANZG 2018</td> </tr> <tr> <td>Iron - dissolved (µg/L)</td> <td>280</td> <td>ANZG 2018</td> </tr> </tbody> </table>	Quality characteristic (units) ⁽¹⁾⁽²⁾⁽³⁾	Limit ⁽²⁾⁽³⁾	Comment on limit	pH	6.5–8.5	Lower Dawson River Sub-basin fresh waters WQO	Electrical Conductivity (µS/cm)	340	Lower Dawson River Sub-basin fresh waters WQO. Baseflow	Suspended Solids (mg/L)	10	Lower Dawson River Sub-basin fresh waters WQO	Sulfate (mg/L)	25	Lower Dawson River Sub-basin fresh waters WQO	Aluminium - dissolved (µg/L)	55	ANZG 2018	Antimony - dissolved (µg/L)	9	ANZG 2018	Arsenic - dissolved (µg/L)	13	ANZG 2018	Boron - dissolved (µg/L)	940	ANZG 2018	Cadmium - dissolved (µg/L)	0.2	ANZG 2018	Chromium- dissolved (µg/L)	1	ANZG 2018	Cobalt - dissolved (µg/L)	1.4	ANZG 2018	Copper- dissolved (µg/L)	1.4	ANZG 2018	Iron - dissolved (µg/L)	280	ANZG 2018
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Lead - dissolved (µg/L)	3.4	ANZG 2018
Manganese - dissolved (µg/L)	1,900	ANZG 2018
Mercury - dissolved (µg/L)	0.2	ANZG 2018
Molybdenum - dissolved (µg/L)	34	ANZG 2018
Nickel - dissolved (µg/L)	11	ANZG 2018
Selenium - dissolved (µg/L)	5	ANZG 2018
Silver - dissolved (µg/L)	0.05	ANZG 2018
Uranium - dissolved (µg/L)	0.5	ANZG 2018
Vanadium - dissolved (µg/L)	6	ANZG 2018
Zinc - dissolved (µg/L)	8	ANZG 2018
Ammonia (µg/L)	900	ANZG 2018
Nitrate (µg/L)	2,400	Updating nitrate toxicity effects on freshwater aquatic species (NIWA 2013).
Fluoride (total) (µg/L)	1,000	Lower Dawson River Sub-basin WQO for Long-term trigger value (LTV) in irrigation water (up to 100 years).
Total recoverable hydrocarbons (C6-C9) (µg/L) ⁽⁶⁾	20	For aquatic ecosystem protection, based on LOR for GCMS ⁽³⁾⁽⁴⁾
Total recoverable hydrocarbons (C10-C36) (µg/L)	100	For aquatic ecosystem protection, based on LOR for GCMS ⁽³⁾⁽⁴⁾
Major ions (mg/L) Calcium, chloride, potassium, magnesium, sodium, bicarbonate, carbonate	For interpretation purposes	-

Table notes:

- (1) All metals and metalloids must be measured as 'dissolved' (from analysis of a field filtered sample) and total (unfiltered).
 - (2) Limits for metals and metalloids apply to dissolved results.
 - (3) LOR (limit of reporting) – typical reporting for method stated.
 - (4) GCMS – analytical method required to achieve LOR
- (b) For a minimum of **5 consecutive years** groundwater quality must be monitored quarterly at the locations identified **Table E1 - Groundwater monitoring locations and frequency**, for all quality characteristics listed in **Table E2 - Groundwater quality limits**. Groundwater Quality Groundwater quality measured from compliance bores specified in **Table E1 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit A specified in **Table E2 - Groundwater quality limits** on any **5** consecutive monitoring occasions . Groundwater quality measured from compliance bores specified in **Table E1 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit B specified in **Table E2 - Groundwater quality limits** on any **3** consecutive monitoring occasions .
- (c) Contaminated and hazardous material either remediated in-situ or removed/transported to facility lawfully able to accept the material.
- (d) The land has either been removed from the environmental management register, or the land has a site management plan approved.
- (e) Contaminated Land Auditor certifies that that no contamination unsuitable for the PMLU remains or is occurring.
- (f) Coal rejects are disposed of within the waste rock emplacement with cover of at least **5 m** final thickness of spoil (or thicker cover as determined by an AQP) and must not report to final landform surfaces (or near-surfaces).

(g) No presence of potentially acid forming reject material at the surface.

	Grazing	Self-sustaining and achieves the post mining land use	(1) Species diversity and composition. (2) Presence of key species. (3) Soil testing. (4) Land suitability assessment. (5) Groundcover percentage. (6) Weed abundance monitoring.	(a) Topsoil placement of a minimum of 200 mm. (b) Ameliorants and physical treatments, such as fertiliser, lime, gypsum and/or organic matter, are added to improve soil quality characteristics, at rates recommended by an AQP. (c) Following amelioration, representative soil testing of growth media confirms that the relevant depths within the effective root zone meet the following suitability targets: <ul style="list-style-type: none"> (i) Emerson aggregate class: <3; (ii) pH in the range of >5.6 and <8.4; (iii) Available Phosphorous (P): ≥4 mg/kg (iv) ECe (Electrical conductivity from a saturated extracted) ≤1.5 dS/cm; and (v) Exchangeable sodium percentage (ESP%) < 6 %. (d) >70% established and self-sustaining vegetative groundcover. (e) With the exception of a non-permanent cover crop species, the seed mix must be spread at the minimum seeding rate of 15 kg/ha of seed unless adjusted by an AQP, and contain only those species listed below.
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Species*	Seeding rate (kg/ha)
Brigalow (<i>Acacia harpophylla</i>)	0.3
Cover crop (e.g., <i>Sorghum arudinaceum</i>)	6
Desmanthus (<i>Desmanthus</i> spp)	2
Forest Bluegrass (<i>Bothriochloa bladhii</i>)	2
Ghost Gum (<i>Corymbia dallachiana</i>)	0.3
Glycine Pea (<i>Glycine tabacina</i>)	2
Green Panic (<i>Megathyrus maximus var. publigumis</i>)	4
Grey Bloodwood (<i>Corymbia clarksoniana</i>)	0.3
Grey Box (<i>Eucalyptus moluccana</i>)	0.3
Gum-top Ironbark (<i>Eucalyptus decorticans</i>)	0.3
Kangaroo Grass (<i>Themeda triandra</i>)	2
Lemon-scented Gum (<i>Corymbia citriodora</i>)	0.3
Mitchell Grass (<i>Astrebla species</i>)	4
Moreton Bay Ash (<i>Corymbia tessellaris</i>)	0.3
Native Sensitive Plant (<i>Neptunia gracilis</i>)	2
Narrow-leaved Ironbark (<i>Eucalyptus crebra</i>)	0.3
Panics (<i>Panicum</i> spp. (Native))	2
Paperbark Tea-tree (<i>Melaleuca nervosa</i>)	0.3
Pink Bloodwood (<i>Corymbia intermedia</i>)	0.3
Poplar Box (<i>Eucalyptus populnea</i>)	0.3
Purple top Rhodes grass (<i>Chloris inflata</i>)	4
Queensland Bluegrass (<i>Dichanthium sericeum</i>)	2
Queensland Peppermint (<i>Eucalyptus exserta</i>)	0.3
Red Ash (Soap Tree) (<i>Alphitonia excelsa</i>)	0.3
Rhyncho (<i>Rhynchosia minima</i>)	2
Silver-leaved Ironbark (<i>Eucalyptus melanophloia</i>)	0.3

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Residual Void (including Low Walls (below equilibrium water level), Highwalls, End Walls, Ramps (below equilibrium water level), Floor and Water Body)	NUMA	<p>(a) Achieve best practice management of the area.</p> <p>(b) Minimises risks to the environment.</p>	<p>(1) Flood, surface water and groundwater modelling.</p> <p>(2) AQP certification.</p> <p>(3) Slope analysis.</p> <p>(4) Final landform surveys.</p> <p>(5) Erosional and geotechnical stability.</p> <p>(6) Presence of permanent safety barriers and signage around the residual void.</p>	<p>(a) Access prevented to the NUMA (bundling, security fencing / barriers, and safety signage in accordance with Australian Standard AS1319-1994 as a minimum).</p> <p>(b) The residual void is safe to humans and livestock and will not present an unacceptable risk of environmental harm.</p> <p>(c) Predictive modelling undertaken by an AQP confirming that the void will remain as a groundwater sink and that there is no risk of contaminant release to the receiving environment or PMLUs surrounding the NUMA post mining, or outside of the tenure boundaries.</p> <p>(d) Certification by an AQP that the final landform has been constructed in accordance with the final design.</p> <p>(e) Residual void batters to achieve the nominated stable slopes of:</p> <ul style="list-style-type: none"> (i) highwalls and end walls: $\leq 84\%$; and (ii) low walls (below equilibrium surface water level): $\leq 62.5\%$. <p>(f) Void (including highwalls, end walls and low walls below the equilibrium water level) assessed to be erosionally and geotechnically stable by an AQP and modelled to achieve a factor of safety of ≥ 1.5.</p> <p>(g) The water level and quality in the void does not, and will not, cause environmental harm to the receiving environment, as demonstrated by groundwater level, surface water and groundwater quality monitoring and modelling.</p> <p>(h) Void retains flood immunity up to a PMF event, including a sensitivity allowance for climate change, supported by flood modelling re-run at end of life and calibrated against the final landform.</p> <p>(i) Safety bund constructed with non-weathered and non-dispersive competent rock material and to a geometry that prevents traversing by vehicles.</p> <p>(j) Safety bund setback distance is in accordance with calculated geotechnical factor of safety.</p>												

				<p>(k) The location of the voids and associated safety bunds does not cause instability or degradation to the land outside the NUMA.</p> <p>(l) Erosion of the landform within the NUMA area will not negatively impact on the stability of any adjacent rehabilitation areas, or their ability to sustain their PMLU.</p> <p>Additional criteria for Low Walls and Ramps (where below the equilibrium water level)</p> <p>(m) Aerial seeded, or seeded, where possible within the NUMA extent to provide an interim use and stability until such time as the predicted final void surface water level of - 61m AHD is reached.</p>
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Table H2: Final Land Use

Mine domain	RA1 Ex-pit/Inpit WRE	RA2 Water management infrastructure (dams, mine affected water dams, clean water drain/s).	RA3 Infrastructure areas (Mine Infrastructure Area, ROM Pad, Product Pad, CHPP and haul roads)	RA4 Final landform bund	RA5 Other minor disturbance and safety bund	IA1 Residual void containment area (remaining highwall and endwalls of residual void)	IA2 Residual void water body
Surface area (ha) 1195.86 TOTAL	824.09	79.19	39.22	11.73	127.42	71.94	42.27
Pre-mine land use	Improved pasture grazing	Improved pasture grazing	Improved pasture grazing	Improved pasture grazing	Improved pasture grazing	Improved pasture grazing	Improved pasture grazing
Land outcome (Post-Mining Land Use or Non-Use Management Area)	Improved pasture grazing	Improved pasture grazing	Improved pasture grazing	Improved pasture grazing	Improved pasture grazing	Non-Use Management Area	Non-Use Management Area
Post-mine land classification (agriculture land suitability) – Grazing only⁽¹⁾	Class 3 Land suitability	Class 3 Land suitability	Class 3 Land suitability	Class 3 Land Suitability	Class 3 Land Suitability	N/A	N/A

Table notes:

(1) Land suitability as assessed by an AQP in accordance with the most recent version of the *Guidelines for agricultural land evaluation in Queensland* (DSITI & DNRM, 2015)

Schedule I—Regulated Structures

I1 Assessment Consequence Category

The consequence category of any structure must be assessed by a suitable qualified and experienced person in accordance with the latest version of the 'Manual for assessing consequence categories and hydraulic performance of structures' (*ESR/2016/1933*) at the following times:

- (a) Prior to the design and construction of the structure; or
- (b) Prior to any change in its purpose or the nature of its stored contents.

I2 A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

I3 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the latest version of the 'Manual for assessing consequence categories and hydraulic performance of structures' (*ESR/2016/1933*).

I4 Design and construction of a regulated structure

All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the latest version of the 'Manual for assessing consequence categories and hydraulic performance of structures' (*ESR/2016/1933*).

Note: Certification of design and construction may be undertaken by different persons.

I5 Construction of a regulated structure is prohibited unless:

- (a) the environmental authority holder has submitted a consequence category assessment report and certification to the administering authority; and
- (b) certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this environmental authority.

I6 Certification must be provided by the suitable qualified and experienced person who oversees the preparation of the design plan in the form set out in the latest version of the 'Manual for assessing consequence categories and hydraulic performance of structures' (*ESR/2016/1933*) and must be recorded in the register of regulated structures.

I7 Regulated structures must:

- (a) be designed and constructed in compliance with the latest version of the 'Manual for assessing consequence categories and hydraulic performance of structures' (*ESR/2016/1933*);
- (b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:
 - (i) floodwater from entering the regulated dam from any watercourse or drainage line; and

- (ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line.
- (c) have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

I8 Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

- (a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; and
- (b) construction of the regulated structure is in accordance with the design plan.

I9 Notification of affected persons

All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure for each of the following:

- (a) Prior to the operation of the new regulated structure; and,
- (b) If the emergency action plan is amended, within **5 business days** of it being amended.

I10 Operation of a regulated structure

Operation of a regulated structure is prohibited unless the holder has submitted to the administering authority in respect of regulated structure, all of the following:

- (a) one electronic copy of the design plan and certification of the 'design plan' in accordance with condition **I5**;
- (b) a set of 'as constructed' drawings and specifications;
- (c) certification of the 'as constructed drawings and specifications' in accordance with condition **I8**;
- (d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the Design Storage Allowance (DSA) volume across the system, a copy of the certified system design plan;
- (e) the requirements of this environmental authority relating to the construction of the regulated structure have been met;
- (f) the holder has entered the details required under this environmental authority into a Register of Regulated Structures; and,
- (g) there is a current operational plan for the regulated structure.

I11 Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.

I12 Mandatory Reporting Level

Conditions I13 to I16 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

- I13** The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that, during routine inspections of that dam, it is clearly observable.
- I14** The holder must, as soon as practicable but within **48 hours** of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
- I15** The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
- I16** The holder must record any changes to the MRL in the Register of Regulated Structures.

I17 Design storage allowance

The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to **1 July** of each year.

- I18** By **1 November** of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the DSA volume for the dam (or network of linked containment systems).
- I19** The holder must, as soon as practicable but within **48 hours** of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November** of any year, notify the administering authority.
- I20** The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November** of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

I21 Annual inspection report

Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

- I22** At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.
- I23** The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the latest version of the 'Manual

for assessing consequence categories and hydraulic performance of structures' (ESR/2016/1933).

I24 The holder must within **20 business days** of receipt of the annual inspection report, provide to the administering authority:

- (a) the recommendations section of the annual inspection report;
- (b) if applicable, any actions being taken in response to those recommendations; and
- (c) if, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the holder, provide this to the administering authority within **10 business days** of receipt of the request.

I25 **Transfer Arrangements**

The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this environmental authority.

I26 **Register of Regulated Structures**

A Register of Regulated Structures must be established and maintained by the holder for each regulated structure:

I27 The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.

I28 The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition **I10** has been achieved.

I29 The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.

I30 All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this environmental authority, or their delegate, as being accurate and correct.

I31 The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.

I32 Decommissioning of Regulated Structure

Regulated structures must not be abandoned but instead:

- (a) decommissioned and rehabilitated to achieve compliance with **Table H1: Rehabilitation Objectives and Completion Criteria**; or
- (b) be left in-situ for a use by the landholder provided that:
 - (i) it no longer contains contaminants that will migrate into the environment; and
 - (ii) it contains water of a quality that is demonstrated to be suitable for its intended use(s); and
 - (iii) the holder of the environmental authority and the landholder agree in writing that the:
 - (1) dam will be used by the landholder following the cessation of the environmentally relevant; and
 - (2) landholder is responsible for the same, on and from an agreed date.

Schedule J—Biodiversity**J1 Impacts to Prescribed Environmental Matters**

Impacts to matters of prescribed environmental matters as a result of carrying out the activity must only occur within the locations and to the maximum extents stated in **Table J1 - Significant residual impacts to prescribed environmental matters**.

Table J1 - Significant Residual Impacts to Prescribed Environmental Matters

Prescribed environmental matters	Location of impact	Offset required under <i>Environmental Offsets Act 2014</i>	Maximum Extent Impact Area (ha)
Connectivity area			
Connectivity area that is a regional ecosystem (not in an urban area) – RE 11.3.25, 11.5.9 and 11.5.15	Refer Figure J1 - Connectivity areas	Yes	10
Waterway providing for fish passage			
Fish passage (not in an urban area) Waterways Providing for Fish Passage	Refer Figure J2 - Fish passage	Yes	2.03
Protected wildlife habitat			
Habitat for a plant that is endangered wildlife - <i>Xerothamnella herbacea</i> *	Refer Figure J3 - Habitat for a plant that is endangered wildlife - <i>Xerothamnella herbacea</i>	No*	2.3
Habitat for an animal that is vulnerable wildlife - Koala (combined populations of QLD, NSW and the ACT) (<i>Phascolarctos cinereus</i>)*	Refer to Figure J4 - Habitat for an animal that is vulnerable wildlife - Koala	No*	24.1

Habitat for an animal that is vulnerable wildlife - Ornamental Snake (<i>Denisonia maculata</i>)*	Refer to Figure J5 - Habitat for an animal that is vulnerable wildlife - Ornamental Snake	No*	34.8
Habitat for an animal that is vulnerable wildlife - Squatter Pigeon (southern subspecies) (<i>Geophaps scripta scripta</i>)*	Refer to Figure J6 - Habitat for an animal that is vulnerable wildlife - Squatter Pigeon	No*	21.6

Table notes:

* Significant residual impacts to Matters of National Environmental Significance are proposed to be offset under the *Environment Protection and Biodiversity Act 1999* (Cth).

- J2** All impacts to MSES must be determined, documented, and mapped by an appropriately qualified person.
- J3** Records of impacts to MSES under conditions **J1** must be kept for the life of the environmental authority and include:
- (a) the size and extent of impact; and
 - (b) details about the condition of the MSES (e.g. dominant vegetation and remnant status); and
 - (c) a determination of whether the impact is a significant residual impact.
- J4** Records demonstrating that impacts to prescribed environmental matters not listed in **Table J1- Authorised residual impacts to prescribed environmental matters** did not, or is not likely to, result in a significant residual impact to that matter must be:
- (a) completed by an appropriately qualified person; and
 - (b) kept for the life of the environmental authority.
- J5** **Environmental Offsets**
- An environmental offset must be made in accordance with the *Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy, as amended from time to time, for the maximum extent of impact to each prescribed environmental matter as requiring an offset as listed in **Table J1- Authorised residual impacts to prescribed environmental matters**.
- Note:** Deemed conditions provided in section 16 of the *Environmental Offsets Act 2014* also apply to this authority. Any contravention of a deemed condition will be dealt with under the *Environmental Protection Act 1994*.
- J6** The environmental offset required by condition **J5** can be delivered for each stage of impact.
- J8** **Four (4) months** prior to the commencement of each stage, a report completed by an AQP that includes an analysis of the following, must be provided to the administering authority:
- (a) For the forthcoming stage—the estimated significant residual impacts to each prescribed environmental matter; and

(b) For the previous stage, if applicable—the actual significant residual impacts to each prescribed environmental matter, to date.

- J8** The report required by Condition **H16** must be approved by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority
- J9** A notice of election for the staged environmental offset referred to in Condition **J7** must be provided to the administering authority no less than **3 months** before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.
- J10** Within **6 months** from the completion of the final stage of the authorised activities, a report completed by an AQP that includes the following matters must be provided to the administering authority:
- (a) An analysis of the actual impacts on prescribed environmental matters resulting from the final stage.
 - (b) If applicable, a notice of election to address any outstanding offset debits for the authorised impacts.

Appendix A—Definitions

Key terms and/or phrases used in this document are defined in this section. Where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

Acid and Metalliferous Drainage: means drainage that is characterised by low pH, elevated metal concentrations, high sulfate concentrations and/or high salinity.

Affected Person: A person whose drinking water can potentially be impacted as a result of discharges from a dam or their life can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

Airblast overpressure: energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

Ambient: in relation to air quality means the immediate and extended surroundings of the mining activity or receiving environment.

Annual Exceedance Probability (AEP): has the meaning given under the most recent version of the guideline *Australian Rainfall and Runoff: A guide to flood estimation (ARR)* (Commonwealth of Australia (Geoscience Australia) 2019).

Annual inspection report: an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan):

- (a) against recommendations contained in previous annual inspections reports;
- (b) against recognised dam safety deficiency indicators;
- (c) for changes in circumstances potentially leading to a change in consequence category;
- (d) for conformance with the conditions of this authority;
- (e) for conformance with the 'as constructed' drawings;
- (f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems);
- (g) for evidence of conformance with the current operational plan.

ANZG 2018: Australian and New Zealand Governments and Australian state and territory governments (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Canberra: Australian and New Zealand Governments. Available at: www.waterquality.gov.au

Appropriately Qualified Person or AQP: means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

Assessed or assessment: by a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in

that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

- (a) exactly what has been assessed and the precise nature of that determination;
- (b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;
- (c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- (d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

Background: with reference to the water schedule, means the average of samples taken prior to the commencement of the authorised activity from the same waterway that the current sample has been taken.

Baseline: with reference to the groundwater schedule, means the average of samples taken prior to the commencement of the authorised activity from the same groundwater monitoring bores.

Blasting: The use of explosive material to fracture:

- (a) rock, coal or other materials for later recovery; or,
- (b) structural components or other items to facilitate removal from a site or for reuse.

Bund (or Bund Wall or Bunding): An embankment that is constructed around an area and/or structure that is designed to provide for safety, or to prevent inflow or outflow of water or can be used to reduce the impact of noise to the surrounding environment.

