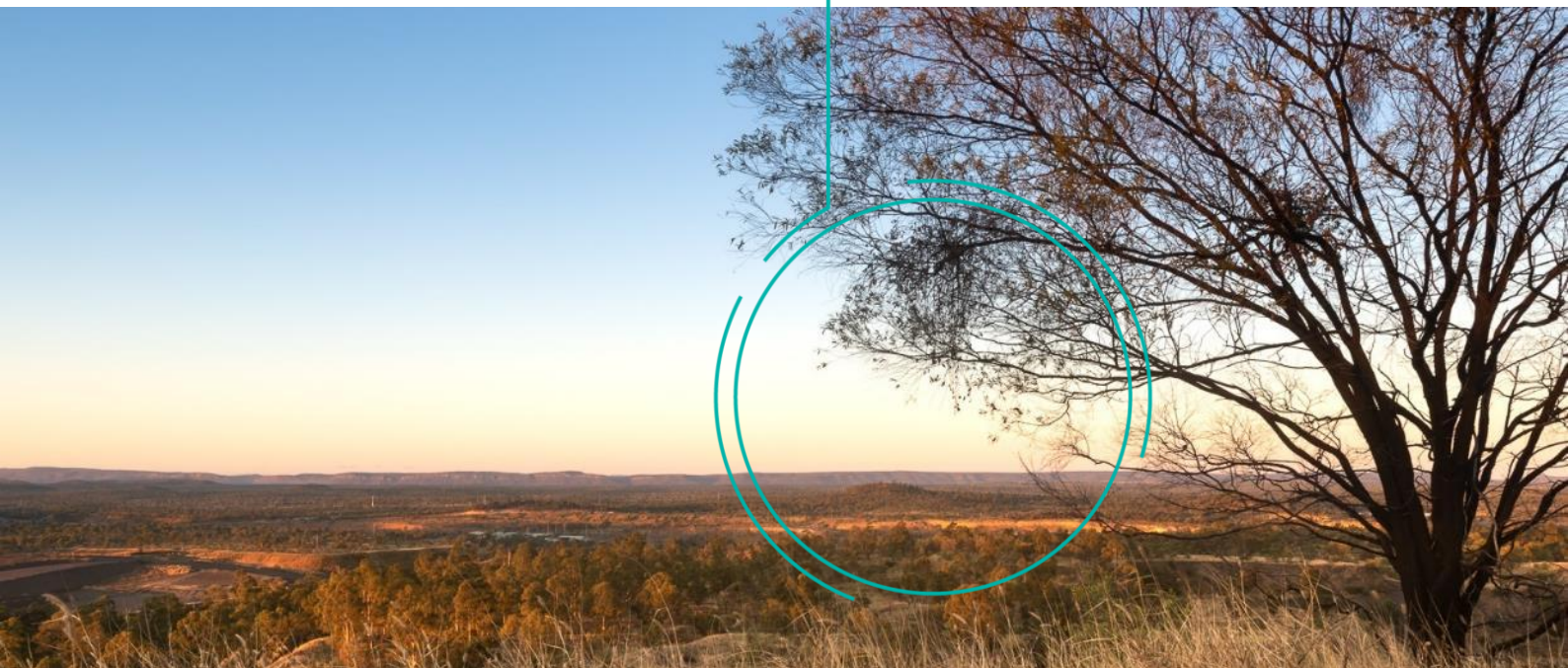


COAL ASSETS AUSTRALIA

GLENCORE



Wandoan Coal Project Progressive Rehabilitation and Closure Plan



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Acronyms and Abbreviations

Acid Mine Drainage	AMD
Annual Exceedance Probability	AEP
As low as reasonably achievable	ALARA
Australian and New Zealand Environment and Conservation Council	ANZECC
Australian Height Datum	AHD
Bureau of Meteorology	BOM
Brigalow Belt biogeographic region	BRB bioregion
Braided Stream Facies	BSF
Coal Handling and Processing Plant	CHPP
Coal Seam Gas	CSG
Community Consultation Plan	CCP
Community Refence Group	CRG
Cumulative Management Area	CMA
Department of the Environment, Tourism, Science and Innovation (formerly the Department of Environment, Science, and Innovation)	DETSI
Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development (formerly the Department of Natural Resources and Mines and Department of Resources)	DNRMMRRD
Endangered, vulnerable or near threatened	EVNT
Environmental Authority	EA
Environmental Impact Statement	EIS
Environmental Protection Act 1994	EP Act
Environmental Protection Regulation 2019	EP Regulation
Factor of Safety	FoS
Glencore Coal Assets Australia	GCAA
Groundwater Dependent Ecosystems	GDEs
Hectares	ha

High Ecological Significance	HES
High Value Regrowth	HVR
Joint Venture	JV
Kilometres	km
Land outcome document	LOD
Land resource areas	LRA
Life of Mine	LOM
Metres	m
Million tonnes per annum	Mtpa
Mine infrastructure area	MIA
Mined Land Rehabilitation Policy 2017 (Department of Environment, Science and Innovation, Department of Resources and Queensland Treasury)	the Policy
Mineral and Energy Resources (Financial Provisioning) Act 2018	MERFP Act
Mining Leases	MLs
Millimetres	mm
Non-use management area	NUMA
Petroleum Lease	PL
Plant Available Water Capacity	PAWC
Post Mining Land Use	PMLU
Probable Maximum Flood	PMF
Progressive Rehabilitation Certification	PRC
Progressive Rehabilitation and Closure Plan	PRCP
Guideline: Progressive Rehabilitation and Closure Plans ESR2019/4964 Version 3.01 Last reviewed: 16 SEP 2024	PRCP Guideline
Reduced Level	RL
Regional Ecosystem	RE
Registered Professional Engineer of Queensland	RPEQ

Rehabilitation Area	RA
Rehabilitation Milestone	RM
Run of mine	ROM
Rehabilitation Report Card	RRC
Tailings Storage Facility	TSF
The rehabilitation monitoring manual for Glencore Coal operations, Queensland (Erskine & Fletcher, 2014)	the Manual
Threatened Ecological Communities	TECs
Surat Cumulative Management Area Underground Water Impact Report	Surat CMA UWIR
Wandoan Holdings Pty Ltd	WHPL
Walloon Coal Measures	WCM
Wandoan Coal Project	WCP
Wandoan Community Commerce and Industry Association	WCCIA
Window on Wandoan	WoW

1. Introduction

In accordance with the *Environmental Protection Act 1994* (EP Act), all mining activities approved through a site-specific Environmental Authority (EA) must develop and submit a Progressive Rehabilitation and Closure Plan (PRCP) to the Department of the Environment, Tourism Science, and Innovation (DETSI) for assessment and approval. The main purposes of a PRCP are for the EA holder to plan how (Rehabilitation Planning part) and when (PRCP Schedule part) progressive rehabilitation activities will be carried out on the relevant mining leases (MLs), documenting milestones and completion criteria for progressive rehabilitation activities and ultimately, the surrender of the EA.

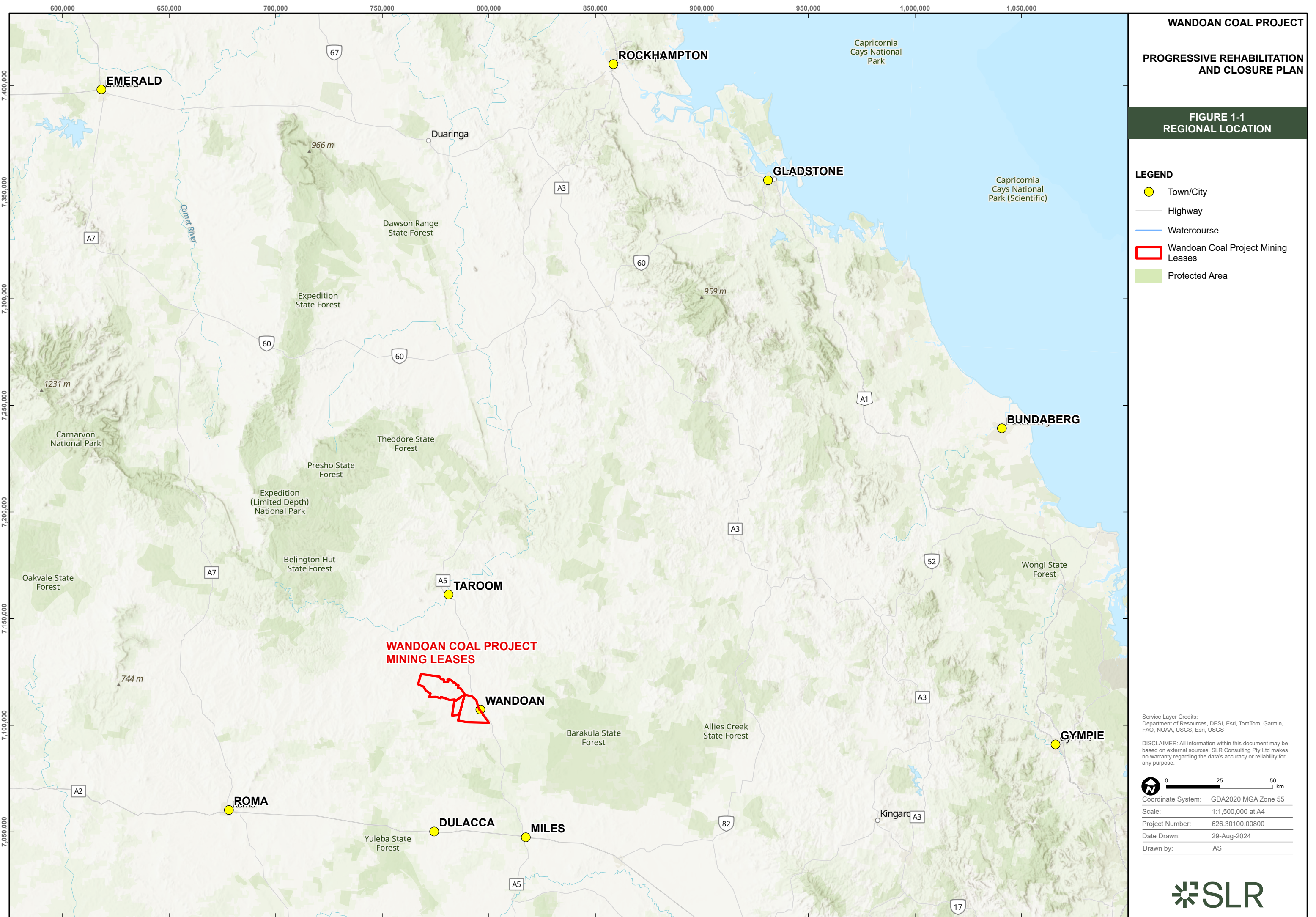
This PRCP has been developed for the Wandoan Coal Project (WCP) in accordance with the transition notice issued under section (s) 754 of the EP Act on 21 December 2021 to the EA holders (i.e., Wandoan Holdings Pty Ltd and SCAP Wandoan Pty Ltd). This PRCP meets the legislative requirements in s126C and 126D of the EP Act and the Department of Environment, Science and Innovation now DETSI 'Guideline - Progressive Rehabilitation and Closure Plans' (ESR2019/4964 Version 3.01 Last reviewed: 16 SEP 2024) (the PRCP Guideline).

1.1 Project Overview and History

The WCP is an approved undeveloped open-cut coal mine, located in the Western Downs region of Queensland. WCP is owned by joint venture (JV) partners Wandoan Holdings Pty Ltd (WHPL) (87.5 %) and SCAP Wandoan Pty Ltd (12.5 %) and managed by WHPL on behalf of the JV partners. The WCP was issued with environmental approvals by State and Commonwealth Governments between 2011 and 2013 and MLs were granted in 2017. The mine is authorised under EA EPML00297613 (Appendix A -) on MLs 50229, 50230 and 50231.

The WCP is located approximately 300 kilometres (km) southeast of Emerald and 250 km southwest of Gladstone. The MLs extend approximately 34 km in an east-west direction and 22 km in a north-south direction as presented in Figure 1-1. The combined lease area covers approximately 30,068 hectares (ha). WCP has an approved production limit of 30 million tonnes per annum (Mtpa) Run of Mine (ROM) coal. The WCP remains undeveloped and therefore mining operations have not commenced. The current mine plan developed to meet the PRCP requirements also meets the existing approval conditions for the site and consists of:

- A mining rate of 4 Mtpa to 12 Mtpa ROM;
- Disturbance areas within the approved pit, overburden emplacement, haul road, dam and infrastructure footprints;
- All mining to be conducted outside the 0.1 % Annual Exceedance Probability (AEP) flood levels;
- A post mining land use (PMLU) of predominantly grazing with small areas of native bushland;
- No non-use management areas (NUMAs); and
- No permanent water storages in the reprofiled void depressions.



1.2 Relevant Legislation and Policies

1.2.1 Mined Land Rehabilitation Policy

The Mined Land Rehabilitation Policy (2017) (the Policy) is a joint departmental policy between the DETSI, the Department of Resources (now Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development (DNRMMRRD)) and the Queensland Treasury. The Policy presents the Queensland Government's position on mine rehabilitation and is the basis of the changes made through the *Mineral and Energy Resources (Financial Provisioning) Act 2018* (MERFP Act) to the statutory regulation of progressive mine rehabilitation in Queensland.

The Policy states, amongst other things, that "land disturbed by mining is considered to be rehabilitated when it can be demonstrated it is safe, stable, does not cause environmental harm, and is able to sustain the PMLU approved in the PRCP (referred to as 'stable condition')".

1.2.2 Environmental Protection Act 1994

The EP Act requires mines with a site-specific EA to develop and implement a PRCP. The EP Act outlines the legislative information requirements for the rehabilitation planning part (s126C) and PRCP schedule (s126D). The EP Act also details the assessment process for the approval of a proposed PRCP.

The EP Act contains transitional provisions relating to existing mines with a site-specific EA. During the three-year transition period (1 November 2019 to 1 November 2022), DETSI issued notices to all approved mines with site-specific EAs outlining the requirement to develop and submit a proposed PRCP by a specified date. The transitional provisions also state that approved PMLUs / NUMAs may be transitioned into a PRCP without additional assessment or public notification. Additionally, any post mining land outcomes identified in a Land Outcome Document (LOD) can be transitioned into the PRCP. The LOD associated with the WCP as defined in s750 EP Act is the EA.

1.2.3 Environmental Protection Regulation 2019

The *Environmental Protection Regulation 2019* (EP Regulation) includes PRCP objectives and performance outcomes (schedule 8A) that the administering authority must consider when approving a PRCP. The EP Regulation also contains additional requirements for deciding the extent of a floodplain (0.1 % AEP) for a 4th order stream or greater.

1.2.4 PRCP Application Form

The PRCP must be submitted in accordance with the DETSI Application Form 'Submission of a progressive rehabilitation and closure plan' (ESR/2019/4957). This PRCP has been submitted in accordance with the requirements of the application form

1.2.5 PRCP Guideline

The PRCP Guideline is a statutory guideline under section 550 of the EP Act that identifies information that the administering authority deems necessary or desirable to be included within a PRCP. The PRCP Guideline also provides information about the assessment process for a PRCP, relevant post-approval processes and transitional provisions. The PRCP Guideline stipulates the detailed technical information that is expected to be included in the Rehabilitation Planning part and PRCP Schedule of a PRCP.

Table 1-1 PRCP Guideline compliance table

PRCP Guideline Requirements	Section in Plan
3.1 PROJECT PLANNING	Section 2.0
<i>Legislative Requirements</i> <i>In accordance with section 126C(1)(b) and (c)(ii) of the EP Act, the rehabilitation planning part of the PRCP must include a description of:</i>	
<i>each resource tenure, including area of each tenure</i>	Section 2.2
<i>relevant activities to which the application relates</i>	Section 2.1 and Section 2.2.1
<i>duration of relevant activities</i>	Section 2.1 and Section 2.5
<i>how and where the relevant activities were carried out, including maps</i>	Section 2.2
Baseline Information The following information about the site, where relevant, is considered necessary by the administering authority (as per section 126C(1)(j) of the EP Act) to decide whether to approve the PRCP schedule:	Section 2.3
site topography (locally and regionally)	Section 2.3.2
climate (general and specific (rain, evaporation, temperatures)) including long term projections	Section 2.3.1
geological setting	Section 2.3.3
site hydrology and fluvial networks	Section 2.3.7
groundwater levels and properties	Section 2.3.8
soil types, properties and productivity	Section 2.3.4
land stability (pre-existing land degradation/erosion and predisposition to ongoing stability issues)	Section 2.3.4.2
vegetation communities and ecological data (including existing regional ecosystem mapping)	Section 2.3.5
fauna presence and populations	Section 2.3.5.2
pre-mining land use	Section 2.3.4.2
identification of underlying landholders	Section 2.3.9 and Appendix E -
Project Description The project description must include the following details:	Section 2.1
mining tenements	Section 2.2
primary mine features/infrastructure on site (e.g. TSF, waste rock dump, etc.)	Section 2.1
type of mining operation	Section 2.1
proposed duration of operation as a whole	Section 2.1 and Section 2.5
Design for Closure The rehabilitation planning part of the PRCP for new or expanding sites must include a description of how the certain aspects have been designed for closure.	Section 2.4
Rehabilitation/Improvement Planning In order to meet the legislative requirements in sections 126C(1)(b) and (c)(ii) of the EP Act, the rehabilitation planning part must include:	Section 2.5
identification of all relevant activities on the mine site	Section 2.5
the predicted duration of each of the relevant activities proposed for the mine site	Section 2.5
the size/extent of the relevant activities	Section 2.5
whether the different relevant activities can be progressively rehabilitated	Section 2.5
Applicability to Transitional PRCPs Under section 126C(1)(j) of the EP Act, transitional PRCPs must also include the following details about any existing rehabilitation already completed at the time of submission of the proposed PRCP:	Not Applicable as operations have not commenced.
a description of the rehabilitation works previously carried out	Not Applicable
when the rehabilitation works commenced and were completed	Not Applicable
whether the rehabilitation has been applied for or approved as progressively certified under the EP Act	Not Applicable
Spatial Information The following spatial information must be submitted as part of the PRCP:	
location and maximum extent of disturbance footprint for the mine life	Section 2.2 and Section 9.1
the PMLUs and NUMAs for the area within the resource tenures	Section 3.2, Section 3.3, Section 9.1

PRCP Guideline Requirements	Section in Plan
any sensitive receptors	Section 2.3.10
Spatial Information outlining the rehabilitation and improvement areas that correspond with the proposed PRCP schedule, for a 10-year period (minimum)	Section 9.2
3.2 POST-MINING LAND USE	Section 3.1
Legislative Requirements <i>In accordance with section 126C(1)(d) of the EP Act, the rehabilitation planning part of the PRCP must state the extent to which each post-mining land use for land identified in the PRCP schedule for the plan is consistent with:</i>	Section 3.2
<i>a) the outcome of consultation with the community in developing the plan, and</i>	Section 3.2.1
<i>b) any strategies or plans for the land of a local government, the State or the Commonwealth.</i>	Section 3.2.2
3.2 POST-MINING LAND USE	Section 3.2
An applicant must propose a PMLU for all land within the relevant resource tenures of the EA (this includes land that will be undisturbed). <i>Note where a PMLU has been previously addressed in a land outcome document and is able to be transitioned into the PRCP schedule, the applicant is not required to complete the information requirements under section 126C(1)(j) of the EP Act in this section for those PMLUs.</i>	Section 3.1 and Section 3.2
The description of proposed PMLUs must include (where relevant), but is not limited to:	Section 3.2
a description of the use of the land	Section 3.2
if applicable, the specific vegetation types (e.g. RE 13.2.9) or land suitability classification (e.g. Class 4)	Section 2.3.5, Section 3.2 and Section 5.6.6
identification of any permanent or essential management infrastructure to be included as part of the PMLU	Section 3.2 and Section 9.2
success criteria for measuring whether the PMLU has been achieved successfully.	Section 9.4
3.3 NON-USE MANAGEMENT AREAS	Section 3.3
Legislative Requirements <i>In accordance with sections 126C(1)(d), (g) and (h) of the EP Act, for each proposed non-use management area, the rehabilitation planning part of the PRCP must:</i>	Section 3.3
state the reasons the applicant considers the area cannot be rehabilitated to a stable condition (g)	Not applicable
include copies of reports or other evidence relied on by the applicant for each proposed non-use management area (h)	Not applicable
state the extent to which the proposed non-use management area is consistent with the outcome of consultation with the community in developing the plan (d)	Not applicable
state the extent to which the non-use management area is consistent with any strategies or plans for the land of a local government, the State or the Commonwealth (d)	Not applicable
<i>Note where a NUMA has already been identified in a land outcome document and is able to be transitioned into the PRCP schedule, the applicant is not required to comply with sections 126C(1)(g) or (h) or 126D(2) or (3) of the EP Act, nor complete the information requirements under section 126C(1)(j) of the EP Act, for those NUMAs. Requirements under section 126C(1)(d) still apply.</i>	Not applicable
The proposed PRCP must include a detailed description of the nominated NUMA(s) for the site. The description must include, but is not limited to:	Not applicable
description of the land at surrender	Not applicable
any relevant safety features	Not applicable
- success criteria for measuring whether the NUMA has achieved sufficient improvement (in which each of the following is minimised: a) the risk of the area collapsing, eroding or subsiding; b) the need to actively manage the area; and c) access to the area by an animal or person by, for example, fencing the boundary of the area)	Not applicable
3.4 VOIDS IN FLOOD PLAINS	Not applicable - Section 5.3
Legislative requirement <i>In accordance with section 126D(3) of the EP Act, if land the subject of the proposed PRCP schedule will contain a void situated wholly or partly in a flood plain, the schedule must provide for the rehabilitation of the land to a stable condition.</i>	Not applicable
<i>Note where a land outcome document has a pre-approved land outcome for a void with a location specified, flood plain modelling is not required.</i>	Not applicable
3.5 COMMUNITY CONSULTATION	Section 4.0 and Appendix G
Legislative Requirement <i>In accordance with section 126C(1)(c)(iii) and (iv) of the EP Act, the rehabilitation planning part of the PRCP must include:</i>	Section 4.0
details of the consultation undertaken by the applicant in developing the proposed PRCP, and	Section 4.3
details of how the applicant will undertake ongoing consultation in relation to the rehabilitation to be carried out under the plan.	Section 4.4
<i>Note where there are land outcomes has been identified in a land outcome document, the applicant must include details of any previous community consultation undertaken or advise if previous consultation has not been recorded or is unknown.</i> To comply with section 126C(1)(c)(iii) of the EP Act, the rehabilitation planning part must include a community consultation register identifying the consultation carried out in developing the PRCP. The community consultation register must include:	Section 4.4, Section 4.5 and Appendix G -
previous consultation (history of community engagement)	Section 4.3
consultation date(s)	Section 4.4

PRCP Guideline Requirements	Section in Plan
identification of each community member	Section 4.2, Section 4.4 and Appendix G -
description of consultation type (workshop, quarterly meetings, etc.)	Section 4.4 and Appendix G -
information provided to the community	Section 4.4
issues raised/discussed by the community	Section 4.4
how issues have been considered	Section 4.4
decisions/outcomes of engagement	Section 4.4
commitments made by the applicant	Section 4.4
To comply with section 126C(1)(c)(iv) of the EP Act, the rehabilitation planning part must include a community consultation plan detailing how ongoing consultation will be carried out in relation to the rehabilitation to be carried out under the PRCP. The community consultation plan must include details of:	Section 4.5 and Appendix G -
the objectives for community consultation	Section 4.5 and Appendix G -
how the community will be engaged	Section 4.5 and Appendix G -
proposed consultation frequency	Section 4.5 and Appendix G -
what information will be released for community consultation	Section 4.5 and Appendix G -
how feedback/comments will be considered	Section 4.5 and Appendix G -
3.6 REHABILITATION AND MANAGEMENT METHODOLOGY	Section 5.0
Legislative requirement <i>In accordance with section 126C(1)(e) and (i), the rehabilitation planning part of the PRCP must</i>	Section 5.0
<i>For each proposed post-mining land use for land, state the proposed methods or techniques for rehabilitating the land to a stable condition in a way that supports the rehabilitation milestones under the proposed PRCP schedule.</i>	Section 5.0
<i>For each proposed non-use management area, state the proposed methodology for achieving best practice management of the area to support the management milestones under the proposed PRCP schedule for the area.</i>	Not applicable
Hydrogeology Assess the hydrogeology of the site and all connected strata and develop a conceptual model of the mine site's groundwater systems. This information must be integrated into the design of rehabilitation strategies and choice of PMLU or NUMA. The hydrogeological assessment should include the following steps:	Section 5.2.1, Section 5.2.2 and Appendix H -
determining the groundwater occurrence including the existence of, and depth to, aquifers and aquitards	Section 5.2 and Appendix H -
locating groundwater recharge and discharge locations locally and regionally	Appendix H -
groundwater quality within each of the aquifers and from surface expressions (i.e. seeps and springs)	Section 5.2.1, Section 5.2.3 and Appendix H -
current and potential future uses of groundwater including existing groundwater extraction bores	Section 2.3.8.3, Section 5.2 and Appendix H -
groundwater flow direction and velocity, including field tests to determine hydraulic conductivity	Appendix H -
the development of potentiometric mapping and hydro stratigraphic cross sections	Appendix H -
groundwater modelling to determine contaminant transport and potential changes to groundwater level from dewatering or waste storage	Section 5.2 and Appendix H -
Flooding In addition to floodplain modelling, the applicant must also assess the flooding susceptibility and influence across the site	Section 5.3 and Appendix I -
If flooding is a consideration, develop a hydrologic model of the catchment and a hydraulic model of the proposed mining area.	Section 5.3 and Appendix I -
When assessing flooding, you must at least:	Section 5.3 and Appendix I -
consider the location of domains in relation to potential flood levels	Section 5.3.1, Section 5.3.2 and Appendix I -
consider alteration of flow upstream and downstream	Section 5.3.2.1 and Appendix I -
model flood levels (including probable maximum flood levels) for a range of design storm events	Section 5.3.2 and Appendix I -
develop a flooding risk profile	Section 5.3.2
Soil and Capping Material Assessment A soil assessment must be carried out that, at a minimum, identifies and characterises the following:	Section 5.6 and Appendix L -
the quality and quantity of available resources (such as topsoil, clay material and competent rock) required to complete the target rehabilitation methodology	Section 5.6.3, Section 5.6.4 and Appendix L -

PRCP Guideline Requirements	Section in Plan
the location (i.e. with respect to haul distance) and accessibility of cover material (i.e. is the material located on the tenure or are other approvals required?)	Section 5.6.3 and Appendix L -
an assessment to determine the need for ameliorants and fertilisers	Section 5.6.3.2 and Appendix L -
the relationship between soils and vegetation ecosystems for the PMLU and rehabilitation methodology	Section 5.6.1, Section 5.6.6, and Appendix L -
Waste Characterisation	Section 5.8 and Appendix B -
Describe contaminants that can pose a risk to the environment, such as contaminants associated with AMD, neutral mine drainage and saline mine drainage	Section 5.8 and Appendix B -
Demonstrate that the sampling regime meets best practice standards, is spatially representative of all material being mined (i.e. the ore body, exposed pit walls and overburden etc.) and representative of all lithologies	Section 5.8.1 and Appendix B -
Landform design must include waste placement strategy	Section 5.8, Section 5.9 and Appendix B -
Describe how mine waste streams can be classified confidently based on environmental risk and managements requirements	Section 5.8 and Appendix B -
Describe the generation of block models and estimation of the volume of mine waste based on waste type (i.e. level of environmental risk)	Section 5.8 and Appendix B -
Provide recommendations for the management and mitigation of waste streams to manage environmental risk and achieve proposed rehabilitation methods and objectives.	Section 5.8 and Appendix B -
Maintain a database to store the characteristics of each rock type	Section 5.8 and Appendix B -
Characterise materials based on both static tests and kinetic tests	Section 5.8 and Appendix B -
Conceptual site model for waste rock dumps, stockpiles, and TSFs must identify site-specific factors that may result in geochemical risks, including consideration of natural and anthropogenic processes that influence management controls	Section 5.8 and Appendix B -
Landform Design The final landform design must include:	Section 5.1
3D design plans of the final landform	Section 5.1
method of determining landform design	Section 5.1
modelling predicting the long-term stability of the final landform design	Section 5.6.1
method of construction	Section 5.1.1 and Section 5.1.2
Quality Assurance / Quality Control (QA/QC) requirements	Section 5.1.3
trial methodology to verify the predicted success of the final landform design	Not applicable
limitations and assumptions of the landform design	Section 5.6.1
Key considerations of the landform design report must also include:	Section 5.1
structure location, footprint and height (including proposed lift heights) – these factors may be influenced by location of environmental values, local topography, location of sensitive receptors or visual impact	Section 5.1
whether the structure requires a lining to prevent water or air ingress and minimise the potential for seepage release and/or a seepage collection system	Section 5.1
whether the landform is ‘water-retaining’ or ‘water-shedding’, considering rainfall patterns, and intensity, and the composition and texture of the waste	Section 5.1
the identification of materials available for landform rehabilitation including their ability to achieve the required landform design outcomes	Section 5.6
erosion assessments to determine landform heights, gradients, profiles, and material placement	Section 5.6.1
slope profile design considering the interactions between soil erodibility, rainfall erosivity, landform height, gradient and vegetation cover to identify acceptable erosion rates over a long-term average	Section 5.6.1
settling and subsidence over time, which may impact the availability of areas for rehabilitation	Section 5.6.4
hydrological and hydrogeological assessments	Section 5.2 and Section 5.3
a waste placement strategy developed to mitigate environmental and rehabilitation risks during the construction and decommissioning phase	Section 5.1 and Section 5.8
specific landform requirements committed to in stakeholder consultation, mine planning or other sources, which could include rock incorporation, designed flow paths, aesthetic considerations, non-linear batter slopes and targeted placement of materials	Not applicable
monitoring to determine performance of control measures (i.e. liners or seepage collection systems)	Section 5.2.3
Provide an analysis of future stability based on the factors described above (e.g. landform evolution modelling).	Section 5.6.1 and Section 5.7
Cover Design The cover design should include:	Section 5.10

PRCP Guideline Requirements	Section in Plan
identification and specification of the objectives of the cover system	Not applicable
a detailed description of the design including the thickness of each layer	Not applicable
a detailed description of construction methodology including any proposed staging of the cover system	Not applicable
a quantitative assessment that identifies the location and quantity of proposed capping material available on site	Not applicable
proposed QA/QC for the construction of the cover system including the timely implementation of corrective actions where deviations from the design are identified	Not applicable
Water Management The rehabilitation planning part must include a description of the following:	Section 5.4.2
a description of the contaminants that pose a risk to environmental values of the receiving environment	Section 5.4.2.1
source, pathway and fate of contaminants that have the potential to impact environmental values	Section 5.4.2.1
infiltration and seepage intervention and collection controls	Section 5.4.2.1
surface water diversions and long-term management requirements	Section 5.4.2.2
dewatering requirements	Section 5.4.2.1
on-going water management and reduction requirements (i.e. treatment)	Section 5.4.2.1
Revegetation	Section 5.12
Revegetation Plan must propose activities to establish self-sustaining vegetation communities appropriate for the intended PMLU	Section 5.12
Revegetation Plan must:	Section 5.12
- Articulate revegetation objectives	Section 5.12.1
- Identify key flora species appropriate for the PMLU	Section 5.12.3
- Identify species of conservation significance	Section 5.12
- Identify fauna habitat or use requirements, including monitoring and management plan	Section 5.12
- Include evidence and justification for analogue sites of the monitoring plan	Section 5.12
- Describe works for establishing and managing revegetation	Section 5.12.1 and Section 5.12.2
- Identify appropriate plant/seed mixes and their source	Section 5.12.3
- Identify seed density application rate and timing of seeding	Section 5.12.3
- Identify proposed locations of any infrastructure required to protect revegetation	Section 5.12
- Identify the growth media suitable to sustain the PMLU and its availability	Section 5.12.1 and Section 5.12.2
- Identify topsoil depth requirements	Section 5.12.2
The following elements must be included in the site preparation strategies:	Section 5.12
the application and incorporation of ameliorants (if required for chemical balance) and bulk ameliorants such as gypsum, lime and other organic materials	Section 5.12.1 and Section 5.12.2
spreading of growth medium layer (topsoil, topsoil / rock mix, or suitable waste if appropriate) to a depth suitable for the target vegetation	Section 5.12.1 and Section 5.12.2
the application of seed, fertiliser and, where applicable, irrigation.	Section 5.12.1 and Section 5.12.2
Tailings Storage Facilities	Section 5.9
The tailings require characterisation to determine the geochemistry, rheology and geotechnical parameters that influence the rehabilitation or management strategies and the capacity of the site to support revegetation.	Section 5.8.3 and Section 5.9
The geotechnical characterisation of tailings must also include:	Not applicable – see Section 5.9
Particle size distribution analysis based on conditions in the TSF. Particle size distribution of tailings affects their hydraulic sorting down the tailings beach, and their settling, consolidation and desiccation on atmospheric exposure	Not applicable
Specific gravity testing. The specific gravity of tailings affects their hydraulic sorting down the tailings beach, and their settling and consolidation	Not applicable
Atterberg limit testing to determine the plasticity of the tailings, which affects their settling, consolidation and desiccation on atmospheric exposure	Not applicable
The moisture content and dry density profiles with depth of the indicative tailings. The dry density profile indicates the efficiency to which the available storage volume for tailings is utilised. Rheological testing to determine the pumpability of the tailings	Not applicable
Settling testing of the tailings used as an indicator of the settling density of the tailings	Not applicable
Shear strength testing of the indicative tailings, both peak and remoulded shear strengths. The shear strength profile of deposited tailings affects their bearing capacity on rehabilitation	Not applicable
Consolidation testing of the tailings to estimate their consolidated density and saturated hydraulic conductivity	Not applicable