Certification means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this Manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

'certification', 'certifying' or 'certified' by an appropriately qualified and experienced person in relation to a design plan or an annual report regarding dams/structures, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- (a) exactly what is being certified and the precise nature of that certification;
- (b) the relevant legislative, regulatory and technical criteria on which the certification has been based;
- (c) the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts;
- (d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

Chemical means:

- (a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and Veterinary Chemicals Code Act 1994 (Commonwealth), or
- (b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council, or

- (c) a lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 2011, or
- (d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth, or
- (e) any substance used as, or intended for use as:
 - (i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product, or
 - (ii) a surface active agent, including, for example, soap or related detergent, or
 - (iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide, or
 - (iv) a fertiliser for agricultural, horticultural or garden use, or
 - (v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater, or
- (f) manufacture of plastic or synthetic rubber.

Coal Reject: Solid waste produced during the processing of coal, typically from a coal handling and processing plant (CHPP). Coal reject is produced in different size fractions - fine (such as tailings) through to very coarse (such as breaker rejects) and combinations thereof.

Commercial Place: A workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

Compliance bore: refers to a groundwater monitoring bore which is the subject of compliance requirements for groundwater quality and/or level.

Consecutive monitoring occasions: means consecutive sequential sampling occasions regardless of frequency.

Consequence in relation to a structure as defined, means the potential for environmental harm resulting from the collapse or failure of the structure to perform its primary purpose of containing, diverting or controlling flowable substances.

Consequence Category: A category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

Construction or constructed in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for the purpose of preparing a design plan

Construction period: for the purpose of Schedule G – Sewage Treatment means the period during which the only mining activities being undertaken are those described in condition A21(a) to A21(c) and construction of supporting infrastructure (e.g. water storage dams, road and tracks, buildings and other structures) required to enable the commencement of the open cut mining operation.

Dam: A land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works.

Design Plan: Documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include design and investigation reports, specifications and certifications,

together with the planned decommissioning and rehabilitation works and outcomes. A design plan may include 'as constructed' drawings.

Design storage allowance or **DSA** means an available volume, estimated in accordance with the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/193313) published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that Manual.

Disturbance: of land includes:

- (a) compacting, removing, covering, exposing or stockpiling of earth;
- (b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;
- (c) carrying out mining within a watercourse, waterway, wetland or lake;
- (d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;
- (e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or
- (f) releasing of contaminants into the soil or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':

- (i) areas off lease (e.g. roads or tracks which provide access to the mining lease)
- (ii) areas previously disturbed which have achieved the rehabilitation outcomes
- (iii) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions)
- (iv) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner
- (v) disturbance that pre-existed the grant of the tenure.

EC means electrical conductivity.

Effluent: Treated wastewater released from sewage treatment plants.

Electrical Conductivity: The measure of water's capability to pass electrical flow, which is directly relation to the concentration of ions in the water.

EP Act: means the *Environmental Protection Act 1994*.

Equilibrium means a state where 'balance' is achieved despite changing variables.

Flowable substance means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

Groundwater Dependent Ecosystems (GDE): Natural ecosystems that require access to groundwater to meet all or some of their water requirements on a permanent or intermittent basis

so as to maintain their communities of plants and animals, ecological processes and ecosystem services.

Hazardous Material: Substance, whether liquid, solid or gaseous that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause environmental harm.

Hydraulic Performance: Capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/193314).

Hydrogeological unit is any soil or rock unit or zone that by virtue of its hydraulic properties has a distinct influence on the storage or movement of groundwater.

Interpretation bore: a monitoring bore located outside of any potential influence or impact by the mining activity, that is used for comparative and interpretative purposes and represents natural background quality and levels similar to the hydrogeological units of the compliance bores.

$L_{Aeq, adj, 15min}$: The A-weighted sound pressure level of a continuous steady sound, (adjusted for tonal character and impulsiveness of the sound) within a 15-minute period has the same mean square sound pressure of a sound that varies with time.

$L_{A1, adj, 15min}$: The A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 15-minute measurement period, using Fast response

Land use: the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

Leachate: Liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

m: metres.

Mandatory reporting level or **MRL** means a warning and reporting level determined in accordance with the criteria in the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/193314) published by the administering authority.

Maximum extent of impact: the total, cumulative, residual extent and duration of impact to a prescribed environmental matter that will occur over a project's life after all reasonable avoidance and reasonable on-site mitigation measures have been, or will be, undertaken.

Mine Affected Water: the following types of water:

- (a) means the following types of water:
 - i) pit water, tailings dam water, processing plant water;
 - ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the *Environmental Protection Regulation 2019* if it had not formed part of the mining activity;
 - iii) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;

- iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;
 - v) groundwater from the mine's dewatering activities;
 - vi) a mix of mine affected water (under any of paragraphs i)-v) and other water.
- (b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:
- i) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or
 - ii) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:
- (c) areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;
- (d) evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff; or
- (e) both.

Mineral waste: means waste materials resulting from the extraction of coal including overburden, inter-burden, waste rock and rejects (including coarse and fine).

Minimise: is to reduce to the smallest possible amount or degree.

Mining activity/mining activities: the activities:

- (a) authorised as per the definition in section 110 of the *Environmental Protection Act 1994*; and
- (b) all environmentally relevant activities authorised under this environmental authority; and
- (c) waste activities; and
- (d) rehabilitation

Monitoring bore: a groundwater bore that provides access to groundwater for measuring its quality and level; and allows groundwater samples to be withdrawn for laboratory analysis.

NATA: National Association of Testing Authorities, Australia.

Natural Flow: Flow of water through waters caused by nature.

Non-Acid Forming (NAF): Considered unlikely to be a source of acidic drainage.

Non-mineral waste: all other waste generated by the authorised activities not identified in the definition for 'mineral waste'

Non-polluting: Having no adverse impacts upon the receiving environment.

Notice of election has the meaning in section 18(2) *Environmental Offsets Act 2014*.

Operational period: means the period after which mining activities other than those undertaken during the construction period have commenced.

Operational plan includes:

- (a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA);
- (b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

Peak particle velocity (ppv): a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mm/s).

PM₁₀: particulate matter with an equivalent aerodynamic diameter of 10 micrometres or less.

PM_{2.5}: particulate matter with an equivalent aerodynamic diameter of 2.5 micrometres or less.

Potentially Acid Forming (PAF): Material that has a significant sulphur content and is likely to generate acid in excess of its inherent neutralising capacity.

Prescribed environmental matters has the meaning in section 10 of the *Environmental Offsets Act 2014*.

Project: means the Baralaba South Project to which this environmental authority relates.

Receiving environment: in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to):

- (a) a watercourse
- (b) groundwater
- (c) an area of land that is not specified in **Table A1. Maximum disturbance area for each mine feature** of this environmental authority.

Receiving Waters: Waters into which this environmental authority authorises releases of mine affected water.

Register of Regulated Structures: includes:

- (a) Date of entry in the register;
- (b) Name of the structure, its purpose and intended/actual contents;
- (c) The consequence category of the dam as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/193315);
- (d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;
- (e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
- (f) For the regulated dam, other than in relation to any levees –
 - (i) The dimensions (l) and surface area (hectares) of the dam measured at the footprint of the dam;
 - (ii) Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
 - (iii) Dam crest volume (megalitres);
 - (iv) Spillway crest level (metres AHD).
 - (v) Maximum operating level (metres AHD);

- (vi) Storage rating table of stored volume versus level (metres AHD);
- (vii) Design storage allowance (megalitres) and associated level of the dam (metres AHD);
- (viii) Mandatory reporting level (metres AHD);
- (g) The design plan title and reference relevant to the dam;
- (h) The date construction was certified as compliant with the design plan;
- (i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- (j) Details of the composition and construction of any liner;
- (k) The system for the detection of any leakage through the floor and sides of the dam;
- (l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
- (m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- (n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

Regulated Structure: Any structure in the significant or high consequence category as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) published by the administering authority. A regulated structure does not include:

- (a) a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container;
- (b) a sump or earthen pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities; and
- (c) a flare pit.

Release event: a surface water discharge from mine affected water storages or contaminated areas on the licensed place.

Representative: a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

Residual Void (or Final Void): An open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

RL: reduced level, relative to mean sea level as distinct from depths to water.

Self-sustaining: An area of land which has been rehabilitated and has maintained the required completion criteria without human intervention for a period nominated by the administering authority.

Runoff: a portion of precipitation (rain, hail and snow) that flows across the ground surface as water.

Sensitive Place: includes the following and includes a place within the curtilage of such a place reasonably used by persons at that place

- (a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- (b) a motel, hotel or hostel; or
- (c) a kindergarten, school, university or other educational institution; or
- (d) a medical centre or hospital; or

- (e) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 2004 or a World Heritage Area; or
- (f) a public park or garden; or
- (g) for noise, a place defined as a sensitive receptor for the purposes of the Environmental Protection (Noise) Policy 2019.

Significant Residual Impacts: has the meaning in section 8 *Environmental Offsets Act 2014*.

Site: means the Baralaba South Project to which this environmental authority relates.

Spillway: a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from the dam, normally under flood conditions or in anticipation of flood conditions.

Spoil Dump: The area where mine waste (overburden or other waste material removed in mining, quarrying, dredging, or excavating) are disposed of or piled.

Suitably qualified and experienced person: in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 2002, and has demonstrated competency and relevant experience:

- (a) for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design
- (b) for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

System design plan: a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.

The Act: means the *Environmental Protection Act 1994*.

Terrestrial: Living on land or on the ground.

Topsoil: The upper most layer of soil where the highest concentration of organic matter and micro-organisms are found.

Total Suspended Particulate (TSP): means the mass of all particulate matter suspended in a solution (e.g., the air)..

µS/cm: micro siemens per centimetre.

µS/L: Micro siemens per litre.

Void: Any man-made, open excavation in the ground.

Waste: has the meaning in section 8AA of the *Waste Reduction and Recycling Act 2011*.

Waste and resource management hierarchy: has the meaning in Section 9 of the *Waste Reduction and Recycling Act 2011*.

Water: is defined under Schedule 4 of the *Water Act 2000*.

Water Quality: The chemical, physical and biological condition of water.

Water Quality objective (WQO): A numerical concentration limit or narrative statement that has been established to support and protect the designated uses of water at a specified site. It

is based on scientific criteria or water quality guidelines but may be modified by other inputs such as social, cultural or economic constraints. WQOs are specified in the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (Part 4, Section 11).

Waters: includes all or any part of a creek, river, stream, lake, lagoon, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed, and bank of any waters, non-tidal or tidal waters (including sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, water confined in natural or artificial structures and underground water (or groundwater).

Water monitoring: means all water quality parameters and samples, discharge flow rates, volume of discharge per event, duration of discharge event, flow rate of receiving water for surface water and groundwater level for groundwater.

WaTERS: Water Tracking and Electronic Reporting System or subsequent updated system, used to submit monitoring data and notify the Queensland Government. It is available at www.waters.des.qld.au or by contacting psd.help@detsi.qld.gov.au.

Appendix A—Figures

Note: These figures have been extracted from the EIS and will be required to be updated by the proponent prior to finalisation of the EA.