PRCP Guideline Requirements	Section in Plan
Soil water characteristic curve testing to assess the unsaturated behaviour of the tailings on desiccation and calculate the unsaturated hydraulic conductivity function	Not applicable
Instrumented column testing of the tailings to assess their settling, self-weight consolidation and desiccation	Not applicable
- The design for a TSF must include relevant elements: - lining of TSF (i.e. embankments and base of structure) - leak detection systems - cellular design of TSF - seepage collection systems - design storage allowance - spillway location - designing TSF for progressive rehabilitation	Not applicable
Voids	Section 5.5
For mine sites with voids, the rehabilitation planning part must include a void closure plan that includes, but is not limited to, the following:	Section 5.5
options available for minimising final void area and volume (where a final void is proposed)	Section 5.5.1
proposed final dimensions of the void (i.e. depth, length and width)	Section 5.5.1
pit wall geotechnical and geochemical stability, considering the effects of long-term erosion and weathering of the pit wall and the effects of significant hydrological events	Section 5.7 and Section 5.5
proposed final slope angles of high wall, lowwall and end walls of each final void	Section 5.1
void hydrology, addressing the long-term water balance and water level in the voids, stratification connections to groundwater resources and potential for overflow	Section 5.5.2
groundwater modelling to determine whether the void is acting as a sink or a source for groundwater	Section 5.5.2.1 and Section 5.2
- a water balance study including an assessment of void surface and groundwater interactions such as: - groundwater lowering/reduction in hydraulic head (from new voids e.g. caves/karst systems) - cones of depression and associated impacts - the drainage and flooding behaviours of surface waters in the vicinity of the void - the potential extent of flooding and implications of interactions with the void - a conceptual model that incorporates all projected inflows, outflows, and recharge rates - water storage and long-term water balance - each of the major water fluxes into and out of the void - the sources of surface water within the mine catchment that are likely to influence the water quality in the void	Section 5.5
predicted water quality in the long-term including potential stratification	Section 5.5
a 3D void design plan	Section 5.5
rehabilitation strategies	Section 6.1
Underground mining <i>Note that WCP is an open-cut operation, without underground workings so that this section of the PRCP statutory guidelines is not relevant.</i>	Section 5.11
Built Infrastructure The rehabilitation planning part must include:	Section 6.3 and Section 6.4
Identification of infrastructure that will be decommissioned and the methods for decommissioning	Section 6.3 and Section 6.4
A description of infrastructure that will remain post rehabilitation and the identification of ongoing maintenance requirements	Section 6.3 and Section 6.4
Evidence of agreement for any infrastructure that will have ownership transferred	Appendix F – (landholder agreement)
3.7 RISK ASSESSMENT	Section 7.0
Legislative requirement <i>In accordance with section 126C(1)(f) of the EP Act, the rehabilitation planning part of the PRCP must identify the risks of a stable condition for land described as a post-mining land use not being achieved, and how the applicant intends to manage or minimise the risks.</i>	Section 7.0
Identify sources of risk, areas of impacts, events and their causes and their potential consequences	Section 7.2 and Appendix N –
Determine causes and sources of risk, their positive and negative consequences, and the likelihood that those consequences can occur. The level of confidence in the analysis and any assumptions made should be clearly identified in the risk assessment	Section 7.2 and Appendix N –
Determine what risks need to be managed and prioritised.	Section 7.3
Risk treatment must detail:	Section 7.0
the reasons for selecting the treatment option	Section 7.2 and Appendix N –
those responsible for the approval and implementation of the plan	Section 7.2 and Appendix N –

PRCP Guideline Requirements	Section in Plan
proposed actions	Section 7.2 and Appendix N -
resource requirements	Section 7.2 and Appendix N -
performance measures and constraints	Section 7.2 and Appendix N -
reporting and monitoring requirements	Section 7.2 and Appendix N -
timing and scheduling	Section 7.2 and Appendix N -
3.8 MONITORING AND MAINTENANCE	Section 8.0
The rehabilitation planning part must contain a monitoring and maintenance program that identifies and describes the monitoring systems that will be carried out in order to demonstrate a milestone and milestone criteria have been achieved.	Section 8.0
The program must include, where relevant to the milestone and milestone criteria (but is not limited to):	Section 8.0
- schedule of monitoring, reporting and review for each milestone	Section 8.1.1.8
- description of methodologies and standards, which could include field-based assessments and the application of new remote sensing, GIS and other relevant emerging technologies	Section 8.1.1
- monitoring that enables the repeatable collection of relevant statistically valid data	Section 8.1.1
- monitoring using appropriate quality assurance and data management processes and systems	Section 8.1.1
- regular analysis of site data including multi-year comparison trends and bench-marking against analogue/reference sites	Section 8.1.1
- contingency strategies if monitoring data indicates milestone criteria are not being met	Section 8.1.3
- post-closure monitoring to ensure milestone criteria has been demonstrated	Section 8.1.1
- intent of monitoring reports, such as provision of results and key findings	Section 8.1.2
Describe the processes and activities that will be used to determine the biophysical state of rehabilitation and closure	Section 8.1.1
Standardised and repeatable approach to the measurement of certain biophysical attributes and processes must be identified that can be compared against the PRCP schedule	Section 8.1.1
If there has/is any monitoring or maintenance of areas already rehabilitated, details must be included in the PRCP	Not applicable

2. Project Planning

2.1 Project Description

The WCP is an approved but undeveloped open-cut coal mine authorised under EA EPML00297613 on MLs 50229, 50230 and 50231. The WCP has an approximate life of mine (LOM) of 75 years.

When mining operations commence, overburden and coal from the Juandah Coal Measures will be mined through conventional open-cut coal mining truck shovel operations. Coal will be hauled to a Coal Handling and Processing Plant (CHPP) for processing. Tailings will be de-watered within the CHPP, with the water recycled and reused for site operations. Dry tailings and coarse rejects will be managed via encapsulation within the overburden emplacements.

Prior to operations commencing, infrastructure will be constructed to support the WCP. This includes but is not limited to:

- A CHPP with associated coal handling, tailings dewatering facilities, ROM stockpiles, overland conveyors and rail loop;
- A 10 MW gas fired Power Plant as an alternate to diesel generators for construction and emergency power;
- A Mine Infrastructure Area (MIA) that includes workshops and maintenance and service bays;
- Washdown facilities;
- Laydown and hardstand areas;
- Reticulated services including raw and potable water, sewer, power, and communications;
- Water management infrastructure including pipelines and dams;
- Haul roads, access roads and tracks; and
- Permanent and portable buildings, including offices, administration facilities and bathhouses.

2.2 Mine Tenements

The WCP currently holds three MLs as outlined in Table 2-1 and Figure 2-1. The layout of the WCP and associated infrastructure is presented in Figure 2-2. ML 50229 was granted with several special conditions. Special Condition 3.a. and 3.b. refers to “restricted lands” and conditions the holder to providing access to the underlying land holder and reinstating specified assets within these “restricted lands” presented in Figure 2-3.

Table 2-1 WCP mining leases

Tenure Number	Grant Date	Expiry Date	Total Area (ha)
ML 50229	8 August 2017	31 December 2043	15,990
ML 50230	8 August 2017	31 December 2043	2,988
ML 50231	8 August 2017	31 December 2043	11,090



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION
AND CLOSURE PLAN

FIGURE 2-1
MINING LEASE BOUNDARIES

LEGEND

Town/City

Watercourse

Major Road

Wandoan Coal Project Mining Leases

Service Layer Credits:
Earthstar Geographics

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

012 km

Coordinate System: GDA2020 MGA Zone 55

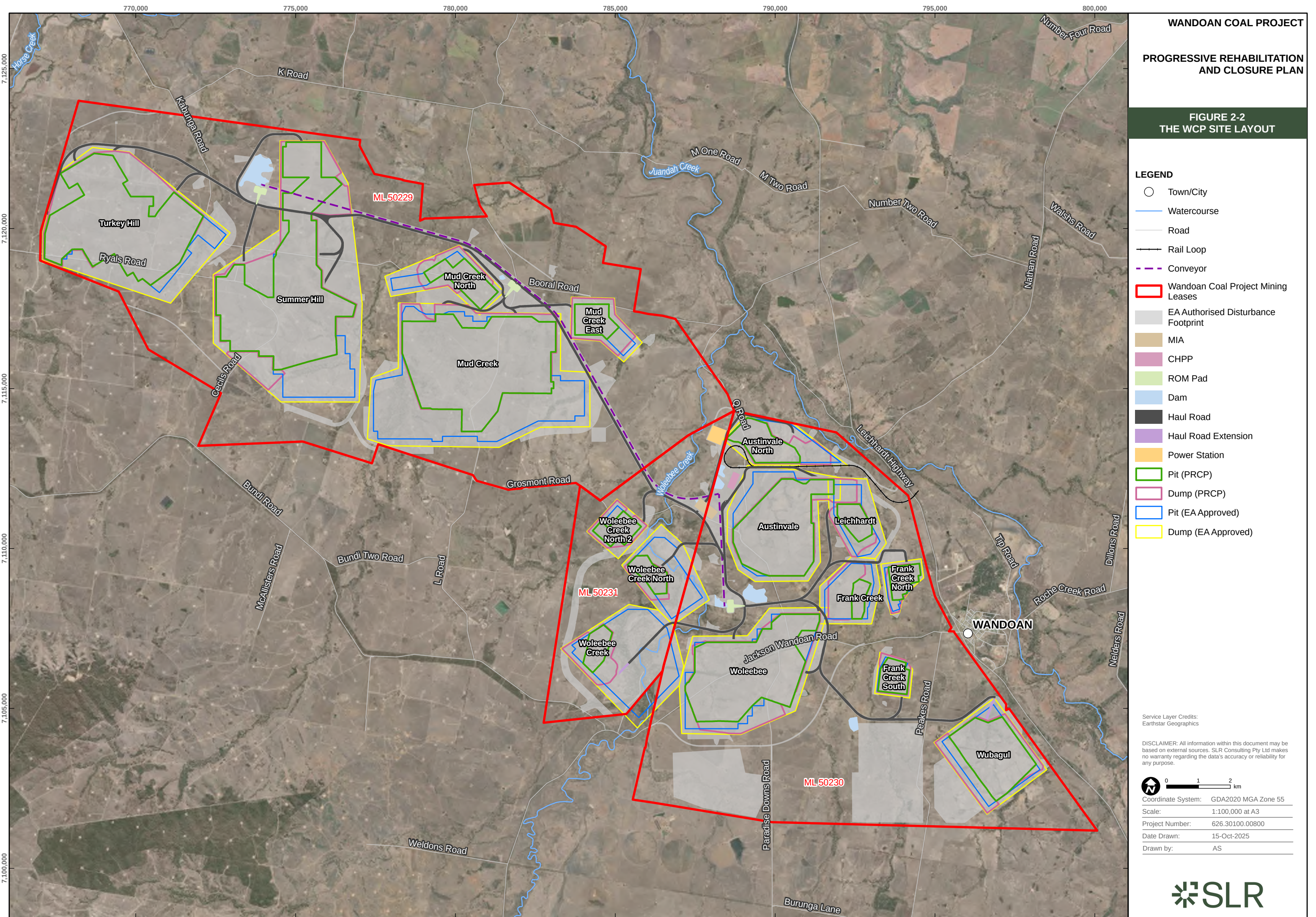
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Project Number: 626.30100.00800

Date Drawn: 29-Aug-2024

Drawn by: AS

SLR



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 2-2
THE WCP SITE LAYOUT

LEGEND

Town/City

Watercourse

Road

Rail Loop

Conveyor

Wandoan Coal Project Mining Leases

EA Authorised Disturbance Footprint

MIA

CHPP

ROM Pad

Dam

Haul Road

Haul Road Extension

Power Station

Pit (PRCP)

Dump (PRCP)

Pit (EA Approved)

Dump (EA Approved)

Service Layer Credits:
Earthstar Geographics

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

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km

Coordinate System: GDA2020 MGA Zone 55

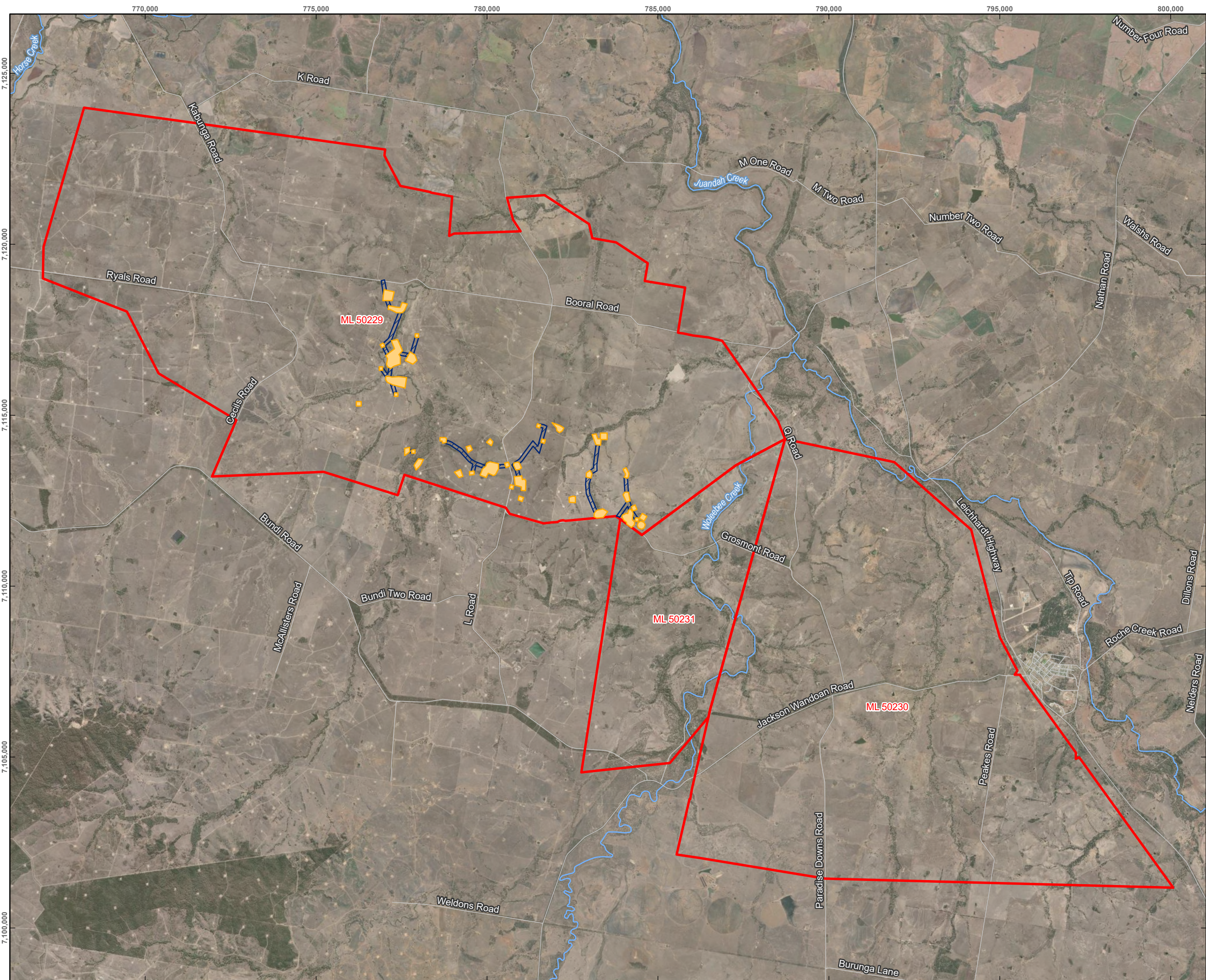
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Project Number: 626.30100.00800

Date Drawn: 15-Oct-2025

Drawn by: AS

Path: H:\Projects\SLR\626-MKY\626.30100.00000 Wandoan Mine Site EA Amend and PRCP\06 SLR Data\01 CAD\GIS\GIS\Wandoan PRCP\Wandoan PRCP.aprx\62630100 Wandoan PRCP F02-2 The WCP Site Layout



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 2-3

RESTRICTED LANDS AS IDENTIFIED IN SPECIAL CONDITIONS - ML50229

LEGEND

Watercourse

Road

Wandoan Coal Project Mining Leases

Pipeline Corridor

Restricted Land

Data Source:

Aerial Imagery: Earthstar Geographics

Restricted Land: Glencore, 2024

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

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km

Coordinate System: GDA2020 MGA Zone 55

Scale: 1:100,000 at A3

Project Number: 626.30100.00800

Date Drawn: 29-Aug-2024

Drawn by: RB

SLR

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2.3 Baseline Information

2.3.1 Climate

The WCP is located within the Fitzroy Basin, a region that covers 15.7 million ha of eastern Queensland. The Fitzroy Basin region has a sub-tropical, semi-arid climate (evaporation exceeds rainfall by a factor of approximately three) with rainfall predominantly falling in the wet season (November to April). The region can experience droughts, floods, heatwaves and frosts. In general, winter days are warm with cool nights, whilst summer days are hot with warm nights. Annual mean and median temperatures are provided in Figure 2-4.

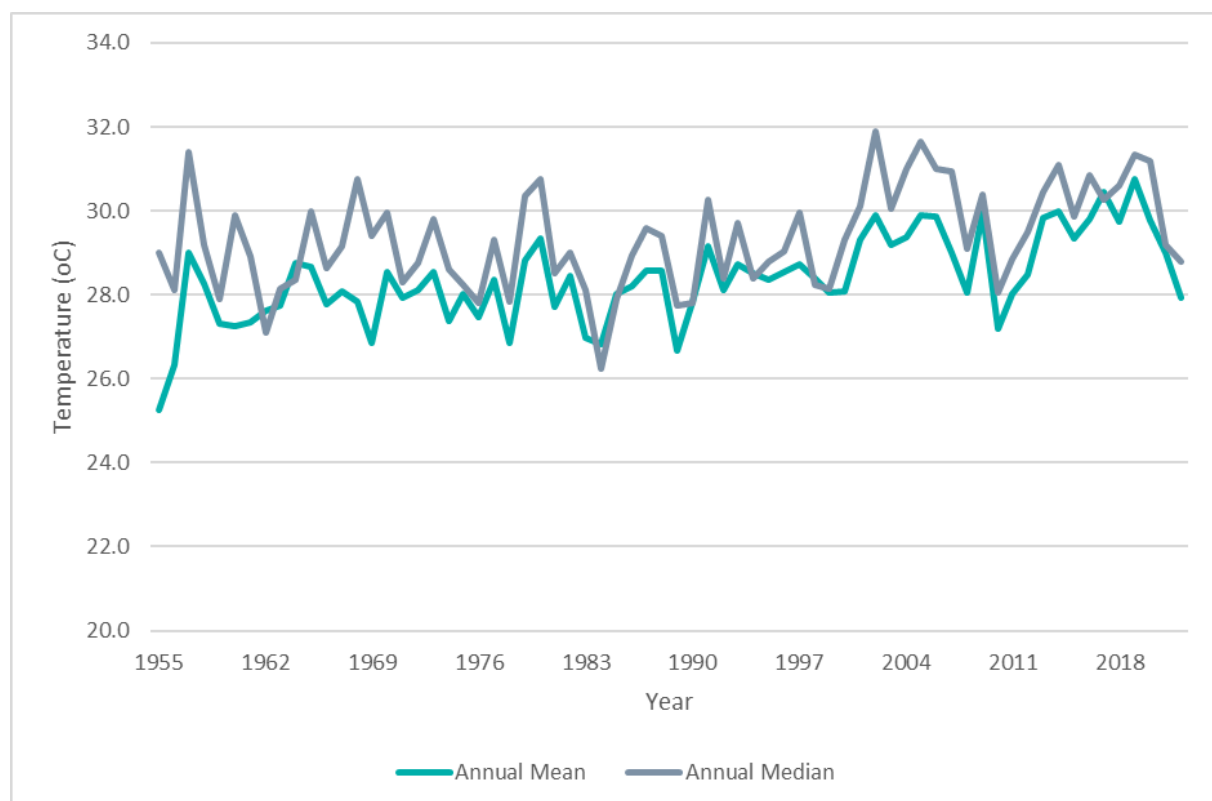


Figure 2-4 Annual mean/median temperature at Taroom Post Office 1955-2022 (BOM, 2023)

Rainfall data for the WCP was obtained from the SILO Data Drill services (Data Drill) (SILO 2024) for a location central to the three WCP MLs (-26.10 latitude, 149.90 longitude). Data Drill is an enhanced synthetic climate database that provides daily time series data for point locations and comprises actual station records augmented by interpolated estimated where observed data are missing. Table 2-2 and Figure 2-5 presents the mean monthly and annual rainfall and lake evaporation for the WCP based on Data Drill data from 1 January 1889 to 31 December 2023. Rainfall predominantly occurs in summer with approximately 75 % of annual rainfall occurring during the wet season, which is characterised by short, intense rainfall events. Streams and watercourses are ephemeral, flowing after rainfall and drying soon after.

Table 2-2 Mean rainfall and evaporation for -26.10 latitude and 149.90 longitude (SILO 2024)

Month	Data Drill Rainfall (mm)	Data Drill Morton's Lake Evaporation (mm)
January	90	208
February	78	171
March	60	163
April	33	120
May	36	85
June	36	64
July	32	73
August	26	100
September	32	135
October	54	174
November	71	193
December	87	211
Total	635	1,697

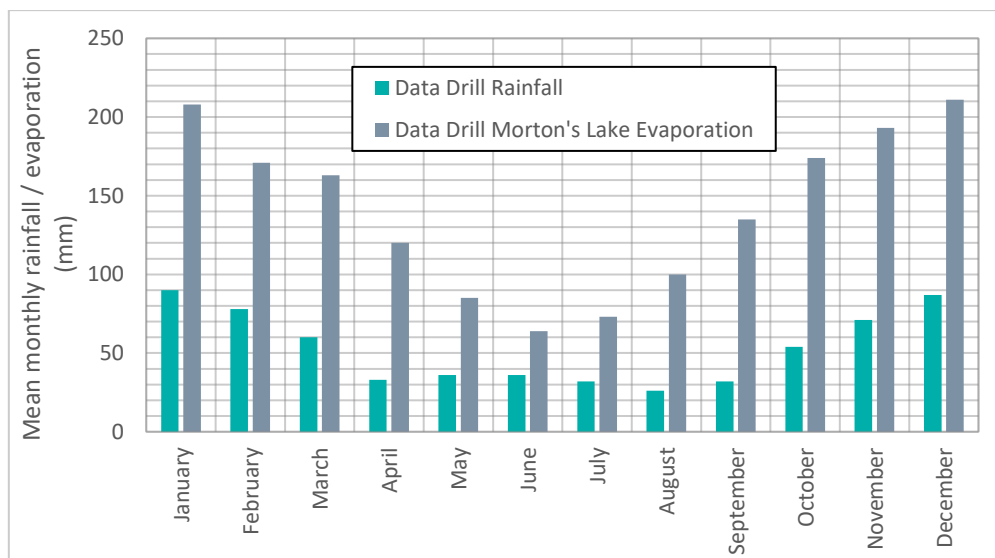
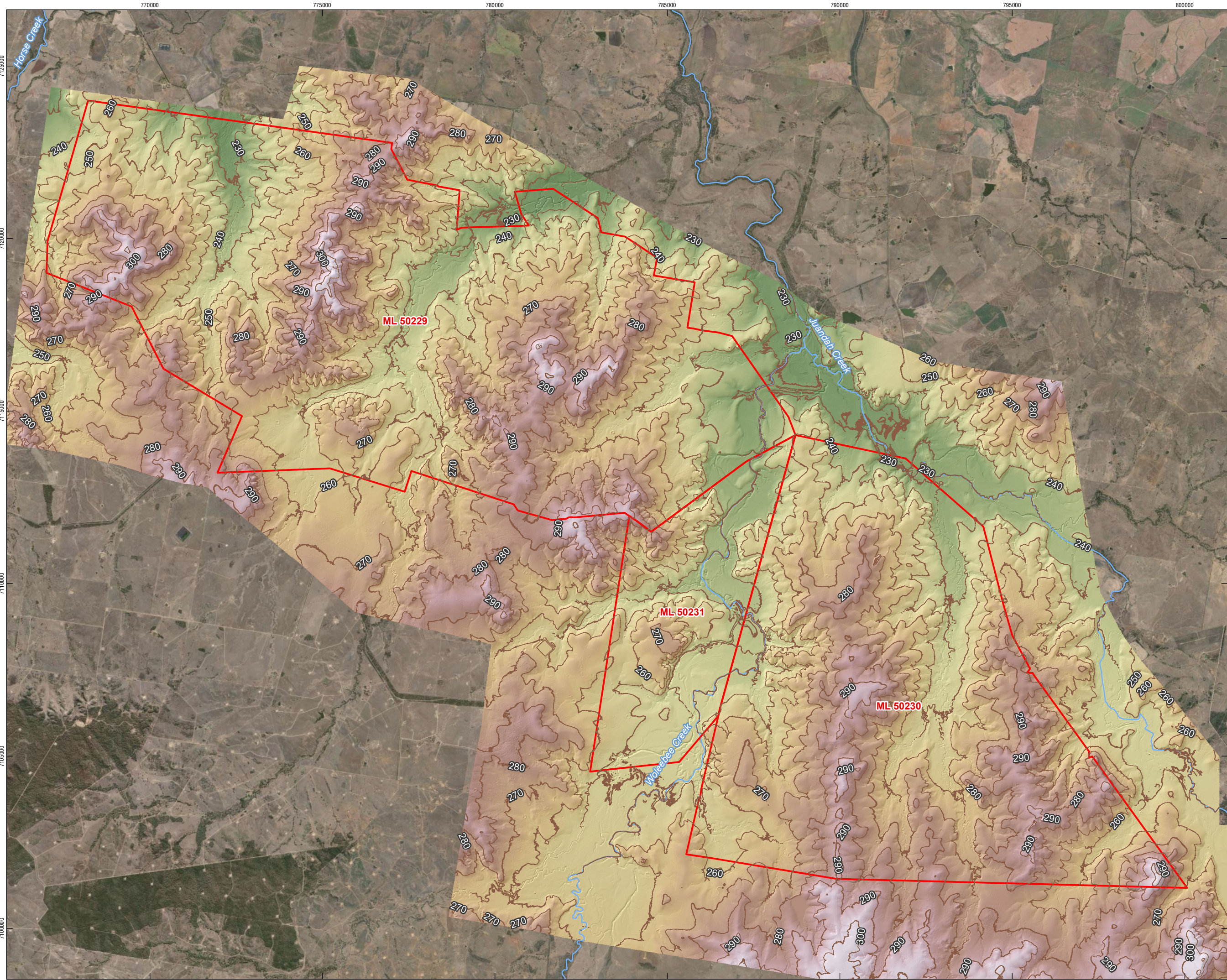


Figure 2-5 Monthly distribution of rainfall and evaporation for -26.10 latitude and 149.90 longitude (SILO 2024)

2.3.2 Geography and Topography

Low undulating hills, with a Reduced Level (RL) of between 250 m and 295 m Australian Height Datum (AHD) cover the WCP area. Slope gradients are generally less than 4 % but range up to 15 %. The undulating hills are generally at a higher altitude to the south of the WCP area. This is due to a regional slope away from the Great Dividing Range in the south, towards the Dawson River Valley in the north (Parsons Brinckerhoff, 2008). Regionally the land is an undulating terrain largely cleared for agricultural uses, with limited fodder crops cultivation on the flatter gradients, and beef cattle grazing on steeper slopes.

The narrow floodplains, gentle slopes, bedrock-controlled channels and confined meanders of drainage lines suggest the landscape within the WCP area is geologically young. The ephemeral creeks are slowly cutting into and eroding the undulating hills, with lateral erosion of the valleys being the main large-scale landscape altering activity, together with channel deepening. Temporary deposition of eroded material occurs on the narrow floodplains. A contour map of the WCP area is shown in Figure 2-6.

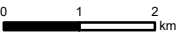
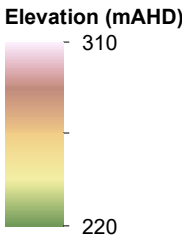


WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION
AND CLOSURE PLAN

FIGURE 2-6
PROJECT TOPOGRAPHY

- Watercourse
- Topographic Contour (10mAHd)
- Wandoan Coal Project Mining Leases



Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:100,000 at A3
Project Number:	626.30100.00800
Date:	12-Aug-2024
Drawn by:	AS



2.3.3 Geology

2.3.3.1 Regional geology

The WCP is located within the Surat Basin, an eastern lobe of the Great Artesian Basin. The Surat Basin contains up to 2,500 m of deep sediments predominantly comprised of Jurassic age sedimentary rocks of terrestrial origin and early Cretaceous age marine beds (Green and Chestnutt, 2007).

The regional geological history is based on the deposition of sedimentary material, chemical and physical alteration, uplift and subsequent erosion. During the mid to late Triassic, freshwater streams deposited sand over the region. This was followed by a period of widespread erosion in the late Triassic, and then a cyclic period of fluvial sedimentation, followed by erosion between the early Jurassic and early Cretaceous. Extensive coal deposits formed during the mid Jurassic.

Since the late Jurassic, the Surat Basin has been relatively stable. Deep surface weathering occurred during the Tertiary Period; however subsequent erosion has since stripped most of this profile from the northern areas of the Surat Basin. South of Wandoan, large areas of deeply weathered material form plateaus along the Great Dividing Range (Parsons Brinckerhoff, 2008). The regional geology is presented in Figure 2-7.

2.3.3.2 Local geology

The geological units in the region occur in generally west-northwest to east-southeast trending bands. The geology of the WCP area is comprised of three main geological units: the Quaternary alluvium; the middle to upper Jurassic Injune Creek Group; and the Juandah Coal Measures. The latter contains the economic coal reserves for the WCP.

The Juandah Coal Measures are composed of the Kogan, Macalister Upper, Macalister Lower and Wambo seams. The seams are relatively flat, with a regional dip of up to two degrees to the southwest, with localised steeper dips. A description of the geological units and coal seams is provided below.

Quaternary alluvium

The source material of the Quaternary age alluvium along the drainage lines is understood to be the Injune Creek Group rocks for the shorter drainage lines including Frank Creek, Spring Creek, Mud Creek, and their associated tributaries. The alluvium of these creeks largely comprises of sandy clay materials. The longer Woleebee Creek has a higher discharge and flows through the Orallo Formation and Gubberamunda Sandstone upstream from the WCP area. Floodplain sediments along Woleebee Creek are mainly clayey sands and are influenced by these geological units and the higher discharge in this creek (Parsons Brinckerhoff, 2008).

Data for alluvium thickness was compiled from four sources (Groundwater Database (GWDB), QGC, Senex and Glencore). The data shows alluvium thicknesses interpreted up to 17.4 m (to the north of the WCP), with thickness directly in the MLs between 1 m and 10.5 m. A drilling program was completed in late 2023, with bores installed within the alluvium recorded as dry and no groundwater intersected, or static water level measured after drilling (KCB, 2024).

Middle to upper Jurassic age Injune Creek Group

The Injune Creek Group includes the following:

- Westbourne Formation (siltstone, mudstone and fine-grained sandstone);
- Springbok Sandstone (friable sandstone with beds of mudstone and thin coal seams near its base);
- Juandah Coal Measures;
- Tangalooma Sandstone; and
- Taroom Coal Measures at depth.

The Juandah Coal Measures contain the economic coal reserves of the WCP and comprises medium to coarse grained lithic sandstone, siltstone, mudstone and coal seams. The particle size generally increases with depth (Slater, 1986). The Taroom Coal Measures are sub-labile, medium grained sandstone, grading upwards to interbedded sandstone, siltstone, mudstone and coal. This unit outcrops north of the WCP area. A cross section of the Injune Creek Group is presented in Figure 2-8.

Kogan

The Kogan coal seams generally occur in the southern portion of the MLs and at shallower depths. The group consists of approximately seven seams, each of which generally vary in thickness between 0.1 m and 5.0 m.

Macalister Upper

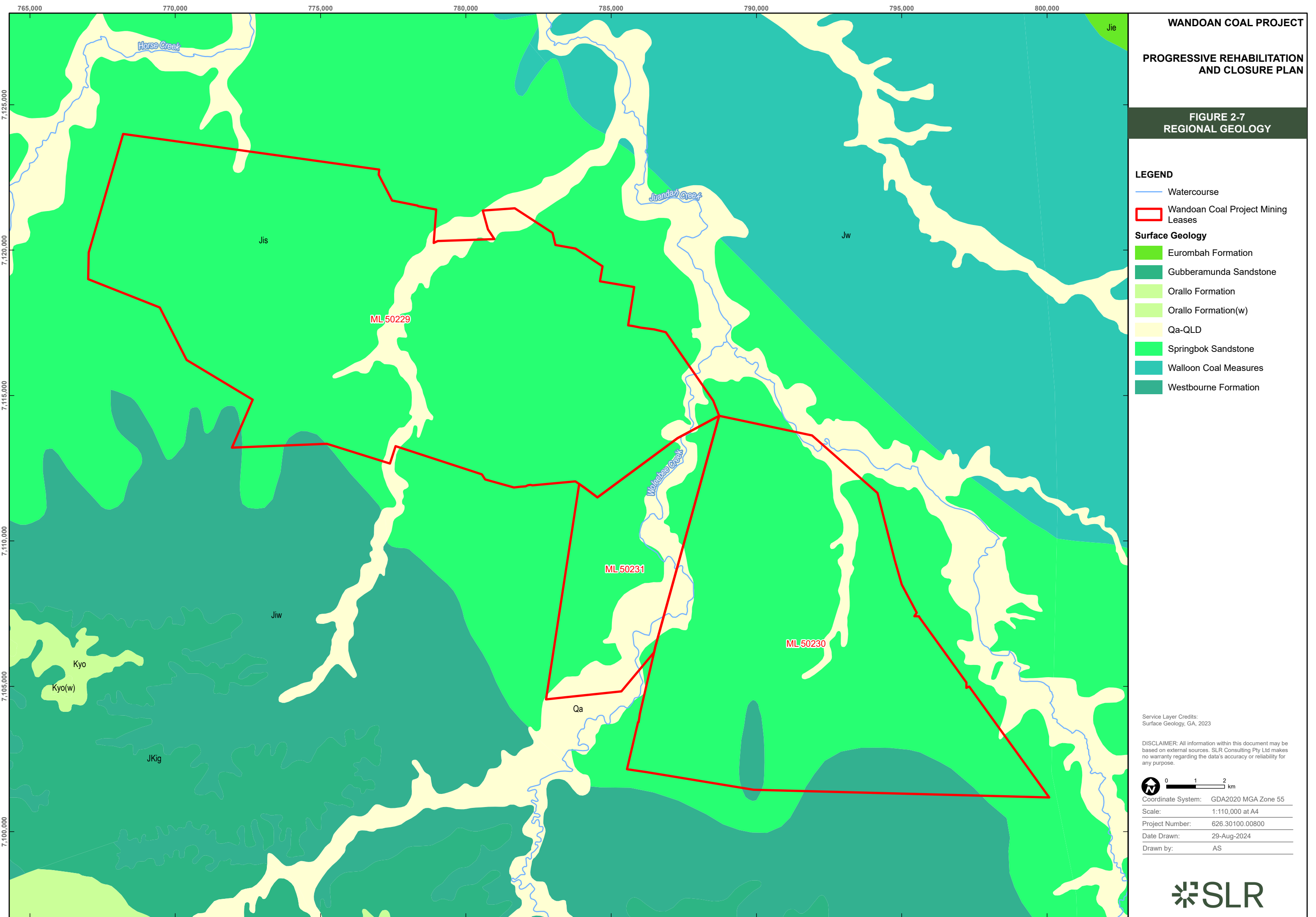
The Macalister Upper coal seams occur below the Kogan seams. The group consists of approximately five seams, each of which generally vary in thickness between 0.05 m and 4.0 m.

Macalister Lower

The Macalister Lower coal seams occur below the Macalister Upper seams. The group consists of approximately six seams, each of which generally vary in thickness between 0.01 m and 3.0 m.

Wambo

The Wambo coal seams occur at shallower depths in the northern portion of the MLs and below the Macalister Lower seams in the rest of the MLs. The group consists of approximately seven seams, each of which generally vary in thickness between 0.1 m and 3.0 m.



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION
AND CLOSURE PLAN

FIGURE 2-7
REGIONAL GEOLOGY

LEGEND

Watercourse

Wandoan Coal Project Mining Leases

Surface Geology

- Eurombah Formation
- Gubberamunda Sandstone
- Orallo Formation
- Orallo Formation(w)
- Qa-QLD
- Springbok Sandstone
- Walloon Coal Measures
- Westbourne Formation

Service Layer Credits:
Surface Geology, GA, 2023

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0 1 2 km

Coordinate System: GDA2020 MGA Zone 55

Scale: 1:110,000 at A4

Project Number: 626.30100.00800

Date Drawn: 29-Aug-2024

Drawn by: AS



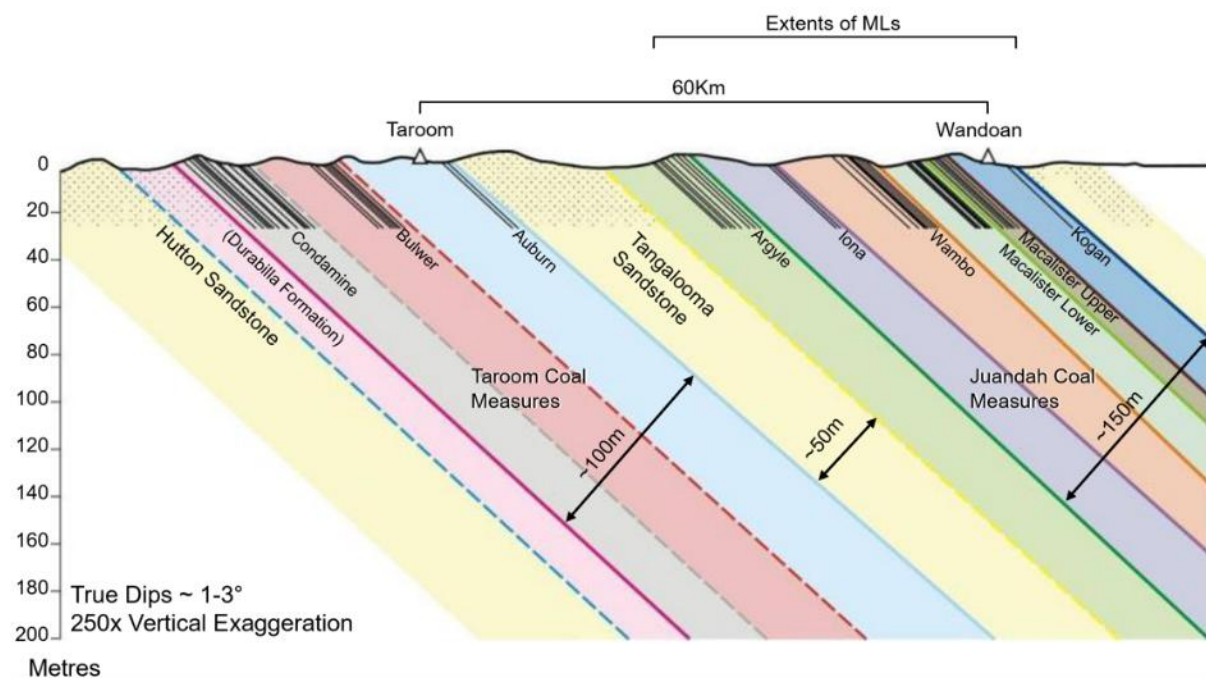


Figure 2-8 Injune Creek Group cross section

2.3.4 Soils

2.3.4.1 Land Resource Areas

Two Land Resource Areas (LRA) have been identified within the MLs: Brigalow Uplands; and Poplar Box Alluvia (Parsons Brinckerhoff, 2008). LRAs are reoccurring landscape units with similar geology, landform, soils and vegetation associations. A description of the identified LRAs is provided in Table 2-3.

Table 2-3 Identified Land Resource Areas

LRA	Landform	Soil type	Common soils	Vegetation	Land use
Brigalow Uplands	Undulating plains with broad ridges and low hills, on sandstones and shales.	Grey and brown non-cracking and gilgai cracking clays; shallow sandy and loamy soils on ridges and some texture contrast soils.	Rolleston (including, Rolleston Family), Teviot Downfall, Cheshire, Kinnoul.	Brigalow open forest and softwood scrub. Brigalow open forest with either poplar box, belah, Dawson gum or bauhinia. Scattered wilga and softwood scrub species frequently occur.	Predominantly winter grain cropping with occasional summer cropping. Grazing of native and improved pastures.

LRA	Landform	Soil type	Common soils	Vegetation	Land use
Polar Box Alluvia	Often associated with active secondary stream channels; mixed and sandy alluvia.	Predominantly deep, cracking, grey clays and loams, texture contrast soils.	Juandah, Retro.	Predominantly poplar box grassy woodland. Scattered false sandalwood and softwood scrub species frequently occur.	Predominantly winter grain cropping and grazing of native and improved pastures. Summer cropping is difficult. Moderate flooding hazard.

2.3.4.2 Land Stability

Anthropogenic impacts to soils from pre-mining land uses have altered the observed soil profiles in the WCP area and have degraded the land to some degree. The pre-mining land use for the WCP MLs, reported by Slater (1986) includes low intensity grazing, summer cropping, previously cropped (canary, grain sorghum), annual cropping (grain sorghum), fallow crop, rough grazing and grazing on native pastures. Much of the original vegetation has been cleared. The practice of blade ripping occurs in 10-to-20-year intervals across the region to control vegetation growth. Although blade ripping is not intended to turn the soil, the practice may have altered some topsoil areas. The practice has the potential to produce a more diffuse boundary between sub-soils and surface soils. Where subsoils have been exposed through broadscale land clearing and on the banks of drainage lines, the predisposition for erosion and dispersion of subsoils is evident.

2.3.4.3 Soil types

Field investigations of the MLs identified eight different soil types (Parsons Brinckerhoff, 2008). Soils with similar physical or chemical properties have been grouped together as soil associations. A description of the soil types has been provided below and the distribution of soil associations across the MLs has been presented in Figure 2-9. Abrupt boundaries between soil types generally do not occur in the WCP area, except along drainage lines, with the soils grading into each other over a distance of a few hundred metres.

Brigalow uplands soils

Cheshire

Cheshire soil occurs in the WCP area on upper slopes of up to 3 % grade. It has largely been cleared and is used for cattle grazing. It comprises shallow, non-cracking uniform clays, classified as brown dermosols under the Australian Soil Classification System (Isbell, 2021).

The topsoil (A1) of this soil type is approximately 400 mm to 600 mm deep, consisting of dark to light sandy clay with a fine structure and a mildly alkaline pH. The topsoil has low to moderate salinity and a non-dispersive A1 horizon, tending to a dispersive A2 horizon.

The B horizon consists of a brown to grey-brown medium clay with calcareous concretions. This horizon tends to be yellow brown at less than approximately 1.0 m in depth and the sub-soil is strongly alkaline, highly saline and dispersive throughout the B and C horizons. Weathered sandstone or siltstone is typically encountered within 1.0 m to 1.5 m deep.

Kinnoul

Kinnoul soil occurs in the WCP area on ridgetops and upper slopes and is commonly covered by regrowth brigalow softwood scrub. It is a shallower version of Cheshire, and often grades into Cheshire on upper slopes. Under the Australian Soil Classification System (Isbell, 2021), this soil is a brown dermosol.

The topsoil (A1) is approximately 300 mm to 400 mm deep and consists of a dark sandy or light clay, with a blocky structure. It has a neutral to mildly alkaline pH, low to moderate salinity and is considered non-dispersive.

The B horizons consist of brown and blocky light clay, with mild alkalinity, low to moderate salinity and low dispersivity, increasing to strongly dispersive with depth. Calcareous concretions are generally absent but may be present on slopes where the soil grades into other soil types, or in areas of poorer drainage. Weathered sedimentary rock is generally encountered within 0.75 m depth. The yellow-brown lower sub-soil encountered in Cheshire is generally poorly developed in Kinnoul soils.

Downfall

Downfall soil occurs in the WCP area on mid to lower slopes of approximately 2 % grade in areas of sediment accumulation within the Brigalow Uplands. The soil is uniform cracking clay and is classified as a brown vertosol.

The topsoil (A1) is shallow at about 50 mm to 150 mm depth, consisting of a neutral brown-grey clay of medium plasticity with a fine granular structure, neutral to mildly alkaline pH, low salinity and dispersive. The topsoil has low nitrogen and phosphorus availability and approximately 2 % organic carbon. The A2 horizon is generally absent.

The upper B horizons consist of a medium to heavy clay with fine blocky peds, slightly alkaline pH, is dispersive and contained traces of calcareous concretions. The lower subsoils are dispersive grey and/or yellow-brown heavy clays with strongly alkaline pH. Weathered sandstone or colluvium is typically encountered at greater than 1.5 m depth.

Teviot

Teviot soil occurs in the WCP area on gently inclined mid-slopes with a gradient of approximately 1 % to 3 %. Under the Australian Soil Classification System (Isbell, 2021) this soil is a brown vertosol.

The topsoil (A1) is approximately 200 mm deep and consists of brown-grey to dark brown-grey clay with neutral to slightly alkaline pH, low salinity and non-dispersive. The topsoil has medium nitrogen and phosphorus availability and approximately 2 % to 3 % organic carbon.

The B horizon comprises high plasticity clay with strong blocky peds and is dispersive. The lower sub-soil consists of strongly dispersive grey-yellow-brown clay and appears highly susceptible to tunnel erosion if exposed. Weathered sandstone is typically encountered within 1.0 m to 1.5 m depth. Subsoils are moderately alkaline, with a consistent pH value throughout the B and C horizons. Salinity is moderate in the B horizon and increases with depth.

Rolleston

The Rolleston soil occurs in the WCP area on mid and lower slopes, on slopes of approximately 1 % to 4 %. It is typically used for dryland grain cropping and is a uniform cracking clay classified as a brown dermosol. The topsoil (A1) is approximately 200 mm deep and comprises non-dispersive to dispersive dark brown-grey heavy clay with blocky peds, slightly alkaline pH and low salinity. The topsoil has low to medium nitrogen and phosphorus availability and low organic carbon content. The A2 horizon may be absent.

The B horizon consists of dispersive, high plasticity clay with strong blocky peds and calcareous concretions. The lower sub-soil is strongly acidic or strongly alkaline pale-yellow brown to yellow-

orange and strongly dispersive, with weathered sandstone or siltstone encountered at depths greater than 1.5 m.

Poplar box alluvia soils

Juandah

Juandah soil occurs in the WCP area on flat floodplains with less than 1 % gradient within Poplar Box Alluvia. It comprises deep uniform clays developed on alluvium and are typically used for cattle grazing. It is classified as brown vertosol under the Australian Soil Classification System (Isbell, 2021).

The topsoil is approximately 500 mm deep and comprises high plasticity dark brown-grey clay with granular to blocky structure and a hard setting surface were disturbed by agriculture. It has neutral pH and low salinity, with low to medium nitrogen and phosphorus availability. The A1 horizon is non-dispersive, with a dispersive A2 horizon.

The B horizon consists of dispersive high plasticity dark brown-grey clay, with coarse blocky to massive structure, slight to moderately alkaline pH and low to medium salinity. Subsoils grade to yellow-brown massive, alkaline, clays. The soil profile is generally greater than 1.5 m deep and underlain by alluvium.

Woleebee

Woleebee soil occurs in the WCP area on the floodplains of Woleebee and Juandah Creeks. The soils are texture contrast soils developed on alluvium and are typically used for cattle grazing. The topsoil (A1) is approximately 150 mm deep and comprises grey silt loam. It is dispersive, has a neutral pH, low to medium salinity, and low organic carbon content.

The B horizon comprises strongly dispersive dark medium clay, with layered alluvium encountered at less than 1.0 m depth. The pH and salinity increase with depth to strongly alkaline and medium to high salinity from approximately 500 mm depth.

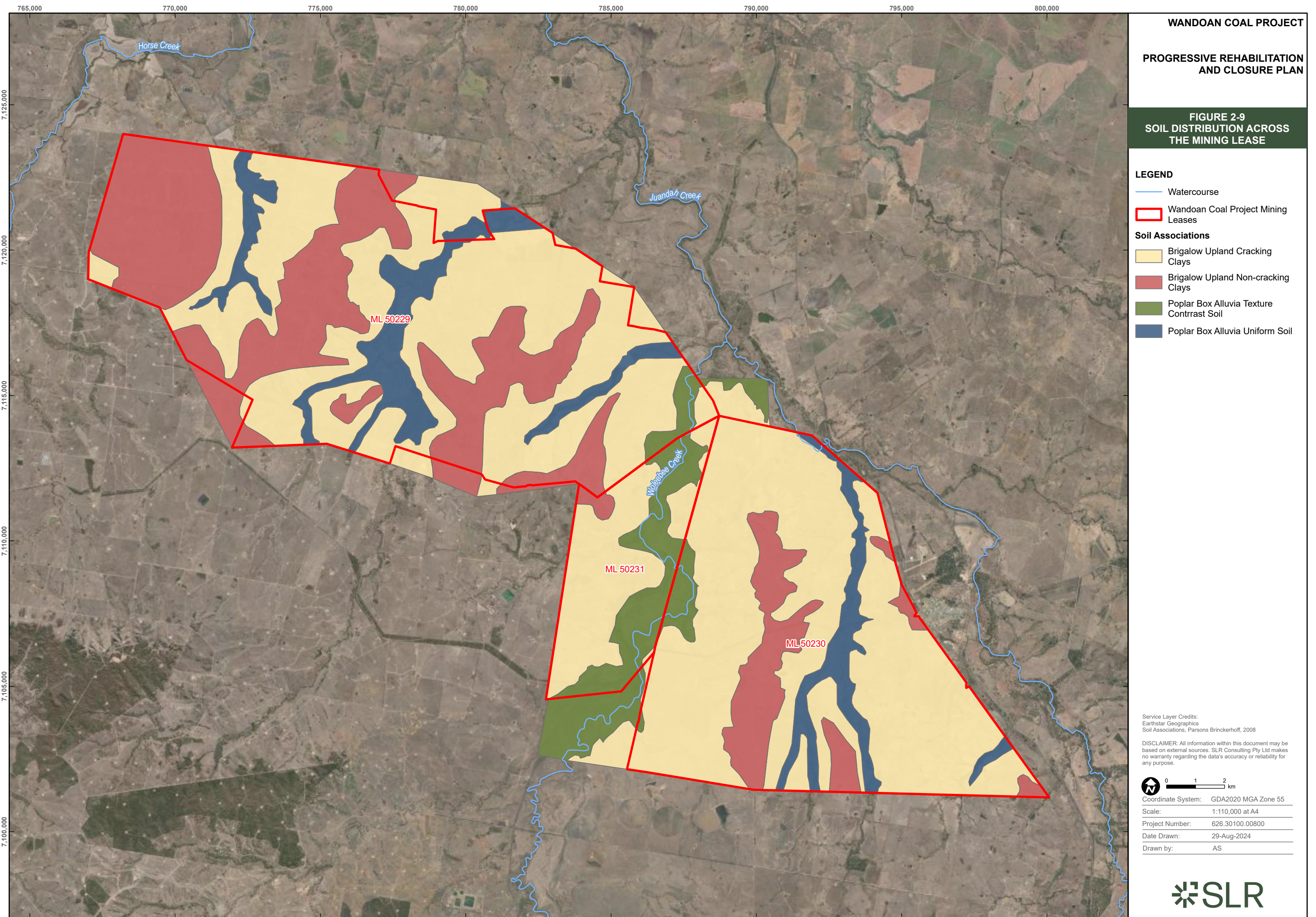
Under the Australian Soil Classification System (Isbell, 2021), this texture contrast soil is classed as a brown sodosol.

Retro

Retro soil occurs in the WCP area on gently undulating floodplains with slopes of less than 0.5 % within Poplar Box Alluvia and is typically uncleared, with grassy open woodland of poplar box and sandalwood. This soil comprises deep texture contrast soils, developed over weathered sedimentary rock or colluvium, but within the floodplain of the streams. It is classified under the Australian Soil Classification as a brown chromosol (Isbell, 2021).

The A1 horizon is approximately 150 mm deep and consists of a non-dispersive dark brown-grey clay-loam with neutral pH and low salinity. The topsoil has low to medium nutrient availability, with medium to high organic carbon content and is commonly underlain by a bleached, pale orange A2 horizon.

The B horizon consists of non-dispersive, high plasticity, dark brown heavy clay with medium sized blocky peds. Calcareous concretions may be present, and the soil has an alkaline pH. The lower sub-soil is dispersive, brown, heavy clay, grading to weathered sediments or colluvium at approximately 1.0 m depth.



2.3.4.4 Soil Quality

A detailed investigation into the soil quality of the pre-mining soils was undertaken to support the WCP Environmental Impact Statement (EIS) (PB, 2008). All A1 topsoil horizons were identified as alkaline, except for Juandah which was neutral, of low to moderate salinity and non-dispersive except for Downfall and Wolleebee.

The subsoils of the Cheshire, Woleebee, Rolleston and Teviot were identified as having moderate to extreme alkalinity and sodicity. All other subsoil within the Brigalow Uplands LRA were considered dispersive to a lesser extent.

Additional soil characterisation undertaken by RGS (RGS, 2024 – Appendix B -) confirms the findings of PB 2008 and the combined dataset is summarised in Table 2-4 with the exception of pH and Exchangeable Sodium Percentage (ESP) which comprises the PB (2008) results only. RGS (2004) garnered results from five selected individual samples of mine materials (composite subsoil and topsoil sample (0 – 0.6 m), subsoil (0.6 – 1.7 m), and shallow overburden). The strong alkalinity and moderate to high ESP indicated by RGS sampling results were an artifact of the topsoil/subsoil composite sampling and correlate more with subsoil sampled by PB (2008). Soil characterisation indicated that the soils have low salinity, moderate cation exchange capacity (CEC) and low macro-nutrients plant-available phosphorous (P) and potassium (K), however these were deemed sufficient to support native vegetation but would require supplementing for establishing grazing pastures.

Table 2-4 Summary of topsoil characterisation

Parameter	Analysis	Min	Max	Average	Median
pH **	Acidity/alkalinity	5.4	9.3	8.0	8.1
Electrical Conductivity (EC) (uS/cm) (1:5)	Salinity	19	1720	314	136
Total Nitrogen (N) (mg/kg)	Soil Nutrients	530	3800	1482	1270
Total Phosphorous (P) (mg/kg)	Soil Nutrients	108	556	264	224
Total Potassium (K) (mg/kg)	Soil Nutrients	117	130	-	124
Cation exchange capacity (CEC) (meq/100g)	Soil fertility	1.3	11.6	7.1	7.1
Exchangeable Sodium Percentage (ESP) (%)**	Sodicity	0.2	6	2.65	2.6

**Dataset from PB(2008) only

Topsoil pH, salinity and sodicity in the WCP area is of a limited extent and is considered a manageable resource for rehabilitation and closure.

2.3.4.5 Overburden and Interburden

Parsons Brinckerhoff (PB, 2008 and PB, 2009) undertook an assessment of the overburden and interburden in the WCP area. The overburden in the Austinvale and Woleebee areas consist mostly of sandstone, siltstone, mudstone, claystone, and coal with minor ironstone. Upward fining sequences are common, and vertical and lateral changes of facies were observed. The average depth of overburden is approximately 23 m in the Austinvale area, overlain by about 1.2 m of soil. The

Woleebee area has an average depth of overburden of 26.0 m overlain by about 3.2 m of soil. The depth of weathering ranges from 10 m to 15 m in the eastern portion and 8 m to 25 m in the western portion of the WCP area.

The overburden and interburden material were assessed for acid mine drainage (AMD) potential, heavy metal leaching and erosion potential in relation to mine spoil piles (as stockpile capping or rock cladding layer) as well as suitability as a subsoil growth medium in stockpile capping layers. The findings of PB (2008, 2009) were confirmed by RGS (2024) and include the following:

- Mine materials, including spoil, roof, floor and partings, and coal, coarse reject and tailings, have a low risk of AMD;
- Samples tested typically had low oxidisable sulfur content, excess acid neutralising capacity (ANC), and are typically classified as non-acid forming (NAF) or NAF-(barren);
- The concentration of trace metals/metalloids in mine material solids are low compared to applied guideline criteria for soils and median crustal abundance in un-mineralised soils and are not expected to present any environmental issues associated with revegetation and rehabilitation;
- Dissolved metal/metalloid concentrations in surface runoff and seepage from bulk non-acid forming (NAF) materials are expected to be low and unlikely to pose a significant risk to the quality of surface and groundwater resources at the WCP;
- Much of the overburden was found to have low nutrient and organic matter content, high sodium content and is dispersive;
- pH of overburden was found generally to be alkaline, with some siltstone and sandstone samples acidic in nature; and
- Overburden has medium salinity (measured as EC).

2.3.5 Vegetation and Fauna Communities

The WCP is located in the Taroom Downs subregion of the Brigalow Belt biogeographic region (BRB bioregion). The BRB bioregion comprises undulating to hilly areas as well as flat alluvial plains. Vegetation communities are predominantly mixed eucalypt woodland communities; however, this bioregion is characterised by the presence of Brigalow woodlands. The bioregion has undergone considerable modification over the last 100 years or more for agricultural activities. Remnant vegetation in the Taroom Downs subregion has been reduced to approximately 7 % of its former extent (Accad et al., 2023). The WCP MLs and surrounding area are comprised of non-remnant vegetation that has been cleared for agriculture (cattle grazing and crops). Large areas of remnant eucalypt vegetation communities are associated with the Woleebee Creek and Frank Creek riparian and floodplain areas. Small, isolated patches of regrowth vegetation (predominately Brigalow communities) are also present.

2.3.5.1 Regional Ecosystems

The DNRMMRRD and DETSI Regional Ecosystem (RE) mapping layers (QLD Globe, 2023) for the WCP area include five REs, comprising remnant, High Value Regrowth (HVR) and non-remnant vegetation. Ground-truthing confirmed that the MLs are comprised largely of non-remnant vegetation (SLR, 2024b) (Figure 2-10). The remnant vegetation communities are predominantly associated with the Woleebee Creek and Frank Creek riparian and floodplain areas. Small, isolated patches of HVR vegetation are also present. Nine REs were ground-truthed within the MLs during 2023 and 2024 field assessments undertaken by SLR (SLR, 2024b – Appendix C -). The legislative status for each RE has been summarised in Table 2-5.

Table 2-5 Ground-truthed Regional Ecosystems within the MLs

Regional Ecosystem	Status			Regional Ecosystem Description Database Description
	Vegetation Management Class*	Biodiversity Status*	Remnant Status	
11.3.2	Of concern	Of concern	Remnant	<i>Eucalyptus populnea</i> woodland on alluvial plains
11.3.25	Least concern	Of concern	Remnant	<i>Eucalyptus tereticornis</i> or <i>Eucalyptus camaldulensis</i> woodland fringing drainage lines
11.9.2	Least concern	No concern at present	Remnant	<i>Eucalyptus populnea</i> , <i>Eremophila mitchellii</i> shrubby woodland on fine-grained sedimentary rocks
11.9.5	Endangered	Endangered	Remnant and HVR	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest to woodland on fine-grained sedimentary rocks
11.9.7	Of concern	Of concern	Remnant and HVR	<i>Eucalyptus populnea</i> , <i>Eremophila mitchellii</i> shrubby woodland on fine-grained sedimentary rocks

Regional Ecosystem	Status			Regional Ecosystem Description Database Description
	Vegetation Management Class*	Biodiversity Status*	Remnant Status	
11.9.10	Of concern	Endangered	Remnant and HVR	<i>Eucalyptus populnea</i> open forest with a secondary tree layer of <i>Acacia harpophylla</i> and sometimes <i>Casuarina cristata</i> on fine-grained sedimentary rocks

*Vegetation Management Act 1999

2.3.5.2 Fauna

SLR undertook field surveys in spring 2023 and autumn 2023 and 2024 (in line with recommendations provided in Eyre et al. (2022a) for the Brigalow Belt bioregion). The field survey included the collection of contemporary and baseline information on the likely occurrence of critically endangered, endangered, vulnerable, near threatened, migratory or special least concern flora and fauna species (as listed under the Queensland *Nature Conservation Act 1992* ((NC Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)) and their habitats.

Habitat assessments and systematic targeted fauna surveys were undertaken across the WCP MLs to identify any threatened and near threatened species. The following three species were confirmed as present in the WCP MLs during the field surveys:

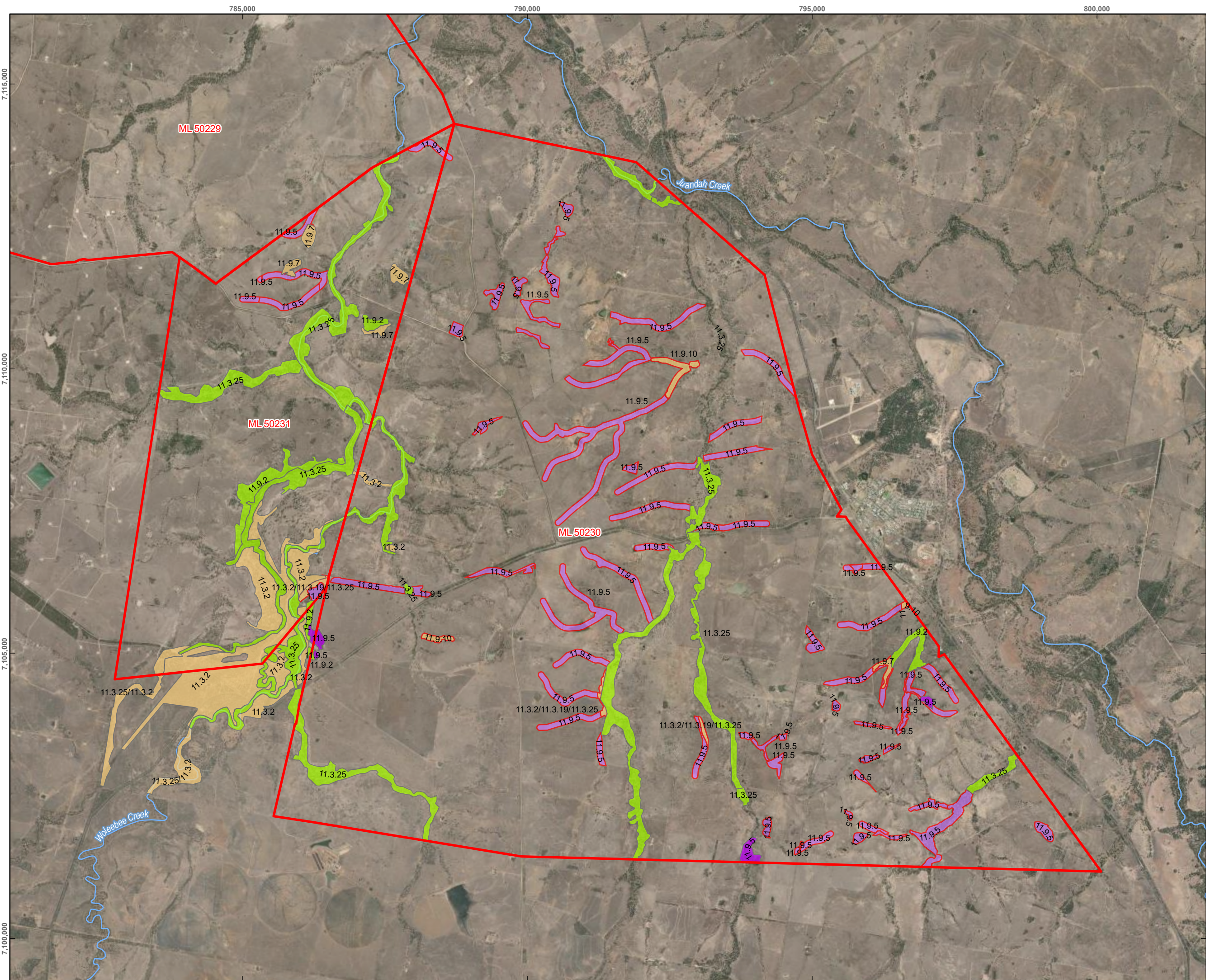
- Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*);
- Koala (*Phascolarctos cinereus*); and
- Central Greater Glider (*Petauroides armillatus*).

One species – Golden-tailed Gecko (*Strophurus taenicauda*) – was not detected in the study area, but was recorded during previous surveys (PBA, 2008a). This species is also considered to be present in the study area.

The following threatened and near threatened species species were assessed as having a moderate likelihood of occurrence but were not recorded in the study area during the field survey:

- Squatter Pigeon (*Geophaps scripta scripta*);
- Painted Honeyeater (*Grantiella picta*);
- White-throated Needletail (*Hirundapus caudacutus*);
- Australian Painted Snipe (*Rostratula australis*);
- Brigalow Woodland Snail (*Adclarkia cameroni*);
- Dulacca Woodland Snail (*Adclarkia dulacca*);
- Yellow-bellied Glider (*Petaurus australis australis*);
- Corben's Long-eared Bat (*Nyctophilus corbeni*);
- Common Death Adder (*Acanthophis antarcticus*);
- Dunmall's Snake (*Furina dunmalli*);
- Grey Snake (*Hemiaspis damelii*); and
- Yakka Skink (*Egernia rugosa*).

A number of fauna species were identified in the study area using both active and passive survey techniques. Eleven amphibians were detected during field surveys, only four of which were recorded during the pre-wet season survey. 116 bird species were observed from the collective 2023-2024 field surveys, including a large diversity of waders, woodland species, and raptors. Forty-one mammal species were detected in the WCP area, including EPBC Act endangered Koala and Greater Glider, and NC Act special least concern Short-beaked Echidna. A number of grazing stock and introduced/pest species were observed during the collective 2023 surveys. A total of thirty-two reptile species were either captured or identified through other methods during both the post-wet and pre-wet season surveys.



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION
AND CLOSURE PLAN

FIGURE 2-10
GROUND-TRUTHED REGIONAL
ECOSYSTEMS

LEGEND

Watercourse

Wandoan Coal Project Mining
Leases

Ground-Truthed Regional
Ecosystems (VM Status)

High Value Regrowth-
Endangered

High Value Regrowth- Of
Concern

Remnant- Endangered

Remnant- Of Concern

Remnant- Least Concern

Service Layer Credits:
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any purpose.

012 km

Coordinate System: GDA2020 MGA Zone 55

Scale: 1:60,000 at A4

Project Number: 626.30100.00800

Date Drawn: 05-Sep-2024

Drawn by: AS

SLR

Path: H:\Projects\SLR\626-MKY\626.30100.00000 Wandoan Mine Site EA Amend and PRCP\06 SLR Data\01 CAD\GIS\GIS\Wandoan PRCP\Wandoan PRCP.aprx\62630100 Wandoan PRCP F02-10 Vegetation Management Regional Ecosystem Map

2.3.6 Groundwater Dependent Ecosystems

Desktop and field assessments of the Groundwater Dependent Ecosystems (GDEs) in the WCP area were undertaken in 2022 and 2023 (DPM EnviroSciences, 2022; 2023). Desktop studies of Queensland State mapping conducted in 2023 indicated there were no 'known' surface expression GDEs (refer Figure 2-11), or terrestrial GDEs within the WCP area. However, a number of 'derived' terrestrial GDEs of varying confidence levels were identified in the State mapping.