Figure A1 – Project Layout: Authorised Maximum Disturbance Areas



Figure E1 - Groundwater monitoring locations

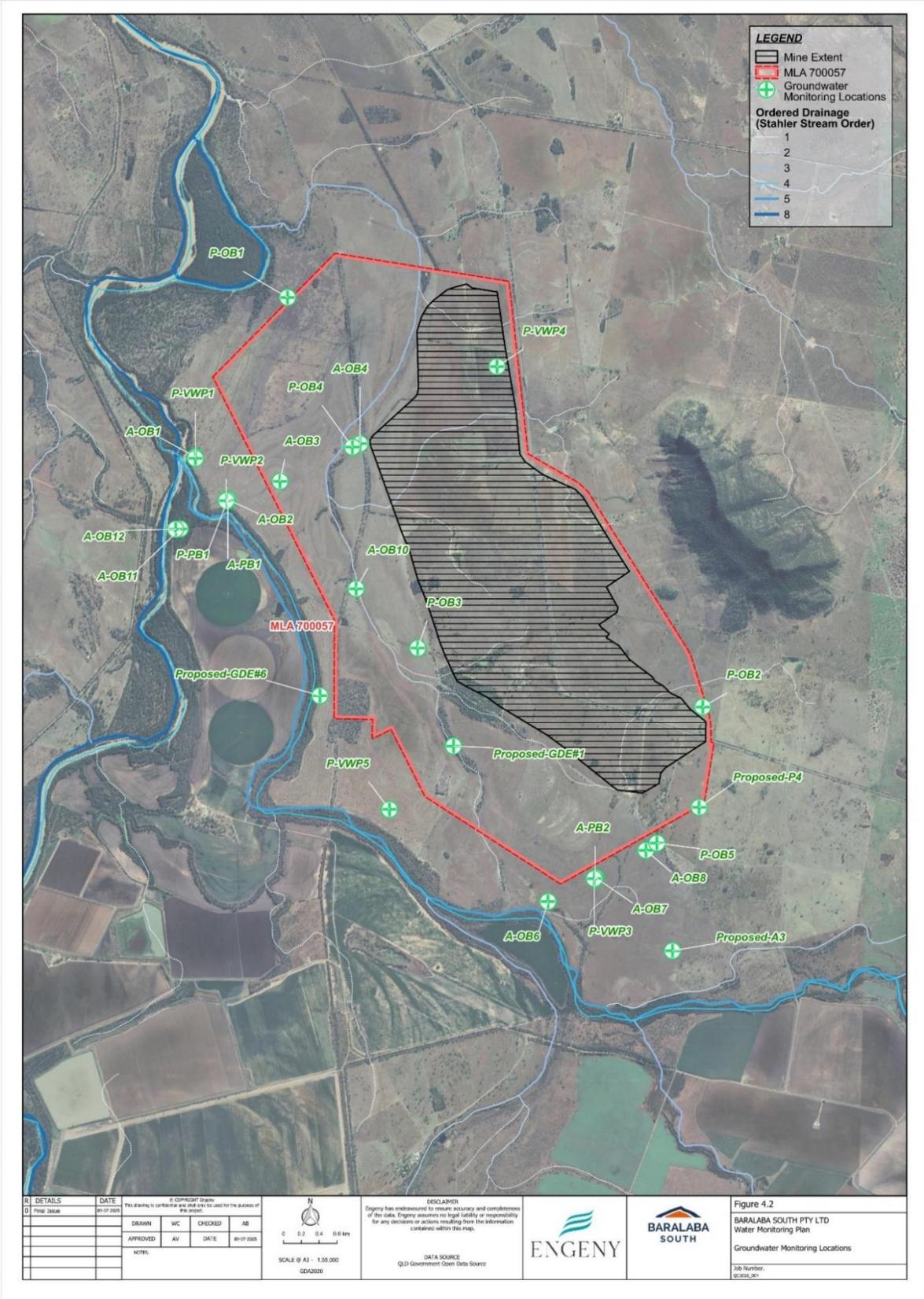


Figure E2: Groundwater Dependent Ecosystems Locations

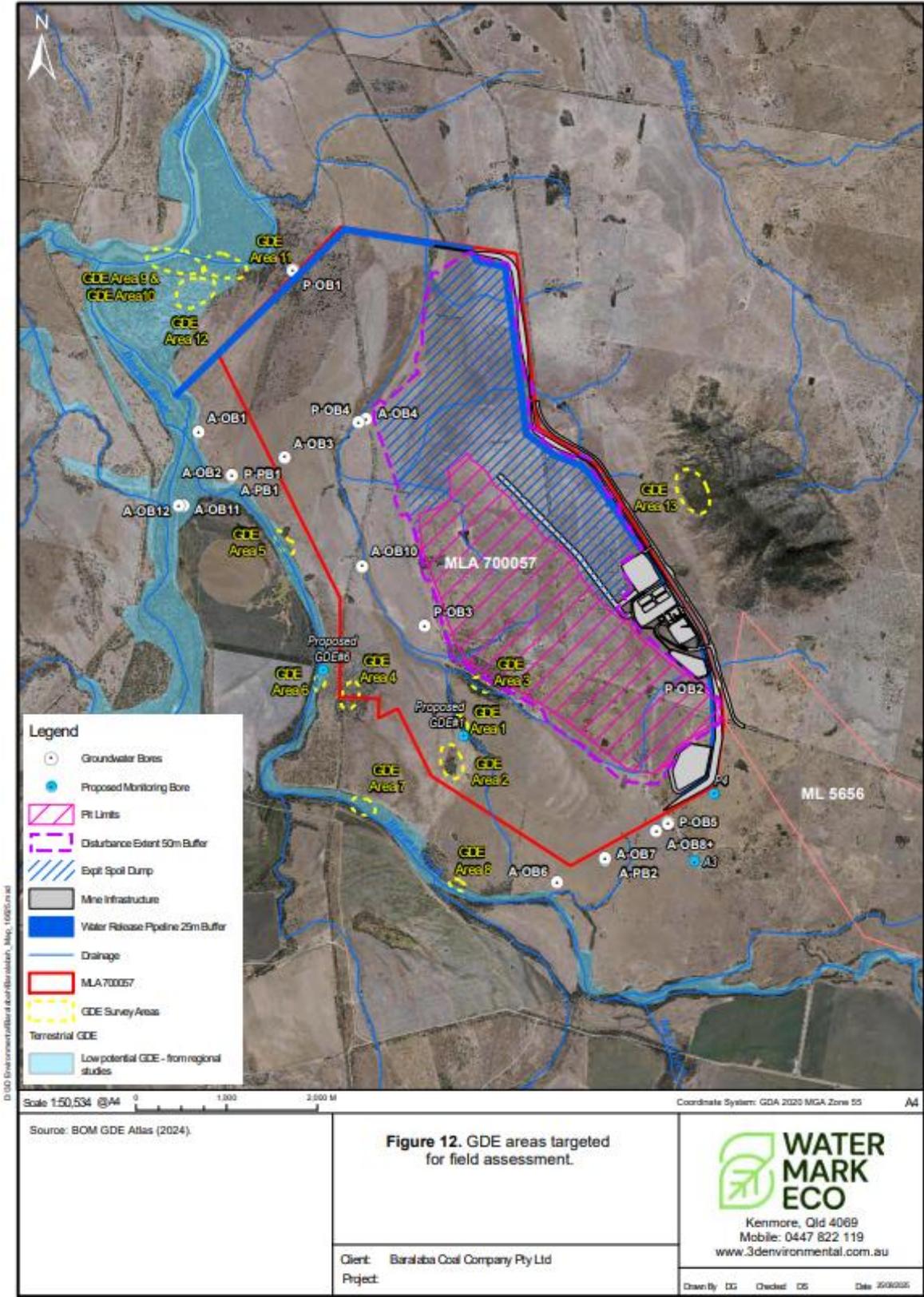


Figure F1 - Surface water monitoring locations

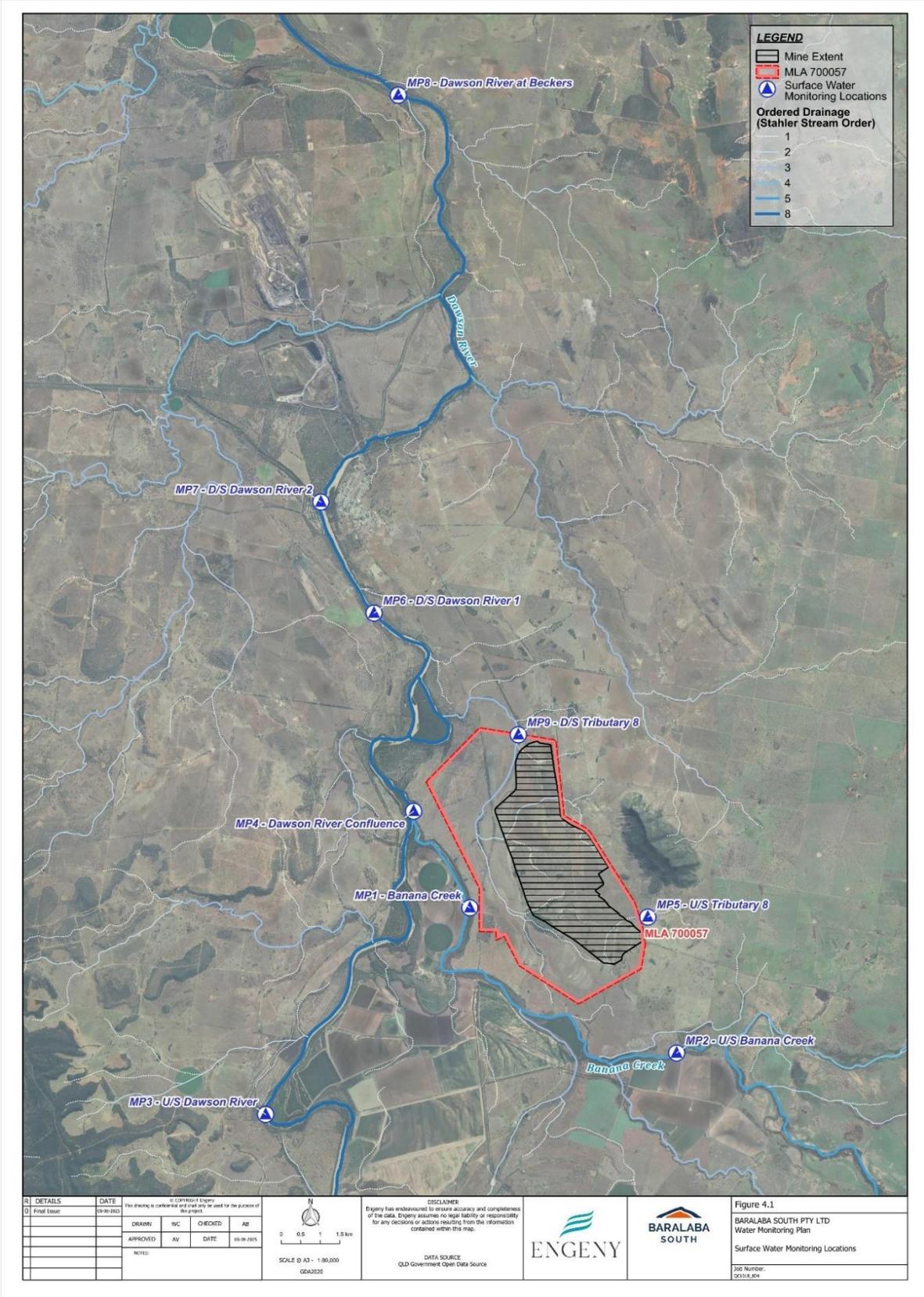


Figure G1 - Sewage treatment plant and effluent disposal

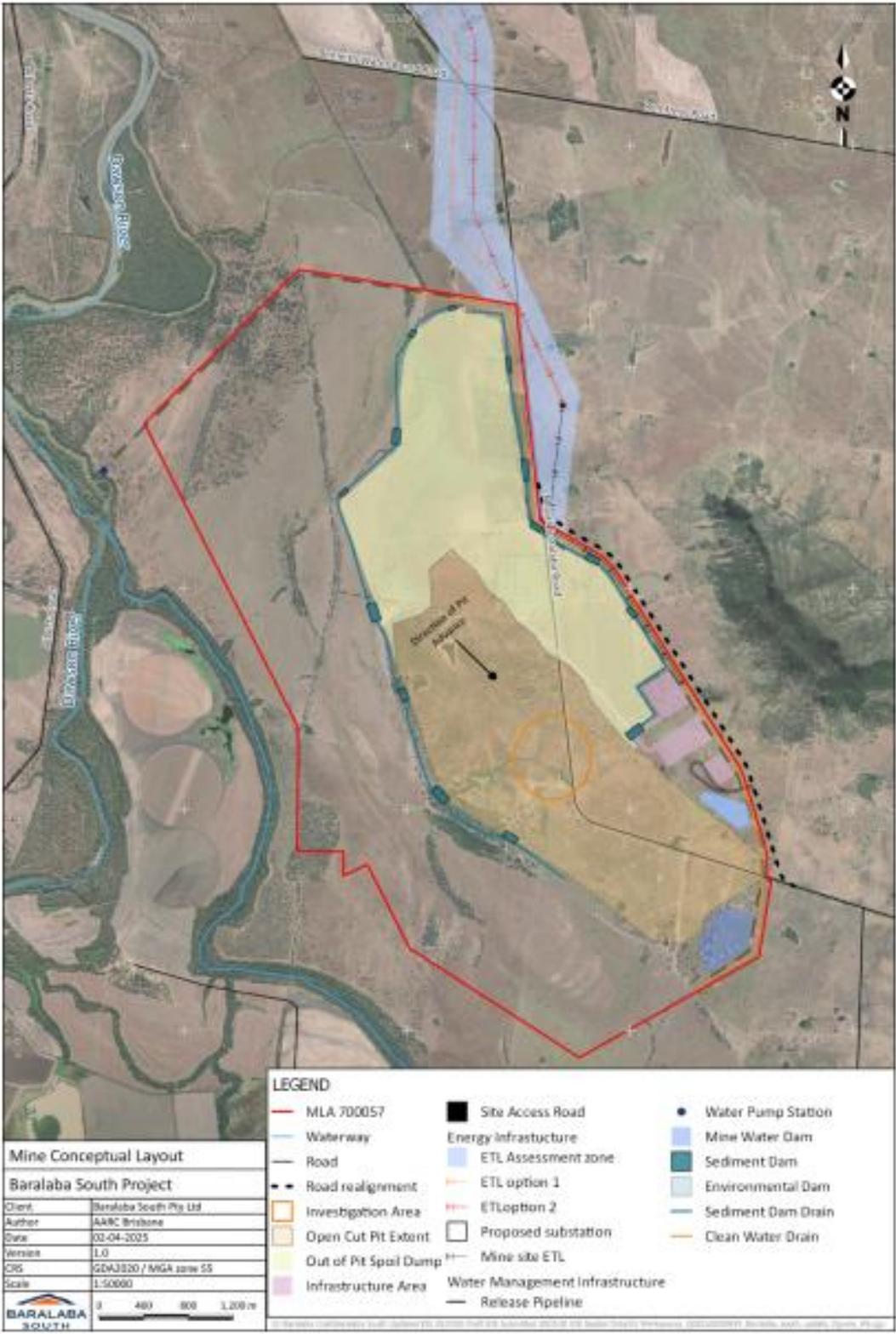


Figure 3-1 The irrigation investigation area, shown by the orange circle. (Data source: AARC Environmental)

Figure H1 - Post Mine Land Use Areas and Non-Use Management Areas

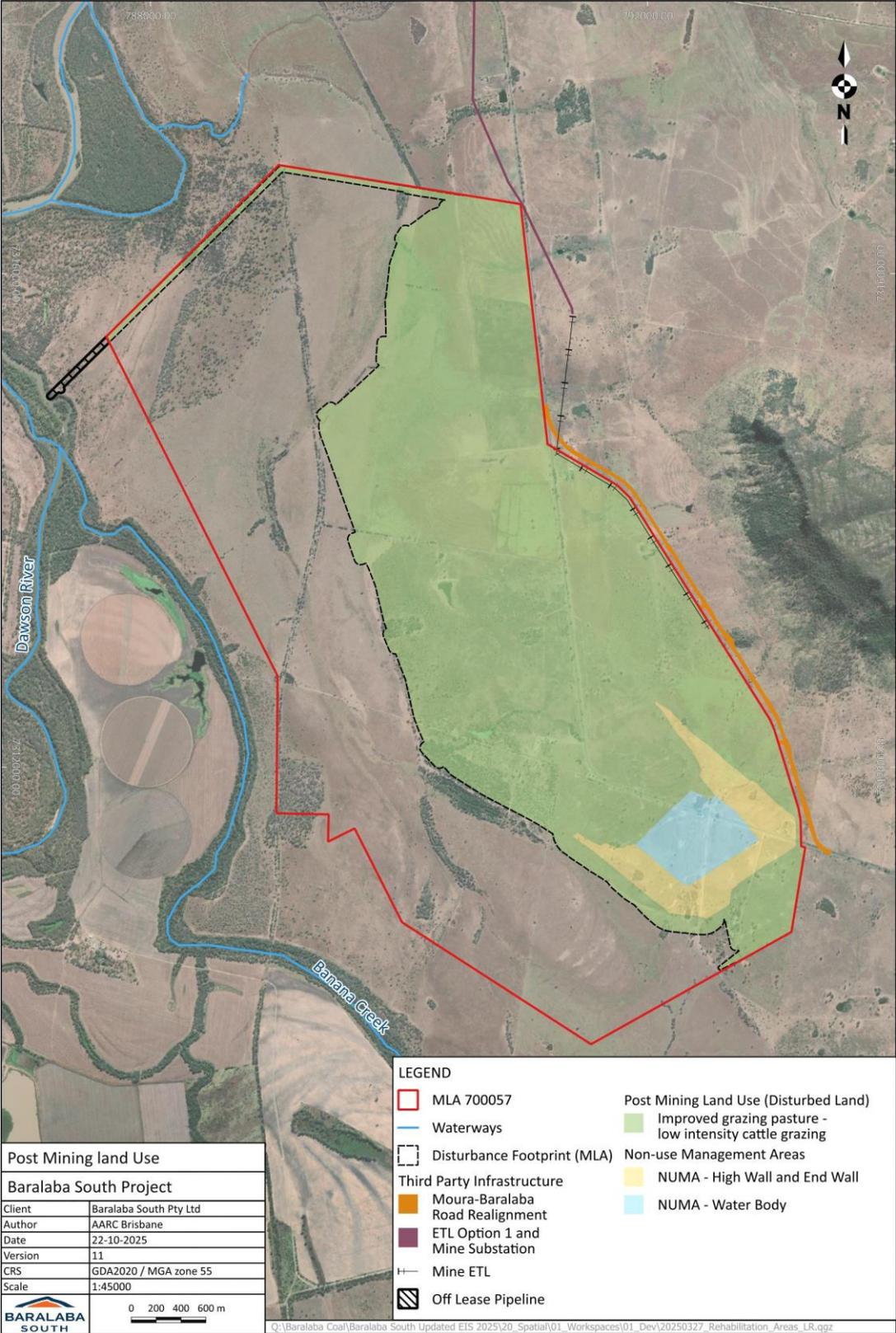
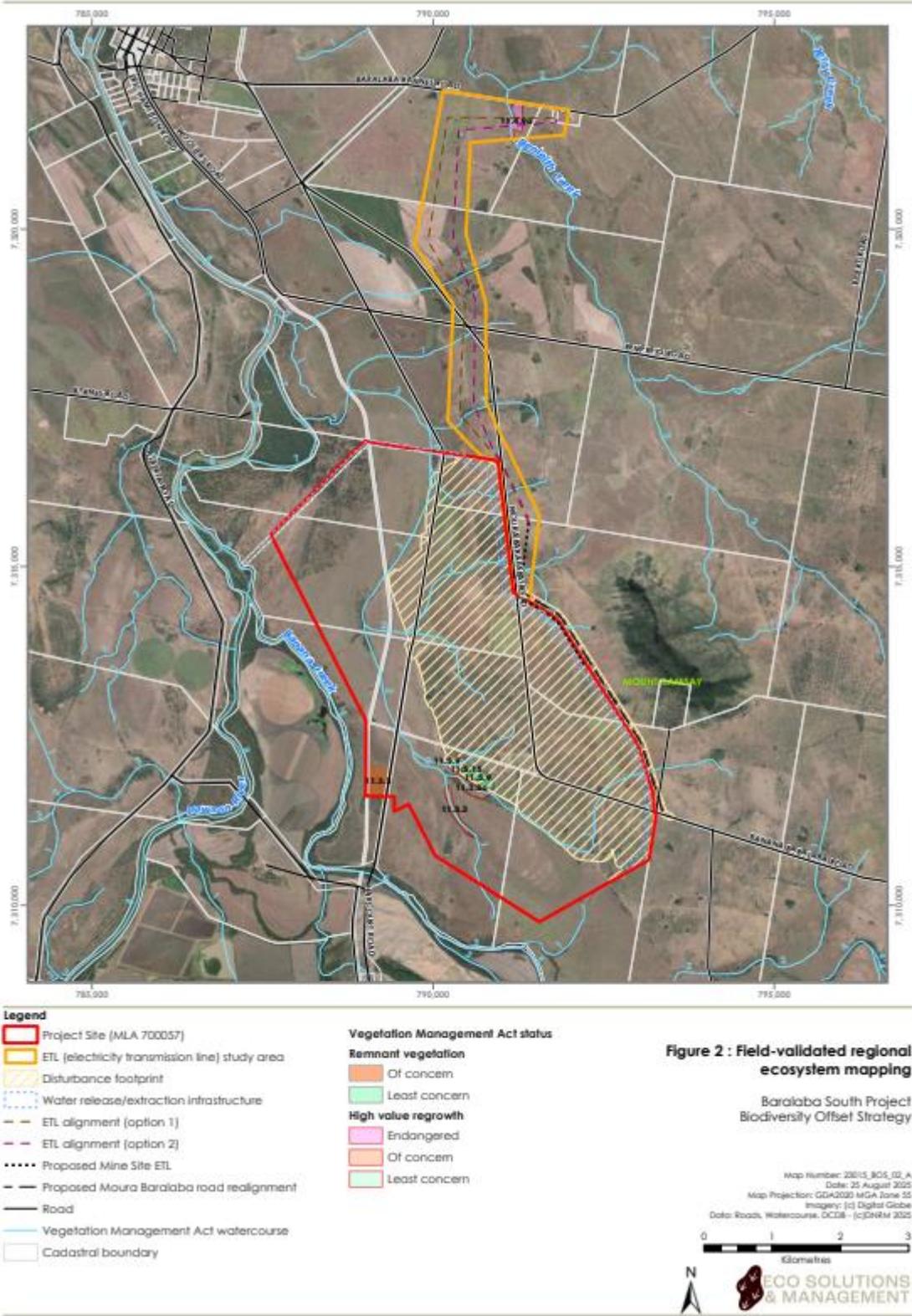


Figure J1 - Connectivity areas



Refer Figure J2 – Fish passage

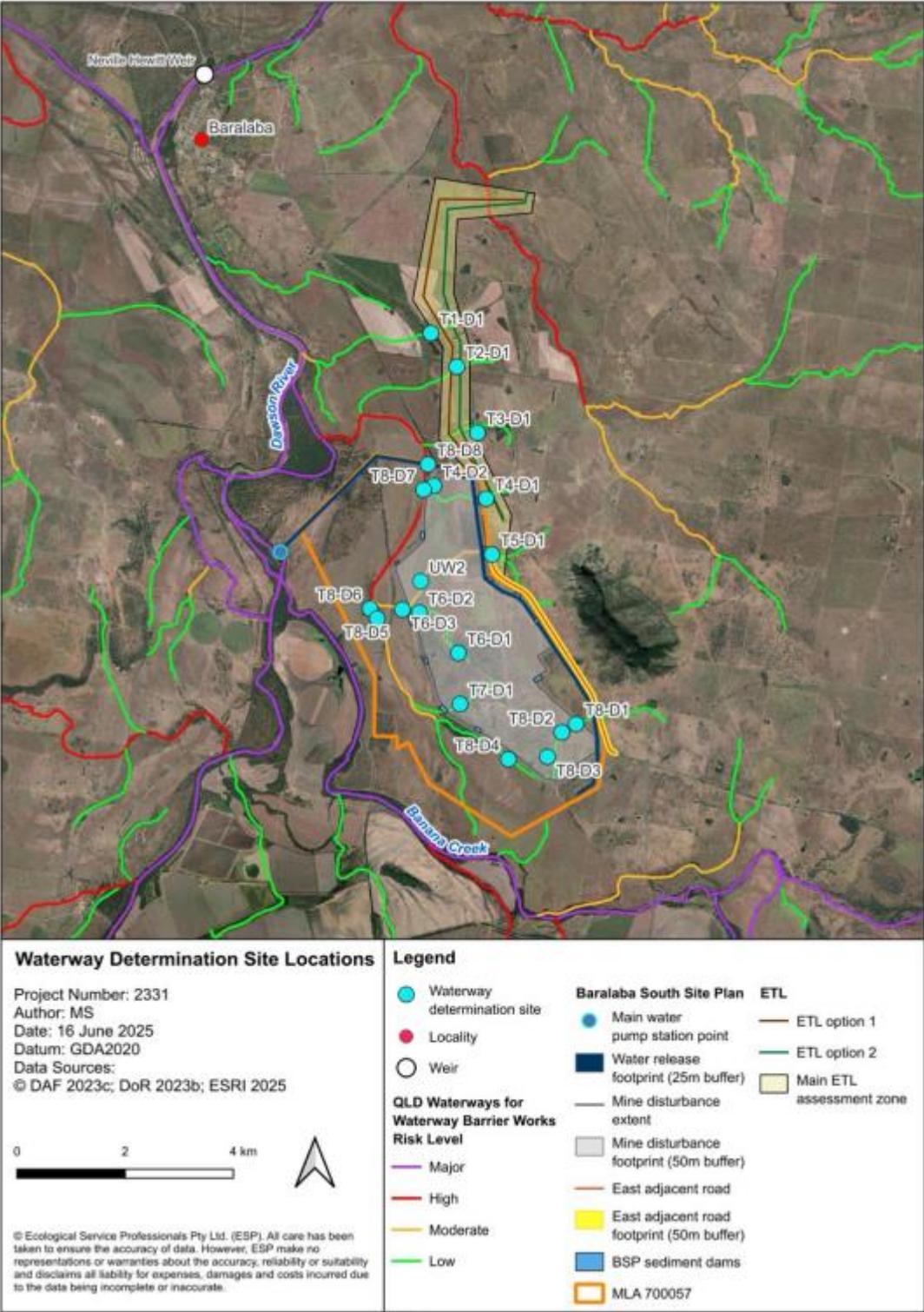


Figure J3 – Habitat for a plant that is endangered wildlife - *Xerothermella herbacea*