Remote sensing analysis incorporating Normalised Difference Vegetation Index (NDVI) and field verification using Leaf Water Potential (LWP) undertaken by DPM EnviroSciences in 2023 confirmed the presence of narrow corridors of terrestrial GDEs located on the bed and banks of several creeks within the WCP area. The locations of state mapped 'derived' terrestrial GDEs and ground-truthed terrestrial GDEs are presented in Figure 2-12.

NDVI was used to assess the potential presence of GDEs within the Study Area based on the notion that GDEs are expected to remain relatively greener than vegetation that is unable to access groundwater throughout periods of low to no rainfall. Vegetation communities that have access to groundwater are likely to record stable NDVI values through drier periods compared to communities that are reliant on surface water.

Leaf Water Potential (LWP) measurements of 0.00 to -0.55 MPa were used in the baseline assessment to indicate trees that were accessing water (ranging from fresh to slightly saline) in either the soil profile or water table at the time of assessment. LWP measurements of <-0.55 MPa (i.e. more negative than -0.55 MPa) were used to indicate trees that were unlikely to be accessing water in either the soil profile or the water table, or that may have been accessing a moderately saline to saline water source.

Field verification of GDEs undertaken by DPE in 2004 (Appendix D -) confirmed that trees within a narrow corridor of riparian vegetation on the bed and banks of Blackant, Frank, Halfway, Juandah, Mud (including Toms Gully), Wandoan and Woleebee creeks are known to intercept groundwater in dry conditions and are therefore terrestrial GDEs. All field-verified terrestrial GDEs of the WCP area and surrounds (including Horse Creek) are RE 11.3.25 (*Eucalyptus tereticornis* dominated woodland fringing drainage lines) although not all RE 11.3.25 within the WCP area is terrestrial GDE. Most sampled trees on adjoining floodplains, which comprised commonly of tight clays on old alluvial deposits, were shown not to be intercepting groundwater at the time of assessment.

Given this vegetation is subject to continuous natural wetting and drying cycles, these riparian communities most likely have a facultative nature, accessing available moisture in the soil following rainfall, and accessing groundwater in the alluvial aquifer on occasion. The vegetation comprising terrestrial GDEs of the WCP area and surrounds would likely persist without groundwater input yet is known to utilise groundwater on occasion i.e., episodic or opportunistic terrestrial GDEs, not obligate terrestrial GDEs.



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 2-11

STATE-MAPPED SURFACE EXPRESSION

GROUNDWATER DEPENDENT ECOSYSTEMS

LEGEND

Town/City

Watercourse

Road

Wandoan Coal Project Mining Leases

Derived GDE - low confidence

Derived GDE - moderate confidence

81-100 Derived GDE - Low Confidence

81-100 Derived GDE - Moderate Confidence

Data Source:
Aerial Imagery: Earthstar Geographics

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0

1

2

km

Coordinate System: GDA2020 MGA Zone 55

Scale: 1:100,000 at A3

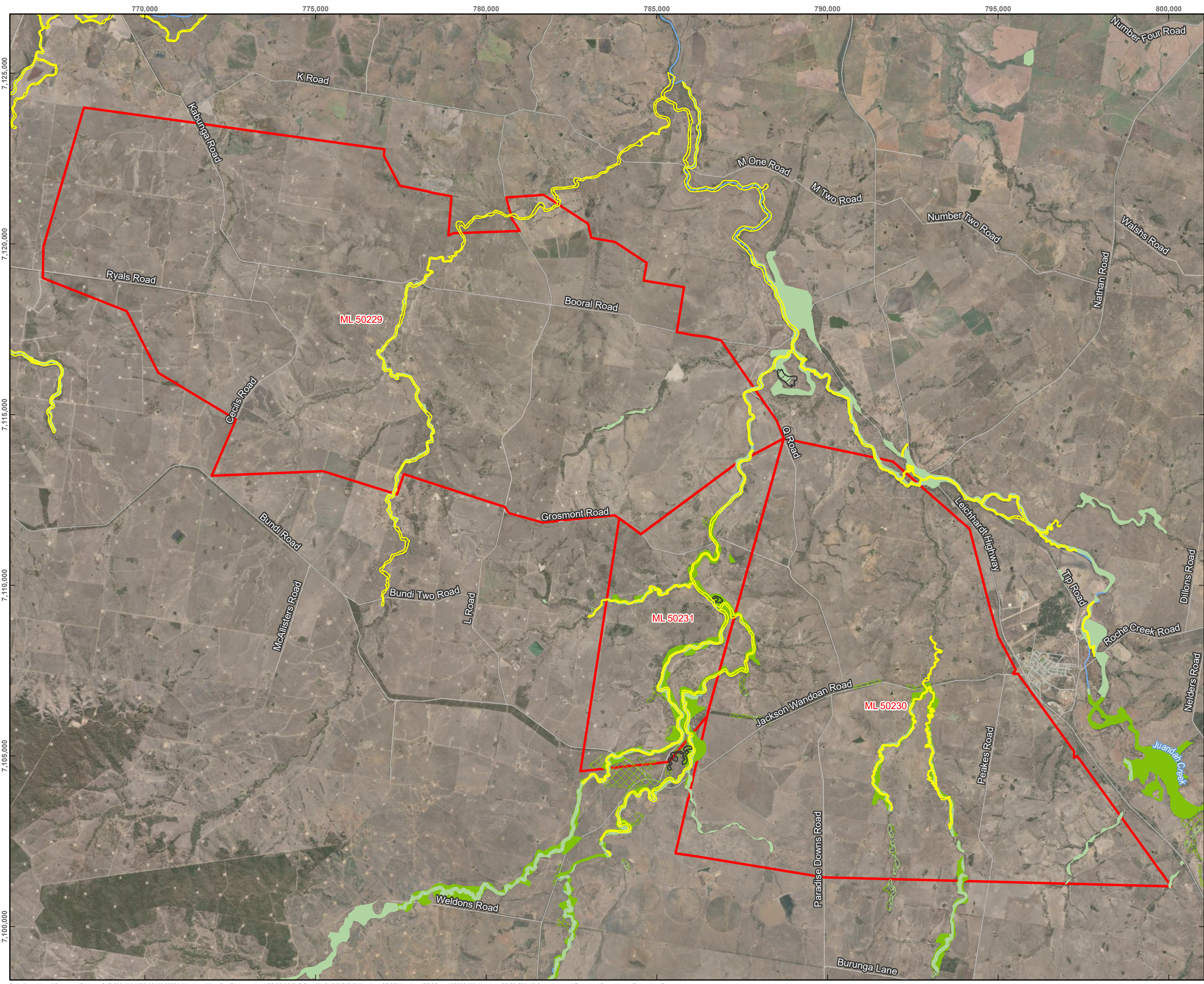
Project Number: 626.30100.00800

Date Drawn: 29-Aug-2024

Drawn by: RB

SLR

Path: \\au.slr.local\Corporate\Projects-SLR\626-MKY\626.30100.00000 Wandoan Mine Site EA Amend and PRCP\06 SLR Data\01 CAD\GIS\Wandoan PRCP\Wandoan PRCP.aprx\62630100 Wandoan PRCP F02-11 State Mapped Surface Expression GDEs



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 2-12

STATE MAPPED GROUND-TRUTHED TERRESTRIAL GROUNDWATER DEPENDENT ECOSYSTEMS

LEGEND

Watercourse

Road

Wandoan Coal Project Mining Leases

Ground-truthed Terrestrial Groundwater Dependent Ecosystems

Indeterminable

Yes

QLD Terrestrial Groundwater Dependent Ecosystems

01-80 Derived GDE - Low Confidence

01-80 Derived GDE - Moderate Confidence

81-100 Derived GDE - Low Confidence

81-100 Derived GDE - Moderate Confidence

Data Source:

Aerial Imagery: Earthstar Geographics

Ground-truthed Terrestrial Groundwater Dependent Ecosystems: EcoGIS, 2024

QLD Terrestrial Groundwater Dependent Ecosystems: Queensland Herbarium, Department of Environment and Science, 2018

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Coordinate System:

GDA2020 MGA Zone 55

Scale:

1:100,000 at A3

Project Number:

626.30100.00800

Date Drawn:

29-Aug-2024

Drawn by:

RB

SLR

Path: \\au.slr.local\Corporate\Projects-SLR\626-MKY\626.30100.00000 Wandoan Mine Site EA Amend and PRCP\06 SLR Data\01 CAD\GIS\GIS\Wandoan PRCP\Wandoan PRCP.aprx\62630100 Wandoan PRCP F02-12 Ground-truthed Terrestrial Groundwater Dependent Ecosystems

2.3.7 Hydrology and Fluvial Networks

2.3.7.1 Regional catchments

The WCP is located in the Upper Dawson River sub-basin which is part of the Fitzroy River Basin. Covering an area of approximately 150,000 km², the Fitzroy River Basin is the second largest externally drained basin in Australia and the largest on the east coast. The Fitzroy River contains several significant tributaries, including the Nogoa, Comet, Mackenzie, Issac and Dawson Rivers and discharges into the Coral Sea east of Rockhampton.

The Maranoa-Balonne Rivers sub-basin, which is part of the Condamine River Basin, is located to the south of the WCP area. The Maranoa-Balonne Rivers sub-basin contains several significant tributaries including the Balonne and Maranoa Rivers which drain southwest into NSW.

2.3.7.2 Watercourses

Key watercourses within the vicinity of the MLs are presented in Figure 2-13 and comprise of:

- Juandah Creek, which flows from the southwest of ML 50230 northward to join the Dawson River, approximately 3 km south of Taroom. Juandah Creek is joined by Woleebee Creek, Horse Creek (from the south) and Bungaban Creek from the east before joining the Dawson River;
- Woleebee Creek, which flows north from its headwaters through the MLs to join Juandah Creek to the northeast; and
- Horse Creek, which flows in a northeasterly direction on the western side of ML 50229, to join Juandah Creek in the north, before joining the Dawson River.

Watercourses within the WCP area have been classified using the Strahler method as 1st to 5th Stream Orders (refer Figure 2-14) with the majority being Stream Order 1 (minor streams / drainage features). Juandah and Woleebee Creeks are the main watercourses that run through the WCP MLs and are Stream Order 5.

Minor watercourses and drainage features are present throughout the WCP area, as tributaries of the major watercourses. There are several smaller named waterways including Frank, Wandoan, Blackant and Mud Creeks (Stream Orders 3 and 4) and Mount Organ and Spring Creeks (Stream Order 2 and 3 respectively) that run through the MLs. These named waterways are mapped and defined as watercourses under the *Water Act 2000* (Water Act).

Halfway Creek (Stream Order 3), Duck and Two Mile Creeks (Stream Orders 2 and 3 respectively) and Tom's Gully (Stream Order 1) are mapped drainage features under the Water Act along with several unnamed tributaries of Duck, Juandah, Spring and Woleebee Creek.

Watercourses across the WCP area are characteristically ephemeral. This is a consequence of the watercourses being in a climate zone with seasonal rainfall and being in the upper reaches of the catchments, resulting in a limited catchment area. Ephemeral watercourses typically only experience surface water flow during or immediately after heavy or sustained rainfall events. Following periods of flow, surface water persists as non-flowing, disconnected pools separated by dry / exposed stream beds.



WANDOAN COAL PROJECT

**PROGRESSIVE REHABILITATION
AND CLOSURE PLAN**

**FIGURE 2-13
DEFINED WATERCOURSES WITHIN
THE WCP MINE LEASES**

- LEGEND**
- Town/City
 - Define Watercourse (Watercourse Act 2000)
 - Major Road
 - Wandoan Coal Project Mining Leases

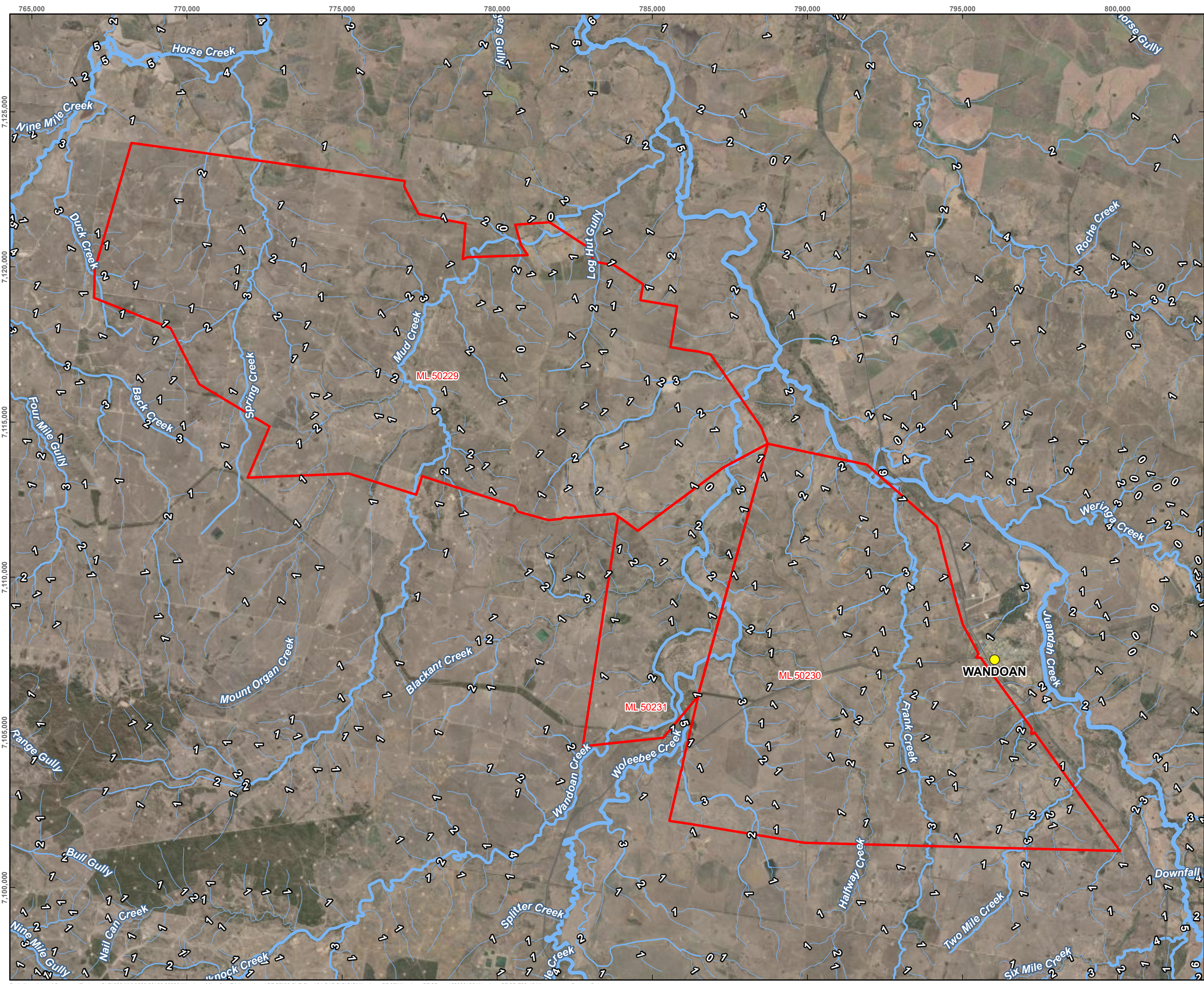
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Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	626.30100.00800
Date Drawn:	29-Aug-2024
Drawn by:	AS





WANDOAN COAL PROJECT

**PROGRESSIVE REHABILITATION
AND CLOSURE PLAN**

**FIGURE 2-14
WATERCOURSES INCLUDING
STREAM ORDER VALUES**

LEGEND

Town/City

Major Road

Wandoan Coal Project Mining Leases

Watercourse (Stream Order)

0 - 1

2

3

4

5

6

Service Layer Credits:
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012 km

Coordinate System: GDA2020 MGA Zone 55

Scale: 1:110,000 at A4

Project Number: 626.30100.00800

Date Drawn: 29-Aug-2024

Drawn by: AS

2.3.8 Groundwater and Hydrogeology

2.3.8.1 Regional hydrostratigraphic units

The Surat Basin forms part of the Great Artesian Basin (GAB), which comprises several aquifers and confining aquitards. Aquifers of the Surat Basin are a significant source of water used for stock, public water, and domestic supply. The hydrostratigraphy of the Surat Basin and underlying Bowen Basin is presented in Figure 2-15 sourced from the 2021 Surat Cumulative Management Area (CMA) Underground Water Impact Report (UWIR) (Office of Groundwater Impact Assessment (OGIA), 2021). A summary of each of the hydrostratigraphic units within the Surat Basin, is provided below (from oldest to youngest).

Precipice Sandstone – Regional Aquifer

The Precipice Sandstone is the basal unit of the Surat Basin overlying the Moolayember Formation and sedimentary sequences of the Bowen Basin. Lower and upper subunits are recognised. This is often separated by a siltstone or shale unit. The layers with the coarsest grain sizes were deposited by transverse bars in a braided stream system and the finer grain sized sediments were deposited in a lower energy fluvial meandering system. The lower subunit consists of white, fine to very coarse-grained, in part pebbly, thin to very thickly bedded, porous, quartz-rich sandstone with a white clay matrix (KCB 2025a).

Evergreen Formation – Tight Aquitard

The Evergreen Formation conformably overlies the Precipice Sandstone and separates the Precipice Sandstone from the Hutton Sandstone. The Evergreen Formation is considered an aquitard and generally consists of mudstones laminated with fine-grained sandstone, siltstone and shale (Xtrata Coal, 2009).

Hutton Sandstone – Partial and Tight Aquifer

The Hutton Sandstone was deposited in a non-marine environment by meandering streams on a broad floodplain (Exon, 1976) and consists mainly of sandstone with interbedded siltstone, shale, minor mudstone, and coal. The sandstone is white to light grey, fine to medium-grained, well sorted, generally quartz-rich, partly porous with some pebble bands, shale, and siltstone clasts in the lower part. Siltstones and shales are light to dark grey, micaceous, carbonaceous and commonly interlaminated with very fine-grained sandstone (KCB 2025a). It is highly heterogeneous, with sand bodies limited in vertical and lateral extent.

Durabilla (Eurombah) Formation – Tight Aquitard

The Durabilla Formation conformably overlies the Hutton Sandstone. The depositional environment for this unit was fluvial with periods of rapid sedimentation. It is often difficult to differentiate the Durabilla Formation from the Walloon Coal Measures (WCM). It is more restricted in extent than either the Hutton Sandstone or the WCM (KCB 2025a). The Durabilla Formation is considered an aquitard, consisting of siltstone, mudstone and fine to medium-grained poorly sorted sandstone, with almost no coal and consequently little permeability (OGIA, 2016b).

Walloon Coal Measures – Productive Coal Seam and Interbedded Aquitard

The WCM is the target formation for the WCP and for Coal Seam Gas (CSG) extraction in its vicinity. This formation conformably overlies the Durabilla Formation. It was deposited in a low-energy meander-belt river system with the coal layers deposited mainly in an overbank environment (Xtrata Coal, 2009). The WCM consists of very fine to medium-grained argillaceous sandstone, siltstone, mudstone, and coal with minor calcareous sandstone, impure limestone, and ironstone (Xtrata Coal,

2009). Typically, the coal layers are positioned in the upper half to three-quarters of the coal measures, with mudstone, siltstone, and lithic sandstone dominant in the lower part.

Springbok Sandstone – Tight Aquitard

The Springbok Sandstone overlies the WCM. It was deposited by streams and includes overbank and swamp deposits in the upper part of the unit which indicates streams becoming less energetic with time (Xtrata Coal, 2009). The Springbok Sandstone consists mostly of feldspathic sandstones, commonly with calcareous cement (Xtrata Coal, 2009). At the basin scale, the sandstones range from very fine to coarse-grained, although some very coarse-grained, poorly sorted pebbly beds also occur. Minor interbedded siltstones, mudstones, and thin coal seams are also present, primarily in the upper part of the unit. Within the GAB, the Springbok Sandstone is considered a usable water source, however it is highly variable in hydraulic properties and yield across the basin. The Springbok Sandstone also has a very high content of mudstone and siltstone at many locations with very low permeability (OGIA, 2016b).

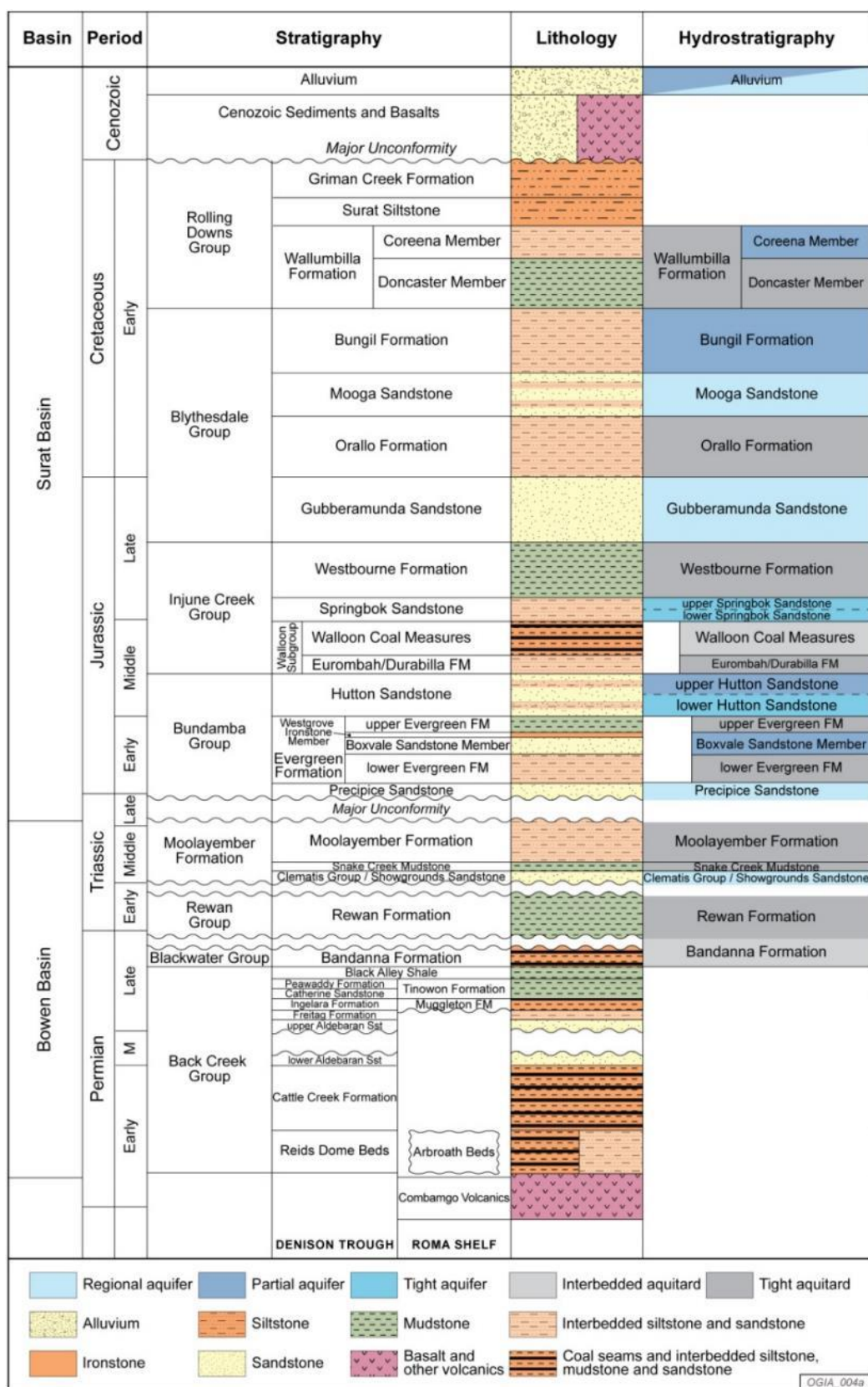


Figure 2-15 Regional hydrostratigraphy of the Surat and Bowen Basins (after OGIA 2021)

2.3.8.2 Groundwater quality and quantity

Groundwater chemistry within the Surat Basin was considered using information provided in the Hydrogeological Conceptualisation Report which supports the Surat CMA UWIR (OGIA 2016b):

- The Springbok Sandstone is characterised as fresh to brackish water quality, with a mean Total Dissolved Solids (TDS) of approximately 1,000 mg/L (ranging between 200 mg/L and 7,000 mg/L).
- The WCM is characterised as fresh to saline groundwater and TDS ranges from 30 mg/L to 18,000 mg/L, with a mean TDS of around 3,000 mg/L.

Baseline data shows that the analytes have relatively stable trends, with TDS of approximately 17,280 mg/L for the Upper Juandah Coal Measures and pH values between 8.1 and 6.2 pH units. Limited time series data is available for the alluvium as the bores were dry most of the time, or with insufficient water column to collect a sample.

Basin scale groundwater flow within the Surat Basin is typically north to south from northern outcrop areas. Groundwater also tends to flow towards the north (towards Taroom) on the northern side of the Great Dividing Range with groundwater discharging into the Dawson River catchment (OGIA 2016c; 2021a). South of the Range, groundwater flow is generally southward, broadly consistent with the dip of the formation (OGIA 2021a).

Groundwater movement is slow in the GAB with flow velocities estimated at 1 m/yr to 5 m/yr. (Habermehl 1980). Generally, groundwater flow and movement occurs as sub-horizontal flow, with limited vertical leakage across formations, where pressure differences may exist (OGIA 2016c). Local groundwater flow conditions may be different from regional flow conditions with potential steeper gradients and increased velocities in response to hydraulic stresses such as groundwater abstraction.

2.3.8.3 Groundwater use

Figure 2-16 shows the location of bores registered in the GWDB and their status. The purpose of the bores includes monitoring bores, water supply bores, or bores for exploratory / investigation purposes.

The WCP is located in an area where groundwater is abstracted for water supply purposes, which include stock and domestic (S&D), town water supply, irrigation and industrial purposes including the extraction of groundwater for coal seam gas (CSG) production. Often such bores are drilled until a depth is reached where a suitable yield for the intended purpose is encountered and this is often the first aquifer unit. Figure 2-17 shows the attributed aquifer (dominant formation) for each of the bores assigned as a water supply bore by the OGIA. The figure highlights bores to the south abstracting groundwater from the Gubberamunda Sandstone, and Hutton Sandstone to the northwest of the WCP.

As part of the Surat CMA UWIR (OGIA 2021c), the OGIA provided estimates of groundwater abstraction from each of the Surat Basin formations. The highest abstraction in the Surat CMA is estimated from the Hutton Sandstone, followed by the Gubberamunda Sandstone.

2.3.8.4 Groundwater and surface water interaction

Baseflow-fed reaches of watercourses, or watercourse springs, are sections of a watercourse where groundwater from an aquifer enters the stream through the streambed (OGIA 2021). A report published by the OGIA in 2017 maps potential gaining streams (or baseflow-fed reaches, watercourse springs) within the Surat CMA (OGIA 2017). This report identified sections of Woleebee Creek and Juandah Creek as potentially gaining streams. The OGIA have re-mapped watercourse springs within

the Surat CMA for the 2021 UWIR report (OGIA 2021). These locations are shown on Figure 2-18 with the details of the springs in the WCP area summarised in Table 2-6.

Table 2-6 UWIR Watercourse Spring Details

Site Number	Name	Source Aquifer
W164	Yuleba Creek	Mooga Sandstone
W204	Downfall Creek	Alluvium
W76	Horse Creek East Branch	Gubberamunda Sandstone
W281	Woleebee Creek	Alluvium/Orallo Formation
W200	Woleebee Creek	-
W280	Woleebee Creek	Alluvium/Gubberamunda
W279	Woleebee Creek	Alluvium
W221	Juandah Creek	Alluvium
W271	Frank Creek	Alluvium

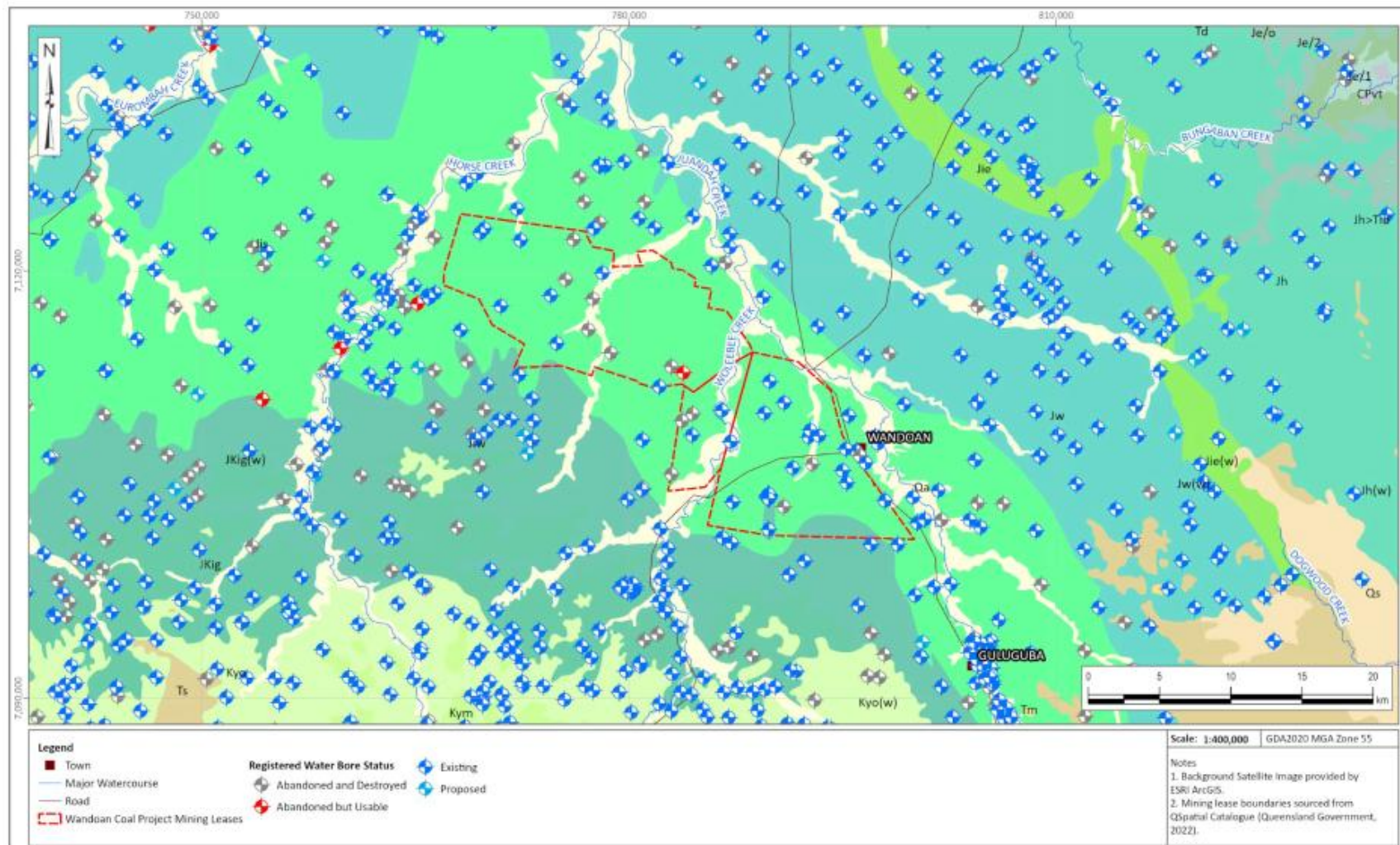


Figure 2-16 Location and status of registered bores

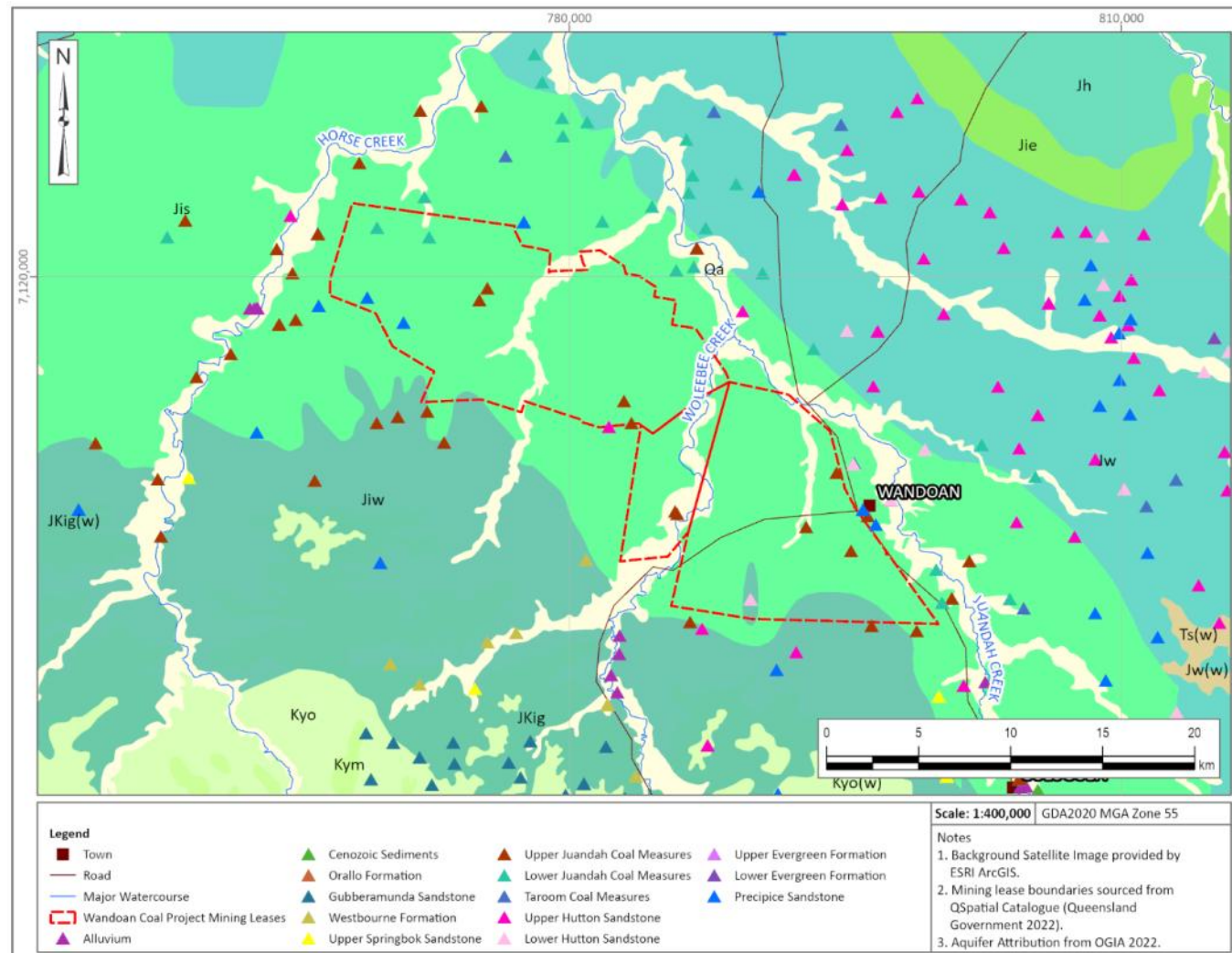


Figure 2-17 Water supply bores with dominant aquifer indicated (Data Provided by OGIA)