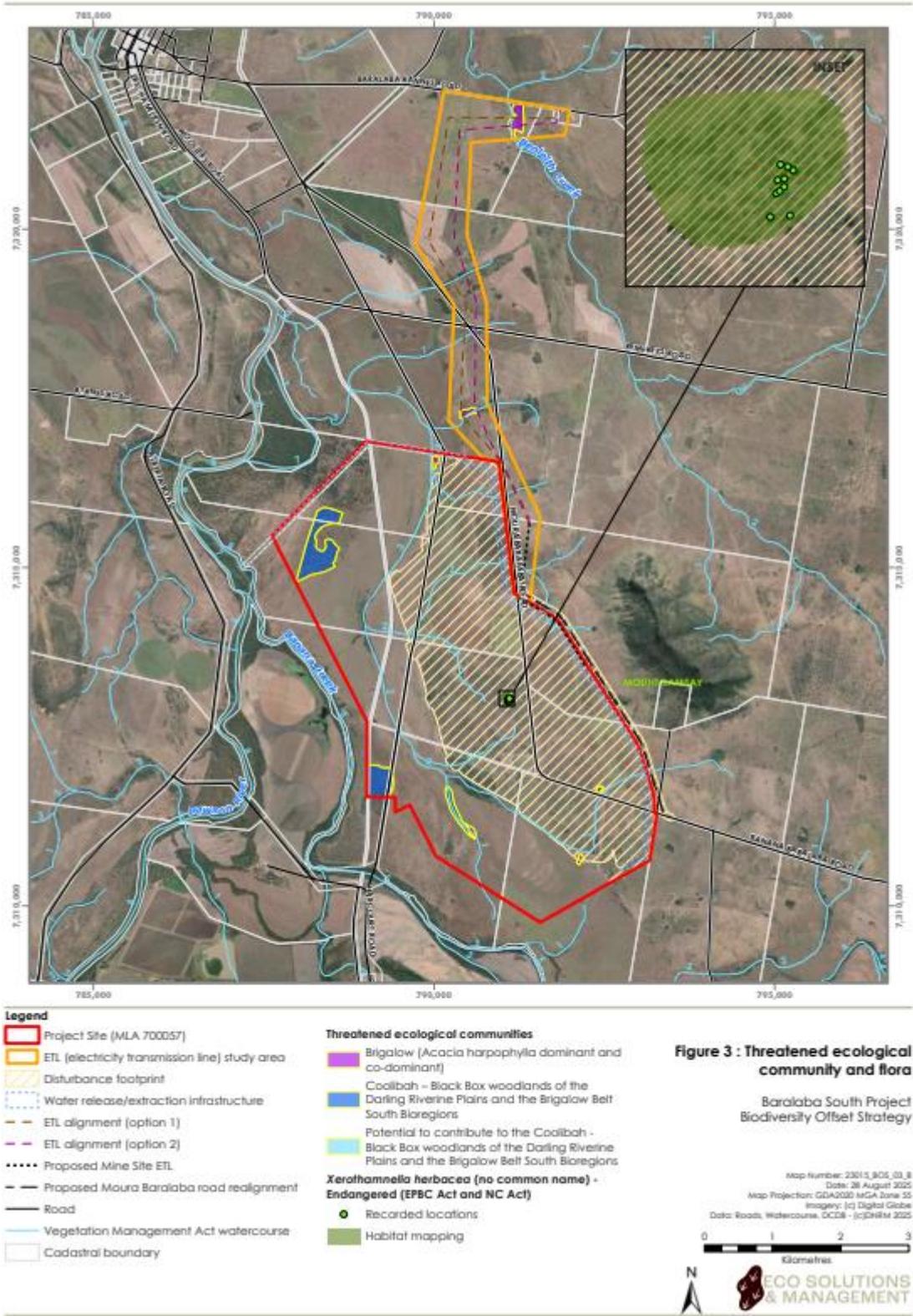


Figure J4 - Habitat for an animal that is vulnerable wildlife - Koala

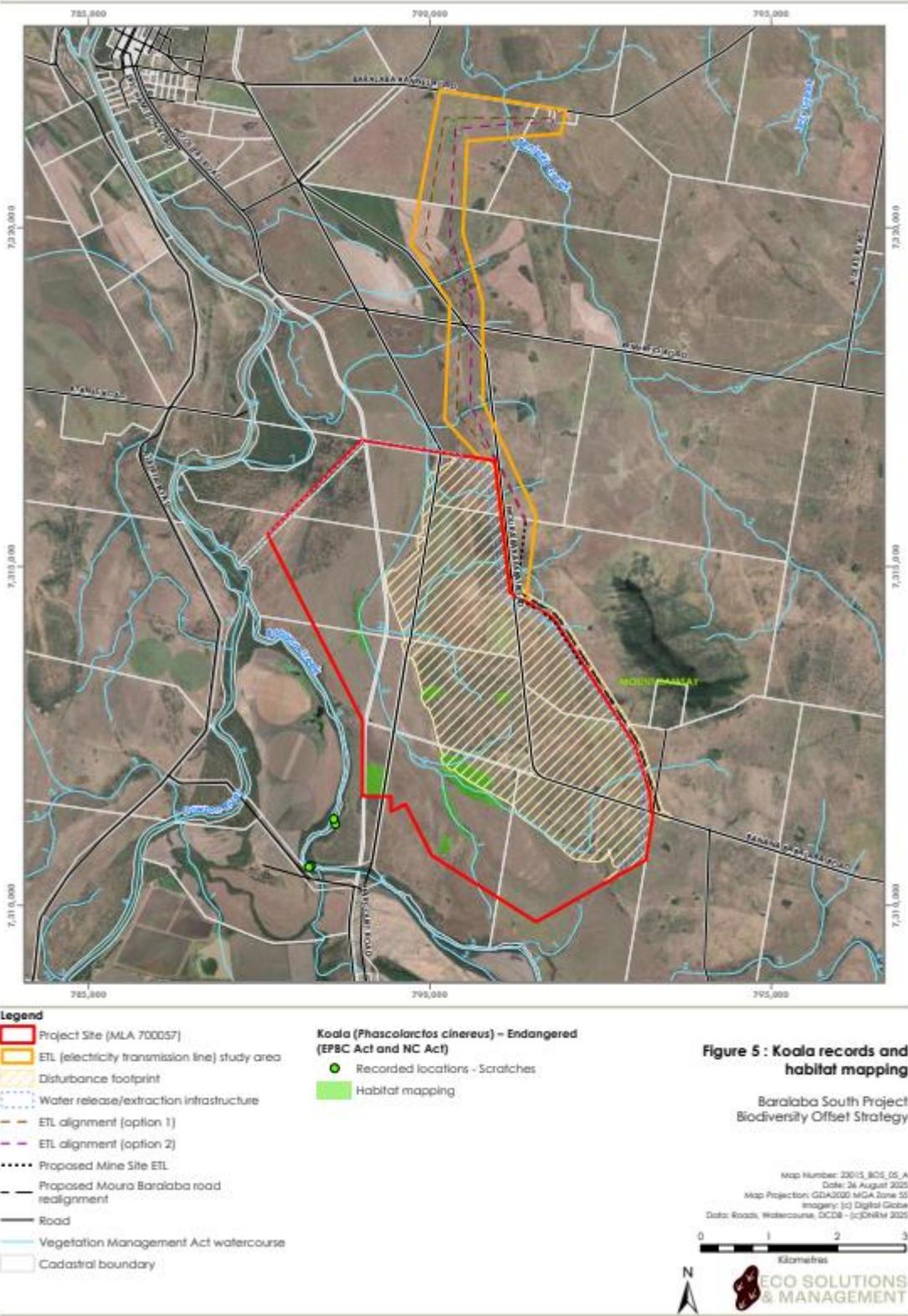


Figure J5 - Habitat for an animal that is vulnerable wildlife - Ornamental Snake

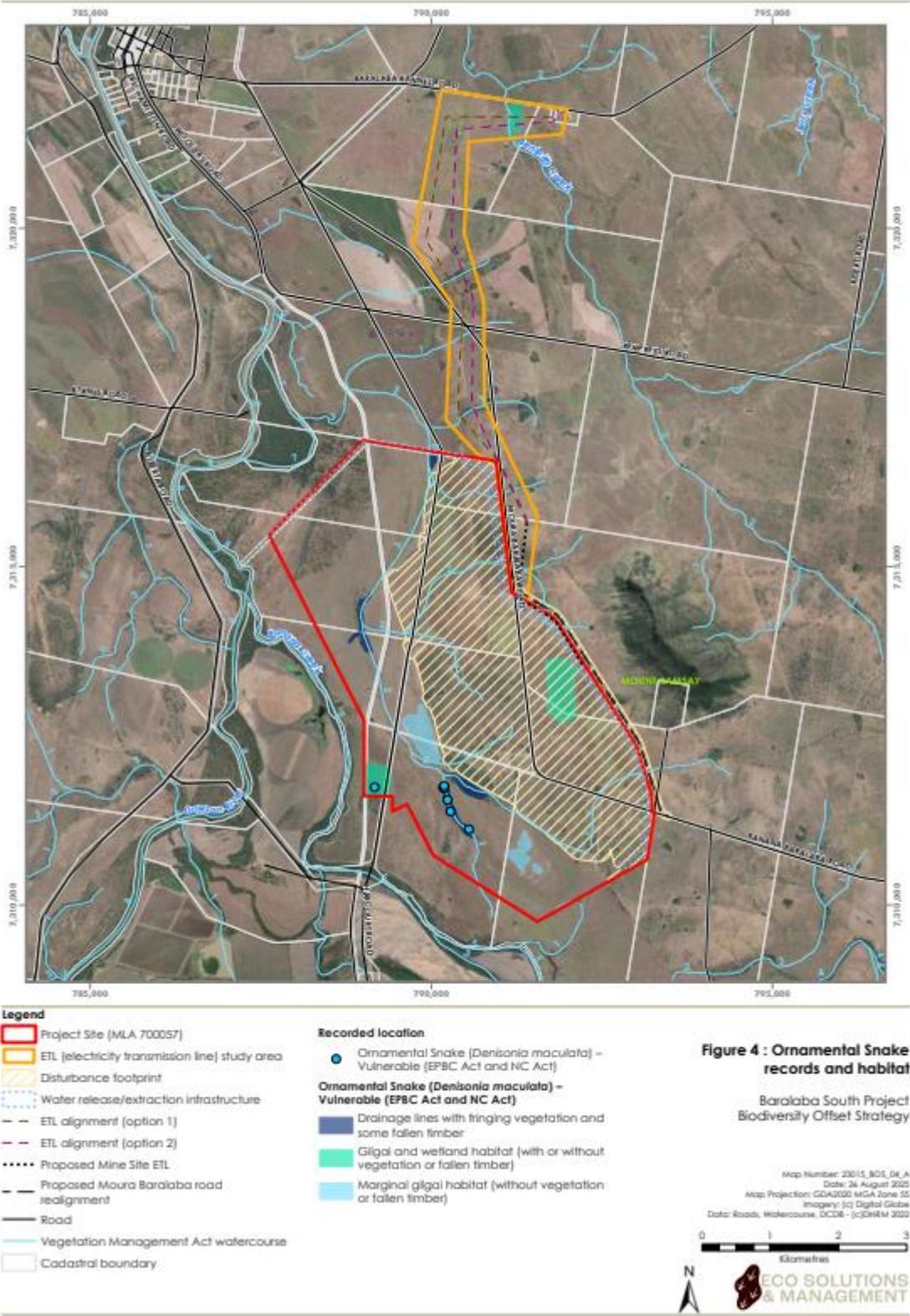
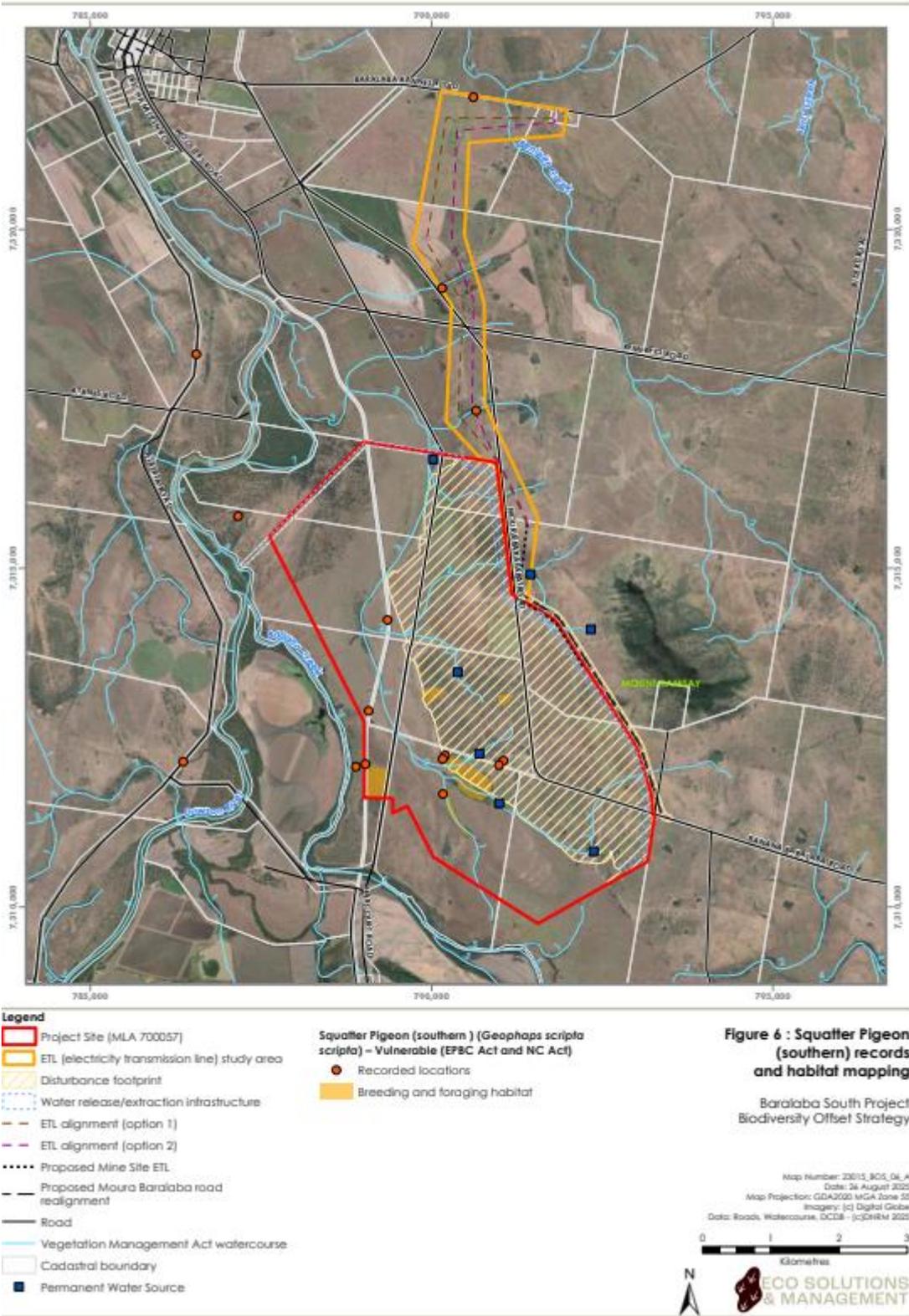


Figure J6 - Habitat for an animal that is vulnerable wildlife - Squatter Pigeon



Appendix B—Coordinator-General's stated conditions under the *Strong and Sustainable Resource Communities Act 2017*

This appendix includes conditions stated by the Coordinator-General under section 11(2) of the *Strong and Sustainable Resource Communities Act 2017* (SSRC Act). In accordance with section 11(3)(a) of the SSRC Act, these conditions are enforceable conditions under the *State Development and Public Works Organisation Act 1971*. The entity with jurisdiction for the conditions in this appendix is the Coordinator-General.

Condition 1—General conditions

- a) The proponent must advise the Coordinator-General in writing that construction of the project has commenced within five (5) business days of construction commencing.
- b) The proponent must advise the Coordinator-General in writing that the operation of the project has commenced within five (5) business days of operations commencing.

Condition 2—Social Impact Management Plan

- a) The proponent must develop and implement a detailed Social Impact Management Plan (SIMP) to manage the potential social impacts of the project identified in the social impact assessment (SIA) through ongoing community and stakeholder engagement.
- b) The proponent must submit the detailed SIMP, to the Coordinator-General for approval at least three (3) months prior to the commencement of construction.
- c) The SIMP must include an updated social baseline and indicators for Nearby Regional Communities.
- d) The SIMP must include the following:
 - i) Community and Stakeholder Engagement Plan in accordance with Condition 3
 - ii) Workforce Management Plan in accordance with Condition 4
 - iii) Housing and Accommodation Plan in accordance with Condition 5
 - iv) Local Business and Industry Procurement Plan in accordance with Condition 6
 - v) Health and Community Wellbeing Plan in accordance with Condition 7.
- e) The SIMP must include a Transition Plan, that manages the cessation of operations from the Baralaba North and transition of the workforce to the construction and/or operation of Baralaba South, prepared in collaboration with Banana Shire Council, addressing worker information, pathways and community impact management. The Transition Plan must include:
 - i) predicted and expected overlap periods
 - ii) workforce expected to transition and new workers

- iii) likely short-term impacts on local housing and accommodation
 - iv) approvals for expanded Workforce Accommodation Village
 - v) outcomes of consultation of transition arrangements and mitigation and management strategies
 - vi) closure planning arrangements
 - vii) community information strategies.
- f) A SIMP for the closure of the mine must be prepared in consultation with Banana Shire Council and submitted to the Coordinator-General for approval at least 24 months prior to the conclusion of operations.
 - g) If during the operation of the mine and prior to the planned closure of the mine, the mine is anticipated to transition into a care and maintenance phase or undergo a material reduction in workforce, a SIMP addressing the impact must be developed in consultation with Banana Shire Council and submitted to the Coordinator-General for approval three (3) months prior to the commencement of care and maintenance or material reduction in workforce.
 - h) Should the mine transition into a care and maintenance phase or undergo material reduction in workforce that is not anticipated, the proponent must consult with the Coordinator-General and Banana Shire Council regarding proposed immediate and longer term actions, and develop a SIMP addressing the impact, to be submitted to the Coordinator-General for approval within three (3) months of the commencement of care and maintenance or material reduction in workforce.
 - i) The SIMP for closure must be prepared in consultation with The Office of the Coordinator-General and include the details of any legacy infrastructure and workforce related to the project.
 - j) The proponent must publish each SIMP on their website within one (1) month of the Coordinator-General's approval of the plan. The proponent must notify the Coordinator-General within five (5) business days of the SIMP being made publicly available on the proponent's website.

Condition 3—Community and Stakeholder Engagement Plan

- a) The proponent must engage with all relevant stakeholders to ensure they are informed about the project and that identified potential social impact issues are effectively managed and monitored.
- b) The proponent must prepare an update to the Community and Stakeholder Engagement Plan that is to be submitted as part of each SIMP to the Coordinator-General for approval, in accordance with Condition 2.
- c) The Community and Stakeholder Engagement Plan must address the construction and operational phases of the project, and include:
 - i) objectives and key performance indicators
 - ii) an analysis of key stakeholders and stakeholder issues

- iii) action plans for ongoing engagement including details of proposed communication tools, timeframes for activities and roles and responsibilities for engagement
- iv) processes for incorporating stakeholder feedback into project-specific management measures
- v) details of any stakeholder agreements to be negotiated, including agreements with state and local government agencies
- vi) a complaints management process
- vii) community communication protocols specific to flood incidents
- viii) monitoring and reporting protocols.

Condition 4—Workforce Management Plan

- a) The proponent must prioritise recruitment of workers from local and regional communities and those who would relocate to regional communities and minimise the proportion of FIFO workers.
- b) The proponent must support the health and wellbeing of the project workforce.
- c) The proponent must prepare a Workforce Management Plan that is to be submitted as part of the SIMP to the Coordinator-General for approval.
- d) The Workforce Management Plan must address the construction and operational phases of the project and include:
 - i) objectives and key performance indicators
 - ii) summary workforce profile, including the estimated proportions of local, DIDO and FIFO workers
 - iii) roster arrangements for local, DIDO and FIFO workers, including transport arrangements between workforce accommodation and site to manage fatigue and road safety
 - iv) measures to enhance potential employment opportunities for local communities, including Indigenous people, and mitigate potential negative social impacts
 - v) proposed training and development initiatives to improve local and regional skills including initiatives for traditionally underrepresented groups
 - vi) programs to support the physical and mental health and wellbeing of workers and the level of on-site health services to be provided
 - vii) details of any workforce code of conduct to govern worker interactions with local communities
 - viii) targeted measurable and realistic participation targets for First Nations peoples, women and people living with disability, developed in consultation with Banana Shire Council and representatives of the Gaangalu Nation People
 - ix) processes, should targets set out under (viii) not be met, how these are updated and impacts addressed.

Condition 5—Housing and Accommodation plan

- a) The project must not result in adverse impacts on housing and accommodation affordability and availability in local and regional communities.
- b) The proponent must prepare a Housing and Accommodation Plan that is to be submitted as part of the SIMP to the Coordinator-General for approval.
- c) The Housing and Accommodation Plan must be developed in consultation with relevant stakeholders and address the construction and operational phases of the project and include:
 - i) objectives and key performance indicators
 - ii) measures to enhance potential benefits for project workers and the community
 - iii) measures to mitigate potential negative social impacts
 - iv) policies regarding housing and accommodation support to be provided to project workers and their families who wish to move to local communities
 - v) an updated assessment of local housing availability and demand, including for Baralaba and Woorabinda
 - vi) analysis of the likelihood of unoccupied housing becoming available for project workers to buy or rent
 - vii) a housing register or equivalent mechanism to assist construction workers and families who wish to reside in local communities
 - viii) mitigation measures to manage potential impacts where workers choose to live locally, and reporting requirements on how the project is affecting the local housing market
 - ix) monitoring and reporting protocols.

Condition 6—Local Business and Industry Procurement Plan

- a) The proponent must ensure that opportunities for local businesses to provide goods and services for the project are maximised during all project phases.
- b) The proponent must prepare a Local Business and Industry Procurement Plan that is to be submitted as part of each SIMP to the Coordinator-General for approval.
- c) The Local Business and Industry Procurement Plan must address the construction and operational phases of the project and include:
 - i) objectives and key performance indicators
 - ii) procurement strategies and initiatives for local and regional suppliers, including Aboriginal and Torres Strait Islander-owned businesses, and actions to facilitate participation
 - iii) proposed policies and programs to build local and regional capacity and capability, and reduce barriers to entry (including industry briefings and tender-readiness training)
 - iv) processes that embed local business and First Nations procurement strategies into contracting, including where appropriate the breaking down of larger packages to enable local participation

- v) measures to mitigate potential negative social impacts on local industries, including monitoring labour draw and competition with essential services and agriculture
- vi) separate, measurable procurement targets for local suppliers and First Nations suppliers, and associated monitoring and reporting protocols.

Condition 7—Health and Community Wellbeing Plan

- a) The proponent must avoid or mitigate negative social impacts and capitalise on opportunities to improve the health and wellbeing of local and regional communities.
- b) The project must not result in adverse impacts on the level of service currently provided to local communities.
- c) The proponent must prepare a Health and Community Wellbeing Plan that is to be submitted as part of the SIMP to the Coordinator-General for approval.
- d) The Health and Community Wellbeing Plan must address the construction and operational phases of the project and include:
 - i) objectives and key performance indicators
 - ii) measures to mitigate potential health and wellbeing impacts on local communities, and enhance potential benefits
 - iii) emergency response arrangements and management measures agreed with emergency service providers (e.g. Queensland Police Service, Queensland Fire Department, Queensland Ambulance Service)
 - iv) details of community development programs to be implemented, co-designed with stakeholders, and the outcomes to be achieved
 - v) details of measures, developed in consultation with Banana Shire Council, Queensland Government agencies and service providers, that demonstrate the project would not adversely impact childcare service levels, primary healthcare service levels, or social housing service levels
 - vi) risk communication protocols for community health and safety during major events, including flooding, affecting access or services
 - vii) monitoring and reporting protocols, including regular review and reporting on health and wellbeing indicators and clear mechanisms for community input and feedback.

Condition 8—Reporting on the implementation and effectiveness of social impact management measures

- a) The proponent must report on the implementation and effectiveness of measures, including implementation of all proponent commitments listed in Appendix 2 of the Coordinator-Generals Evaluation Report for the project, to manage the project's social impact during construction and the first (5) years of operation.
- b) The proponent must prepare an Annual Social Impact Management Report (SIMR) covering the implementation and effectiveness of social impact management measures.

- c) Each SIMR must be submitted to the Coordinator-General for approval within thirty (30) business days after the end of each twelve (12) month reporting period.
- d) Each SIMR is to be made publicly available on the proponent's website within one (1) month of the Coordinator-General's approval. The proponent must notify the Coordinator-General when the SIMRs are made publicly available on the proponent's website.
- e) After the first five (5) years of operation, SIMR reporting must occur at least every five (5) years during operations, until submission of the closure SIMP.
- f) Each SIMR must, at a minimum, report on:
 - i) community and stakeholder engagement during the reporting period
 - ii) workforce sourcing (local/drive-in drive out (DIDO/FIFO) and labour draw impacts on other local industries
 - iii) housing market indicators and the effectiveness of mitigation measures
 - iv) health and community wellbeing indicators and outcomes
 - v) local and First Nations procurement performance against targets
 - vi) complaints and grievances (de-identified) and evidence of meetings of the Community Consultative Committee (CCC), including meeting frequency, minutes of each meeting, and action tracking.
- g) Every second (2nd) SIMR has to include an independent review of engagement effectiveness and stakeholder satisfaction. At a minimum, this has to include:
 - i) details of the independent review agent, including potential or perceived conflicts of interest regarding any relevant stakeholder
 - ii) outcomes of targeted consultation regarding engagement effectiveness and stakeholder satisfaction
 - iii) where relevant, comparison to previous independent reviews including trends, and where necessary, suggested mitigation measures
 - iv) where relevant, a statement by Baralaba Coal responding to the suggested mitigation measures including actions to change existing mitigation measures or introduce new ones.

Appendix B—Definitions

'commencement of construction' for the Baralaba South Project is the commencement of construction of mine facilities as described in section 2.4 of EIS Chapter 2 (Project Description).

'commencement of operation' is mining and processing of coal.

'FIFO worker' is a worker who does not live in one of the local communities and must commute to work (could be DIDO, bus-in bus-out (BIBO) or FIFO) and stay at the workforce accommodation village while on shift

'local community/ies' is any one of the eight communities assessed in the evaluation report.

'local worker' is a worker who lives in one of the local communities

'the project' the Baralaba South project.

Appendix C—Recommended conditions for the Australian Government’s approval under the *Environment Protection and Biodiversity Conservation Act 1999*

To ensure the mitigation measures and offsets summarised in sections 6.18.5 and 6.18.6 of this assessment report are enforceable, I recommend the following conditions the Australian Government’s approval under the EPBC Act.

Clearing limits

1. The approval holder must not:
 - a. **clear** outside of the **Action area**, and
 - b. **construct** outside of the **Action area**.

2. The approval holder must not **clear** more than the areas (in hectares) of **habitat** for each of the following listed threatened species and communities:
 - a. 1.9 ha of **Brigalow TEC**,
 - b. 2.3 ha of ***Xerothamnella herbacea* habitat**,
 - c. 34.8 ha of **Ornamental snake habitat**,
 - d. 21.6 ha of **Squatter pigeon (southern) habitat**,
 - e. 24.1 ha of **Koala habitat**.

3. If the approval holder detects the presence, where likely to be affected by the action, of any **protected matter** or the habitat of any **protected matter** not previously reported to the **department** as part of the **referral** of this action or in accordance with this condition, the approval holder must:
 - a. notify the **department** in writing of the presence and likely extent of any **protected matter** or the **habitat** of any **protected matter** within 10 **business days** of detecting the presence of any **protected matter** or the **habitat** of any **protected matter**, and
 - b. not **clear** any area where the **protected matter** or the **habitat** of the **protected matter** is located unless:
 - i. condition 2 provides for the **clearing** of that **protected matter** or **habitat** of that **protected matter**, and
 - ii. **clearing** does not exceed the limit specified in condition 2 for that **protected matter** or **habitat** of that **protected matter**.

Mitigation measures

4. The approval holder must implement the following mitigation measures from the **commencement of the Action** and continue to implement these measures until the **completion of the Action** to avoid and mitigate **harm to protected matters**:
 - a) develop and implement a Weed and Pest Management Plan to monitor and limit the impact of weeds within the **Brigalow TEC** or ***Xerothamnella herbacea* habitat**.
 - b) ensure areas subject to clearing of **Brigalow TEC** or ***Xerothamnella herbacea* habitat**

- are clearly marked to avoid inadvertent disturbance.
- c) undertake clearing of ***Xerothamnella herbacea*** plants in accordance with a protected plant clearing permit under the *Nature Conservation Act 1992* (Qld).
 - d) enforce a 40 kilometre/hour speed limit when travelling within **Koala habitat** or **Squatter Pigeon habitat** unless travelling on a section of road made difficult for **Koala** or **Squatter Pigeon** to access by the installation of fauna friendly fencing and safe crossings for fauna.
 - e) ensure all fencing constructed as a result of the Action uses a non-barbed top wire where it passes through areas of **Koala habitat**.
 - f) ensure a **fauna spotter-catcher** is present and monitors the movements of any **protected matters** during all **clearance** activities and has the authority to immediately cease **clearance** for an appropriate timeframe if any **protected matter** is sighted.
 - g) ensure the **fauna spotter-catcher**, in carrying out their duties, acts in accordance with the **Fauna Spotter Code of Practice**.
 - h) ensure all lighting within the Action area is installed and used in accordance with the **National Light Pollution Guidelines for Wildlife**.
 - i) ensure all artificial lighting beams in the **Action area** are directed downwards and use shields and baffles to limit light spill beyond the area that requires lighting.
5. To avoid and mitigate **harm** as a result of the Action on ***Xerothamnella herbacea***, the approval holder must implement the following mitigation measures:
- a. prior to **clearing** within ***Xerothamnella herbacea* habitat**:
 - i. collect viable ***Xerothamnella herbacea*** plant seed and propagate additional plants that can be planted within the suitable recipient site located adjacent to Banana Creek.
 - ii. seed propagation including the proposed timing of seed collection, scale and proposed methods of propagation are to be detailed within a Matters of National Environmental Significance Management Plan (MNESMP). See conditions 10, 11 and 12.
 - iii. undertake whole sod translocation to remove affected plants and stored seeds within the sod of soil in the presence of a suitably qualified ecologist.
 - iv. ensure ***Xerothamnella herbacea*** plants are identified and translocated as detailed in a MNESMP.
 - v. the translocation of plants must be consistent with principles of the *Guidelines for the translocation of threatened plants in Australia* (Commander et al. 2018) and the Australian Government Policy Statement [Translocation of Listed Threatened Species—Assessment under Chapter 4 of the EPBC Act](#).
 - vi. ensure that the proposed recipient site has the suitable ecological requirements needed for ***Xerothamnella herbacea*** and undertake appropriate measures to rehabilitate the **habitat**.
 - vii. secure the proposed recipient site so that the land tenure and disturbance factors such as vehicle and livestock access do not pose a risk to the success of the translocated ***Xerothamnella herbacea*** population.
 - viii. monitor and report on the success of the ***Xerothamnella herbacea*** translocation across seasons and the ongoing viability of the translocated plant population to maintain a self-sustaining population in the long term. Monitor growth, flowering, seed production and plant survival parameters as well as the habitat condition of the recipient site.
 - b. undertake surveys of vegetation within the **Action area** to identify the presence and

location of *Xerothermella herbacea* within 24 hours prior to the commencement of **clearing**. These surveys must be undertaken by a **suitably qualified field ecologist** in accordance with the **Survey Guidelines** or another survey methodology endorsed by the **department** in writing. Any *Xerothermella herbacea* plants identified must be translocated as detailed in an MNESMP.

6. To avoid and mitigate **harm** as a result of the Action on the **Koala**, the approval holder must implement the following mitigation measures:
 - a. undertake surveys of vegetation within the **Action area** to identify the presence and location of any **Koala** within 24 hours prior to the commencement of **clearing**. These surveys must be undertaken by a **suitably qualified field ecologist** in accordance with the **Survey Guidelines** or another survey methodology endorsed by the **department** in writing.
 - b. when **clearing** within **Koala habitat**:
 - i. only undertake **clearing** during **daylight hours**
 - ii. ensure **clearing** is conducted in stages and timed to provide a minimum of 12 hours break between **clearing** events
 - iii. maintain appropriate **habitat**, or trees retained as stepping stones, linking the **Action area** to adjacent **habitat** areas to facilitate **Koala** movement between **habitat** areas
 - iv. ensure **habitat** links are not more than 200 metres apart
 - v. **clearing** must be undertaken in the direction of retained **habitat**, adjacent **habitat** or local **habitat** corridors to ensure **Koalas** are not isolated in an island of vegetation surrounded by **clearing**
 - vi. thin areas with trees prior to undertaking complete **clearing** of that area, to encourage resident **Koalas** to start seeking new home ranges prior to complete **clearing**, and
 - vii. ensure **Koala habitat trees** are only felled in a controlled manner using a vertical tree grab mounted on an excavator.
 - c. within two days prior to any **clearing** within the **Action area**, ensure a **fauna spotter catcher** inspects all **Koala habitat trees** for the presence of, or use by, **Koalas**
 - d. ensure no tree in which a **Koala** is present, and no tree with a crown overlapping a tree in which a **Koala** is present, is **cleared** until the **Koala** leaves of its own accord.
 - e. The approval holder must cease all **clearing** and **construction** if a **Koala** is observed within the **Action area**. The approval holder must not resume **clearing** or **construction** until the observed **Koala** has either vacated the **Action area** or been relocated out of the **Action area** by a **fauna spotter catcher**.
 - f. The approval holder must seek veterinary care or assistance from an experienced wildlife expert if any **Koala** are found injured within or adjacent to the **Action area** during **clearing** and **construction**.

7. To avoid and mitigate **harm** as a result of the Action to **Ornamental Snake**, the approval holder must implement the following measures:
 - a. within two days prior to any **clearing** within the **Action area**, ensure a **fauna spotter catcher** inspects all **Ornamental Snake habitat** for the presence of, or use by **Ornamental Snake**.
 - b. ensure a **fauna spotter catcher** is in attendance and observing for **Ornamental Snake** during any **clearing** activities undertaken within **Ornamental Snake habitat**.

- c. ensure the **fauna spotter catcher** has the authority to immediately cease **clearance** for a sufficient amount of time to safely relocate any **Ornamental Snake** to an appropriate area of **Ornamental snake habitat**.
- 8.** To avoid and mitigate **harm** as a result of the Action on the **Squatter pigeon**, the approval holder must implement the following mitigation measures:
- a) undertake surveys of **Squatter Pigeon habitat**, within the **disturbance footprint** to identify the presence of any **Squatter Pigeon**, in areas proposed for **clearing** within 24 hours prior to **clearing**. The surveys must be undertaken by a **suitably qualified field ecologist** in accordance with the **survey guidelines**, or another methodology endorsed by the **department** in writing.
 - b) record the date, time and location at which any **Squatter Pigeon** (including any **Squatter Pigeon** nests or eggs) are observed within the **disturbance footprint**, vacate the **disturbance footprint** and/or are relocated by a **suitably qualified field ecologist**, including the location where any **Squatter Pigeon** were relocated to.
 - c) the approval holder must include the records of the surveys in the next **compliance report**.
 - d) not **clear** any **shelter tree** containing **Squatter Pigeon** (including any **Squatter Pigeon** nests or eggs).
 - e) where a **Squatter Pigeon** individual(s) is identified during pre-clearance surveys, immediately cease **clearance** for sufficient time for the **suitably qualified field ecologist** to flush or relocate **Squatter Pigeon individuals**, to an alternative nearby equivalent **habitat** area not to be **cleared**.
 - f) where **Squatter Pigeon** active nests (including eggs or chicks) are identified during pre-clearance surveys, immediately cease clearance around the nest area until the young have fledged.
- 9.** To avoid and mitigate **harm** as a result of the Action to the **water resources**, the approval holder must implement the following mitigation measures:
- a. Install nine groundwater monitoring bores in accordance with the **Queensland Environmental Authority** prior to **commencement of the action**.
 - b. Develop a Groundwater Monitoring Program to monitor changes to the groundwater resources and to provide early detection and management responses to impacts on groundwater levels, groundwater ingress or groundwater quality.
 - c. Develop an Erosion and Sediment Control Plan to manage erosion and sediment control for all aspects of mining activity in accordance with the **Queensland Environmental Authority**.

Action management plans

Matters of National Environmental Significance Management Plan

The purpose of the following conditions is to avoid and mitigate **harm** to protected **matters** as a result of the Action.

- 10.** The approval holder must submit a Matters of National Environmental Significance Management Plan (MNESMP) to the **department** for the **Minister's** approval, prior to the **commencement of the action**.
- 11.** The approval holder must not **commence the Action** unless the **Minister** has approved the

MNESMP in writing. The approval holder must commence implementing the MNESMP, as approved by the **Minister** in writing, no later than the **commencement of the Action** and continue to implement it until the expiry date of this approval.

- 12.** The MNESMP must be prepared with the input of a **suitably qualified ecologist**. All commitments, including environmental outcomes, management measures, corrective measures, **trigger thresholds** and performance indicators in the MNESMP must be **SMART**, specific to each **protected matter**, and based on referenced or included evidence of effectiveness. The MNESMP must be consistent with the **Environmental Management Plan Guidelines** and the **National Light Pollution Guidelines for Wildlife**, and must include:
- a. details of the relevant **protected matters** and a reference to **EPBC Act** approval conditions to which the plan refers.
 - b. a table of commitments made in the plan to achieve the environmental outcomes, and a reference to exactly where these commitments are detailed in the plan.
 - c. commitments capable of ensuring that the environmental outcomes are achieved.
 - d. reporting and review mechanisms to demonstrate compliance with the commitments made in the plan.
 - e. an assessment of risks relating to achieving the environmental outcomes and risk management strategies and/or mitigation measures that will be applied to address identified risks.
 - f. impact avoidance, mitigation and/or repair measures, and the timing of those measures.
 - g. a monitoring program, which must include:
 - i. performance indicators
 - ii. **trigger thresholds** for corrective measures
 - iii. the timing and frequency of monitoring, ensuring monitoring is capable of detecting **trigger thresholds** and changes in the performance indicators, and
 - iv. proposed corrective measures if **trigger thresholds** are reached.
 - h. references to other relevant plans or conditions of approval (including state or territory approval conditions).

Groundwater Dependent Ecosystem Monitoring and Management Plan

The purpose of the following conditions is to avoid and mitigate **harm** to **protected matters** as a result of the Action.

- 13.** The approval holder must submit a Groundwater Dependent Ecosystem Monitoring and Management Plan (GDEMMP) to the **department** for the **Minister's** approval. The approval holder must not **commence the Action** until the GDEMMP has been approved by the **Minister** in writing. The approval holder must commence implementing the GDEMMP, as approved by the **Minister** in writing, prior to the **commencement of the Action** and continue to implement the approved GDEMMP until the expiry date of this approval.
- 14.** The GDEMMP must be prepared by a **suitably qualified GDE expert**. All commitments, including environmental outcomes, management measures, corrective measures, **trigger thresholds** and performance indicators in the GDEMMP must be **SMART** and based on referenced or included evidence of effectiveness. The GDEMMP must be consistent with the **Environmental Management Plan Guidelines**, and must:
- a. specify the design of, and subsequently be informed by the initial implementation of, a program of monitoring **groundwater dependent ecosystem (GDE) habitat quality** for each of the three **GDE monitoring areas** specified in Attachment G.

- b. provide two years of **GDE** baseline monitoring records (comprising at least four monitoring events covering at least two wet seasons and two dry seasons) to inform the specification of groundwater **trigger thresholds** and **limits** to prevent **harm to GDEs**.
- c. report on the condition of all potential **GDE** areas in, and within 10 km of, the **Action area** including those in any approved offset area.
- d. specify surface water quality, sediment quality, and macroinvertebrate **trigger thresholds** and **limits**.
- e. detail how changes to surface water quality, sediment quality, macroinvertebrates, and the **receiving environment**, as a result of the Action, would be detected, assessed, and limited so that unapproved **harm to protected matters** does not occur, and
- f. specify the corrective measures to be implemented if **trigger thresholds** are reached.

15. The GDEMMP must include the following related to **stygo fauna**:

- a. A draft Stygo fauna Management Plan to monitor and manage any potential impacts from groundwater drawdown on stygo fauna
- b. **trigger thresholds** and **limits** for impacts to **stygo fauna** abundance and diversity.
- c. detection and monitoring measures to determine whether **stygo fauna** are being impacted by the Action and, if so, which ones and how much.
- d. a monitoring program utilising bores capable of detecting any **exceedance** of approved **stygo fauna trigger thresholds** or **limits**.
- e. corrective measures to be implemented in the event that any **stygo fauna trigger threshold** is **exceeded**.

Water Management Plan

The purpose of the following conditions is to avoid and mitigate **harm to protected matters** as a result of the Action.

16. The approval holder must submit a Water Management Plan (WMP) to the **department** for the **Minister's** approval. The approval holder must not **commence the Action** until the WMP has been approved by the **Minister** in writing. The approval holder must commence implementing the WMP, as approved by the **Minister** in writing, prior to the **commencement of the Action** and continue to implement the approved WMP until the expiry date of this approval.

17. The WMP must be prepared by a **suitably qualified water expert**. All commitments, including environmental outcomes, management measures, corrective measures, **trigger thresholds**, **limits** and performance indicators in the WMP must be **SMART** and based on referenced or included evidence of effectiveness. The WMP must be consistent with the **Environmental Management Plan Guidelines**, and must:

- a. specify **trigger thresholds** and **limits** for groundwater levels and quality.
- b. detail how changes to groundwater levels and quality, as a result of the Action, will be detected, assessed and limited.
- c. detail a monitoring program that utilises a network of groundwater monitoring bores capable of detecting any potential **exceedance** of **trigger thresholds**, **limits** and any **harm to protected matters**.

- d. specify the corrective measures to be implemented in the event that a groundwater level or quality **trigger threshold** is exceeded.
- e. specify surface water quality, sediment quality, and macroinvertebrate **trigger thresholds**.
- f. detail how changes to surface water quality, sediment quality, macroinvertebrates, and the **receiving environment**, as a result of the Action, will be detected, assessed, and limited.
- g. specify corrective measures to be implemented in the event that a surface quality **trigger threshold** is exceeded.
- h. detail a monitoring program that utilises a network of surface water monitoring locations capable of detecting any potential **exceedance** of surface water quality, sediment quality, or macroinvertebrate **trigger thresholds, limits** and any **harm to protected matters**.
- i. specify measures to prevent erosion and sedimentation as a result of the Action to ensure **harm** to aquatic **habitat** and water quality is minimised.
- j. specify management measures for uncontrolled releases of mine-affected water and other sources of **contamination** generated by the Action to ensure they do not cause unapproved impacts to the environment.
- k. specify the format and timing for the reporting of **monitoring data** and analysis of that data to predict the likelihood of any **trigger thresholds** being **exceeded**, and
- l. specify procedures for periodic review of the effectiveness of the WMP, at a minimum of once every three years from the date of **commencement of the Action**.

18. In the event that monitoring, tests, surveys or investigations indicate an exceedance of a **trigger threshold** or **limit** specified in the approved WMP, the approval holder must:

- a. report the **exceedance** of a **limit** in writing to the **department** as an **incident** within 2 **business days** of becoming aware of the **exceedance**, including details of any immediate corrective measures implemented and their effectiveness.
- b. commence implementing the corrective measures specified in the approved WMP within 24 hours of becoming aware of any **exceedance** of a **trigger threshold**.
- c. report any **exceedance** of a **trigger threshold** in writing to the **department** in the next **compliance report** following the approval holder becoming aware of the **exceedance**.
- d. investigate to determine the cause of any **exceedance** of a **limit**.
- e. investigate to determine the extent and severity of potential environmental **harm** or alteration of the **receiving environment** that occurred or is likely to occur due to any **exceedance** of a **limit**, and

- f. provide a report to the **department** within 21 **business days** of any **exceedance** of a **limit** being detected. The report must include:
 - i. the findings of the investigations required by conditions 19) d) and 19) e)
 - ii. measures to prevent **exceedance** of the **limit** in the future
 - iii. measures to prevent, mitigate and remedy any unapproved environmental **harm**, and
 - iv. a recommendation and justification of whether the **trigger thresholds** should be revised based on better understanding, demonstrating that **limits** will not be **exceeded** again.

Progressive Rehabilitation and Closure Plan

The purpose of the following conditions is to avoid and mitigate **harm** to **protected matters** as a result of the Action.

- 19.** To avoid and mitigate **harm** to protected matters and their habitats as a result of the action, the approval holder must implement a progressive rehabilitation and closure plan (PRC plan) in accordance with the **Queensland Environmental Authority** and continue to implement the PRC plan until the **completion of the action**.
- 20.** The approval holder must submit the approved PRC plan to the **department** within 5 **business days** of it being approved by the administering authority under Chapter 5 of the *Environmental Protection Act 1994* in accordance with the **Queensland Environmental Authority**.
- 21.** The PRC plan must be prepared with the input of a **suitably qualified ecologist**. All commitments, including environmental outcomes, management measures, corrective measures, **trigger thresholds**, **limits** and performance indicators specified in the PRC plan must be **SMART** and based on referenced or included evidence of effectiveness. The PRC plan must be consistent with the **Environmental Management Plan Guidelines**, and must include:
 - a. an overview of the existing environment of the rehabilitation area.
 - b. a summary of the key impacts that may arise as a result of the Action.
 - c. a summary of the areas to be rehabilitated.

Weed and Pest Management Plan

The purpose of the following conditions is to avoid and mitigate **harm** to **protected matters** as a result of the Action.

- 22.** The approval holder must submit a Weed and Pest Management Plan (WPMP) to the **department** for the **Minister's** approval. The approval holder must not **commence the Action** until the WPMP has been approved by the **Minister** in writing. The approval holder must commence implementing the WPMP, as approved by the **Minister** in writing, prior to the **commencement of the Action** and continue to implement the approved WPMP until the expiry date of this approval.
- 23.** By implementing the approved WPMP, the approval holder must achieve the following environmental outcome/s:
 - a. no introductions of new weed or pest animal species to the **Action area**.

- b. ongoing implementation of pest weed and animal control programs including:
 - i. weed hygiene protocols for inspecting and cleaning all vehicles, machinery and equipment that enter the **Action area**.
 - ii. the introduction or movement of soil or fill material into or within the **Action area** must be in accordance with a Weed Hygiene Declaration form.
 - iii. control of feral animals (cats, foxes, dogs, pigs) to reduce risks from predation of native fauna, habitat degradation and introduction of disease.
 - iv. coordinated baiting programs with adjacent land managers to maximise the effectiveness of controlling feral cats, foxes, dogs and pigs.

24. The WPMP must be prepared by a **suitably qualified ecologist**. All commitments, including environmental outcomes, management measures, corrective measures, **trigger thresholds**, **limits** and performance indicators specified in the WPMP must be **SMART**, specific to each **protected matter**, and based on referenced or included evidence of effectiveness. The WPMP must be consistent with the **Environmental Management Plan Guidelines**, and must include:

- a. Details of the relevant **protected matters** and a reference to **EPBC Act** approval conditions to which the plan refers.
- b. A table of commitments made in the plan to achieve environmental outcomes, and a reference to exactly where these commitments are detailed in the plan.
- c. commitments capable of ensuring that the environmental outcomes are achieved.
- d. reporting and review mechanisms to demonstrate compliance with the commitments made in the plan.
- e. an assessment of risks relating to achieving the environmental outcomes and risk management strategies and/or mitigation measures that will be applied to address identified risks.
- f. impact avoidance, mitigation and/or repair measures, and the timing of those measures
- g. a monitoring program, which must include:
 - i. performance indicators including:
 - 1. **trigger thresholds** for corrective measures.
 - 2. the timing and frequency of monitoring, ensuring monitoring is capable of detecting **trigger thresholds** and changes in the performance indicators, and
 - 3. proposed corrective measures if **trigger thresholds** are reached.
- h. references to other relevant plans or conditions of approval (including state or territory approval conditions).

Environmental Offsets

Offset site securement

25. To compensate for the residual significant impacts of the Action on ***Xerothermella herbacea* habitat, Ornamental snake habitat, Koala habitat** and **Squatter pigeon habitat**, the approval holder must:

- a. within 12 months of **commencement of the Action**, provide to the **department**, for the **Minister's** written approval, the proposed **mechanism** to **secure** offset sites.
 - b. within 18 months of **commencement of the Action**, ensure the offset sites are **secured** bearing the terms as approved by the **Minister**, and
 - c. within 5 **business days** of having offset sites **secured**, provide the **department** with written evidence demonstrating the offset sites have been placed under a **securement** bearing the terms as approved by the **Minister**.
26. The approval holder must ensure that the offset sites remain secured at least until the expiry date of this approval.

Offset Area Management Plan

27. To compensate for the residual significant impacts of the Action, prior to **commencement of the Action**, the approval holder must submit to the **department**, for the approval of the **Minister**, an Offset Area Management Plan (OAMP), proposing environmental offsets for impacts to ***Xerothamnella herbacea* habitat, Ornamental snake habitat, Koala habitat** and **Squatter pigeon habitat**. The approval holder must not **commence the Action** unless the OAMP has been approved in writing by the **Minister**. The approval holder must commence implementing the approved OAMP by the **commencement of the Action** and continue to implement the approved OAMP at least until the **completion of the action**.
28. The OAMP must meet the requirements of the **Environmental Offsets Policy** and the **Environmental Management Plan Guidelines** to the satisfaction of the **Minister**.
29. The OAMP must:
- a. be prepared by a **suitably qualified ecologist**, and
 - b. be attached to the mechanism used to legally **secure** each offset area specified in the approved OAMP.
30. The approval holder must obtain the environmental offset area(s) specified in the approved OAMP prior to the **commencement of the Action** and submit the application to legally **secure** each of the environmental offset area(s) specified in the approved OAMP prior to **commencement of the Action**. Each of the environmental offset area(s) specified in the approved OAMP must be legally **secured** within 12 months of the date the application to legally **secure** each of the offset area(s) was submitted.
31. The approval holder must notify and provide evidence to the **department** in writing within five (5) **business days** of each environmental offset site being obtained and again within five (5) **business days** of the submission to legally **secure** each environmental offset site and again within five (5) **business days** of each environmental offset site being legally **secured**.