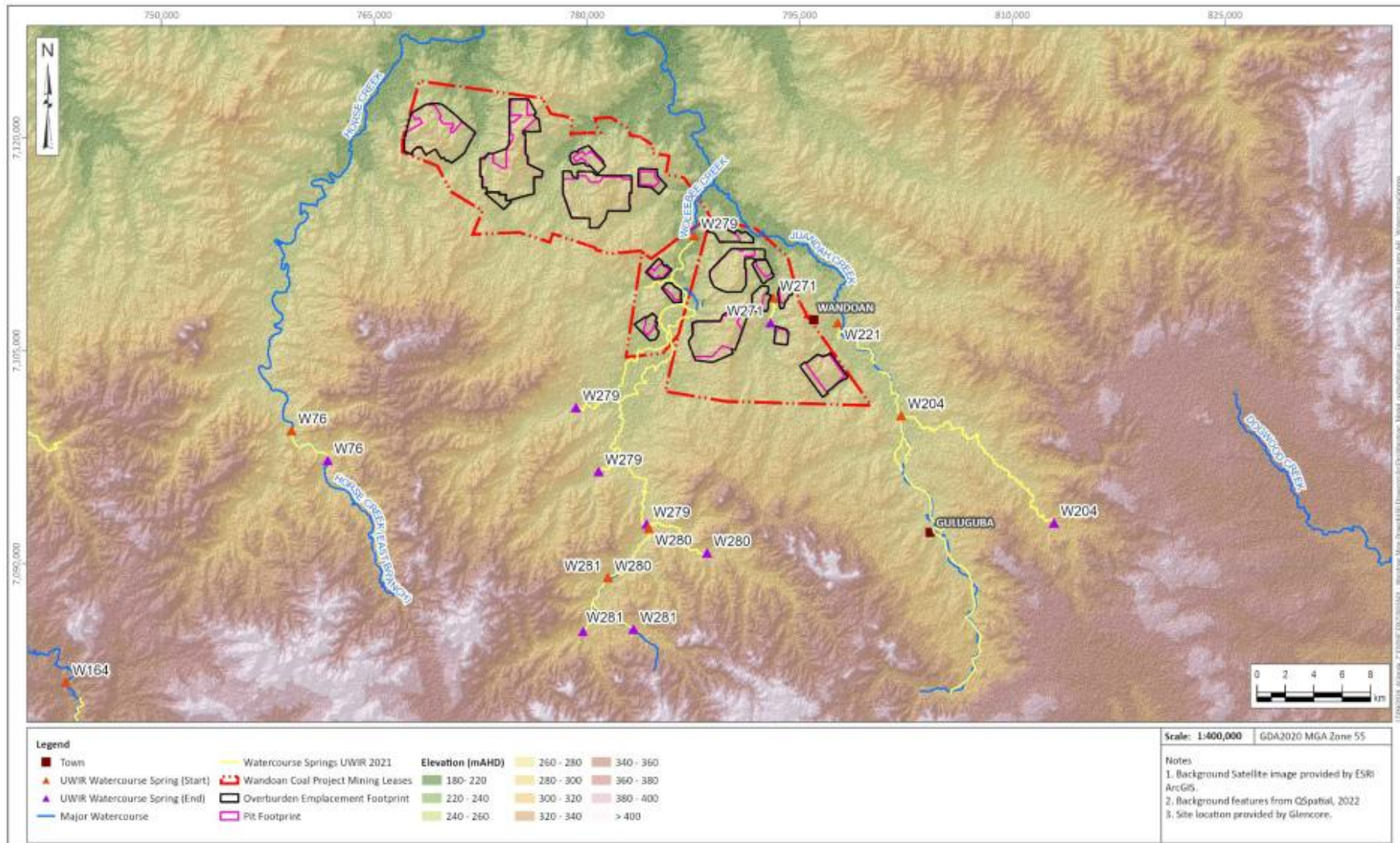


Figure 2-18 Location of OGIA-mapped watercourse springs

The OGIA has identified three potential watercourse springs present within the WCP area associated with Woleebee Creek. These watercourse springs are identified as being associated with the alluvium, Gubberamunda Sandstone, and the Orallo Formation. These are noted as springs of interest but not currently affected or listed as a mitigation site (OGIA 2021).

Reaches of Woleebee Creek were assessed by Senex Energy within Petroleum Lease (PL) 1037, which is located to the south of the WCP area (KCB 2025a). The following observations were made regarding Woleebee Creek as a gaining stream:

- The assessment was conducted during the dry season and no flow was observed within the areas surveyed;
- Pools of water were encountered in the lower reaches of Woleebee Creek (within the PL). The pools were assessed to be rainfall-derived surface water based on the turbid appearance and the field measured (EC - 547 $\mu\text{S}/\text{cm}$); and
- Based on the difference between the field water quality measured at Woleebee Creek pools, field observations and groundwater elevation monitoring data from the alluvium and Gubberamunda Sandstone, it is considered unlikely that Woleebee Creek is a baseflow-fed reach. (i.e., it is a losing stream).

Senex's verification program considered it unlikely that Woleebee Creek is a baseflow-fed reach. This aligns with the assessment undertaken by CDM Smith for QGC's Northern Development Area, which concluded the ephemeral creeks feeding Juandah Creek (which includes Woleebee Creek) are not 'gaining' from alluvial groundwater (KCB 2025a). Both these study's observations support the consensus that the alluvium is unlikely to provide baseflow to the creeks. DPM (2023) hypothesised that some baseflow to Woleebee Creek may occur from the alluvium extending the duration of ephemeral / intermittent flows in Woleebee Creek for a longer duration than waterways that lack such underlying sandstone.

2.3.9 Existing and Surrounding Land Uses

The predominant land use within the Western Downs region is agriculture, comprising predominantly cattle grazing with some mixed cropping. Wheat and sorghum cropping, and cattle grazing occur on the WCP MLs, as well as in the catchment directly upstream and downstream from the WCP. Historically extensive vegetation clearing occurred regionally to enable cropping and grazing to occur. Forestry activities occur within the Western Downs region. Two significant State forests, Mount Organ State Forest and Hinchley State Forest are located approximately 22 km south-west of the MLs. The WCP will not interfere with any forest products within these State forests.

CSG production is also a key industry for the region. Approximately 100 CSG wells are positioned throughout the western and southern extents of ML 50229. A few CSG wells are also positioned in the southern extent of ML 50231.

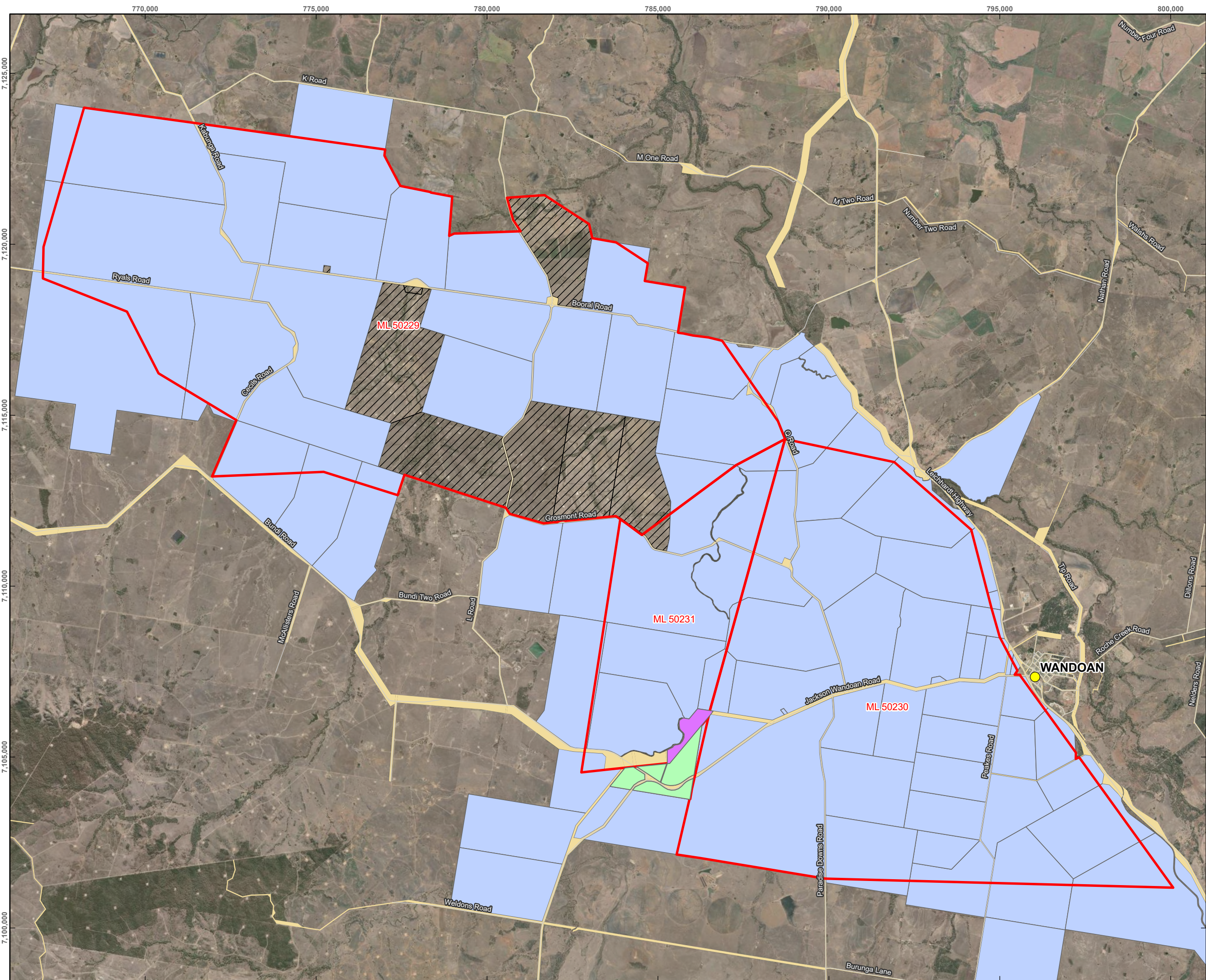
This PRCP describes a primary PMLU of cattle grazing on disturbed land associated with the WCP which is consistent with surrounding land uses.

2.3.10 Underlying Landholders

The underlying tenure for the WCP MLs is presented in Figure 2-19. There are 53 properties within the MLs, 48 of which are owned by the WCP JV. The remaining five are privately owned properties. A list of the underlying land tenure is provided in Appendix E -.

2.3.11 Sensitive Receptors

Sensitive receptors in the vicinity of the WCP are shown on Figure 2-20. These sensitive receptors include the township of Wandoan and neighbouring properties and residences on the five privately-owned properties. There is a 2 km radius high management zone surrounding Wandoan where no open-cut mining is to occur during the life of the WCP.



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 2-19
UNDERLYING LANDHOLDERS

LEGEND

Town/City

Road

Wandoan Coal Project Mining Leases

Privately Owned Property

Properties owned by Wandoan Joint Venture

Lands Lease

Reserve

Road Parcel

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012 km

Coordinate System: GDA2020 MGA Zone 55

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Project Number: 626.30100.00800

Date Drawn: 06-Sep-2024

Drawn by: AS

SLR

Path: H:\Projects\SLR\626-MKY\626.30100.00000 Wandoan Mine Site EA Amend and PRCP\06 SLR Data\01 CAD\GIS\GIS\Wandoan PRCP\Wandoan PRCP.aprx\62630100 Wandoan PRCP F02-19 Underlying Landholders



WANDOAN COAL PROJECT

**PROGRESSIVE REHABILITATION
AND CLOSURE PLAN**

**FIGURE 2-20
SENSITIVE RECEPTORS**

- LEGEND**
- Sensitive Receptor
 - Watercourse
 - Sensitive Receptor (Wandoan Town)
 - Wandoan Coal Project Mining Leases

Service Layer Credits:
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Coordinate System: GDA2020 MGA Zone 55

Scale: 1:100,000 at A4

Project Number: 626.30100.00800

Date Drawn: 06-Sep-2024

Drawn by: AS



2.4 Design for Closure

Closure for the WCP has been designed to achieve grazing and native bushland PMLUs with no NUMAs. This approach will maximise progressive rehabilitation of mined landforms through the life of the mine (LOM). The following design elements have been incorporated into the LOM plan and mine design:

- Protection of environmental values by working within currently approved disturbance footprints, hours of operation and approved production limits;
- Designing a PRCP final landform with grazing and native bushland PMLUs consistent with the EA (EA Tables F-1 and F-2);
- Characterising topsoil, subsoil, overburden, tailings and reject materials sufficiently to integrate effective management measures into the mine plan;
- Creating a PRCP final landform with eight of the 16 mining voids backfilled to free draining;
- Creating a PRCP final landform with the remaining eight of the 16 mining voids backfilled to ≥ 5 m above the post-mine final groundwater level and reshaped to reprofiled void depressions with ephemeral waterbodies periodically containing water of a quality compatible with the grazing PMLU;
- Creating overburden emplacements with external maximum slope grades of 18 % and lowwall grades of 22 %, consistent with the EA;
- Creating highwalls of up to a max slope of 214 % in unweathered competent rock and 22 % in weathered materials in the reprofiled void depressions, consistent with the EA;
- Of the eight reprofiled void depressions, four have an average highwalls height in unweathered competent rock of ≥ 10 m with highest being 20 m in Woleebee pit.
- Using dewatering methods and encapsulation within overburden emplacements for tailings, rejects and disposal of materials with spontaneous combustion potential;
- Eliminating the need for creek diversions;
- Siting mining infrastructure, pits and overburden emplacements outside of the 0.1 % AEP flood level;
- Decommissioning and demolition of all mining related infrastructure where there is no landholder agreement in place to retain the infrastructure;
- Retaining dams and roads within the final landform under landholder agreement to provide access to landholdings and improve grazing outcomes; and
- Maximising progressive rehabilitation rates within the PRCP Schedule.

Further details on the final landform design are provided in Section 5.1.

2.5 Rehabilitation Planning

The WCP has not yet been developed, with the MLs remaining greenfield. The only disturbance on the MLs related to the WCP comprises a bulk sample pit on ML 50230, exploration pads and groundwater monitoring bores. The WCP has an approximate LOM of 75 years, with rehabilitation activities expected to continue for approximately a further 10 years once mining operations cease. When mining commences, progressive rehabilitation will be undertaken over the LOM in accordance with the PRCP Schedule. The main activities on the MLs over the LOM are presented in Table 2-7. As there

is no current or planned commencement date for operations at the WCP, a representative number of '20XX' has been used in Table 2-7.

Table 2-7 Rehabilitation planning summary

Activity	Progressive Rehabilitation	Duration	Approximate Area (ha)
Overburden emplacements and pits including lowwalls	Rehabilitation will occur progressively throughout the LOM.	20XX + 5 to 20XX + 105 (100 years)	8,383
Highwalls and end walls including weathered zone	Rehabilitation will occur progressively throughout the LOM.	20XX + 30 to 20XX + 110 (80 years)	212
Water infrastructure	Water storages are required throughout the operation and used to support rehabilitation activities. Post rehabilitation, the water storages are to be retained to support grazing activities.	20XX + 76 to 20XX + 98 (22 years)	126
Infrastructure	Infrastructure will be required throughout the operation and will only be rehabilitated when operations have ceased. Infrastructure may be required to support rehabilitation efforts.	20XX + 5 to 20XX + 105 (100 years)	1,009
Decommissioned haul roads and ROM pads	Haul roads will be required throughout the operation and to support rehabilitation activities. Haul roads on private landholders' land will be decommissioned.	20XX + 70 to 20XX + 100 (30 years)	101
Retained haul roads	Haul roads will be required throughout the operation and to support rehabilitation activities. Haul roads will be retained as roads post rehabilitation to support grazing activities.	20XX + 76 to 20XX + 99 (23 years)	548

Activity	Progressive Rehabilitation	Duration	Approximate Area (ha)
Exploration and Ancillary Activities	Exploration and Ancillary Activities cover the remaining approved maximum disturbance area authorised in the EA. There are currently no mine plans to disturb this area, therefore, the timeframe in the PRCP Schedule for this activity starts towards the end of the mine life.	20XX + 102 to 20XX + 129 (27 years)	6,627

2.6 Existing Rehabilitation

As mining is yet to commence at the WCP, no rehabilitation relating to mining operations has been undertaken. The overburden emplacement associated with the bulk sample pit on ML 50230 was remediated in late 2008.

The western overburden emplacement was remediated by replacing topsoil using an excavator and truck fleet, which then spread and levelled the topsoil. It was then seeded with pasture grasses. The southern end of the spoil dump was covered with clean topsoil and seeded with a mixture of Queensland native grasses and two legumes. A light watering was utilised to assist in germination and successful vegetation establishment. The northern end of the spoil dump was remediated with topsoil and stockpiled Brigalow material was re-spread.

3. Post Mining Land Uses

A PMLU is defined under s112 of the EP Act as the purpose for which the land will be used after all relevant activities for the PRCP carried out on the land have ended. A PMLU must meet the definition of stable condition. Land is in a stable condition if:

- a) The land is safe and structurally stable;
- b) There is no environmental harm being caused by anything on or in the land; and
- c) The land can sustain a PMLU.

The EP Regulation requires that each PMLU:

- a) Is viable, having regard to the use of land in the surrounding region; and
- b) Satisfies at least one of the following:
 - i. The use is consistent with how the land was used before a mining activity was carried out on the land;
 - ii. The use is consistent with a development approval relating to the land;
 - o The use is consistent with a use of the land, other than a use that is mining, permitted under a State or Commonwealth Legislation, including, for example, a planning instrument under the *Planning Act 2016*; or
 - iii. The use will deliver, or is aimed at delivering, a beneficial environmental outcome.

3.1 Pre-approved PMLUs

Under the transitional provisions of the EP Act, existing approved PMLUs can be transitioned into the PRCP without further assessment or public notification.

Existing approvals must be included in a LOD. LODs are listed in section 750 of the EP Act and include:

- a) An EA;
- b) A document made under a condition of an EA that:
 - i. Relates to the management or rehabilitation of land (e.g., rehabilitation and closure plan or residual void management plan); and
 - ii. Was provided to the administering authority, and had not been superseded, before 30 November 2018; and
 - iii. Before 15 January 2019, the administering authority had not notified the EA holder that the document was insufficient.
- c) A document made under a condition of an EA that:
 - i. Relates to the management or rehabilitation of land (e.g., rehabilitation and closure plan or residual void management plan); and
 - ii. Was provided to the administering authority between 20 November 2019 and 30 November 2021; and
 - iii. Within 20 business days after receiving the document, the administering authority had not notified the EA holder that the document was insufficient.

- d) A report evaluating an EIS under section 34D of the *State Development and Public Works Organisation Act 1971* (SDPWO Act);
- e) An EIS assessment report;
- f) A written agreement between the EA holder and the State that is in force on 30 November 2018.

The LODs associated with the WCP is the EA EPML00297613 (Appendix A -) was originally granted in 2013 and most recently amended in December 2022.

3.2 PMLUs

The PMLUs for the WCP are pre-approved and have been transitioned into the PRCP from the EA. The PMLUs that will be adopted at the WCP are:

- Beef cattle grazing (now referred to as 'Grazing'); and
- Native bushland.

The PMLUs are characterised in Table 3-1 and have been assessed for consistency against the PRCP stable condition criteria and the EP Regulation requirements in Table 3-2. All areas disturbed by mining will be assigned a PMLU with the exception of third-party owned infrastructure, including public main roads (Figure 3-1).

A PMLU of grazing is pre-approved in Table F1 of the EA for areas of disturbance including exploration, infrastructure (including water infrastructure), low gradient slopes, steeper gradient slopes and final voids (which includes highwalls).

A PMLU of native bushland is also pre-approved in Table F1 of the EA for areas of disturbance including exploration, infrastructure (including water infrastructure), low gradient slopes, steeper gradient slopes and final voids (which includes highwalls).

A PMLU of plantation forestry is also pre-approved in Table F1 of the EA but is not proposed as a PMLU for the WCP.

A landholder agreement (Appendix F -) is in place to retain infrastructure that will support the grazing PMLU, such as water storages and haul roads. The water storages will remain for stock watering purposes. Haul roads will be scalped to remove carbonaceous material and will remain for site access, and use by light vehicles, heavy machinery and B Doubles for livestock transport.

Table 3-1 Characteristics of LOD-approved PMLUs

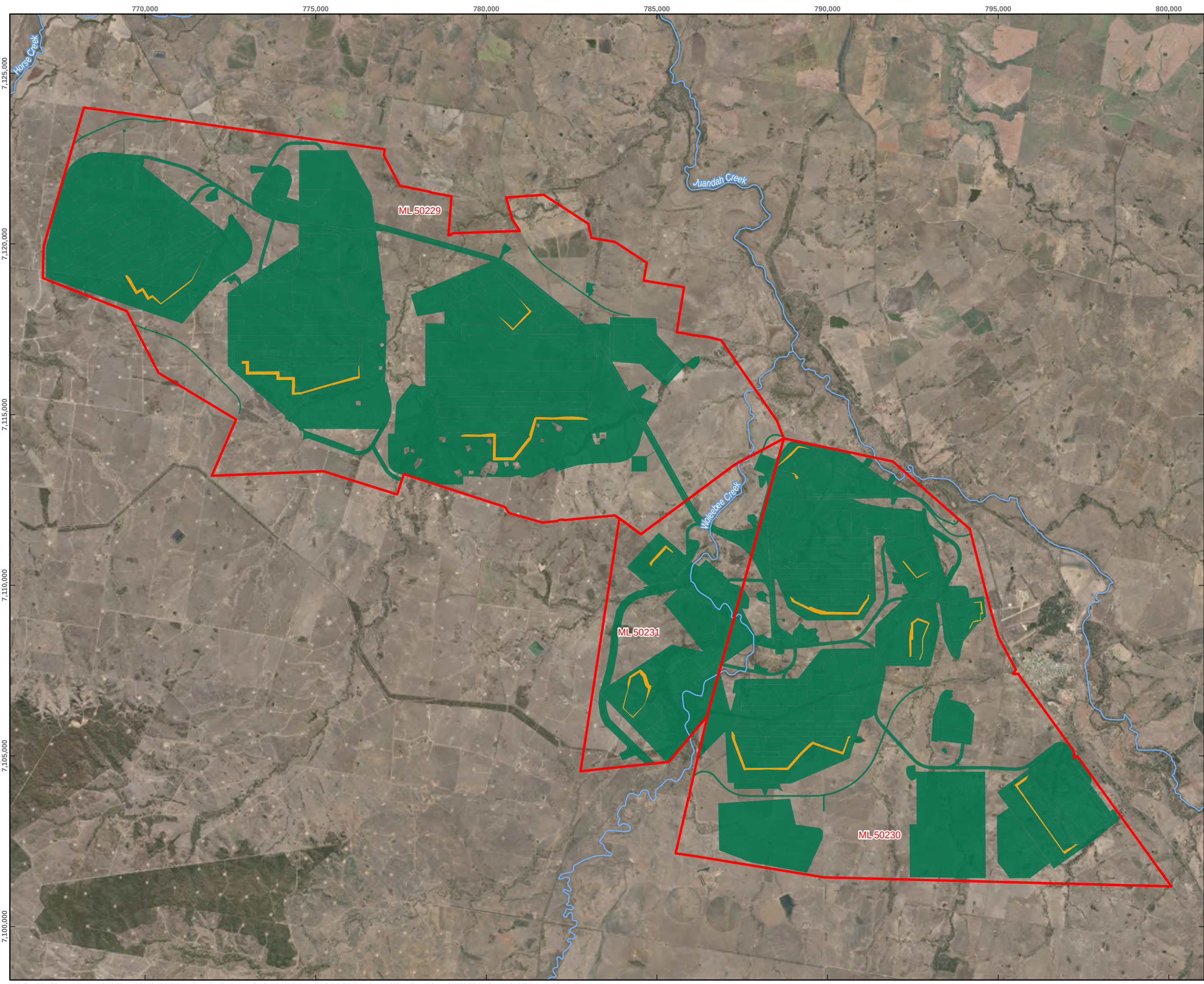
PMLU	Definition / Characteristics
Grazing	Grazing on land that has been rehabilitated to have varying slope gradients can be safely and sustainably grazed if effective land management controls are implemented to mitigate the potential for land degradation, erosion or injury to cattle. Grazing must be carried out in a considered manner and the intensity can be light, moderate and/or intensive. The intensity should be managed dependent on the landform's capability to sustain that intensity over a long period. Livestock are able to feed on pasture vegetation in areas where the land has undergone a restoration process, and the following effective land management controls must be implemented to maintain the land in a stable and productive state: • Pasture rotation ensures the land is not overgrazed and that vegetation cover remains, and biomass is >1,000 kg/ha. • Permanent water infrastructure to supply stock water of appropriate quality would support grazing in areas with moderately steep slopes. Water placement is a determinant of the areas where cattle prefer to graze, and consideration is required to be given where a clean water source is installed. • Revegetation utilising native species that support a productive pasture including 3P species (palatable, productive and perennial) and is drought resistant. Grazing on land that has been rehabilitated and is on low sloped areas involves the practice of allowing livestock to feed on pasture vegetation in areas where the land has undergone a restoration process to return it to a stable and productive state. This rehabilitation process often involves soil stabilization, re-vegetation, and the re-establishment of ecosystems to create a suitable environment for grazing. This type of grazing is typically part of sustainable land management practices aimed at maintaining the health and productivity of the rehabilitated land while supporting commercial agricultural activities. Permanent water infrastructure to supply stock water of appropriate quality would encourage grazing in these areas. As part of sustainable land management techniques, light grazing on rehabilitated land with moderately steep slopes involves the primary use of the land for periodic grazing of pasture areas. This type of grazing is designed to sustain short-term grazing for a reduced number of livestock per hectare compared to more intensive grazing practices. Ephemeral water bodies utilised for temporary water supply of stock water of appropriate quality would support the periodic nature of grazing in these areas. The priority for moderately steep slopes is to maintain the land in a stable condition, in accordance with the EP Act s111A. To support moderate/ high intensity grazing on these slopes, additional erosion controls may be required. Class 4 land is considered marginal for grazing improved pastures but is generally considered suitable for grazing native pastures of varying quality all year round, depending on soil characteristics (QDME 1995, Shields and Williams 1991). In inland Central Queensland such country is typically termed 'breeding country'. It encompasses a range in productivity from the lower end of Class 3 growing country through to the

PMLU	Definition / Characteristics
	poorer end of Class 4 breeding country. Land suitability for sustainable grazing should be considered to be Class 4 breeding country for beef cattle, marginally suitable for grazing of improved pastures but suitable for grazing native pastures year-round, if seasons permit. Characteristics: • Slope is <22 %; • Vegetation cover of ~ 70% can be maintained over the long-term (5-10 years); • Pasture biomass is > 1,000kg/ha; • Land suitability class < 5; and • Landform is stable.
Native bushland	Land that has a primary use of native bushland refers to areas primarily maintained as natural ecosystems, where the protection of native flora and land stability are the main objectives. Land that has a primary use of native bushland can also support light grazing as a management tool, when required. Light grazing can be used as a strategic management tool to help maintain the health and stability of the native bushland. This involves allowing livestock to graze in a controlled manner to achieve specific land management goals, such as reducing excessive pasture biomass, controlling invasive species, and mitigating bushfire risk. The grazing is typically short-term and involves a limited number of livestock to ensure minimal impact on the native vegetation and soil stability. This approach supports biodiversity conservation while also utilising grazing to maintain the ecological balance of the bushland, even on steep slopes. Characteristics: • Groundcover (inclusive of rock, vegetation and organic matter) of ~ 60% can be maintained over the long-term (10-15 years); • Native vegetation is established; and • Landform is stable.

Table 3-2 Consistency of WCP PMLUs against the PRCP stable condition criteria and the EP Regulation requirements

PMLU	Beef Cattle Grazing	Native Bushland
PMLU Description	Land will support the grazing of beef cattle as per the surrounding environment. Any infrastructure will be retained with a landholder agreement. Achieves a land suitability class of either 2, 3 or 4. Permanent water storages and ephemeral waterbodies will store water suitable for supporting the grazing PMLU.	Land will support native bushland.
Applicable Areas	Rehabilitated areas and infrastructure including but not limited to: • Reprofiled voids, and lowwalls; • Permanent water storages and ephemeral waterbodies; • Decommissioned sediment dams and haul roads; • Exploration, MIA and CHPP; and • Overburden emplacements.	Highwalls including weathered and unweathered zones.
Safe	The final landform slopes will be $\leq 22\%$. All slopes are stable as per the geotechnical and erosion assessments. Water quality of permanent water storages and ephemeral waterbodies will be suitable for stock watering. All contaminated land and hazardous material will be treated or removed from site.	Highwalls $\leq 214\%$ slopes in unweathered competent materials zone. Slopes of $\leq 22\%$ in highwall weathered materials zone. All slopes are stable as per the geotechnical and erosion assessments and will achieve a FoS of ≥ 1.2 . All contaminated land and hazardous material will be treated or removed from site. Safety bunds to be installed at back edge of highwalls.
Structurally stable	The final landform slopes will be $\leq 22\%$. A geotechnical assessment has shown that the landform will be stable.	A geotechnical assessment has shown that the landform will be stable. The unweathered batters will be regraded, topsoiled and seeded resulting in a low erosional stability risk.

PMLU	Beef Cattle Grazing	Native Bushland
	The landform will be constructed regraded, topsoiled and seeded resulting in a low erosional stability risk. Where appropriate, any retained water storages will be signed off by a Registered Professional Engineer of Queensland (RPEQ).	
No environmental harm	The final landform will have a very low AMD risk . Vegetation cover established with erosion controls installed where required. All contaminated material will be treated or removed from site.	The final landform will have a very low AMD risk. Vegetation cover established with erosion controls installed where required. All contaminated material will be treated or removed from site.
Able to sustain PMLU	The surrounding area is predominantly used for cattle grazing. Rehabilitation and revegetation of the areas with pasture species will achieve a grazing outcome. Permanent water storages and ephemeral waterbodies will be used for stock watering to support the primary PMLU of grazing. Water quality in the ephemeral waterbodies and retained storages will be suitable for stock drinking.	Rehabilitation and revegetation of the areas with a mix of tree, shrub and grass species will achieve a native bushland PMLU.
Consistency	The proposed land use is consistent with the predominant pre-mining land use and will be returned to a cattle grazing land use. Permanent water storages and ephemeral waterbodies deliver a beneficial environmental outcome by supporting the cattle grazing PMLU and providing access to drinking water.	The proposed land use is consistent with the pre-mining land use. The land will be returned to a native bushland land use.



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION
AND CLOSURE PLAN

FIGURE 3-1
POST MINING LAND USE

LEGEND

- Watercourse
- Wandoan Coal Project Mining Leases

Post Mining Land Use

- Grazing
- Native Bushland

Service Layer Credits:
Earthstar Geographics

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Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:100,000 at A4
Project Number:	626.30100.00800
Date Drawn:	31-Jul-2025
Drawn by:	AS



3.2.1 Community Consultation

The EA PMLUs of grazing and native bushland will be achieved for the WCP. Public consultation for the WCP EIS and Supplementary report carried out in 2008 and 2009 addressed post-mining final landforms and land uses. The WCP JV has further engaged with near neighbours, landholders with properties underlying the MLs, its licensees and other stakeholders on matters related to closure as outlined in Section 4. The PMLUs are consistent with the relevant plans and strategies listed below.

3.2.2 Strategies and Plans

Section 126C of the EP Act requires the PRCP to state the extent to which the PMLU is consistent with any strategies or plans for the land of a local government, the State, or the Commonwealth. The PMLUs proposed for the WCP are consistent with the plans and strategies relevant to WCP. Relevant plans and strategies are as follows.