OAMP Completion Criteria

32. To ensure that the offsets required for ***Xerothamnella herbacea* habitat, Ornamental snake habitat, Koala habitat** and **Squatter pigeon habitat**, provide a conservation gain in accordance with the **Environmental Offsets Policy**, the approval holder must:
- a. achieve the completion criteria specified in the approved OAMP within 20 years of the

commencement of the Action,

- b. ensure that recruitment of *Xerothermella herbacea* is recorded across multiple seasons and results in the establishment of a self-sustaining population, and
- c. once the completion criteria specified in the approved OAMP have been achieved, maintain or improve the condition of the above types of **habitat** in the offset sites specified in the approved OAMP for the remaining duration of the approval.

33. The approval holder must, within 40 **business days** of the 20th anniversary of the **commencement of the Action:**

- a. submit to the **department** a report detailing the areas and condition of *Xerothermella herbacea* **habitat**, **Ornamental snake habitat**, **Koala habitat** and **Squatter pigeon habitat**, recorded in the year prior to the 20th anniversary of the **commencement of the Action** in each offset site specified in the approved OAMP, and
- b. notify the **department** in writing of any completion criteria at any offset site specified in the approved OAMP that has not been achieved and the likely reasons that this/these completion criteria have not been met.

Offset Area Management Plan Requirements

34. The OAMP must include:

- a. detailed information on the residual impacts to *Xerothermella herbacea* **habitat**, **Ornamental snake habitat**, **Koala habitat** and **Squatter pigeon habitat**, that will be compensated for by the environmental offsets. This must include the area(s) of **habitat** for **protected matters** and its condition and quality at all locations impacted by the Action which the offset is to address.
- b. baseline data, including results from field validation surveys, and quantifiable ecological data on **habitat quality**, and other supporting evidence, that documents the presence and condition of *Xerothermella herbacea* **habitat**, **Ornamental snake habitat**, **Koala habitat** and **Squatter pigeon habitat**, within the proposed environmental offset sites.
- c. evidence that the offset can compensate proportionally for impacts to *Xerothermella herbacea* **habitat**, **Ornamental snake habitat**, **Koala habitat** and **Squatter pigeon habitat**, including for each proposed offset site, detailed baseline information on the area(s) of **habitat**, its condition, and the presence (or not) of the **protected matters** at the proposed offset sites.
- d. a reference to the **EPBC Act** approval conditions to which the OAMP refers.
- e. detailed information and a **shapefile** specifying the location, area, and boundaries of each proposed offset site.
- f. commitments to achieve ecological benefits at the offset sites and the timeframes in which they will be achieved.
- g. assessment of the flood risk for the proposed *X. herbacea* offset site near Kianga Creek

(referred to as Property F in the EIS) that details site selection criteria, management actions, and contingency measures to ensure an offset is durable and successful.

- h. specific offset completion criteria derived from the site **habitat quality** to demonstrate the improvement in the quality of ***Xerothermella herbacea* habitat, Ornamental snake habitat, Koala habitat** and **Squatter pigeon habitat**, within the environmental offset sites over the period of effect of this approval required to meet the requirements of the **Environmental Offsets Policy**.
- i. a table summarising all commitments to achieve the proposed ecological benefits for **protected matters** at the proposed offset sites, and a reference to where each commitment is detailed in the OAMP.
- j. details of the management actions, and timeframes for implementation, to be undertaken to achieve the completion criteria.

35. Interim milestones that set targets at five-yearly intervals for progress towards achieving the offset completion criteria.

36. Details of the nature, timing, and frequency of monitoring to inform progress against achieving the five-yearly interim milestones and maintaining improvements of **habitat quality** (the frequency of monitoring must be sufficient to track progress towards each set of milestones, and sufficient to determine whether the environmental offset is likely to achieve those milestones in adequate time to implement any necessary corrective actions).

37. A monitoring program, which must specify:

- a. measurable performance indicators and the timeframes for their achievement to gauge attainment of the ecological benefits for the **protected matters**.
- b. **trigger thresholds** for corrective actions, and
- c. the proposed timing (including season/time of day/frequency) methods and effort, and an explanation of how these will be effective for this purpose, of monitoring to detect **trigger thresholds**, changes in the performance indicators and to gather evidence that effectively demonstrates actual progress towards, attainment of and maintenance of the ecological benefits for the **protected matters**.
- d. corrective actions to be implemented to ensure that the proposed ecological benefits for the **protected matters** are achieved or maintained if **trigger thresholds** are reached or performance indicators not achieved in the specified timeframes.
- e. how the proposed offset sites will be protected, and ecological benefits maintained, at least until **completion** of the Action.

38. Timing for the implementation of corrective actions if monitoring activities indicate the interim milestones will not be, or have not been, achieved.

39. 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 weed and feral animal management, management of potential wildfires and a rating of all initial and post-mitigation residual risks in accordance with the risk assessment matrix.

40. 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.

41. A description of the environmental offset sites, including location, size, condition, environmental values present and surrounding land uses.

Receiving Environment Monitoring Program

42. The outcome sought by this condition is to ensure that prior to the commencement of the action, the approval holder prepares and submits a Receiving Environment Monitoring Program (REMP). For the purposes of the REMP, the **receiving environment** refers to the waters of the Dawson River and connected or surrounding waterways within 10 km downstream of the release points. The approval holder must develop and implement the REMP to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. The REMP must:

- a. monitor the effects of the mine on the **receiving environment** periodically (under natural flow conditions) and while mine affected water is being discharged from the site.
- b. encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.
- c. apply procedures and guidelines from [ANZG Guidelines for Fresh and Marine Water Quality](#) and other relevant guideline documents.

Appendix C—Definitions

Action area means the location of the Action, represented in [Attachment A](#) by the areas bounded by the red line designated “Project Site (MLA 700057)”, the orange line designated “ETL (electricity transmission line) study area” and the dashed line designated “Proposed Moura Baralaba Road realignment”.

ANZG guidelines means the Australian & New Zealand Guidelines for fresh & Marine Water quality, accessible online at: <https://www.waterquality.gov.au/anz-guidelines>

Biodiversity data means ‘biodiversity data’ as described in the *Policy on Accessing and Sharing Biodiversity Data*, Commonwealth of Australia 2024.

Brigalow TEC means the **EPBC Act** listed threatened ecological community Brigalow (*Acacia harpophylla* dominant and co-dominant). Within the **Action area**, the location of **Brigalow TEC** identified as of the date of this approval is represented in [Attachment B](#) by the purple and yellow bounded zones designated “Brigalow (*Acacia harpophylla* dominant and co-dominant)”.

Business days means a day that is not a Saturday, a Sunday, or a public holiday in Queensland.

Clear, cleared or clearing means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting, or burning of vegetation.

Commence the Action means the first instance of any on-site, physical activity associated with the Action (including **clearing** and **construction**) is undertaken, but does not include minor physical disturbance necessary to:

- a. Undertake pre-clearance surveys or monitoring programs.
- b. Install signage and/or temporary fencing to prevent unapproved use of the **Action area**, so long as the signage and/or temporary fencing is located where it does not harm any **protected matter**.
- c. Protect environmental and property assets from fire, weeds, and feral animals, including use of existing surface access tracks.
- d. Install temporary site facilities for persons undertaking pre-commencement activities so long as these facilities are located where they do not **harm any protected matter**.

Commencement of the action means the date on which the approval holder **commences the Action**.

Completion of the action means the date on which all activities associated with this approval have permanently ceased and/or been completed.

Compliance report means a written report of compliance with, and fulfilment of, these conditions (including compliance with commitments made in plans).

Construct or construction means the erection of a building or structure that is, or is to be, fixed to the ground and wholly or partially fabricated on-site; the alteration, maintenance, repair or demolition of any building or structure; any work which involves breaking of the ground (including pile driving) or bulk earthworks; the laying of pipes and other prefabricated materials in the ground, and any associated excavation work; but excluding the installation of temporary fences, signage and groundwater monitoring bores.

Contamination means the presence of any substance which has the potential to pollute or **harm** the environment, including fuel, oil, and chemicals.

Daylight hours means any time after sunrise and before sunset on the same day, where sunrise and sunset are deemed to occur at the times specified for that day for Baralaba by the Bureau of Meteorology.

Department means the Australian Government agency responsible for administering the **EPBC Act**.

Environmental Management Plan Guidelines means the publication titled DCCEEW 2024, Environmental Management Plan Guidelines, Department of Climate Change, Energy, the Environment and Water, Canberra, March. CC BY 4.0. This publication is available at dceew.gov.au/publications

Environmental Offsets Policy means the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, Commonwealth of Australia 2012.

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

Exceed or **exceedance** means a value being greater than a **trigger threshold** or **limit** that is specified as a maximum, lower than a **trigger threshold** or **limit** that is specified as a minimum or outside a **trigger threshold** or **limit** specified as a range.

Fauna spotter-catcher means a person holding an appropriate license issued under the *Nature Conservation Act 1992 (Qld)* to detect, capture, care for, assess, and release wildlife disturbed by vegetation **clearance** activities and has at least three years' experience undertaking this work with **Koala**, **Ornamental snake** and **Squatter pigeon** or is working under the supervision of a **Suitably qualified field ecologist**.

Fauna Spotter Code of Practice means the document titled *Queensland Code of Practice for the welfare of wild animals affected by land-clearing and other habitat impacts and wildlife spotter/catchers* – Draft, Australian Wildlife Hospital 2009.

Groundwater Dependent Ecosystems or **GDEs** means any ecosystem whose species and ecological processes rely on groundwater, either entirely or intermittently.

GDE monitoring areas means the 12 locations referred to as GDE Areas depicted on [Attachment G](#) and referred to in EIS Appendix H Groundwater Dependent Ecosystems Report.

Habitat quality means a measure of the overall viability of a site and its capacity to support **protected matters**, with respect to site condition, site context and species stocking rate and/or composition.

Harm means to cause any measurable direct or indirect disturbance or deleterious change as a result of any activity associated with the action.

Incident means any event which has the potential to, or does, **harm** any **protected matter**.

Koala means the **EPBC Act** listed threatened species *Phascolarctos cinereus* (combined populations of Qld, NSW and the ACT).

Koala habitat means any area of vegetation which supports the **Koala**, including habitat described in the *Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory*, Commonwealth of Australia 2022. Within the **Action area**, the

location of **Koala habitat** identified as of the date of this approval is represented in [Attachment D](#) by the green bounded zone under the heading “Koala records and habitat mapping”.

Koala habitat trees means any trees listed in Table 3 ‘Brigalow Belt Locally important koala trees’ or Table 4 – ‘Brigalow Belt Ancillary habitat trees’ in *A review of koala habitat assessment criteria and methods*, The Australian National University 2021.

Limit means a detectable value of a parameter or set of criteria that the approval holder commits to not **exceed** and that, if **exceeded**, could result in unapproved **harm** to **protected matters**. A value may be expressed as a maximum, a minimum or a range.

Minister means the Australian Government Minister administering the **EPBC Act**, including any delegate thereof.

Monitoring data means the data required to be recorded under the conditions of this approval, including sensitive **biodiversity data**.

National Light Pollution Guidelines for Wildlife means the *National Light Pollution Guidelines for Wildlife*, Commonwealth of Australia 2023.

Ornamental Snake means the **EPBC Act** listed threatened species Ornamental Snake (*Denisonia maculata*).

Ornamental Snake habitat means any area of **habitat** that supports the **Ornamental Snake**. The location of **Ornamental Snake habitat** within the **Action area**, as of the date of this approval is represented in [Attachment E](#) by the three coloured zones representing drainage lines, gilgai and wetland habitat, and marginal gilgai habitat under the heading “Ornamental Snake records and habitat”.

Protected matter means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

Queensland Environmental Authority means the license to conduct an environmentally relevant activity in Queensland which requires approval under the Queensland *Environmental Protection Act 1994*.

Receiving environment means connected and surrounding waterways within 10 km downstream of all release points and overflow points.

Referral means the project documents associated with the Invitation for Public Comment on Referral dated 12/09/2012 for EPBC Number 2012/6547.

Secure, secured or securement means to provide enduring conservation protection on the title of land under an enduring protection mechanism agreed to in writing by the **department**, to provide protection for the site against development incompatible with conservation.

Shapefiles means location and attribute information about the Action provided in an Esri shapefile format containing:

- a. '.shp', '.shx', '.dbf' files,
- b. a '.prj' file which specifies the projection or geographic coordinate system used, and
- c. an '.xml' metadata file that describes the shapefile for discovery and identification purposes.

Shelter Tree means low and understory trees in **Squatter Pigeon habitat** near identified nests.

SMART means specific, measurable, achievable, relevant and time bound.

Squatter Pigeon means the **EPBC Act** listed threatened species Squatter Pigeon (Southern) (*Geophaps scripta scripta*).

Squatter Pigeon habitat means any area of vegetation which supports the **Squatter pigeon**, including habitat described in the *Conservation Advice Geophaps scripta scripta squatter pigeon (southern)*, Commonwealth of Australia 2015. Within the **Action area**, the location of **Squatter pigeon habitat** identified as of the date of this approval is represented in [Attachment F](#) by the orange zone representing the breeding and foraging habitat under the heading “Squatter Pigeon (southern) records and habitat mapping”.

Stygofauna means aquatic fauna that live part or all of their lives in groundwater systems including aquifers and underground caves.

Suitably qualified ecologist (for the purpose of preparing and implementing environmental management plans) means a person who has relevant professional qualifications and:

- a. at least three years of work experience writing and implementing management plans for the habitat of **protected matters**,
- b. has implemented and reported on management plans for the habitat of **protected matters**, and can demonstrate the implementation of those plans achieved the desired **habitat quality** for habitat of **protected matters**, and
- c. can give authoritative assessment and advice on offset management to improve the **habitat quality** of the habitat of **protected matters** using relevant protocols, standards, methods and/or literature.

Suitably qualified field ecologist (for the purpose of undertaking environmental surveys) means a person who has relevant professional qualifications and at least three years of work experience designing and implementing surveys for **Xerothermella herbacea**, **Koala**, **Ornamental Snake** and **Squatter Pigeon** and can give an authoritative assessment and advice on the presence of **Xerothermella herbacea**, **Koala**, **Ornamental Snake** and **Squatter Pigeon**, and relocation of **Koala** using relevant protocols, standards, methods and/or literature.

Suitably qualified GDE expert means a person who has relevant professional qualifications, knowledge of the management requirements of **terrestrial GDEs**, at least three years of work experience in preparing and/or assessing GDE monitoring and management plans and can provide authoritative advice on the effectiveness of the GDEMMP in mitigating impacts to **terrestrial GDEs**.

Suitably qualified water expert means a person who has relevant professional qualifications, knowledge of the management requirements of **water resources**, at least three years of work experience in preparing and/or assessing water management plans and can provide authoritative advice on the effectiveness of the Water Management Plan in mitigating impacts to **water resources**.

Survey guidelines means the *Survey guidelines for Australia's threatened mammals: Guidelines for detecting mammals listed as threatened under the EPBC Act*, Commonwealth of Australia 2011.

Terrestrial groundwater dependent ecosystems or **terrestrial GDEs** means all ecosystems within the groundwater area of investigation which are partially or wholly dependent on access to subsurface groundwater and includes many riparian communities.

Trigger threshold means a detectable value or set of criteria capable of providing early warning of the potential for **limits** to be reached and unapproved **harm** to **protected matters** to occur. A value may be expressed as a maximum, a minimum or a range.

Water resources means as the term is defined in the *Water Act 2007* (Cth). **Water resources** means:

- a. surface water or ground water; or
- b. a watercourse, lake, wetland or aquifer (whether or not it currently has water in it); and includes all aspects of the **water resource** (including water, organisms and other components and ecosystems that contribute to the physical state and environmental value of the **water resource**).

Xerothamnella herbacea means the **EPBC Act** listed endangered plant *Xerothamnella herbacea*.

Xerothamnella herbacea habitat means an area of vegetation which supports **Xerothamnella herbacea**, including habitat described in the *Approved Conservation Advice for Xerothamnella herbacea*, *Department of the Environment, Water, Heritage and the Arts, 2008*. Within the **Action area**, the location of **Xerothamnella herbacea habitat** identified as of the date of this approval is represented in [Attachment C](#) by the green bounded zone designated "*Xerothamnella herbacea* (no common name). Endangered (EPBC Act and NC Act).