Water Resources (Fitzroy Basin) Plan 2011

The Water Plan (Fitzroy Basin) (The Water Resource Plan Queensland Government, 2011) provides a framework for sustainably managing water and taking water from overland flows and groundwater in the Fitzroy Basin, while considering existing water users and the environment. WCP mine planning will consider the water quality and groundwater availability post mining in relation to impacts on environmental values and anthropogenic uses.

The Queensland Plan

The Queensland Plan 2014 is an aspirational 30-year community vision with nine foundation areas which include the following relevant areas to mine closure planning: Regions – building thriving communities; Environment – achieving balance; and Infrastructure – being connected. Mine closure planning is required to consider goals of capitalising on unique regional opportunities and assets, environmental protection, effective natural resource management, and connectivity and accessibility across the state. This PRCP considers the above.

Western Downs 2050 Community Plan

The Western Downs 2050 Community Plan (SGS Economics and Planning Pty Ltd, 2011) is an aspirational 40-year community vision which provides a long-term vision and strategic direction to enable the community to guide its future of anticipated growth and change. It is the overarching strategic document for the region and outlines key goals and vision. The WCP aligns with the goal of economic success as resources projects deliver benefits to the community including employment and lasting infrastructure and facilities.

Western Downs Regional Planning Scheme

The Western Downs Regional Planning Scheme 2019 governs land use and planning matters in the region. The WCP MLs are both zoned as “rural” under the planning scheme and identified in the natural resources overlay. The natural resources overlay recognises the strategic importance of natural resource development in the Western Downs. Rural areas are primarily utilised for agriculture, forestry and grazing, however, may be utilised for the activities where they are keeping with the character, amenity and natural resources of the region. The PMLU of beef cattle grazing and native bushland are consistent with the current land use zoning.

3.2.3 Final Milestone Criteria

Final Milestone Criteria are provided in Section 9 of this report.

3.3 Non-use Management Areas

A NUMA is defined in s112 of the EP Act as an area of land the subject of a PRCP that cannot be rehabilitated to a stable condition after all relevant activities for the PRCP carried out on the land have ended. A NUMA can only be proposed due to one of the following reasons:

- Carrying out rehabilitation of the land would cause greater risk of environmental harm than not carrying out the rehabilitation; or
- Both of the following apply:
 - The risk of environmental harm as a result of not carrying out rehabilitation of the land is confined to the area of the relevant resource tenure; and
 - The applicant considers, having regard to each public interest consideration, that it is in the public interest for the land not to be rehabilitated to a stable condition.

There are no NUMAs are proposed in the WCP PRCP.

4. Community Consultation

Community and stakeholder engagement is fundamental to mine closure planning and is an important part of the PRCP framework. The EP Act requires the PRCP to detail the consultation undertaken in development of the PRCP and how ongoing consultation will be undertaken over the LOM.

The WCP is located directly west of the township of Wandoan. The township is located approximately halfway between Taroom and Miles and is the centre for the local cattle industry. The town's economy is based on agriculture, including cattle grazing. Wandoan is serviced with a library and community centre, community swimming pool, an ambulance service, doctor, out-patients clinic, and veterinary surgeon, fire brigade, police station, chemist, hotel / motel, official post office, 3-day-a-week coach bus service and a state school from prep to year 10.

The census shows that as of 2021, 666 residents lived in Wandoan, with 54 % working full or part time. At this time, the majority of workers were employed as labourers, technicians and trade workers or machinery operations and drivers.

Wandoan is supported by additional services in the township of Taroom (located 60 km to the north) and Miles (located 70 km to the south).

4.1 Objectives

The objectives of the WCP PRCP mine closure and rehabilitation consultation process are in line with the PRCP Guideline and include:

- Identify, inform, and engage the community on the rehabilitation and closure of the WCP;
- Provide ongoing consultation throughout the LOM to communicate mine planning, progressive rehabilitation, socio-economic and environmental impacts of mine closure;
- Collaborate with the community to identify mine closure opportunities and constraints;
- Reinforce relationships between the WHPL and the community; and
- Provide opportunities for the community to provide comments and feedback.

4.2 Community and Stakeholders

To assist in identifying members of the community relevant to mine closure for the PRCP, DETSI has provided the information sheet Community Consultation for Progressive Rehabilitation and Closure Plan (version 1.0, 01 Nov 2019). The information sheet states that members of the community must have a genuine interest in the underlying, adjacent, or surrounding land where the mine is located. Community and stakeholder engaged as part of the WCP PRCP are identified in Table 4-1.

Table 4-1 Relevant community and stakeholders

Category	Stakeholder	Interest in the Land
Local Community	Wandoan Township - residents and businesses.	Direct impact, recreational, i.e., live and / or work in Wandoan.
WCP Community Reference Group	Established community group involving key local stakeholders including: • Regional Council; • Representative from local community; • Special interest groups; and • Non-Governmental Organisations.	Direct impact, recreational, i.e., live and / or work in Wandoan.
Traditional Owners	Iman People.	Cultural Heritage and direct impact, recreational, land use – live and or work in the region.
Neighbouring Landholders	46 immediate neighbouring landholders adjacent to the MLA.	Direct impact – adjacent landholders.
Local Government	Western Downs Regional Council	Land use interest.
State Government	• Department of Environment, Science, and Innovation; and • Department of Resources.	Environmental impacts and resource longevity.

4.3 Previous Consultation Methods

Community consultation was undertaken by WHPL for the WCP EIS. The consultation methods outlined below were some of the methods used throughout the EIS process and may be reinstated to support the WCP when construction commences.

WCP Community Reference Group

A Community Reference Group (CRG) was formed by WHPL in 2007, composed of representatives from local community, including the local council, chamber of commerce and the local state school. The CRG represented the interests of local community groups and organisations in and around Wandoan. The purpose of the CRG meetings were to update the community about project progress and to provide an opportunity for CRG members to discuss any issues raised by the community. The CRG would meet several times a year during times of project activity. The CRG meetings ceased in 2016 and is planned to be reinstated upon commencement of construction of the WCP.

WCP Newsletter

The WCP newsletter was a community-based newsletter managed by the WCP office. The newsletter featured community stories, events, local businesses, and updates on community initiatives. The newsletter was also utilised to provide general information about the WCP and its activities, as well as communicating key project milestones. The newsletter was distributed to all stakeholders and the

communities of Wandoan, Taroom, Miles and surrounding towns. Distribution of the newsletter ceased in 2013 and may be reinstated upon commencement of construction of the WCP.

WCP Community Communications

Community workshops were held by the WCP office for the communities of Wandoan, Taroom and Miles during the WCP EIS development process. The workshops provided information about the WCP to community members and enabled community members to provide feedback, discuss their perceptions and voice any concerns.

4.4 Existing Consultation Methods

The consultation forums and processes outlined below have been used to inform the community of mine closure and rehabilitation planning for the development of this PRCP. The consultation undertaken at this time is considered appropriate due to the greenfield nature of the mine site, with further engagement with stakeholders relating to mine rehabilitation and closure planned for when development of the WCP commences.

WCP Office (located in Wandoan)

The WCP Office (in the township of Wandoan) has been open since the WCP EIS process was undertaken and the Glencore office staff are known and respected members of the community. The WCP office is known as a place where the local community can engage with the WCP and seek any information, advice or clarification required.

WCP Website

The WCP website is supported and managed by GCAA and provides useful, and up to date information to the community as well as visitors. The website provides relevant information about the WCP and its facilities, including community investment and the latest project news.

Window on Wandoan

The Window on Wandoan (WoW) is published monthly by the Wandoan Community Commerce and Industry Association (WCCIA) and is available online, from multiple businesses within Wandoan and can also be delivered to members of the community. The newsletter features community stories, events, local businesses and updates on community initiatives. An article was published in the WoW on 5 March 2024 outlining the requirements of the PRCP process and seeking comments. The article detailed the statutory requirements for a PRCP, what a PRCP is and what it contains and the key information regarding the WCP PRCP. A link to the PRCP public register was also provided to enable the local community to read the PRCP post submission. The community was provided an update on 5 September 2024 with a subsequent article published in the WoW outlining that the site design for closure had been updated.

Information Letter

Letters were sent on 1 March 2024 to the private landowners on the MLs, Glencore's licensees, Traditional Owners and local council to advise them of the PRCP process for the WCP and to seek their comments. The letter detailed the statutory requirements for a PRCP, explained what a PRCP is and what it includes and provided key information regarding the WCP PRCP. A link to the PRCP public register was also provided to enable the landholders and traditional owners to read the PRCP post submission. Key stakeholders were informed by way of letter on 02 September 2024 that updates to the PRCP had been made to ensure the PRCP aligns with current regulatory approvals.

4.4.1 PRCP Community Feedback

To date there has only been one comment from the community in response to the PRCP community consultation process. A local earthmoving contractor enquired regarding the commencement date of WCP and rehabilitation activities. The earthmoving contractor was advised that there is no current commencement date for the WCP, and it remains a greenfield project.

Information and feedback from any consultation or engagement will be considered on a case-by-case basis. In some instances, options for change may be limited—particularly where regulatory requirements mandate specific actions.

Any complaints will be documented and recorded in the Consultation Manager and escalated to the WCP Site Senior Executive.

As of December 2025, WCP remains a greenfield project with commencement date for operations to still be confirmed, thus, no further community consultation has been undertaken. Community Consultation processes will recommence if the status of WCP changes.

4.5 Future Consultation

A Community Consultation Plan (CCP) for the PRCP has been developed and is provided in Appendix G -. The CCP:

- Identifies the objectives for community consultation;
- Identifies the engagement techniques including existing processes;
- Provides a plan for ongoing consultation relating to mine closure and rehabilitation; and
- Includes a Community Consultation Register.

5. Rehabilitation Management and Methodology

5.1 Landform Design

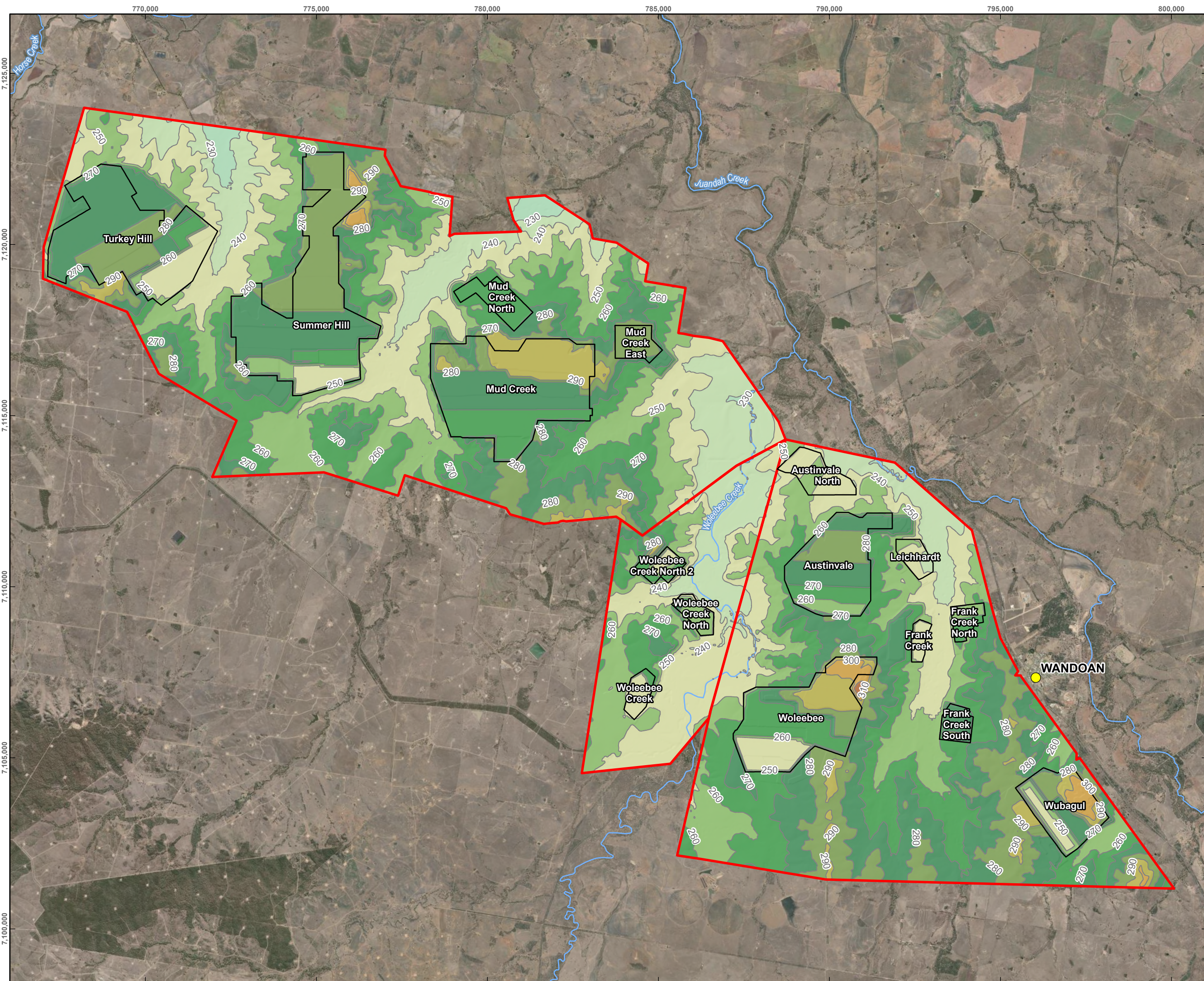
The final landform design is a key component of rehabilitation and closure planning. The WCP final landform has been designed to comply with the EA, to maximise the achievement of PMLUs and subsequent environmental and public benefits, and to remove the need for NUMAs. The WCP landform has been designed to be safe and structurally stable.

The proposed final landform for the WCP is presented in Figure 5-1.

The final landform design for the WCP has been an iterative process, informed by the outputs of multiple technical studies to optimise the final landform.

Landform options were assessed during the design process against the following criteria:

- Safe and stable;
- Must not cause environmental harm;
- Reduce the area and volume of voids;
- Be economically viable; and
- Achieve the PMLUs of grazing and native bushland.



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 5-1
PROPOSED WCP FINAL LANDFORM ELEVATIONS

LEGEND

Town/City

Watercourse

Final Landform Topographic Contour (10mAHD)

Wandoan Coal Project Mining Leases

Pit Extent

Final Landform Elevation (mAHD)

218 - 230

230 - 240

240 - 250

250 - 260

260 - 270

270 - 280

280 - 290

290 - 300

300 - 310

310 - 320

320 - 330

330 - 340

340 - 350

350 - 360

360 - 370

370 - 380

380 - 390

390 - 400

400 - 410

410 - 420

Service Layer Credits:
Earthstar Geographics

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Coordinate System: GDA2020 MGA Zone 55

Scale: 1:100,000 at A4

Project Number: 626.30100.00800

Date Drawn: 29-Aug-2024

Drawn by: AS

SLR

Path: \\au.slr.local\Corporate\Projects-SLR\626-MKY\626.30100.00000 Wandoan Mine Site EA Amend and PRCP\06 SLR Data\01 CAD\GIS\GIS\Wandoan PRCP\Wandoan PRCP.aprx\62630100 Wandoan PRCP F05-01 Final Landform Topography

The final landform consists of eight reprofiled void depressions and eight free draining landforms. The eight reprofiled void depressions will form an ephemeral waterbody at their base when the inflows (rainfall and runoff) are greater than the outflows (infiltration and evaporation). The eight free draining landforms are designed so that surface water is not retained within the landform. Reprofiled void depressions are planned for eight mining areas (i.e., Summer Hill, Mud Creek, Woleebee North Satellite, Woleebee Creek, Woleebee, Austinvale, Frank Creek and Wubagul). The remaining eight mining areas (Turkey Hill, Mud Creek North, Mud Creek East, Woleebee North, Austinvale North, Leichhardt, Frank Creek North and Frank Creek South) will be reshaped to form free draining landforms.

Maximising the achievement of the PMLUs and subsequent environmental and public benefits, is a key consideration in the design of the WCP landform as follows:

- Slopes analysis and outputs from erosion studies have ensured the areas attributed to the grazing PMLU and the native bushland PMLU are maximised and stable;
- Pits are progressively backfilled through the LOM to a minimum of > 5 m above the post-mining final groundwater table. In doing so the area and volume of voids have been minimised and the requirement for NUMAs removed through the construction of reprofiled void depressions (where permanent void lakes do not develop) and the construction of free draining landform; and
- The specific treatment of the highwalls at the WCP have enabled a PMLU of native bushland to be attributed to these areas.

Whilst the EA authorises highwall slopes to a maximum gradient of 214 %, the physical characteristics of highwalls at the WCP outlined in Table 5-1 are at reduced heights and slope angles that can support a native bushland PMLU. The slope gradients and heights proposed in the PRCP landform are authorised under the EA (EA table F2). The approximate height and slope of unweathered highwalls in the proposed PRCP landform are shown in Table 5-1.

Table 5-1 Proposed PRCP landform approximate highwall specifications

Pit Area	Unweathered Competent Rock Highwall Average Height (m)	EA Approved Unweathered Competent Rock Highwall Max Slope (%)	Unweathered Competent Rock Highwall Max Slope (%)
Turkey Hill	8	214	46
Summer Hill	8	214	55
Mud Creek	10	214	45
Mud Creek North	8	214	21
Mud Creek East	No highwall	No highwall	No highwall
Woleebee	20	214	95
Woleebee Creek	2	214	18

Pit Area	Unweathered Competent Rock Highwall Average Height (m)	EA Approved Unweathered Competent Rock Highwall Max Slope (%)	Unweathered Competent Rock Highwall Max Slope (%)
Woleebee Creek North	No highwall	No highwall	No highwall
Woleebee Creek North 2	3	214	40
Austinvale	14	214	108
Austinvale North	7.5	214	20
Leichhardt	3	214	15
Frank Creek	5	214	36
Frank Creek North	2	214	12
Frank Creek South	No highwall	No highwall	No highwall
Wubagul	17	214	134

These physical characteristics and the proposed treatment of the highwall weathered zones enable the attribution of a native bushland PMLU to the highwall areas and maximises the environmental and public benefits associated with the rehabilitation outcomes at the WCP. The EA (Table F2 - Landform design criteria for Wandoan Coal Mine) authorises highwall slopes between 0 - 214 %, however approximate highwall slopes proposed in the landform are between 12 – 134 % with only three highwalls being ≥ 10 m in height. Figure 5-2 shows the conceptual highwall profile for the final landform which comprises two components:

- Remnant unweathered rock highwall slope (red): composed of competent rock with authorised slopes up to 214%, and heights up to 20 m; and
- Weathered highwall slope (yellow): upper portion of the highwall composed of weathered material which is battered to a maximum slope gradient of 22%.

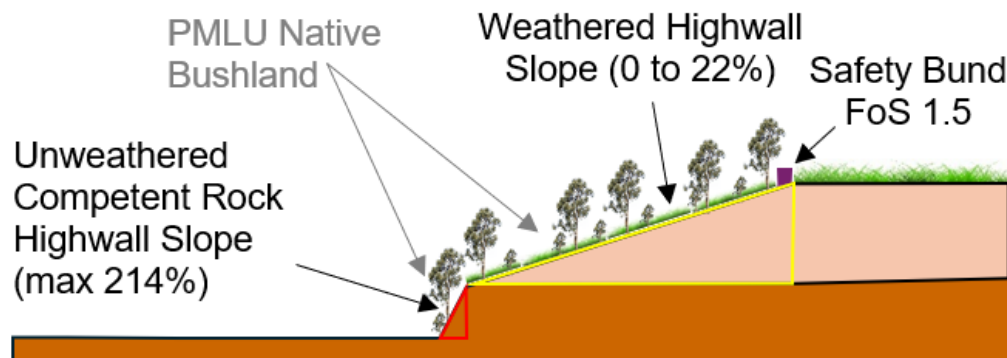


Figure 5-2 WCP conceptual highwall profile (SLR, 2025)

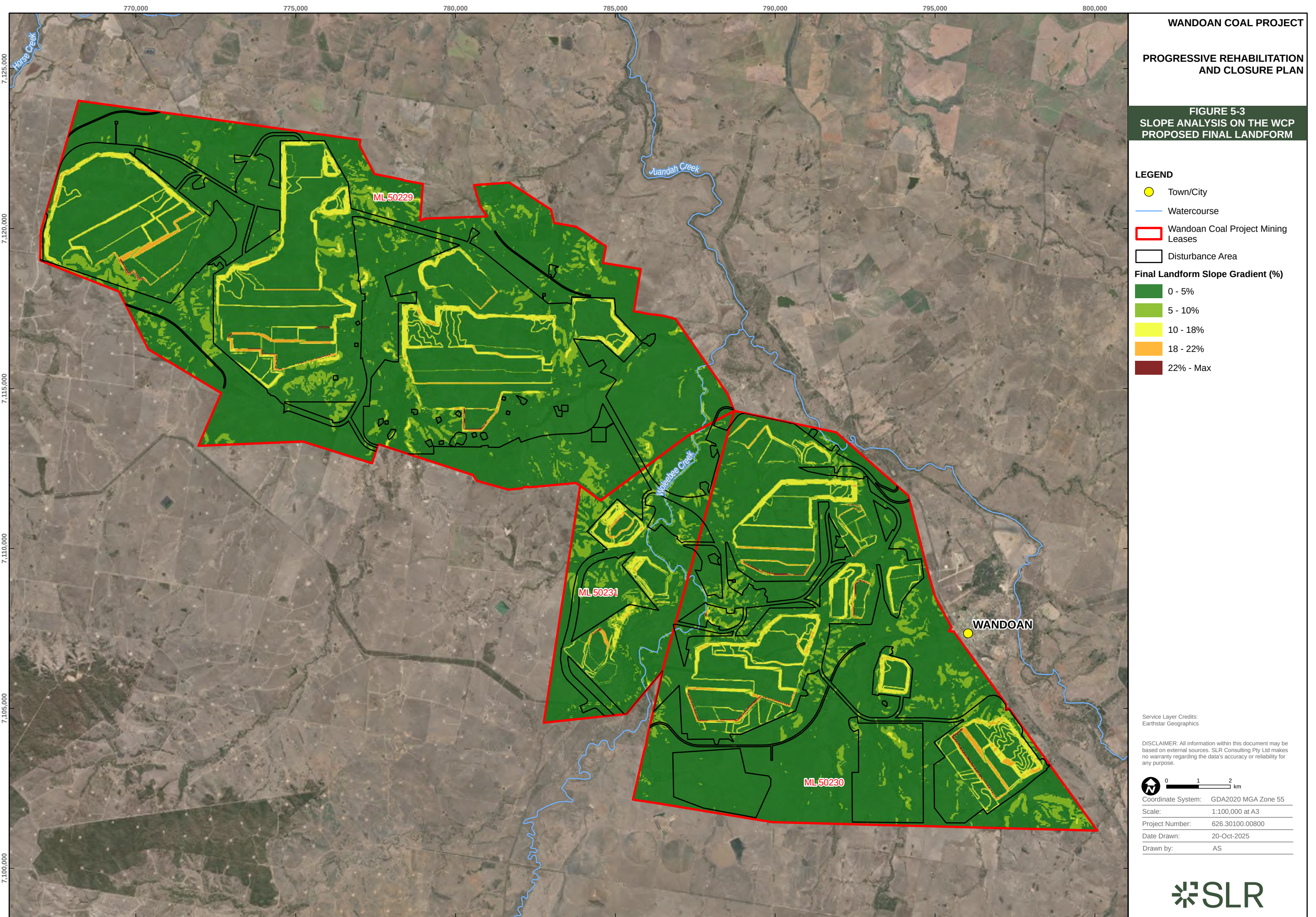
Slope analysis was undertaken on the WCP proposed final landform as a part of the Erosion assessment (Appendix K -) and is shown in Figure 5-3 and Table 5-2. The slope analysis undertaken verifies that 80 % of the disturbance footprint has a gradient of 0 -5 %, which encompasses the majority of the WCP disturbance area, including infrastructure areas, roads, the tops of overburden emplacement areas and the bases of the reprofiled void depressions. A further 18 % of the proposed landform area has a gradient between 5 - 18 % and includes recontoured external batters of the overburden emplacement areas which have been designed with a maximum slope of 18 %. Additionally recontoured lowwalls with a maximum slope of 22 % account for 1 % of the proposed landform area. These areas are all associated with a PMLU of grazing with all slopes designed in accordance with the EA authorisation limits.

The remaining 1 % of the proposed landform area is designated with a PMLU of Native Bushland, with much of the area having slopes less than 22 %. These areas are associated with weathered and unweathered highwall zones. Only the unweathered components feature highwall slopes exceeding 22 %.

Table 5-2 illustrates the majority of the landform (97.58 %) has a slope that is less than 18 % and aligns with the EA approved slope gradient and PMLU. Lowwalls comprising 1.16 % of the landform and align with the EA approved slope gradient of less than 100 % as well as the EA approved PMLU. Highwalls account for 1.24 % of the final landform and meet the EA slope requirements and EA approved PMLU.

Table 5-2 Proposed Final landform slope analysis for WCP (SLR, 2025)

Disturbance Type	Approved PMLU	Proposed PMLU	EA Approved Slope Gradient (%)	Slope Gradient (%)	Total area (ha)	Percent of Total Area (%)
Roads and Tracks, Infrastructure and External Batter Recontoured Spoil Areas	Beef cattle grazing, native bushland, plantation forestry or infrastructure is retained for use	Grazing	0 - 10	0 - 5	13,655	80.30
				5 - 10	1,555	9.14
Infrastructure (including ROM areas), Waste Rock Dumps and External Batter Recontoured Spoil Areas	Beef cattle grazing, native bushland, plantation forestry or infrastructure is retained for use	Grazing	0 - 18	10 - 18	1,385	8.14
Residual Voids (lowwall recontoured spoil areas)	Beef cattle grazing, native bushland, or plantation forestry	Grazing	0 - 100	18 - 22	198	1.16
Residual Voids (high wall) – weathered zone	Low density beef cattle grazing or native bushland	Native Bushland	0 - 214	0 - 22	174	1.02
Residual Voids (high wall) – unweathered zone	Low density beef cattle grazing or native bushland	Native Bushland	0 - 214	> 22	38	0.22
Total area of disturbance					17,005	100



5.1.1 Landform design criteria

The design concept incorporates battered slopes, which have been integrated into the overall design concept along with surface drainage features including catch benches and designed contour banks. This involved optimising landform height, slope gradient and vegetation cover to achieve acceptable erosion rates over the long-term. Community inputs were kept in mind as the design was further developed as detailed in Section 5.

The conceptual final landform design has been based on the following specifications:

- Overburden emplacement external batter slopes at $\leq 18\%$;
- Lowwall slopes at $\leq 22\%$;
- Vertical lift heights between benches approximately 10 m for out of pit overburden emplacements;
- Where applicable, 15 m catch bench or designed contour banks;
- Where the waste placement strategy of tailings/reject encapsulation within overburden emplacements exists, a separation offset of 20 m between the encapsulation cell and the nearest exposed final batter is required and outlined in Figure 5-4;
- Highest overburden emplacement approximately 26 m above natural topography;
- Highwall unweathered zones remain 'as is' with slopes less than the maximum EA authorised slopes of 214 % and will be geotechnically stable;
- Highwall weathered zones slopes at $\leq 22\%$; and
- All technical studies undertaken for the PRCP have been developed using the same final landform as presented in Section 5.

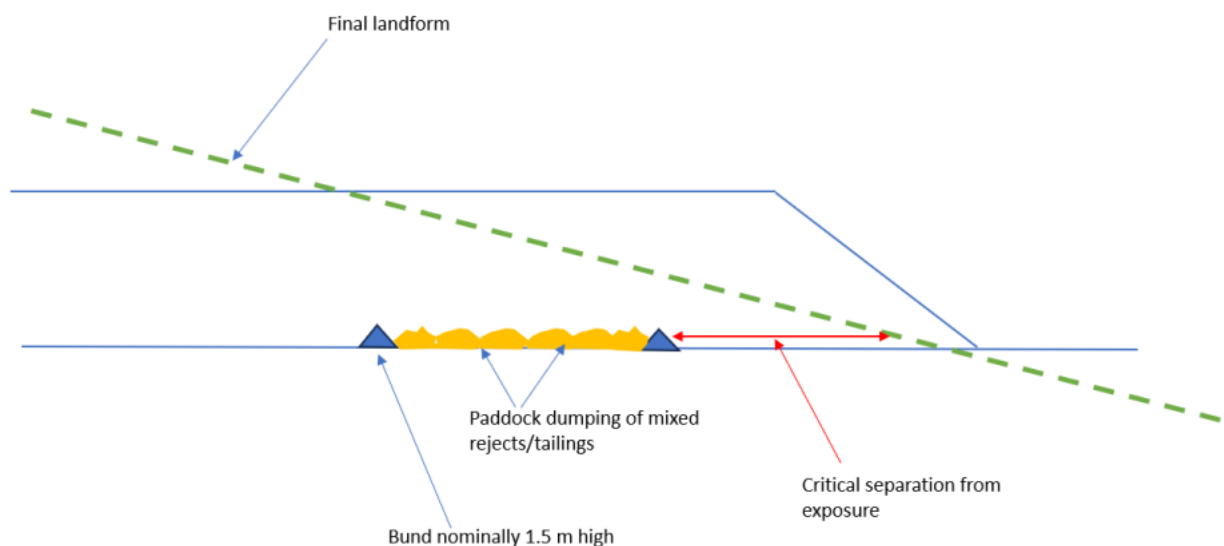


Figure 5-4 Separation offset between tailings encapsulation cell and final batter

5.1.2 Landform construction

The preferred construction methods for the construction of the proposed landform at the WCP will be refined upon the development of the WCP but are likely to include the following:

- Trim work on final landform to remove large rocks, smooth out surface.
- All disturbance work to be undertaken across the contour (to reduce likelihood of erosion). Spoil surfaces to ideally be sealed with a large grader in an across the slope direction if feasible prior to topsoil application.
- Construction of appropriately sized water control structures as required (contour banks, drainage channels, bench drains sediment dams etc.). Where required, temporary structures will be removed.
- Even spreading of topsoil across the final landform. Topsoil is to be placed at 200 mm depth for overburden emplacements and weathered highwall batters with 100 mm being placed on infrastructure areas.
- Ripping by cross ripping to 200 mm of final landform across the contour (perpendicular to slope after topsoil placement (to promote and increase infiltration/void ratio/homogeneity/root penetration).
- Working of topsoil preferentiality using conventional agricultural implements including but not limited to; wheel-based tractor, offset plough, aerial seeder, harrows, press wheel, etc. or equivalent (if feasible).

The following will also be considered during construction of the landform:

- Final slope and bench design including any temporary erosion control structures, and the effect of ripping across the contour;
- Incorporation of natural landform design principles will be used where feasible to eliminate or minimise the use of engineered drainage structures such as contour bank drains or rock lined drainage;
- Establishing a good surface topsoil vegetative cover as quickly as possible, this can in part be achieved by topsoiling at the correct time and at the appropriate season i.e., prior to expected rainfall periods;
- Ensuring that topsoil areas are cross ripped perpendicular to slope to 200 mm once the topsoil has been placed to encourage infiltration and reduce downslope flow intensity; and
- If require, installation of benches or terraces to reduce the length of the slope and hence the amount of water and the velocity of the runoff. This also improves the access along the slope for vegetation establishment, as well as any required future rehabilitation maintenance.

5.1.3 Quality assurance and quality control

The WCP will have a number of quality assurance and quality control processes in place so that the rehabilitation landform is constructed in accordance with the design concept and adheres to detailed design specification as established for each area of works. There are also a number of monitoring and reporting processes that will be undertaken after the completion of rehabilitation activities, to verify that the key aspects of the rehabilitation design have been considered, and any aftercare and maintenance requirements are captured.

5.2 Hydrogeology

KCB Australia Pty Ltd (KCB) undertook a hydrogeological assessment of the WCP final landform in accordance with the requirements of the PRCP Guideline. The hydrogeological assessment (KCB, 2025a) is appended to this PRCP as Appendix H -.

Groundwater modelling confirms that the landform design is successful in ensuring that no groundwater fed waterbodies will develop within the WCP final landform, specifically reprofiled void depressions, and that groundwater levels will remain below the surface of the final landform. Whilst several areas of localised mounded groundwater are predicted to occur it is not expected to express within the ephemeral waterbodies or within watercourses on the MLs.

Potential changes to groundwater chemistry may occur as a result of recharge through the overburden emplacement areas and groundwater residing within the backfilled areas. However, water chemistry predictions show the EC values predicted from any potential run-off and seepage are expected to be within a similar magnitude to natural water quality measured in the alluvium, with a low risk of AMD.

Modelling also considered the influence of CSG operations in the vicinity of the WCP.