Appendix C—Attachments

Attachment A: Action area

Attachment B: Brigalow TEC habitat

Attachment C: *Xerothamnella herbacea* habitat

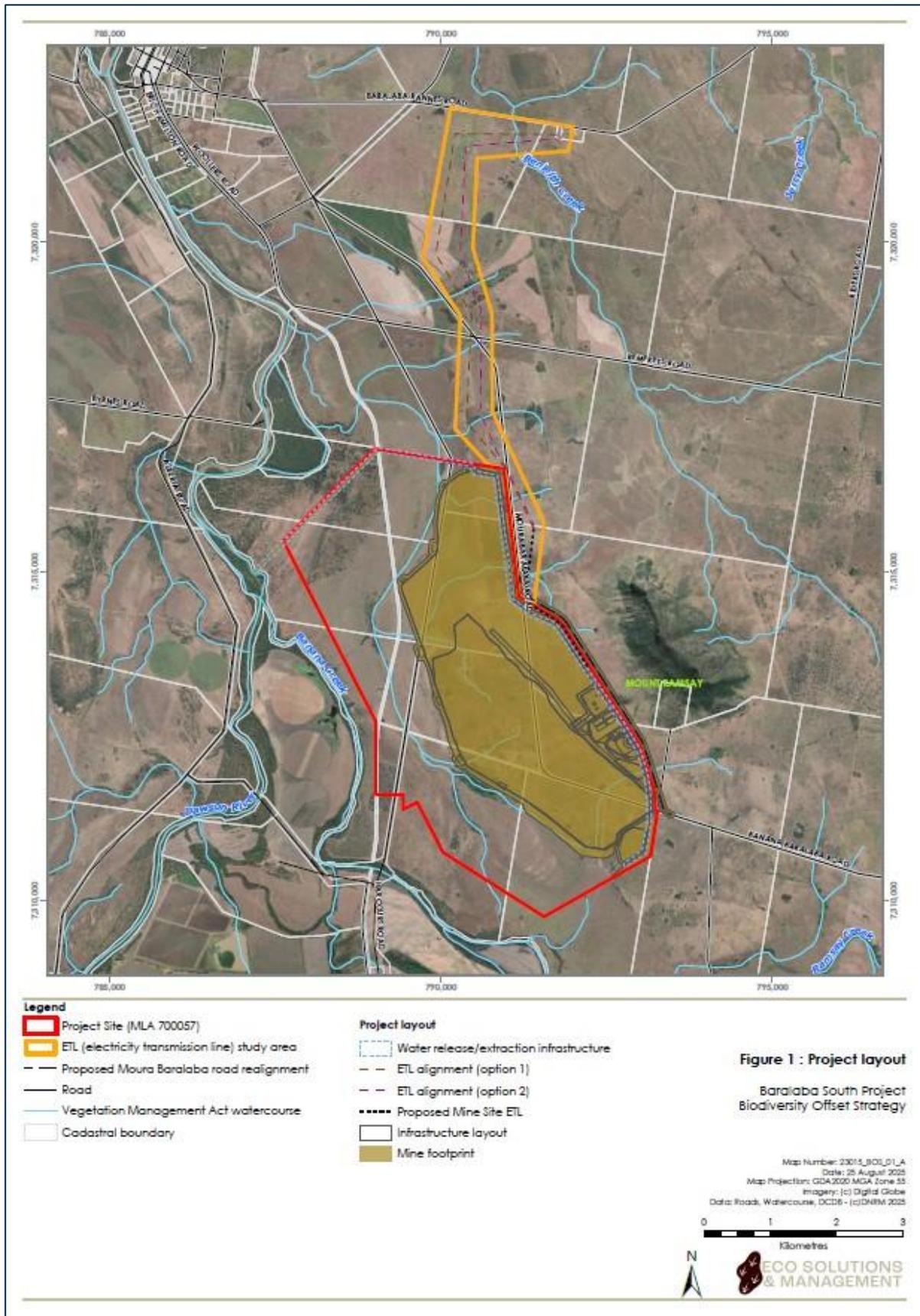
Attachment D: Koala habitat

Attachment E: Ornamental snake habitat

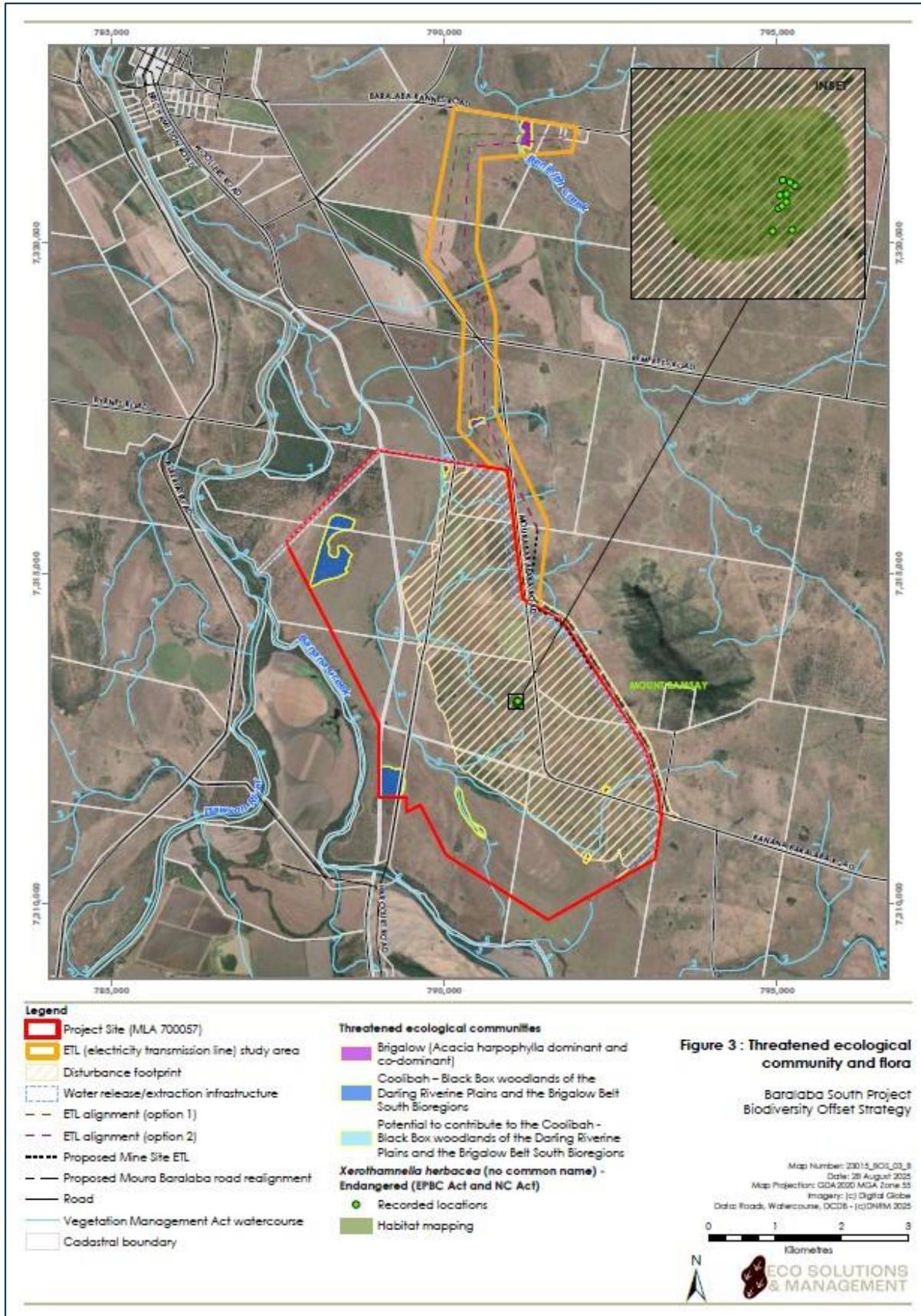
Attachment F: Squatter pigeon habitat

Attachment H: GDE areas

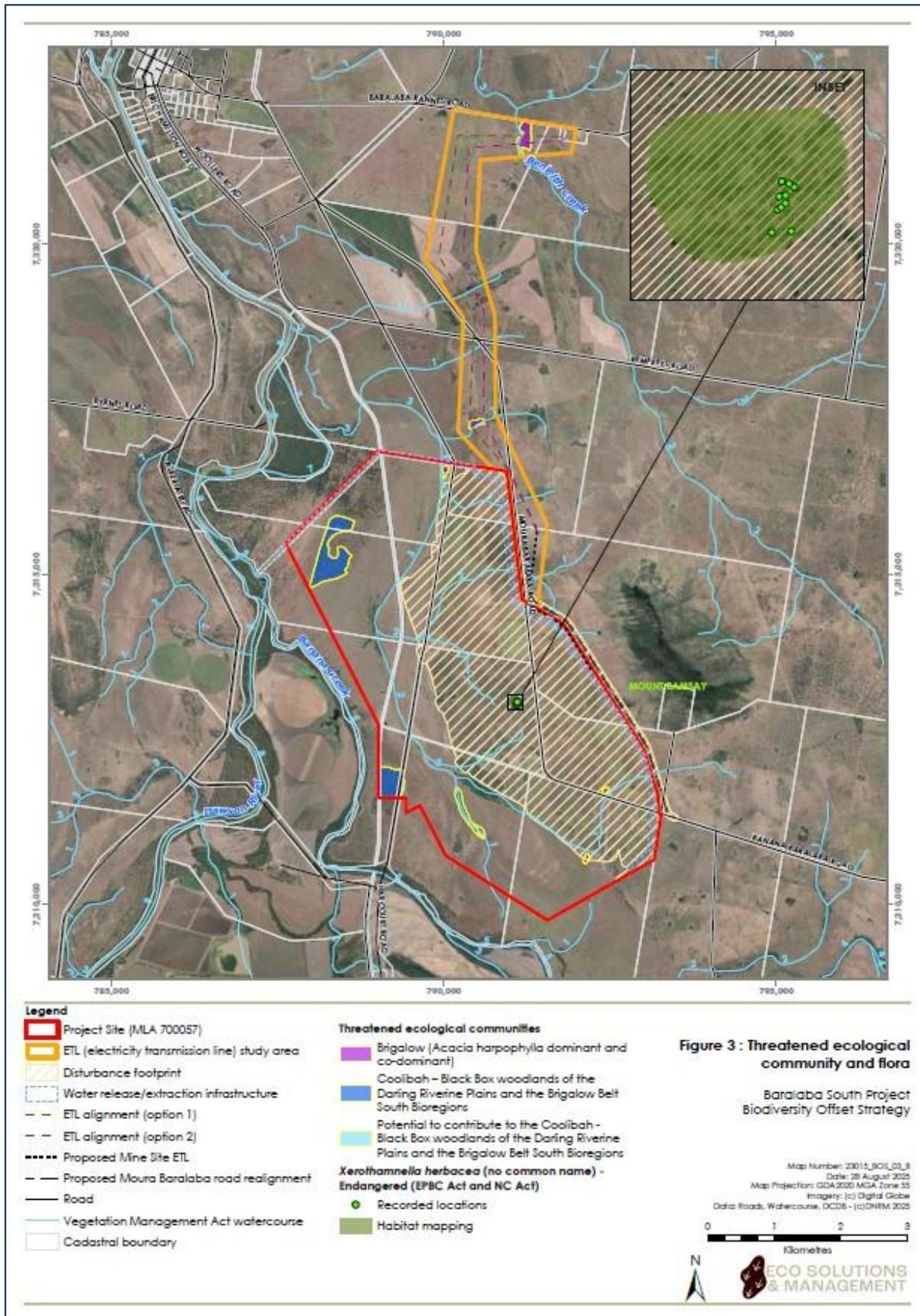
Attachment A: Action Area



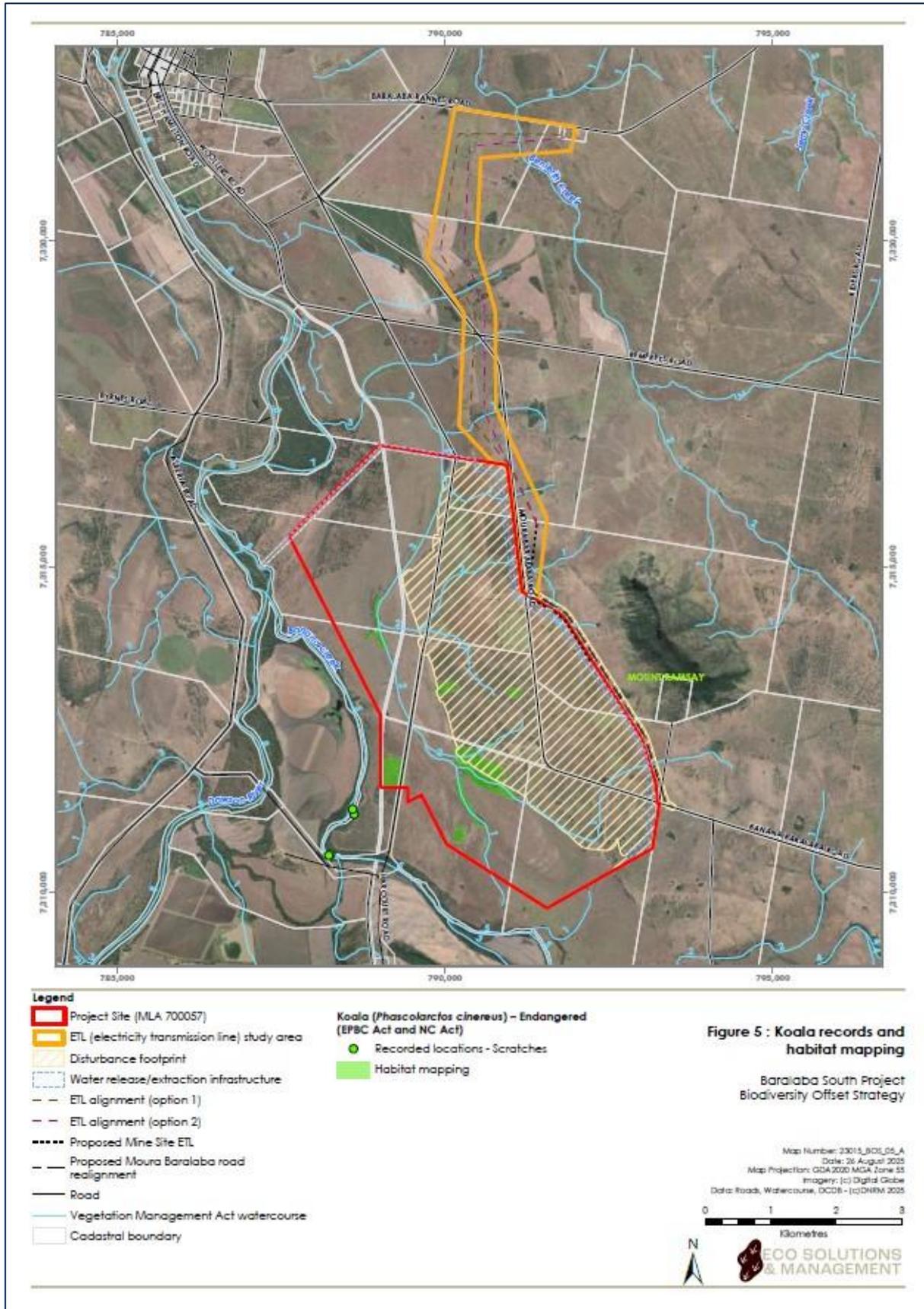
Attachment B: Brigalow TEC habitat



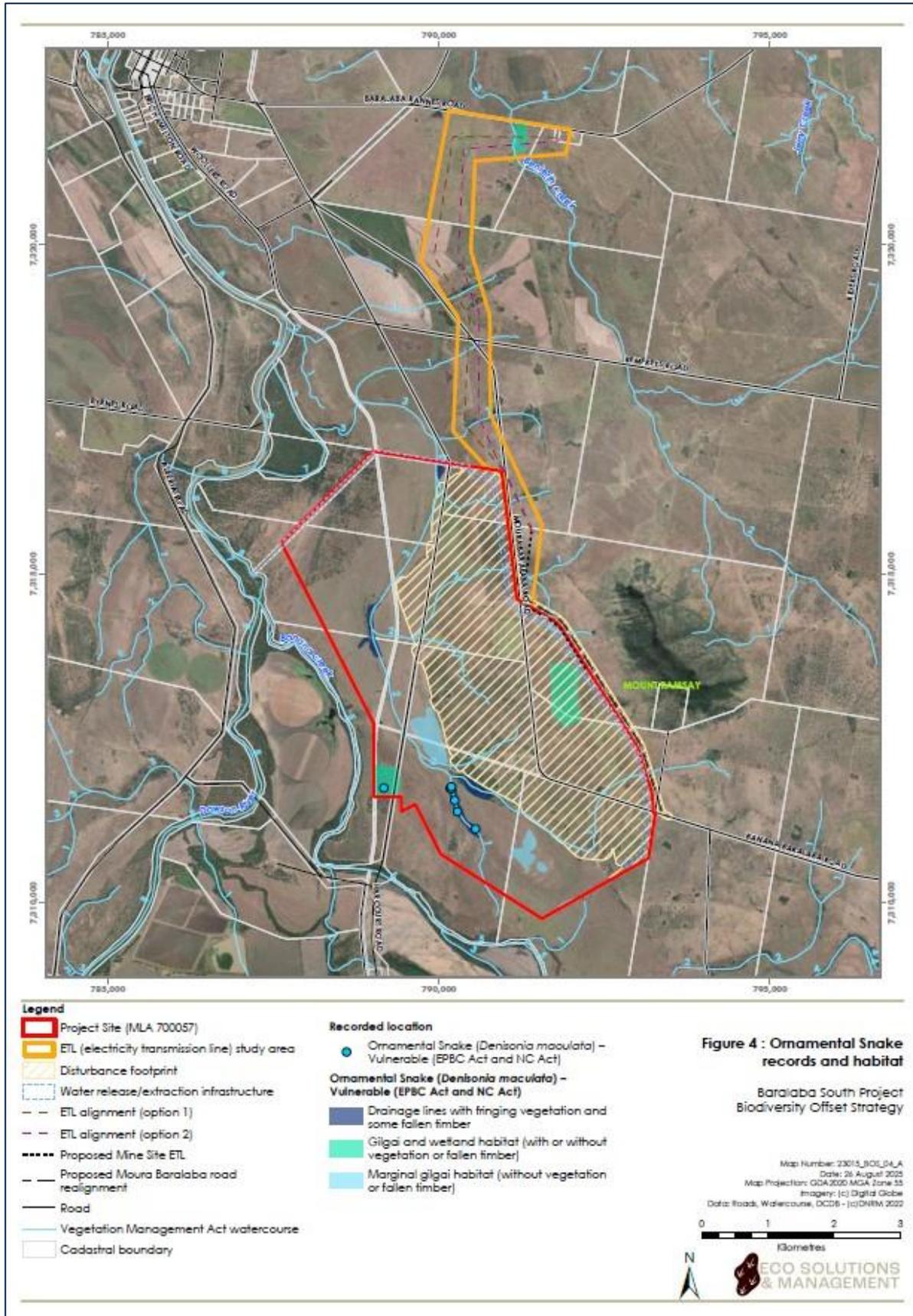
Attachment C: *Xerothermella herbacea* habitat



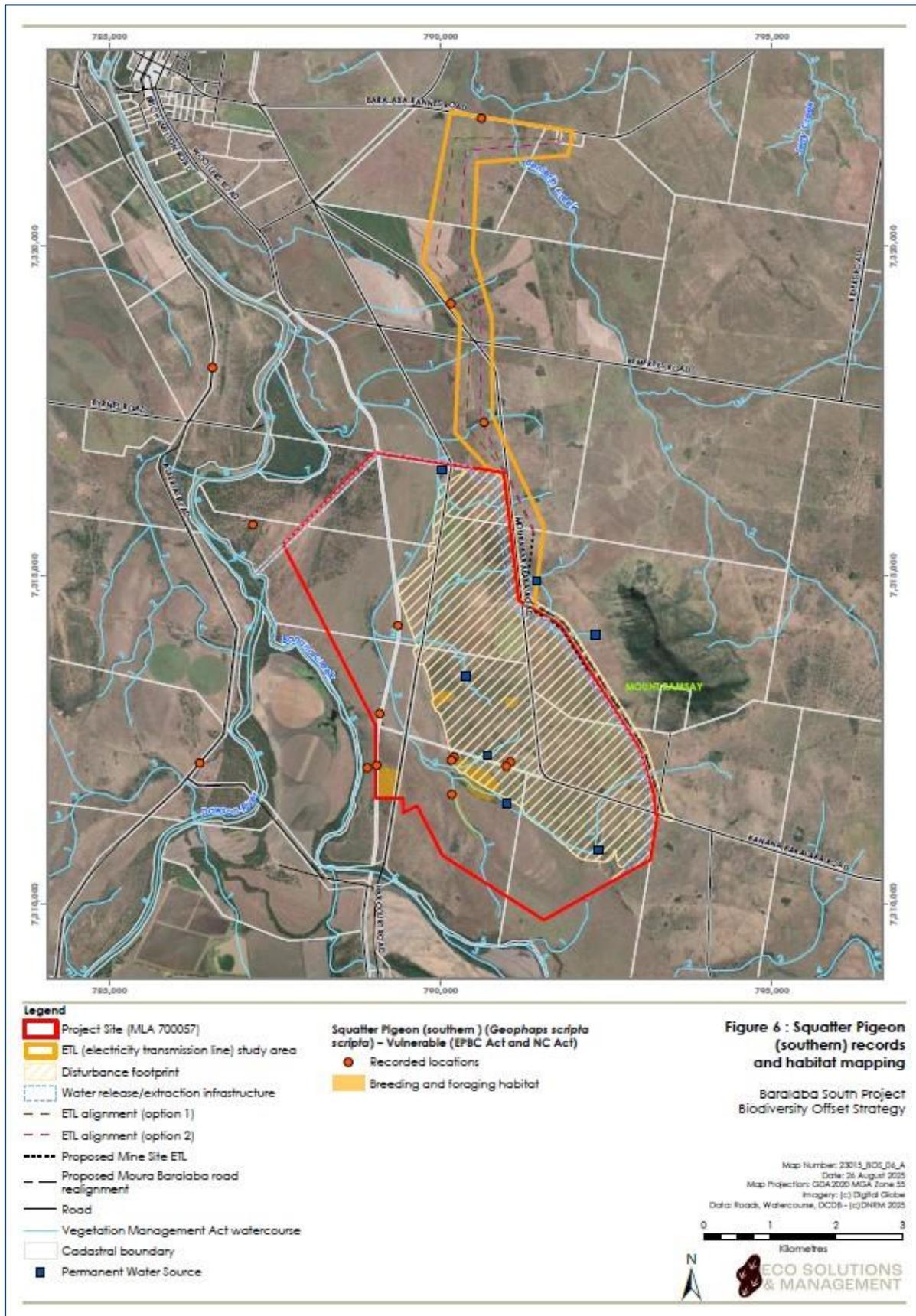
Attachment D: Koala habitat



Attachment E: Ornamental snake habitat



Attachment F: Squatter pigeon habitat



Appendix D—*Human Rights Act 2019* impact assessment

Introduction

In deciding the environmental impact statement (EIS) assessment report for the Baralaba South Project (the project), I conducted a human rights assessment in line with the *Human Rights Act 2019* (current as of 20 September 2023). This assessment focused solely on how my decision may affect the human rights of individuals.

I reviewed the EIS, which evaluates the project's environmental, economic, and social impacts, outlines mitigation measures, and considers project alternatives. A statutory consultation process allowed for public submissions and feedback.

I have determined the project can proceed, subject to conditions and actions required of the proponent. My decision is compatible with human rights.

Legislative basis

Section 58(1)(a) of the HR Act makes it unlawful for a public entity to act or make a decision in a way that is not compatible with human rights. Section 58(1)(b) further makes it unlawful to fail to give proper consideration to a relevant human right when making a decision.

The HR Act applies to public service employees, including a decision maker for an EIS assessment report under the *Environmental Protection Act 1994* (EP Act). When deciding if the project is suitable to proceed, I am required to:

- give proper consideration to human rights relevant to my decision; and
- make decisions that are compatible with human rights.

A decision is compatible with human rights if it does not limit a human right or limits a human right only to the extent that is reasonable and demonstrably justifiable in accordance with section 13 of the HR Act (section 8 of the HR Act).

To decide whether a limit on a human right is reasonable and demonstrably justified, it is necessary to consider:

- (a) the nature of the right;
- (b) the nature of the purpose of the limitation;
- (c) whether the limitation helps to achieve the purpose;
- (d) whether there is any less restrictive way of achieving the purpose;
- (e) on balance, whether the importance of achieving the purpose outweighs the importance of preserving the right (section 13(2)).

I have undertaken these considerations as set out below.

Assessment details

Decision / Action

This human rights assessment relates to the action under section 57 of the EP Act of giving the EIS assessment report for the project to the proponent including the requirements under section 59 to make recommendations about the suitability of the project.

Section 57 of the EP Act requires that the chief executive must give the proponent a report (an EIS assessment report) about the submitted EIS within 30 business days after:

- (a) if, at the end of the submission period, the chief executive has accepted any submissions—the day the notice mentioned in subsection (1) was given; or
- (b) otherwise—the end of the submission period.

Related to the requirement under section 57, the EP Act requires that under section 58 in preparing an EIS assessment report, the chief executive must consider the following:

- (a) the final terms of reference for the EIS
- (b) the submitted EIS
- (c) all properly made submissions and any other submissions accepted by the chief executive
- (d) the standard criteria
- (e) another matter prescribed under a regulation.

For criterion (e), consideration must be given to matters prescribed in Schedule 1 of the Environmental Protection Regulation 2000 (EP Regulation).

Additionally, section 59 of the EP Act lists the required content of an EIS assessment report. An EIS assessment report must:

- (a) address the adequacy of the EIS in addressing the final terms of reference; and
- (b) address the adequacy of any environmental management plan for the project; and
- (c) make recommendations about the suitability of the project; and
- (d) recommend any conditions on which any approval required for the project may be given; and
- (e) contain another matter prescribed under a regulation.

Regarding item (e), section 9 of the EP Regulation prescribes the matters that an EIS assessment report must contain.

Human rights engaged

I have considered all 23 human rights protected under the HR Act and identified the following as potentially engaged by the decision:

- **Section 15(2)** – Recognition and equality before the law - Every person has the right to enjoy the person's human rights without discrimination.
- **Section 16** – Right to life - Every person has the right to life and has the right not to be arbitrarily deprived of life.
- **Section 24(2)** – Property rights - A person must not be arbitrarily deprived of the person's property.
- **Section 26(2)** – Protection of families and children - Every child has the right, without discrimination, to the protection that is needed by the child, and is in the child's best interests, because of being a child.

- **Section 28** - Cultural rights – Aboriginal peoples and Torres Strait Islander peoples
 - 1) Aboriginal peoples and Torres Strait Islander peoples hold distinct cultural rights.
 - 2) Aboriginal peoples and Torres Strait Islander peoples must not be denied the right, with other members of their community—
 - (a) to enjoy, maintain, control, protect and develop their identity and cultural heritage, including their traditional knowledge, distinctive spiritual practices, observances, beliefs and teachings; and
 - (b) to enjoy, maintain, control, protect, develop and use their language, including traditional cultural expressions; and
 - (c) to enjoy, maintain, control, protect and develop their kinship ties; and
 - (d) to maintain and strengthen their distinctive spiritual, material and economic relationship with the land, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal tradition or Island custom; and
 - (e) to conserve and protect the environment and productive capacity of their land, territories, waters, coastal seas and other resources.
 - 3) Aboriginal peoples and Torres Strait Islander peoples have the right not to be subjected to forced assimilation or destruction of their culture.