5.2.1 Conceptual Model

5.2.1.1 Overview

The hydrogeological conceptual model developed to support the numerical model and for the context of the PRCP in the post-closure environment, using the source-pathway-receptor approach. The conceptual model results are summarised as follows:

- Mining for the WCP targets the Kogan, Upper Macalister, Lower Macalister and Wambo coal seams of the WCM across 16 individual mining areas through open cut methods. Overburden is removed prior to the coal and stored adjacent to the voids. Progressive backfilling is planned with backfill comprising the waste rock material that has been removed to facilitate mining. The geochemical characteristics of the waste rock are detailed in Section 5.8 are reported to be NAF with low reactivity resulting in water quality expected to be low salinity (median EC 592 $\mu\text{S}/\text{cm}$);
- CSG activities have the potential to interact/influence the WCP through operations and post-closure, through extraction of groundwater and gas from deeper formations. Depressurisation occurs to facilitate the gas extraction, which will cause drawdown in the vicinity of the WCP MLs through the operational period. CSG extraction is expected to have ceased and groundwater level recovery associated with CSG is expected to have commenced as the WCP enters the post-closure period;
- The surface geology within the WCP MLs comprises the Springbok Sandstone and the Upper Juandah Coal Measures of the WCM. Deeper units include the Lower Juandah Coal Measures of the WCM, Taroom Coal Measures and Durabilla Formation. GAB aquifers, Hutton Sandstone and Precipice Sandstone are present underlying the WCP, however, these units are at depths greater than 500 m from surface in the WCP area, and are therefore unlikely to have any interaction or be impacted on by the shallow WCP activities where the mining depths are in the range of 70 m;
- Quaternary-age alluvium is present and associated with Woleebee, Juandah and Mud Creeks. The alluvium ranges between 1.0 m and 17.5 m (based on drilling records), and is generally unsaturated, with the exception of a localised area in Woleebee Creek;
- Typically, surface water flow is ephemeral (associated with rainfall events) with no flow for several months in the dry season. Due to the depth to groundwater and surface water flow records, watercourses are not considered to receive baseflow;

- Groundwater levels within the WCP MLs have been relatively stable, or increasing, through the available period of record, with limited drawdown influence from CSG. Groundwater levels monitoring for CSG developments show drawdown occurring in deeper units, however, limited propagation of drawdown has occurred to the upper units over the period where data is available; and
- Groundwater supply bores are present within the WCP MLs with uses including S&D, town supply, irrigation and industrial purposes. Most of the bores are abstracting water from the Hutton Sandstone to the north and Gubberamunda Sandstone to the south with some abstraction from the WCM. Typically, groundwater bores are drilled to the first suitable water and screened across that unit, and therefore generally the screen unit corresponds with the aquifer.

5.2.2 Numerical Model

5.2.2.1 Overview

A numerical groundwater model has been constructed to support the PRCP to predict changes in groundwater levels and flow into closure and for the post-closure period. The objectives of the modelling include:

- Addressing the requirements of State legislation and guidelines in relation to groundwater assessment and predictions for closure;
- Predicting groundwater conditions associated with the final landforms for post-closure; and
- Identification of the potential risk areas where groundwater impact mitigation / control measures may be required.

The model domain focusses on the WCP, but with sufficient distance outside of the WCP to simulate the full extent of drawdown, pit recovery, and permit inclusion of boundary conditions.

The numerical groundwater model has been constructed and simulated with consideration of the Australian Groundwater Modelling Guidelines (Barnett et al. 2012a) and the requirements of the PRCP Guideline.

5.2.2.2 Model construction

The 3D numerical groundwater flow model was developed using the MODFLOW-USG platform to represent the conceptual hydrogeological model described above.

The model domain is shown in Figure 5-5. The area of the model extent is approximately 4,200 km². The model boundaries are aligned with sub-catchment divides, where a local groundwater divide, within the shallow groundwater systems is inferred. The external model boundaries are represented using General Head Boundaries (GHB). These boundaries represent regional groundwater levels at the model extents and provide/control groundwater flux to/from the model domain representative of regional groundwater flow conditions. The model was constructed with 16 layers to adequately represent the hydrostratigraphic units within the model domain. The model uses drain cells to simulate the open cut mining and GHB to consider the influence of CSG development.

The Australian Groundwater Modelling Guidelines (Barnett et al. 2012b) were used to frame the calibration process. The model was calibrated in steady state for data prior to 1995 and in transient for the period between January 1995 and December 2022 comprising seasonal/quarterly stress period from 1995 to 2014, and monthly stress periods from 2015 to 2022.

Two simulations were undertaken to support the PRCP:

- Simulation of the operations from the end of the calibration period (2022) to the assumed end of operations (2105) –LOM.
- Simulation of post-closure for a period of 500 years.

5.2.3 Post-Closure Groundwater Quality and Recovery

5.2.3.1 Groundwater quality

Impacts associated with changing void water quality and seepage outflow from source or sink voids impacting groundwater are not relevant to the WCP, as there are no residual groundwater-fed waterbodies associated with the landform, including reprofiled void depressions.

Potential changes to groundwater chemistry may occur as a result of recharge through the overburden emplacement areas and groundwater residing within the backfilled areas. This groundwater may migrate toward receptors, including creek systems and the alluvium unit, which can contribute to surface water flows following high rainfall events, should groundwater levels rise sufficiently. However, waste characterisation analysis results provided in Section 5.8 show that overburden has a low risk of acid generation with any leachate being circumneutral to alkaline pH. Additional static leaching and kinetic testing identified that whilst potential seepage would be dominated by major ions such as sodium, chloride, sulphate and bicarbonate, EC values generated during static leaching and kinetic testing were < 1000 $\mu\text{S}/\text{cm}$. Trace metal and metalloid concentrations were also found to be low.

There is limited baseline data for the alluvium groundwater quality in the vicinity of the WCP, as the monitoring bores are frequently dry. From the available historical data, the EC has ranged between approximately 3,000 $\mu\text{S}/\text{cm}$ and 20,000 $\mu\text{S}/\text{cm}$ (based on 14 samples at two bores). For alluvium (and watercourses) the range of any increased salinity is not expected to be significant as potential seepage and run-off water chemistry is of low to moderate salinity, inferred flow rates of seepage are low and any potential evapoconcentration that could occur would be expected to be seasonally diluted by fresh rainfall recharge and/or run-off. The EC values predicted from any potential run-off and seepage are expected to be within a similar magnitude to natural water quality measured in the alluvium.

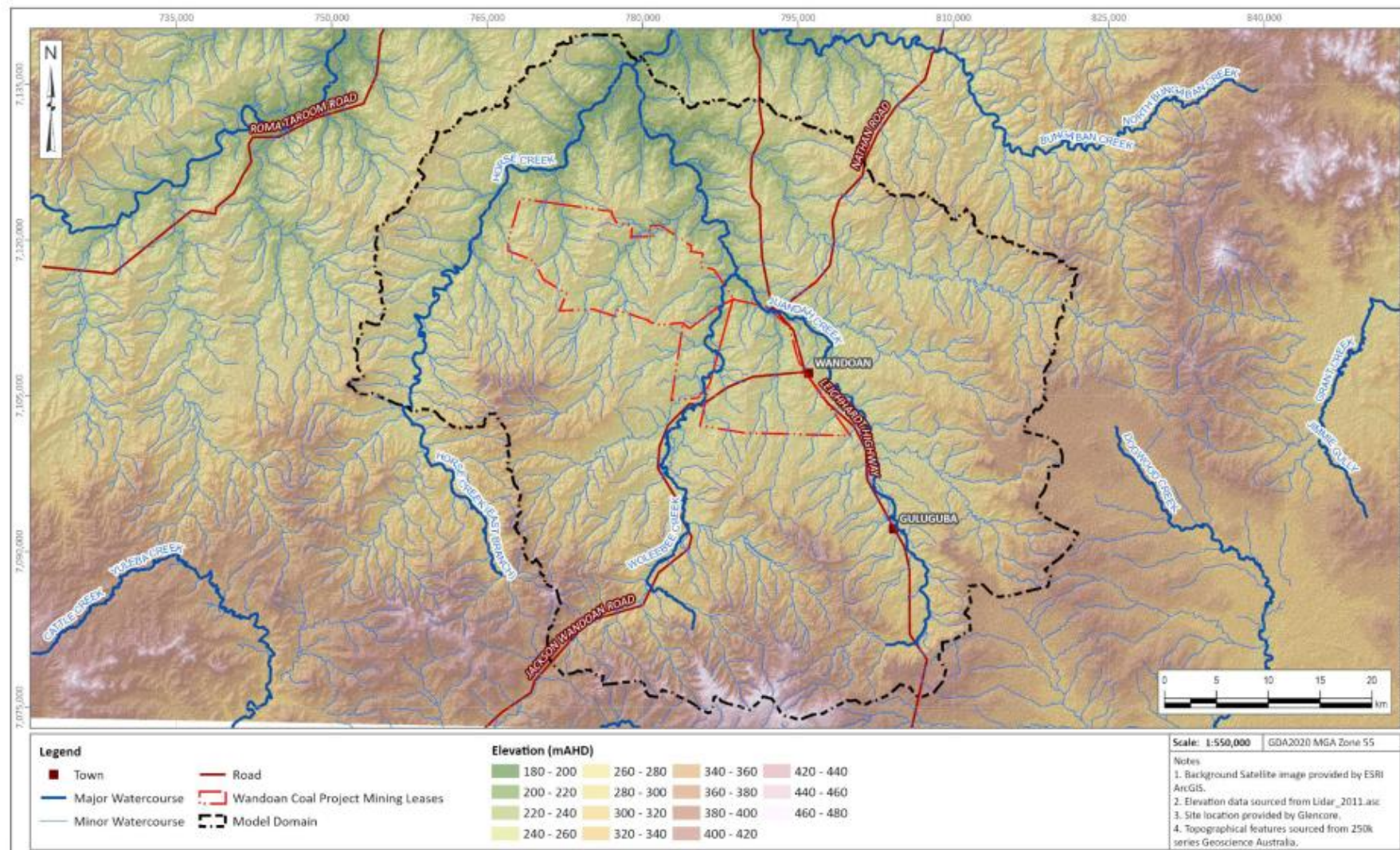


Figure 5-5 The WCP groundwater model domain

The potential for salinity was also considered in the water balance model presented in Section 5.5.2 which accounts for the interaction between groundwater and surface water. This mass balance assessment considers the overall water balance and the salinity from each type of land use. For the overburden emplacement materials, the modelling used the results from the waste characterisation assessment and also considered the impact of rehabilitation from similar open cut operations in the Surat and Bowen Basins. Modelling indicated that expected salinity variation associated with the WCP will maintain salinity at levels that are comparable to current conditions (TDS ranging up to 500 mg/L except for selected areas where increased evaporation may occur).

5.2.3.2 Groundwater recovery

Hydrographs for the 16 individual mining areas during mining and 500 years post-closure are presented in Figure 5-6. The hydrographs provide the predicted groundwater recovery at each of the open cut pits during mining operations and through the post-closure period. Predicted post-closure water table elevation maps are provided in Figure 5-7 for 10, 50, 100 and 500 years post-closure. For comparison, pre-mining groundwater levels are presented in Figure 6.1, Appendix H.

The predictions for the post-closure period show:

- Groundwater elevations in the west of the WCP area (Mud Creek, Mud Creek East, Mud Creek North, Turkey Hill and Summer Hill pit areas) are influenced by CSG activities, with CSG production ending around 2070 and groundwater levels starting to recover during the WCP operational period;
- Recovery of groundwater levels for the majority of backfilled open cut pits occurs within 50 years from the cessation of mining;
- The depth to groundwater, once the groundwater levels have reached post-closure equilibrium (as illustrated by 500-years post-closure values), ranges between 1 and 150 metres below ground level (mbGL) across the wider WCP area, with the deepest groundwater towards the southwest;
- No groundwater-driven residual void lakes are predicted in the base case simulations, which uses the average annual rainfall for the modelled recharge, and 10 % recharge on the spoils; and
- Shallow groundwater is predicted in proximity of several backfilled open cut areas (i.e., Austinvale, Austinvale North, Woleebee North and Woleebee North Satellite pits), where the overburden emplacements are located in the vicinity of watercourses (albeit outside of the 0.1% AEP floodplain extent), where there is lower topography and there is localised mounding associated with the overburden emplacements.

The sensitivity scenarios for spoil recharge indicate that, generally, higher recharge rates lead to increased groundwater elevations, while lower recharge rates result in reduced water table levels with less pronounced localised mounding.

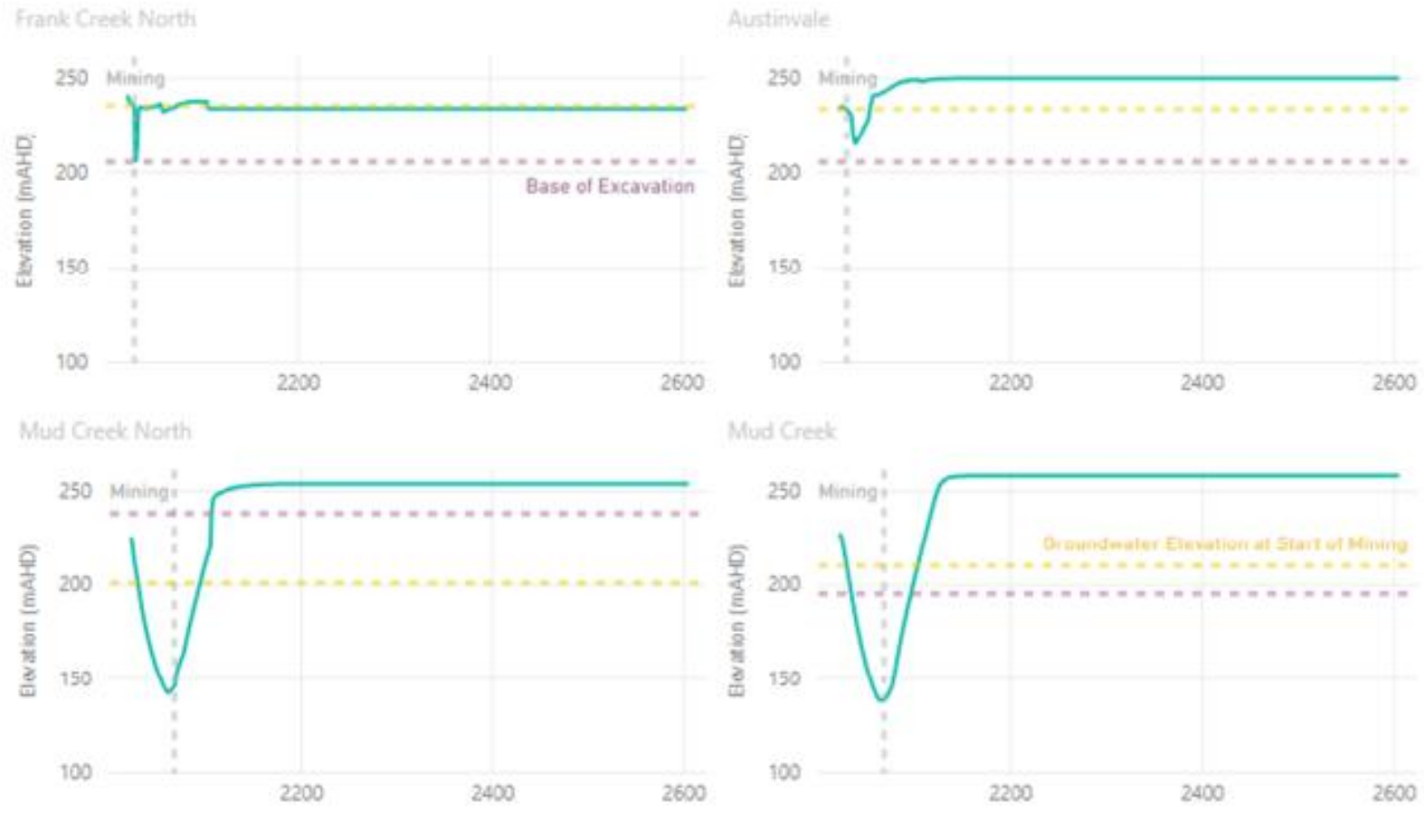


Figure 5-6 Backfilled Open Cut Pit (Residual Void Depression) Hydrographs During Mining and 500 Years Post-Closure with Assumed Start of Mining Indicated (Grey Dashed Line) and Groundwater Elevation at Backfilled Open Cut Pit at Start of Project Mining (Yellow Dashed Line) and Base of Excavation (Purple Dashed Line) (KCB, 2024)

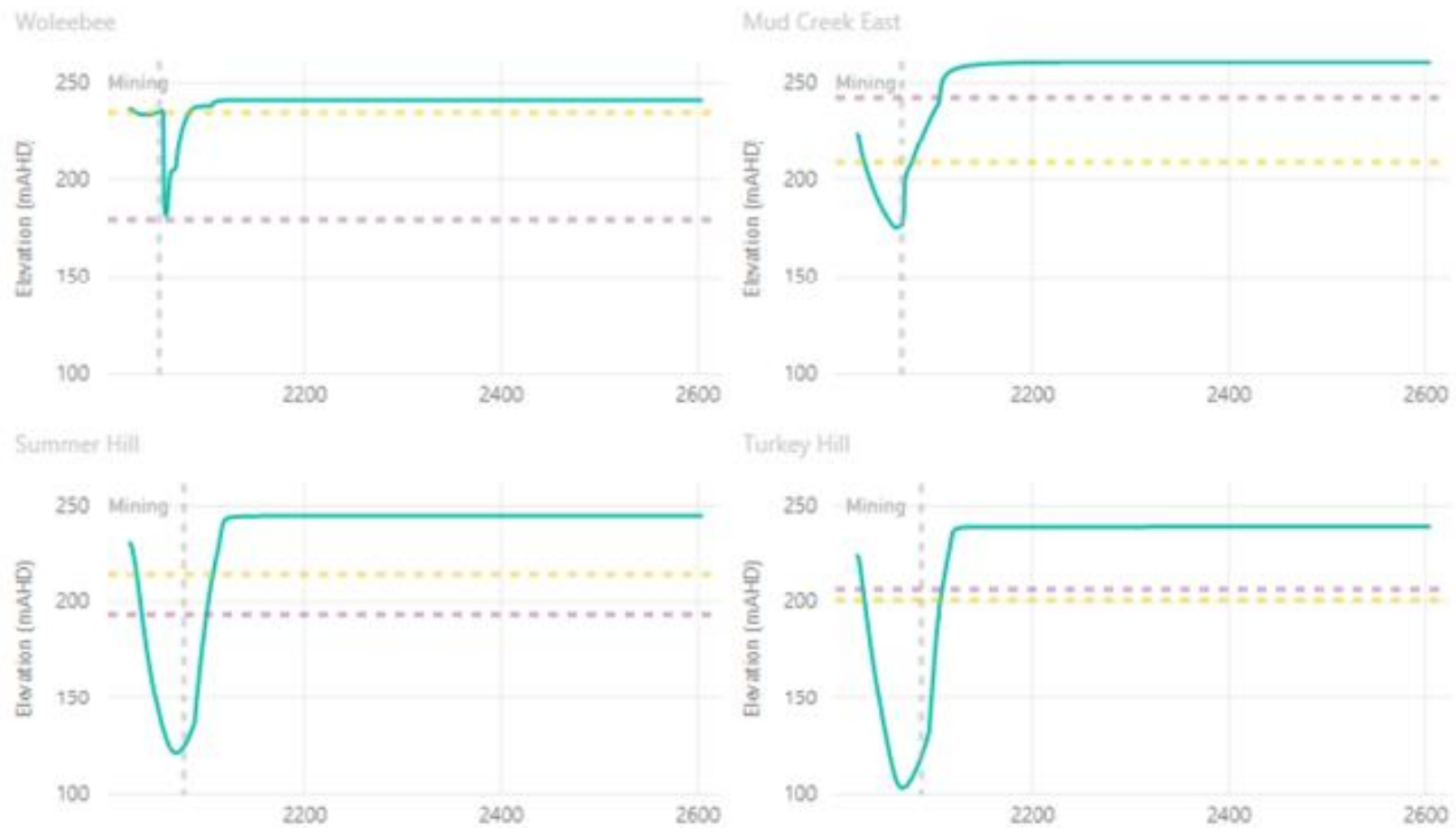


Figure 5-6 (cont) Backfilled Open Cut Pit (Residual Void Depression) Hydrographs During Mining and 500 Years Post-Closure with Assumed Start of Mining Indicated (Grey Dashed Line) and Groundwater Elevation at Backfilled Open Cut Pit at Start of Project Mining (Yellow Dashed Line) and Base of Excavation (Purple Dashed Line) (KCB, 2024)

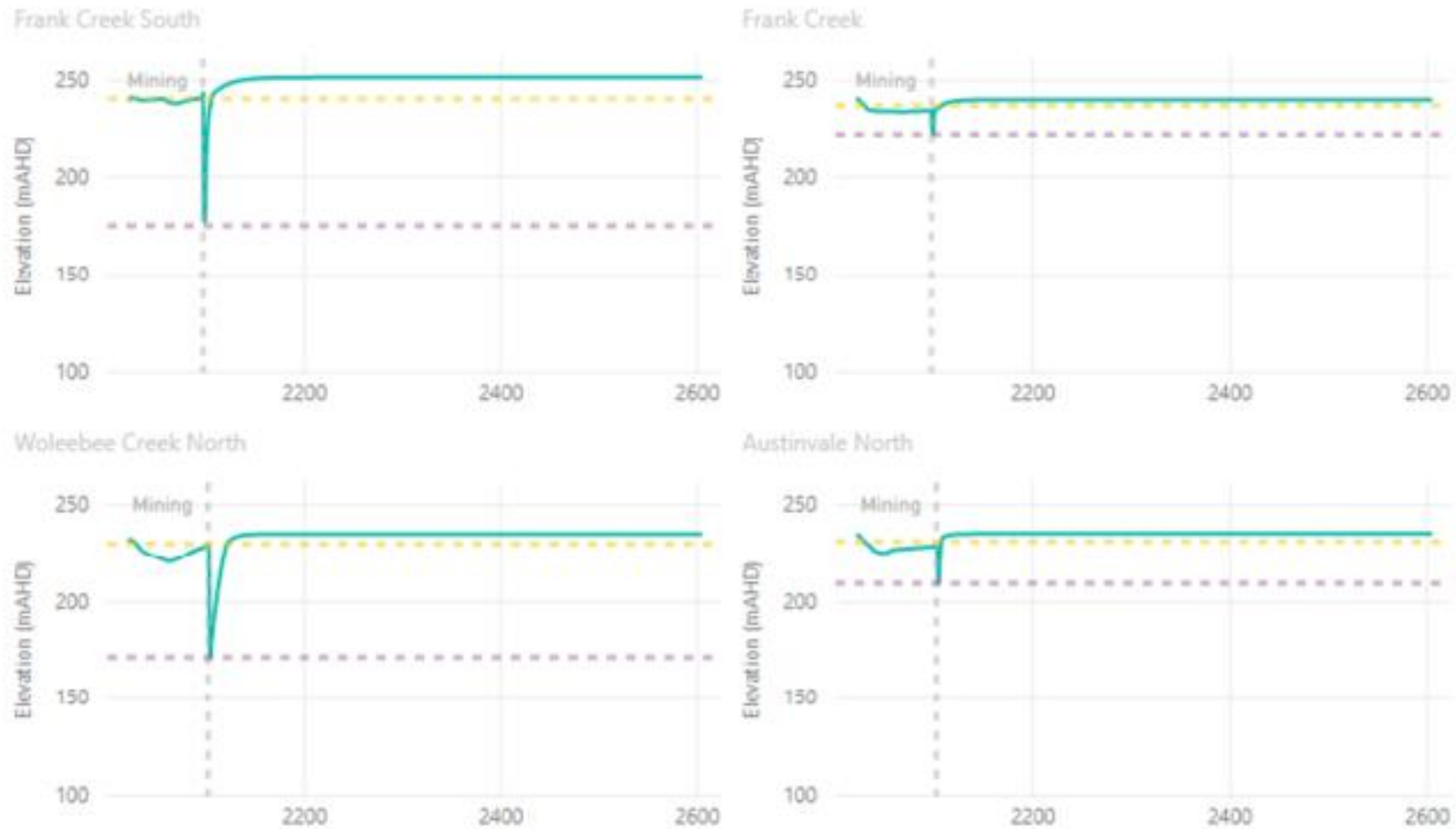


Figure 5-6 (cont) Backfilled Open Cut Pit (Residual Void Depression) Hydrographs During Mining and 500 Years Post-Closure with Assumed Start of Mining Indicated (Grey Dashed Line) and Groundwater Elevation at Backfilled Open Cut Pit at Start of Project Mining (Yellow Dashed Line) and Base of Excavation (Purple Dashed Line) (KCB, 2024)

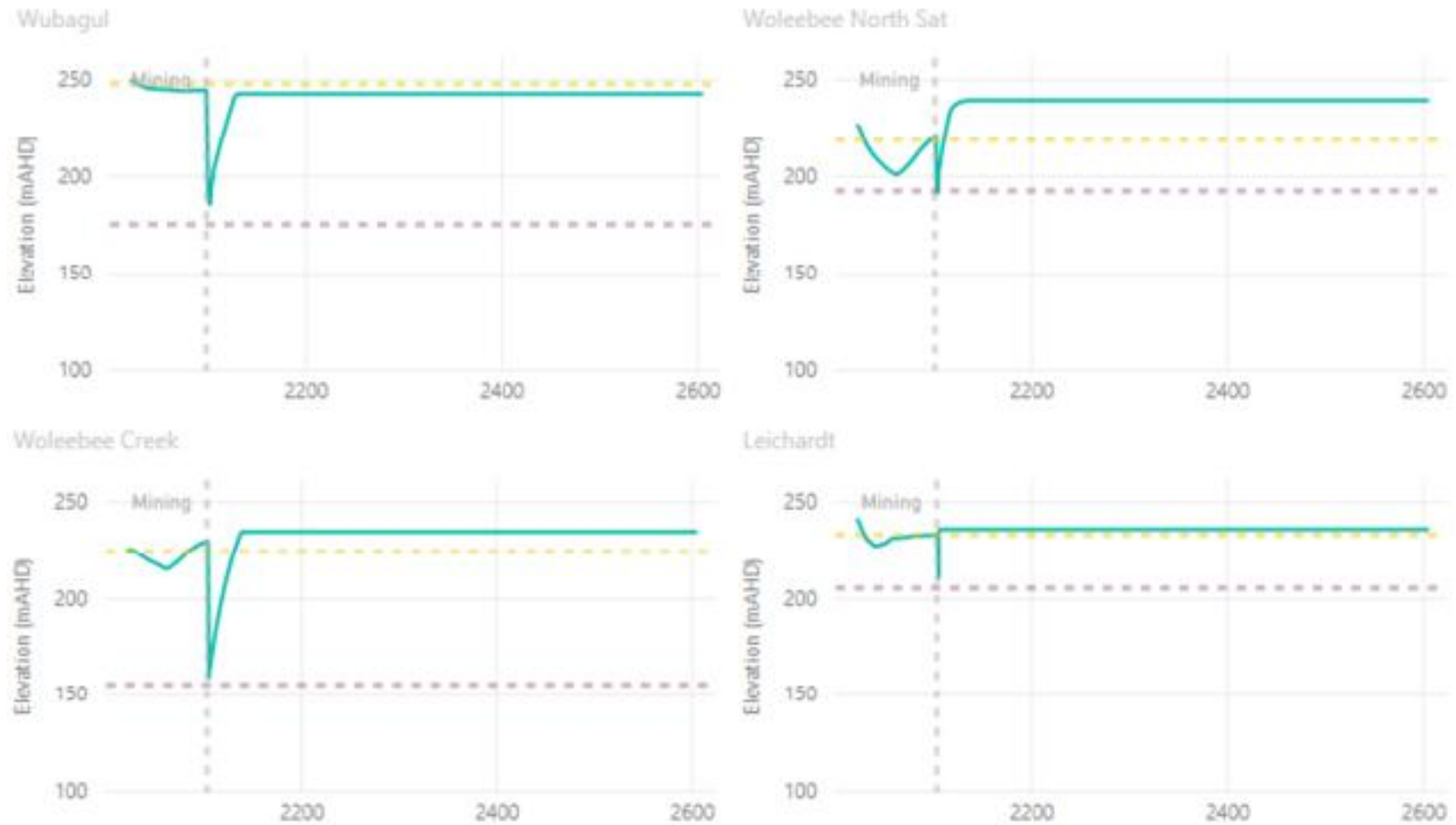


Figure 5-6 (cont) Backfilled Open Cut Pit (Residual Void Depression) Hydrographs During Mining and 500 Years Post-Closure with Assumed Start of Mining Indicated (Grey Dashed Line) and Groundwater Elevation at Backfilled Open Cut Pit at Start of Project Mining (Yellow Dashed Line) and Base of Excavation (Purple Dashed Line) (KCB, 2024)

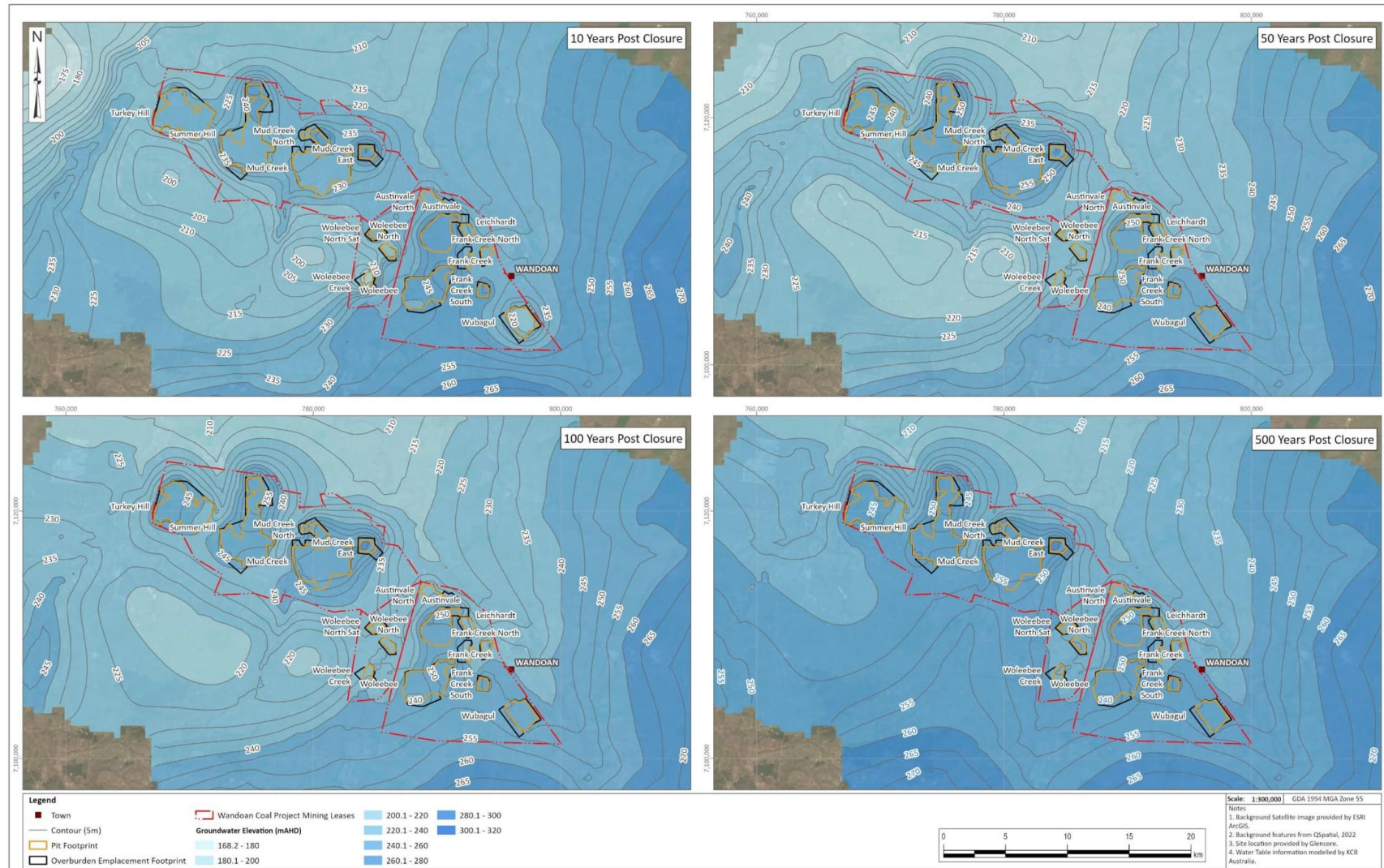


Figure 5-7 Groundwater level elevations at 10, 50, 100 and 500 years post-closure.

5.3 Flooding

Flood modelling shows that in a 0.1 % AEP event there are no voids within floodplains and no flow enters free draining landform areas. Free draining landforms are designed so that surface water is not retained within the landform. Any surface water or flood incursion would be free to drain out of the landform again. There are minor interactions with the toe of the out-of-pit dumps (depths > 0.5 m) for Woleebee Creek, Woleebee North and Woleebee pit. However, velocities are less than 0.6 m/s (i.e., grass or vegetation cover should be adequate to reduce the risk of scour). Other pits (Wubgal, Woleebee North Sat, Frank Creek South) have minimal interactions between flood water and out-of-pit dump toes (depths <0.5 m).

KCB undertook hydrological and hydraulic modelling to characterise the design flows and flood extents for the WCP final landform. Modelling has been completed for the 0.1% AEP design event, as outlined in the PRCP Guideline. This report (KCB, 2025b) is presented in Appendix I -. The probable maximum flood (PMF) modelling has been completed, refer to Appendix VII in Appendix I - of this PRCP.

5.3.1 Methodology

Hydrology and hydraulic modelling undertaken by KCB (2025b) included the following:

- Rating curve assessment for the Juandah Creek at Windamere gauge with the re-rated curve adopted for the study;
- The WCP flood frequency analysis (FFA) undertaken and compared to regional flood estimation techniques in Australia;
- Calibrated hydrologic model of Juandah Creek catchment to derive stream routing and loss parameters;
- Hydrology flow estimation for the 0.1% AEP flood event for Juandah, Mud and Spring Creek catchments;
- Hydraulic modelling of 0.1% AEP flood event to determine design flood extents with velocity and depth maps produced; and
- Climate change sensitivity analysis completed for 0.1% AEP event with velocity and depth maps produced.