Additional rights (including 25 – privacy and reputation, 27 - cultural rights generally, 36 - right to education and 37 - right to health services) were identified by the proponent within Appendix AG of the EIS. I do not consider these rights are engaged by my decision.

As part of the EIS process, I have visited the proposed Baralaba South Project site on several occasions. During those trips I have engaged with local landholders who own land either adjacent to or forming part of the proposed mining tenure. I have spoken with them at length about their farming operations and any concerns they have about the proposed project and its potential impacts on them.

I have also met directly with the Gaangalu Nation People, who are the traditional owners of the land. Discussing with them, issues such as their rights relating to the land both now and into the future, and specific concerns about the final void/rehabilitated landform and its proximity to Wandoo Mountain (Mount Ramsey) which is culturally significant to the Gaangalu Nation People.

In addition, I have relied on the EIS process and on the public notification process undertaken as part of the EIS process to fulfill any additional requirements (where appropriate) to consult with potentially affected individuals, whose human rights may be engaged by the decision.

Limitations

The decision to allow the project to proceed and to issue the EIS assessment report may limit certain human rights. In accordance with section 13 of the *Human Rights Act 2019* (HR Act), I have considered whether any such limitations are reasonable and demonstrably justifiable. The decision is authorised under the *Environmental Protection Act 1994* (EP Act) and is therefore “under law” for the purposes of section 13(1) of the HR Act.

Climate change

Climate change is a relevant consideration in this assessment due to its potential impacts on the rights to life, children and families, and the cultural rights of Aboriginal peoples and Torres Strait Islander peoples (sections 16, 26 and 28 of the HR Act). The project’s mining and subsequent combustion of

coal will generate greenhouse gas emissions and contribute to climate change. Accordingly, I have carefully considered the relationship between climate change and human rights in this assessment.

Peak annual emissions are predicted in year 6 at approximately 218,000 t CO₂-e, equating to around 0.058% of Australia's annual emissions and 0.18% of Queensland's annual emissions. Combined Scope 1, 2 and 3 emissions represent approximately 0.015% of the global carbon budget (based on a 67% likelihood of limiting warming to 2°C), 0.09% of the national budget, and 0.3% of the state budget.

Scope 1 emissions are expected to exceed 100,000 t CO₂-e per year, making the project a Safeguard facility under the Commonwealth Safeguard Mechanism, which requires reporting and proportionate contribution to state and national emissions reduction commitments.

Having considered the scale of emissions, regulatory controls, national and state emissions trajectories, and the economic and social benefits of the project — including regional employment and infrastructure improvements — I am satisfied that a fair balance has been struck between the potential limitation of rights arising from climate change and the benefits of the project.

I have recommended in the EIS assessment report that the proponent prepare a GHG abatement plan consistent with DETSI guidelines, detailing how emissions will be mitigated and reduced to align with state and Commonwealth reduction targets.

Section 15(2) – Recognition and equality before the law

(a) nature of the right

Every person has the right to enjoy human rights without discrimination, including where limitations disproportionately affect vulnerable groups.

Schedule 1 of the HR Act defines discrimination by reference to the *Anti-Discrimination Act 1991*, including direct and indirect discrimination based on attributes listed in section 7. Relevant attributes for this decision are age and race. In assessing indirect discrimination, I considered whether the decision imposes a burden or denies a benefit in a way that reinforces or exacerbates historical or systemic disadvantage. I also considered whether any unconscious bias may affect the decision.

(b) the nature of the purpose of the limitation

The project may limit an individual's right to fair and equal treatment. The land underlying the project is currently subject to an active native title claim, lodged by the Gaangalu Nation People's. It also has the potential to unfairly impact those landholders both within and adjoining the project whose properties and amenity may be impacted. I did not identify any other biases.

The EIS process, including public notification and consultation, provided all interested and affected persons, including First Nations peoples and impacted landholders, the opportunity to provide input on various aspects of the project. In response, the proponent is developing a cultural heritage management plan with the Gaangalu Nation People to minimise impacts, whilst also making project design changes based on identified risks to impacted landholders. I have also made recommendations within the EIS assessment report aimed to reduce impacts and protect amenity at sensitive receptors.

The project is expected to deliver regional and local social and economic benefits, which is consistent with a free and democratic society based on human dignity, equality and freedom.

(c) whether the limitation helps to achieve the purpose

The limitations on the human rights identified are directly connected to my recommendation in the EIS assessment report that the project is suitable to proceed.

(d) whether there is any less restrictive way of achieving the purpose

I do not consider there is a less restrictive way of achieving the purpose of allowing the project to proceed. Recommendations in the EIS assessment report aim to minimise potential impacts on human rights where appropriate.

(e) on balance, whether the importance of achieving the purpose outweighs the importance of preserving the right

The decision may limit section 15(2) rights due to disturbance to land in which others hold interests. However, I consider a fair balance has been struck between the potential limitations and the importance of proceeding. The project will provide economic and social benefits, including employment, regional infrastructure improvements and long-term development for the broader community, including First Nations populations and landholders. Currently, there is no viable alternative to the metallurgical coal required for steel production generated by the project. While industry is investigating alternatives, widespread deployment of new technologies is not yet available.

Therefore, I consider the limitation is reasonable and justified.

Section 16 – Right to life**(a) the nature of the right**

Every person has the right to life and has the right to not be arbitrarily deprived of life.

(b) the nature of the purpose of the limitation

The project may limit the right due to its direct environmental impacts, impacts on people in the vicinity of the project and its contribution to climate change.

Project activities will directly and indirectly impact the surrounding environment and people who use it for work, recreation and cultural practices. This includes but not limited to impacts resulting from:

- GHG emissions and climate change
- dust and particulate matter emissions and airblast overpressure; and
- clearing and other mining related activities impacting on habitat and local and regional water quality.

The mining and combustion of coal from the project would emit GHG (primarily CO₂). Although the emissions would be small in a global context, it is well understood that GHGs directly contribute to climate change. There is evidence to suggest that climate change will disproportionately affect vulnerable groups, including the young, the elderly, people with underlying health conditions, and First Nations peoples. There are also intergenerational considerations, as future generations may face reduced freedoms and limited options to avoid climate change impacts.

Dust emissions may affect sensitive receptors (e.g. residential and commercial premises where people are present for extended periods). Onsite and offsite sensitive receptors identified in the project's EIS, with some requiring co-existence agreements. Dust generated during construction, operation, decommissioning and will contribute to cumulative regional mining-related impacts.

Land clearing and other activities will impact on existing habitat and water quality in local waterways, as well as regional water quality in the Fitzroy Basin.

(c) whether the limitation helps to achieve the purpose

The limitation on the right to life is directly related and my recommendation in the EIS assessment report that the project is suitable to proceed.

(d) whether there is any less restrictive way of achieving the purpose

I do not consider there is a less restrictive way to achieve the purpose of allowing the project to proceed. I have made recommendations in the EIS assessment report about measures to reduce potential impacts on human rights where appropriate.

(e) on balance, whether the importance of achieving the purpose outweighs the importance of preserving the right

I consider that an appropriate balance has been struck between the potential human rights limitations and allowing the project to proceed. The project will deliver economic and social benefits, including employment opportunities, regional infrastructure improvements, and long-term economic development. In making my decision, I have considered potential impacts on the right to life and ensured that the EIS recommends conditions on the EA requiring the proponent to avoid, mitigate and monitor and manage impacts, including land disturbance, dust and water management. I have also recommended conditions requiring site rehabilitation and restoration to a suitable post-mining land use to protect the right to life to the extent possible.

Section 24(2) – Property rights**(a) nature of the rights**

Property rights protect individuals from arbitrary deprivation of their property.

(b) The nature of the purpose of the limitation

The project may limit property rights due to direct impacts on properties within and adjacent to the project, from activities including:

- dust, noise, and light nuisance
- land disturbance and vegetation clearing
- flooding
- temporary or permanent restrictions on access; and
- potential impacts on water resources.

Dust, light, and noise from the project have the potential to limit the use and enjoyment of land by adversely impacting health and wellbeing through general nuisance. Dust is an irritant that can cause several impacts to health and wellbeing, and the ongoing dust generated by mining activities can impact the ability of vulnerable individuals to use and enjoy their home, workplace, and property. Lighting and noise can also be a general nuisance to residents close to the project site.

Land clearing and land access restrictions can prevent the utilisation of property and potentially impact cultural practices, livelihoods (e.g. livestock grazing), and recreation.

Surface water and groundwater quality impacts resulting from project activities can reduce the available water sources in the vicinity of the project and can result in the need to supply water from alternate sources to enable activities on properties in the vicinity to continue. I consider that the project has the potential to limit the human rights under section 24(2), due to impacts on land within the proposed mining area and adjacent properties.

(c) whether the limitation helps to achieve the purpose

Any limitation on property (and related privacy) is directly connected to my recommendation in the EIS assessment report that the project is suitable to proceed.

(d) whether there is any less restrictive way of achieving the purpose

The proponent has identified potential impacts and committed to mitigation, rehabilitation to suitable grazing land and compensation agreements with the landowners most affected. However, there may be impacted individuals not yet identified.

Therefore, I have recommended that conditions be placed on the EA to address these matters. In my opinion, there is no less restrictive way of achieving the purpose of allowing the project to proceed.

(e) on balance, whether the importance of achieving the purpose outweighs the importance of preserving the right

There are significant impacts on property, including the property rights of the Traditional Owners and First Nations community members (due to the potential impacts on land and resources of cultural and traditional significance). However, it is also expected the project will deliver substantial economic and social benefits, including regional employment and development. The proponent has committed to impact avoidance, mitigation, cultural heritage management, progressive rehabilitation, compensation, and ongoing consultation.

On balance, I consider a fair balance has been struck between the potential limitation of property rights and the importance of allowing the project to proceed.

Section 26(2) – Protection of families and children**(a) the nature of the right**

The right protects families and children and requires that children receive protection in their best interests, without discrimination. The project as proposed involves activities that may generate direct and indirect impacts on children within and adjacent to the project area. These impacts include (but are not limited to) increased noise and air pollution, impacts to land and water, and changes to local community infrastructure that may affect children's access to essential services. Climate change may also disproportionately affect children, who are more vulnerable to natural hazards such as heatwaves, extreme rainfall, drought, tropical cyclones and sea level rise which are expected to increase.

(b) the nature of the purpose of the limitation

Allowing the project to proceed may limit the protection of children because of the project's direct impacts to land and water resources, along with its contribution to GHG emissions and climate change. Increased emissions may exacerbate climate change impacts while exposure to pollution, land disturbances, or disruptions to essential services may disproportionately affect children's health, well-being and development.

I have recommended that the project be allowed to proceed and decided to issue the EIS assessment report following careful consideration of the potential impacts to children and families.

(c) whether the limitation helps to achieve the purpose

Any limitation on children's right is directly connected to the recommendation in the EIS assessment report that the project is suitable to proceed.

(d) whether there is any less restrictive way of achieving the purpose

The EIS assessment report recommends conditions be placed on the EA and implementation of the proponent's commitments to avoid, mitigate, and monitor the various impacts that could affect families and children.

In my opinion, there is no less restrictive way of achieving the purpose of allowing the project to proceed.

(e) on balance, whether the importance of achieving the purpose outweighs the importance of preserving the right

I consider a fair balance has been struck between the protection of children's rights and allowing the project to proceed. The limitation is justified given the economic and social benefits the project is expected to deliver.

Section 28 - Cultural rights – Aboriginal peoples and Torres Strait Islander peoples

(a) nature of the right

Section 28 protects the distinct cultural rights of Aboriginal and Torres Strait Islander peoples, including cultural values, practices, knowledge and language.

(b) nature of the purpose of the limitation

Allowing the project to proceed may limit cultural rights due to direct impacts and its contribution to climate change.

Project activities such as land clearing, excavation, disturbance and operation of a coal mine will directly affect land and waters within and adjacent to the project area. These impacts may affect tangible and intangible cultural heritage values including with the broader landscape and culturally significant locations including the vista of Wandoo Mountain (Mount Ramsay).

Climate change impacts may also impact cultural rights by disrupting traditional cultural practices and impede the preservation and development of culture and cause irreversible harm to traditional lands and waters.

(c) whether the limitation helps to achieve the purpose

Any limitation on cultural rights is directly related to the recommendation in the EIS assessment report that the project is suitable to proceed.

(d) whether there is any less restrictive way of achieving the purpose

In my opinion, there is no less restrictive way of achieving the purpose of allowing the project to proceed. The proponent has prepared a Cultural Heritage Management Plan (CHMP) with the Gaangalu Nation People. The CHMP identifies mitigation measures and consultation requirements in accordance with the *Aboriginal Cultural Heritage Act 2003* (Qld). Implementation of the CHMP during ground disturbance will minimise direct impacts.

(e) on balance, whether the importance of achieving the purpose outweighs the importance of preserving the right

I consider a fair balance has been struck between the potential limitations on cultural rights and the importance of allowing the project to proceed. The project is expected to deliver significant economic and social benefits, including the creation of employment, regional infrastructure improvements and long-term economic development, including First Nations populations. Conditions imposed on the EA, will ensure that cultural heritage is appropriately managed.

Record of consultation

Project-specific consultation was undertaken through the EIS process. I relied on the EIS process, including the draft TOR and public notification stages, to meet consultation requirements under the EP Act (where appropriate) with potentially affected individuals whose human rights may be engaged by the decision.

Outcome

The human rights identified above **are limited** but the decision/action **is compatible** with the HR Act because:

- I have considered whether my action imposes a burden or denies a benefit in a way that has the effect of reinforcing, perpetuating, or exacerbating disadvantage, including historical or systemic disadvantage.
- I have determined that my action will potentially limit human rights through direct impacts on the environment and people in the vicinity of the project and because of its contribution to climate change.
- Based on the above considerations, the limitation on the human rights is considered necessary to achieve the purpose. The economic and social benefits, along with the mitigation of impacts achieved by conditions in the EA justify the residual limitations on human rights.

To minimise, avoid, and mitigate potential impacts on the human rights, a range of conditions for inclusion in the EA have been recommended in the EIS assessment report. The proponent will be required to comply with the EA to avoid, mitigate and monitor impacts to properties including from land disturbance, nuisance matters such as dust and noise. Additionally, progressive rehabilitation of the mine site is required to ensure landholders' property rights are protected to the extent possible and land is restored to a suitable post-mining land use.

Delegate

Christopher Loveday

2 March 2026

Signature

Christopher Loveday
Director, Technical and Assessment Services
 Environmental Services and Regulation
 Department of the Environment, Tourism, Science and Innovation
 Delegate of the Chief Executive
Environmental Protection Act 1994

Date

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 Email: eis@detsi.qld.gov.au

Appendix E—Acronyms and abbreviations

ACCU	Australian Carbon Credit Unit
ACH Act	<i>Aboriginal Cultural Heritage Act 2003 (Qld)</i>
AEIS	Amended EIS
AEP	Annual exceedance probability
AHD	Australian Height Datum
ALC	Agricultural land class
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines for Water Quality
ARI	Average recurrence interval
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AS	Australian standard
Assessment report	EIS assessment report
BACI	Before-After, Control-Impact
BIBO	Bus-in, bus-out
BOS	Biodiversity Offsets Strategy
Brigalow TEC	Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) TEC
BSP	Baralaba South Project
CBA	Cost-benefit analysis
CCC	Community Consultative Committee
CHMP	Cultural heritage management plan
CHIMA	Cultural Heritage Investigation and Management Agreement
CHPP	Coal handling and preparation plant
CHRUIA	Coal Haulage Road Use and Infrastructure Agreement
cm	Centimetre
COC	Contaminant of concern
Coolibah – Black Box Woodlands TEC	Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions TEC
Cwlth	Commonwealth
DIN	Dissolved inorganic nitrogen
DCCEEW	Department of Climate Change, Energy, the Environment and Water
dB	Decibels
dBA	A-weighted decibels
DES	former Department of Environment and Science (now DETSI)
DESI	former Department of Environment, Science and Innovation (now DETSI)
DETSI	Department of the Environment, Tourism, Science and Innovation (former DES / DESI) Note: all references to DETSI refer equally to the department name in force at the time.
DIDO	Drive-in, drive-out
DLGWV	Department of Local Government, Water and Volunteers (former DRDMW)
DNRMMRRD	Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development

DPI	Department of Primary Industries
DRDMW	former Department of Regional Development, Manufacturing and Water
DSA	Design storage allowance
DSDILGP	former Department of State Development, Infrastructure, Local Government and Planning
DSDIP	Department of State Development, Infrastructure and Planning.
EA	Environmental authority
EC	Electrical conductivity
ED	Environment water dam
EFO	Environmental flow objective
EIS	Environmental impact statement
ENM software	RTA Technology Pty Ltd Environmental Noise Model software
EO Act	<i>Environmental Offsets Act 2014 (Qld)</i>
EOP	End of pipe
EP Act	<i>Environmental Protection Act 1994 (Qld)</i>
EPP (Air)	Environmental Protection (Air) Policy 2019 (Qld)
EP Regulation	Environmental Protection Regulation 2019 (Qld)
EPP (Noise)	Environmental Protection (Noise) Policy 2019 (Qld)
EPP (Water and Wetland Biodiversity)	Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (Qld)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
ERA	Environmentally relevant activity
ESCP	Erosion and Sediment Control Plan
ETL	Electricity transmission line
EVs	Environmental values
FIFO	Fly-in, fly-out
FTE	Full time equivalent
GAB	Great Artesian Basin
GDE	Groundwater dependant ecosystem
GDEMMP	Groundwater Dependent Ecosystem Monitoring and Management Plan
GES	General environmental significance
GHG	Greenhouse gas
GL	Gigalitre
GMMP	Groundwater Monitoring and Management Plan
GRP	Gross regional product
ha	Hectare
HES	High ecological significance
HEV	High ecological value
HR Act	<i>Human Rights Act 2019 (Qld)</i>
HVR	High value regrowth
IAS	Initial advice statement
IECA	International Erosion Control Association
IESC	Independent Expert Scientific Committee on Unconventional Gas Development and Large Coal Mining Development
IQQM	Integrated Quality and Quantity Model

kg	Kilogram
km	Kilometre
kL	Kilolitre
$L_{A1,adj,15min}$	A-weighted sound pressure level, adjusted for tonal character or impulsiveness, that is exceeded for 1% of a 15 minute period when measured using a fast standardised response time
$L_{A1,adj,1hr}$	A-weighted sound pressure level, adjusted for tonal character or impulsiveness, that is exceeded for 1% of a one hour period when measured using a fast standardised response time
LA_{eq}	Equivalent continuous sound level
LDTV	Locally derived triggers value
LFC tool	Landscape Fragmentation and Connectivity Tool
LGA	Local government area
LOR	Limit of reporting
m	Metre
m^3/day	Cubic metres per day
MAW	Mine-affected water
mbgl	Metres below ground level
MIA	Mine Infrastructure Area
ML	Megalitre
ML/day	Megalitre per day
ml	Millilitre
MLA	Mining lease application
MNES	Matters of national environmental significance
MNESMP	Matters of National Environmental Significance Management Plan
MP	Monitoring point
MPa	Millipascals
MR Act	<i>Mineral Resources Act 1989 (Qld)</i>
MRL	Mandatory reporting level
$\mu S/cm$	Micro Siemens per centimetre
MSES	Matters of state environmental significance
Mt	Million tonnes
Mtpa	Million tonnes per annum
MWD	Mine water dam
NC Act	<i>Nature Conservation Act 1992 (Qld)</i>
NEPC	National Environment Protection Council
NEPM	National Environmental Protection (Ambient Air Quality) Measure (NEPC 2021)
NGER	National Greenhouse and Energy Reporting
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007 (Cwlth)</i>
NUMA	Non-use management area
NRCs	Nearby regional communities
OAMP	Offset area management plan
PCI	Pulverised coal injection
Planning Act	<i>Planning Act 2016 (Qld)</i>

PM _{2.5}	Particulate matter with a diameter of 2.5 micrometres or less
PM ₁₀	Particulate matter with a diameter of 10 micrometres or less
PMF	Probable maximum flood
PMLU	Post-mining land use
PRC plan	Progressive Rehabilitation and Closure Plan
PRCP schedule	Progressive Rehabilitation and Closure Plan schedule
QEOP	Queensland Environmental Offsets Policy
QHR	Queensland Heritage Register
Qld	Queensland
RE	Regional ecosystem
REMP	Receiving Environment Monitoring Program
RIA	Regional impact analysis
RIDA	Regional Interest Development Approval
ROM	Run of mine
RP	Release point
RPI Act	<i>Regional Planning Interests Act 2014 (Qld)</i>
SCL	Strategic cropping land
SIA	Social impact assessment
SIMP	Social impact management plan
SIMRs	Social Impact Management Reports
SMCs	Safeguard Mechanism Credits
SPRAT	Species Profile and Threats Database
SRI	Significant residual impact
SRMS%	Scaled root mean square percentage
SSRC Act	<i>Strong and Sustainable Resource Communities Act 2017 (Qld)</i>
SSTV	Site-specific trigger values
t	Tonnes
TDS	Total dissolved solids
TEC	Threatened ecological community
the project	Baralaba South Project
the proponent	Baralaba South Pty Ltd
TLO	Train load out
TMR	Department of Transport and Main Roads
TOR	Terms of reference
TSP	Total suspended particulates
TSS	Total suspended solids
TUFLOW	Hydraulic modelling software for flood, urban drainage, estuarine and coastal assessments
UMAs	Unique mapping areas
VWP	Vibrating wire piezometers
Water Act	<i>Water Act 2000 (Qld)</i>
WAV	Worker accommodation village
WMP	Water management plan
WQO	Water quality objective

WRE	Waste rock emplacement
WRR Act	<i>Waste Reduction and Recycling Act 2011 (Qld)</i>
WWBW	Waterway barrier works