5.3.1.1 Interaction with water balance modelling of reprofiled void depressions

Additionally, water balance modelling was also undertaken by KCB (2025c) to assess the potential for the reprofiled void depressions to fill and overflow into the regional watercourses. Outcomes of the water balance assessment, which are further detailed in Section 5.5.2 of this PRCP, indicated that this is unlikely to occur. Accordingly, the catchment area for the reprofiled void depressions were removed from the regional watercourse catchments for the purpose of determining the post-mining 0.1% AEP flood extents within the KCB (2025b) assessment.

5.3.1.2 Flood modelling approach

The flood modelling undertaken by KCB (2025b) consisted of two key components:

- For hydrology, the simulation of rainfall–runoff processes were used to generate a series of hydrographs at respective sub-catchment outlets. Hydrologic modelling allowed for the rapid assessment of flood events and simulation of the propagation or attenuation of flood flows throughout the catchment. Hydrologic modelling was undertaken for:

- Parameter derivation (through run off routing (RORB) model calibration and an at site FFA); and
- Design flood hydrographs (for input into the hydraulic modelling).
- For hydraulics, the hydrodynamics of the flood flows through the WCP area included the simulation of flood level and extent, flow depths and velocities. TUFLOW hydraulic modelling was utilised to gain an understanding of the flood behaviour / hazard across the WCP. Hydraulic modelling was undertaken for the post-closure case in accordance with PRCP Guideline (for the 0.1% AEP event).

5.3.2 Flood Model Results

Flood model results (KCB, 2025b) indicate:

- Flood waters are not expected to ingress into the reprofiled void depressions and associated water storages for the 0.1% AEP event. Modelling outputs confirmed that there are no voids within floodplains and no flow enters free draining landform areas. Table 5-3 provides the overflow levels from reprofiled void depressions and corresponding 0.1% AEP flood level adjacent to the reprofiled void depressions; and
- There is no interaction between flood waters and the toe of the external batters of overburden emplacements for 10 of the 16 pits. There are minor interactions (>0.5 m) between surface water and the toe of external batters of overburden emplacement for Woleebee Creek, Woleebee North and Woleebee overburden emplacements only. However, velocities are less than 0.6 m/s (i.e., grass or vegetation cover should be adequate to manage the risk of scour). Water level depths are presented in Table 5-3.

Table 5-3 Water depths at toe dumps and height to reprofiled void depression (KCB, 2025b)

Pit name	Reprofiled void depression present	Maximum water depth at toe of external batter of overburden emplacements (m)	Overflow level from reprofiled void depression (m)	Flood level at reprofiled void depression (m)	Freeboard to reprofiled void depression (m)
Turkey Hill	No	N/A	N/A (free draining)		
Mud Creek North	No	N/A	N/A (free draining)		
Mud Creek East	No	N/A	N/A (free draining)		
Woleebee North	No	0.55	N/A (free draining)		
Austinvale North	No	N/A	N/A (free draining)		
Leichhardt	No	N/A	N/A (free draining)		
Frank Creek North	No	N/A	N/A (free draining)		

Pit name	Reprofiled void depression present	Maximum water depth at toe of external batter of overburden emplacements (m)	Overflow level from reprofiled void depression (m)	Flood level at reprofiled void depression (m)	Freeboard to reprofiled void depression (m)
Frank Creek South	No	0.11	N/A (free draining)		
Summer Hill	Yes	N/A	252.2	243.8	8.4
Mud Creek	Yes	N/A	267.7	251.3	16.4
Woleebee North Satellite	Yes	0.48	253.2	239.8	13.4
Woleebee Creek	Yes	2	249.9	246.8	3.1
Woleebee	Yes	1.86	264.9	247.6	17.3
Austinvale	Yes	N/A	261.9	240.9	21
Frank Creek	Yes	NA	246.1	244.3	1.8
Wubagul	Yes	0.42	259.9	258.6	1.3

Flood maps showing modelled flood depths, velocities, and flood extents for the 0.1% AEP design event for post-closure base case scenario (without climate change modelling) and with climate change modelling are presented from Figure 5-8 to Figure 5-11 (and appended in Appendix VI of KCB (2025b)).

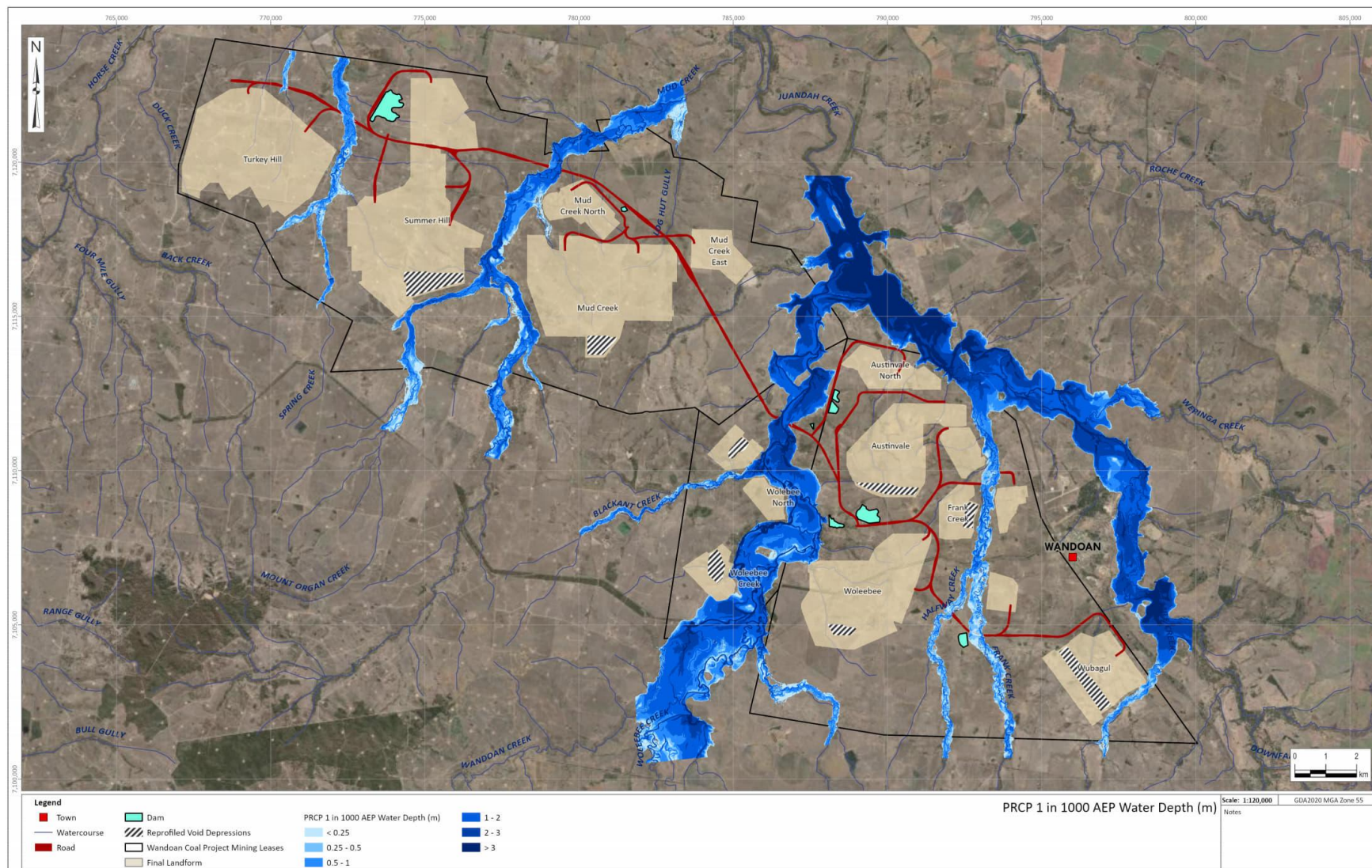


Figure 5-8 0.1% AEP water depth (m) for WCP post-closure including location of reprofled void depressions (without climate change) (KCB, 2025b)

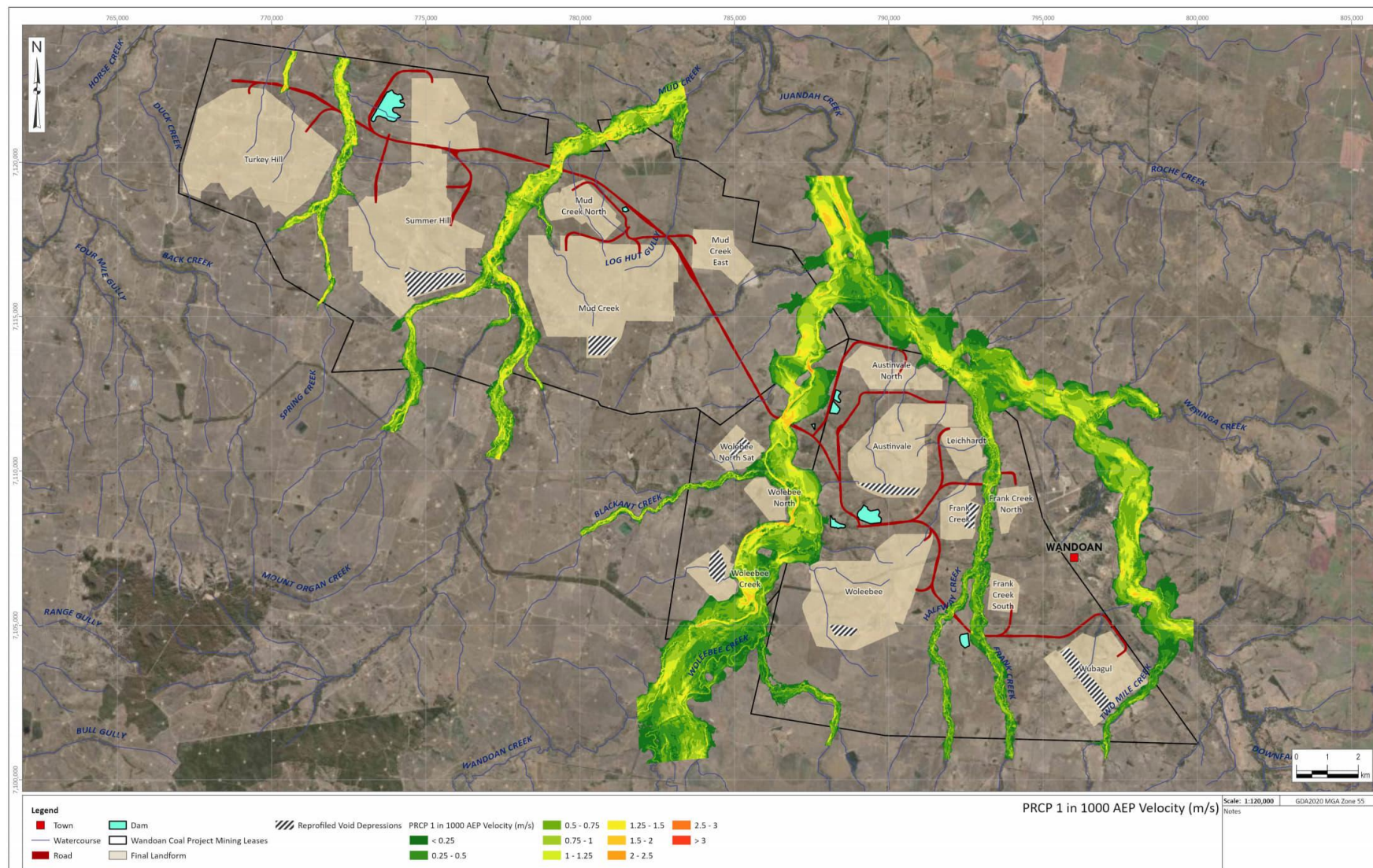


Figure 5-9 0.1% AEP velocity (m/s) for WCP post-closure including location of reprofiled void depressions (without climate change) (KCB, 2025b)

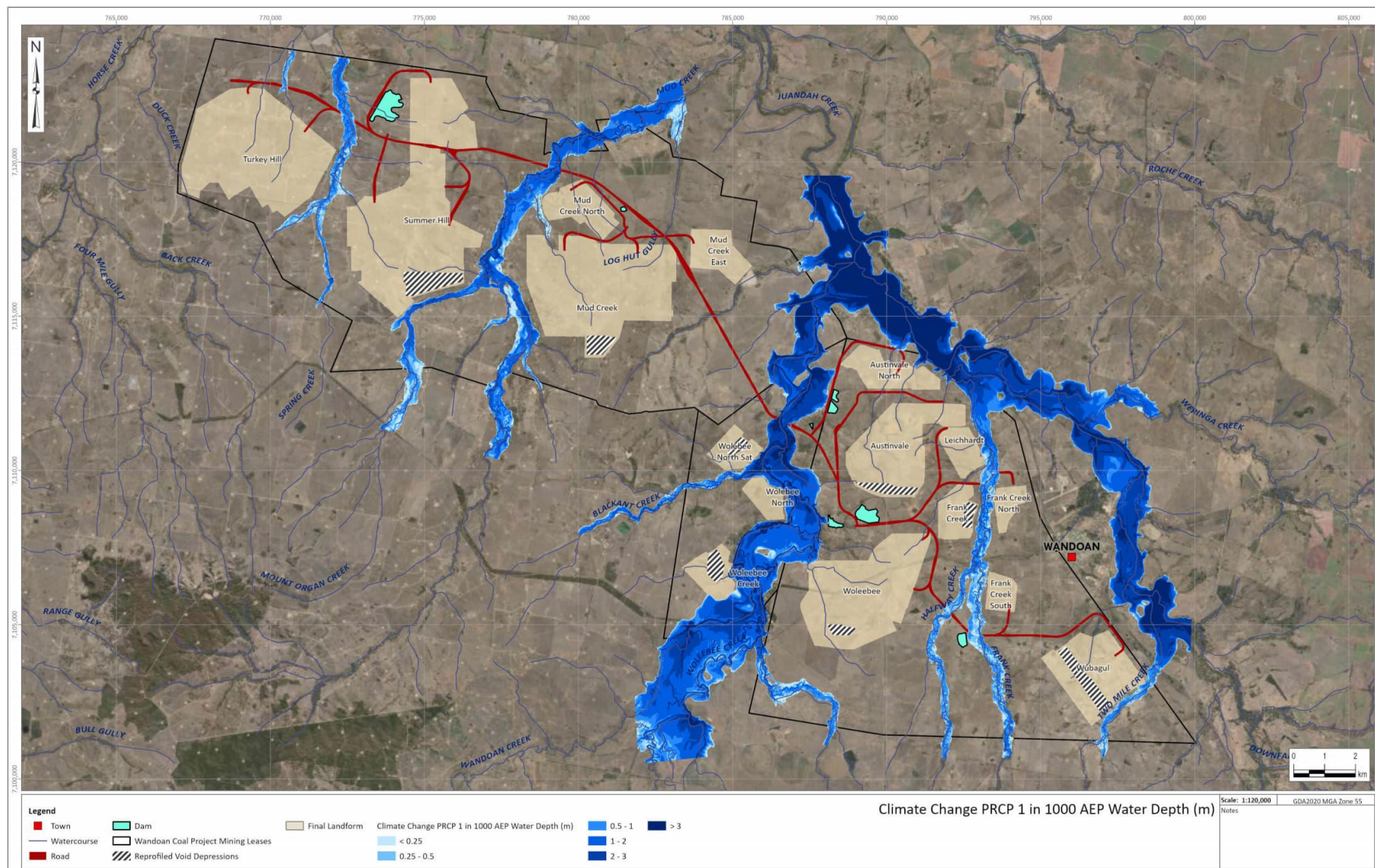


Figure 5-10 0.1% AEP water depth (m) for WCP post-closure including location of reprofiled void depressions (with climate change) (KCB, 2025b)

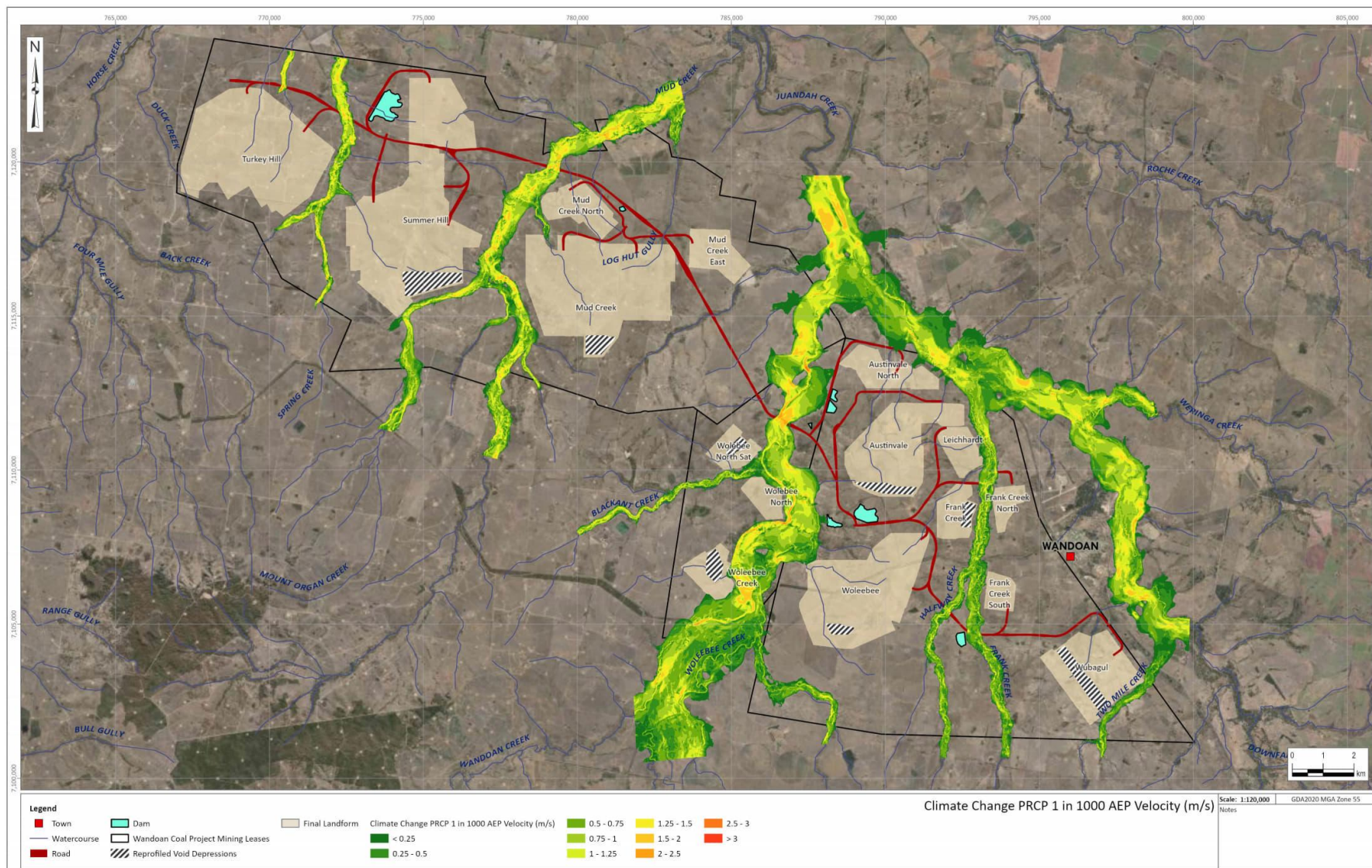


Figure 5-11 0.1% AEP velocity (m/s) for reprofiled void depressions at WCP post-closure (with climate change) (KCB, 2025b)

5.3.2.1 Pre-mining and post-closure flood characteristic comparison

A comparison of the WCP post-closure scenario flood characteristics to existing (pre-mining) flood characteristics is summarised in Table 5-4 and presented in Figure 5-12 and Figure 5-13.

Table 5-4 Comparison of WCP post-closure to existing (pre-mining) flood modelling (KCB, 2025b)

Streams	Flood depths	Flood velocities
Juandah creek	- Downstream of the WCP MLs, a decrease in the Juandah Creek water level up to 0.02 m. - Adjacent to the WCP, a slight increase in water level of 0.05 m due to impervious areas and inclusion of roads and dams.	- Downstream of the MLs, a decrease of velocity of up to 0.02 m/s is expected for Juandah Creek. - Adjacent to the WCP, a slight increase in velocity of 0.05 m/s due to the increase in impervious areas with the roads and dams and the inclusions of roads which are 300 mm above natural ground level.
Mud creek	Decrease in water level in Mud Creek up to 0.02 m downstream of the WCP MLs.	Decrease in velocity in Mud Creek of up to 0.02 m/s downstream of the WCP MLs.
Mud Creek North	There is a minor increase of water level of 0.02 m to 0.1 m expected downstream of Spring Creek because of the small catchment change from the final landform design from Mud Creek catchment to Spring Creek catchment.	Minor increase of velocity of 0.02 m/s to 0.1 m/s expected downstream of Spring Creek because of the small catchment change from the final landform design from Mud Creek catchment to Spring Creek catchment.

The results of the flood model showed the proposed reprofiled void depressions and free draining landforms are located outside of the flood inundation footprint for the modelled flood events up to, and including, the 0.1% AEP event. The flood model results also illustrated that stability of the post-mining landform will be maintained in the long term even when considering a climate change scenario. The final landform design has been developed to minimise voids and if voids exist, provide flood immunity up to the 0.1% AEP flood event. As shown in Table 5-3 the minimum freeboard of the 0.1% AEP flood level to voids is 1.3 m and ranges from 1.3 m to 17.3 m. The flood risk is considered to be low based on the final landform design.

5.3.2.2 Erosion of voids and dumps

Flood modelling included the calculation of maximum velocity at a 10 m offset from the toe of selected voids and dumps that are expected to have minor interactions with the 0.1% AEP event (refer Table 5-3).

The maximum velocity during the 0.1% AEP event at a 10 m offset from the toe of the Woleebee Creek, Woleebee North and Woleebee North Satellite voids and dumps was calculated to be within a range from 0.025 m/s to 0.82 m/s. Potential scouring at the toe of the dumps will be mitigated through the

establishment of grassed vegetation on the final landforms, which will enable the toe of the dumps to withstand velocities of 0.2 m/s to 1.8 m/s (Fischenich 2001).

It is expected that a 0.1% AEP would naturally result in elevated sediment loads in a watercourse, as demonstrated by pre-mining catchment conditions. However, while modelling indicates that some small sections of the final landform dumps may be exposed to the 0.1% AEP event, the potential for erosion from this interaction with the flood waters is not expected to significantly increase the background sediment load in the watercourse.

The likelihood of probable maximum precipitation in the Juandah creek is 1 in 603,500, which corresponds to the occurrence of a PMF or maximum flood which a catchment could be reasonably expected to generate. WCP has not been designed to include scour protection for a PMF event. However, the PRCP guidelines state that voids in floodplains should be designed to withstand a 0.1% AEP event, and not a PMF event. PMF floodplain modelling has been completed (refer Appendix VII of Appendix I -) for information only.

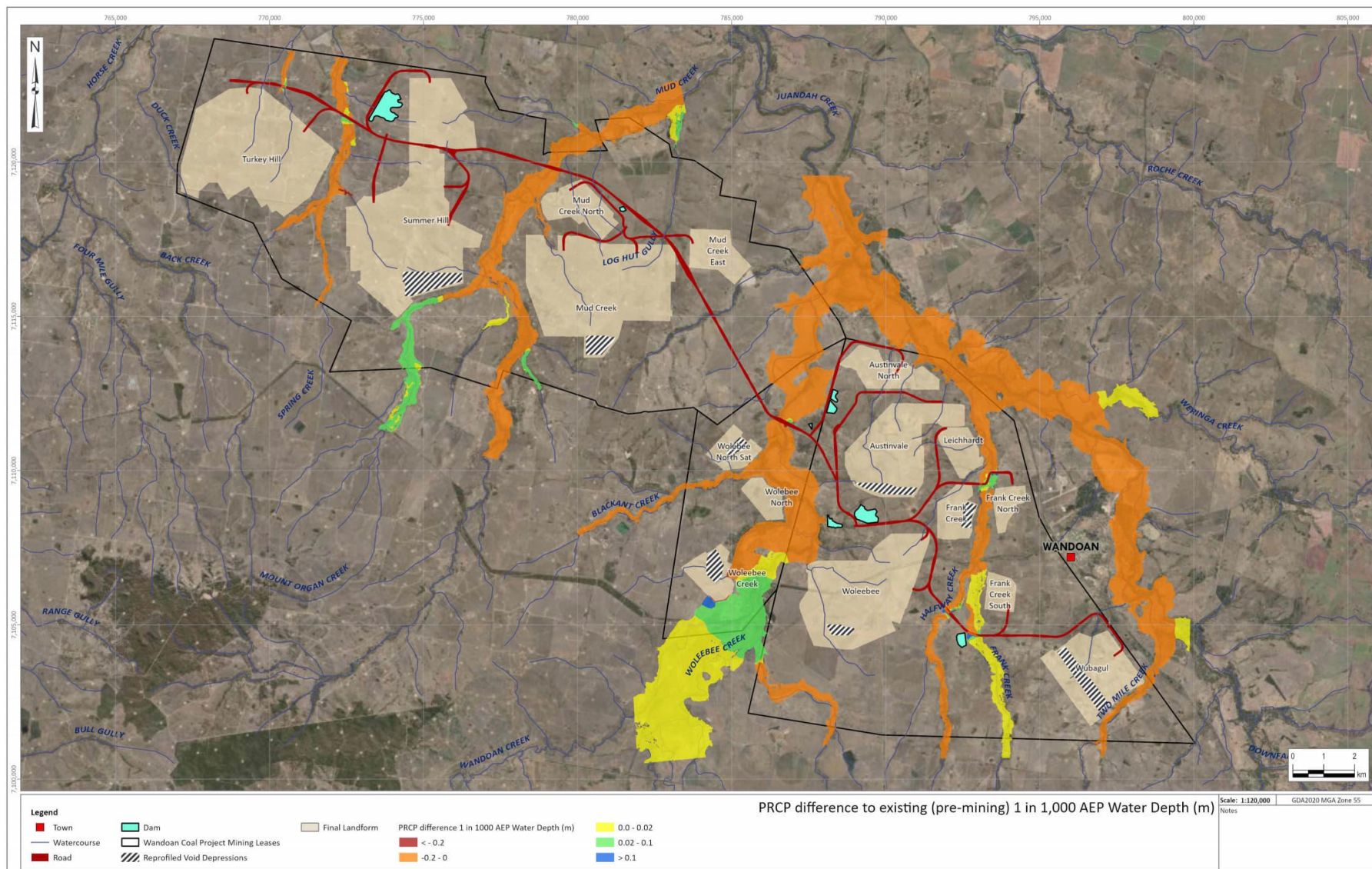


Figure 5-12 0.1% AEP water depth (m) – WCP post-closure landform vs existing (pre-mining) landform (KCB, 2025b)

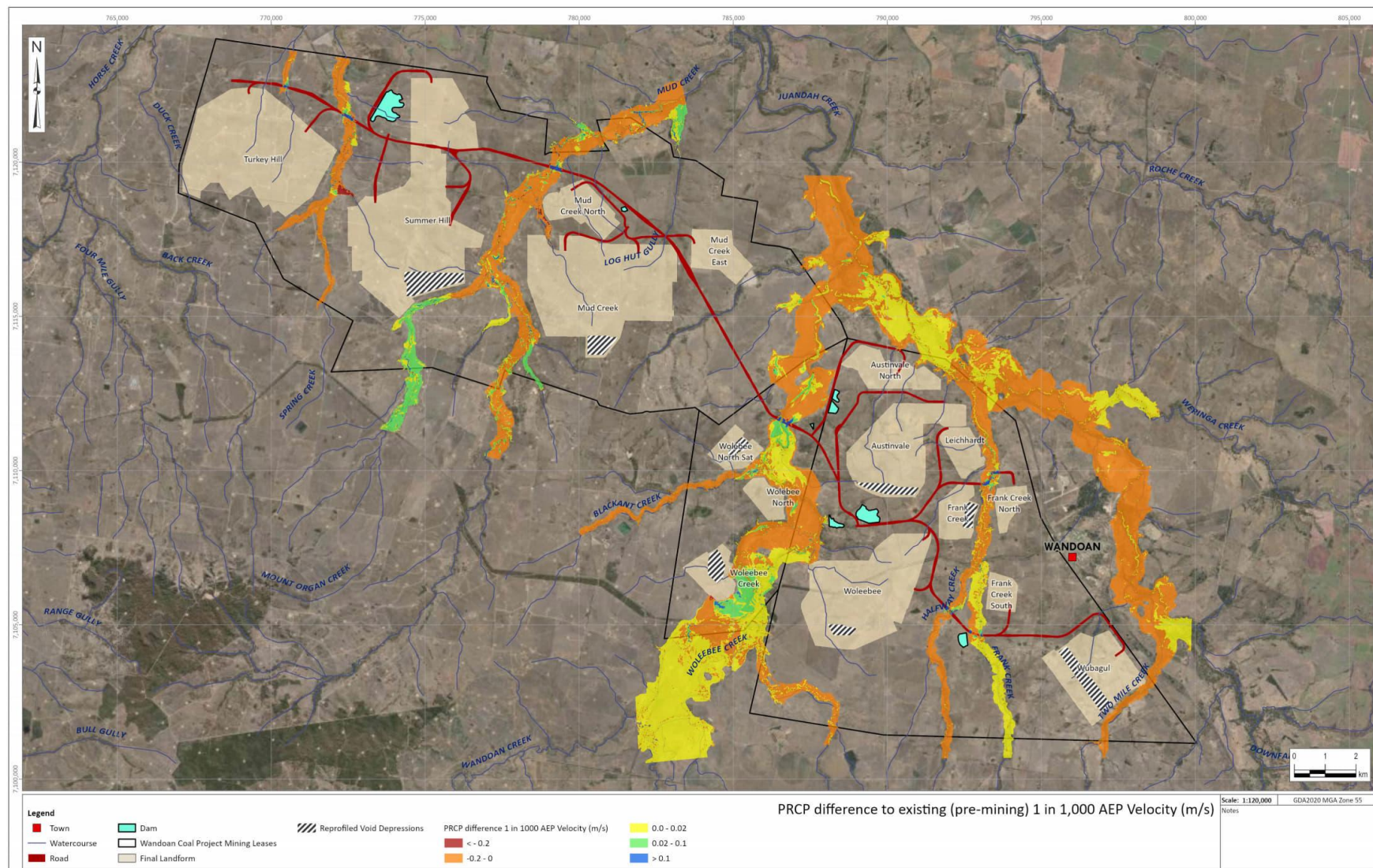


Figure 5-13 0.1% AEP velocity (m/s) – WCP post-closure landform vs existing (pre-mining) landform (KCB, 2025b)

5.3.3 Conclusions

Key outcomes of the hydrology and hydraulic modelling undertaken by KCB (2025b) are:

- Flood waters are not expected to ingress into the reprofiled void depressions, free draining landforms and associated water storages for the 0.1% AEP event;
- The flood waters are not expected to reach the level of the out-of-pit-dump toes proposed as part of the final landforms for most pits. There are minor interactions (depths >0.5 m) between flood water and out-of-pit dump toes for Woleebee Creek, Woleebee North and Woleebee pit. However, velocities are less than 0.6 m/s (i.e., grass or vegetation cover should be adequate to reduce the risk of scour). Erosion plots have been assessed in section 7.3.2 of Appendix I -. Other pits (Wubgal, Woleebee North Sat, Frank Creek South) have minimal interactions between flood water and out-of-pit dump toes (depths <0.5 m); and
- Climate change modelling results indicate only minor changes to the flood modelling outcomes. Expected water depths and velocities are slightly higher through Juandah, Mud and Spring Creeks. However, as with the post-closure scenario base case, flood waters are not expected to ingress into the reprofiled void depressions with only minor interactions between flood waters and the toe of the external batter of some overburden emplacements.

5.4 Water Management

5.4.1 Underground Mining Activities Water Management

The WCP is a proposed open cut coal mine with no underground mining operations approved. As such, PRCP requirements relating to underground operations have not been considered (refer Section 5.11).

5.4.2 Surface Water Management

5.4.2.1 Potential contaminants, sources, receptors and pathways

The management of water is a key consideration post-closure. Potential sources of surface water contaminants post-closure may generally include:

- Contaminated areas which have not been adequately rehabilitated and revegetated, such as MIA areas including workshops etc, may become a source of surface water contamination.
- In-pit tailings / reject encapsulation areas;
- Overburden emplacements;
- Exposed metals and minerals in the remaining highwalls; and
- Infiltration and sub-surface seepage to the reprofiled void depressions via backfilled material in the pits.

Results from the geochemical analysis summarised in Section 5.8, demonstrates that a direct source and pathway for contamination from overburden, tailings and reject material and highwalls is unlikely. Low and inert levels of salinity and dissolved metals may still enter the water systems. However, water balance and mass balance modelling detailed in Section 5.5.2 shows that any potential seepage is predicted to be comparable to the natural ground water levels, and for reprofiled void depressions, no net accumulation of salts over time was indicated through the modelling with seasonal and regular run-off dilution preventing longer term salinity build up. The requirement for ongoing water

management such as dewatering, seepage collection, control and treatment are not anticipated at the WPC.

5.4.2.2 Diversions and levees

The WCP proposed final landform does not include creek diversions or levees.

5.4.2.3 Water Infrastructure

The exact location, size and operational detail of water infrastructure such as sediment dams and storage dams will be confirmed and refined upon the development of the WCP. Water infrastructure will be retained for stock watering purposes and to support the PMLU of grazing. As The WHPL, on behalf of the JV, is the underlying landholder for the majority of the ML area, a landholder agreement and justification for the retainment of infrastructure post-closure on those properties is provided in Appendix F -.

5.5 Voids

5.5.1 Voids at Closure

The final landform surface is presented in Figure 5-14. Of the 16 mining areas, eight reprofiled void depressions are planned to remain post-closure.

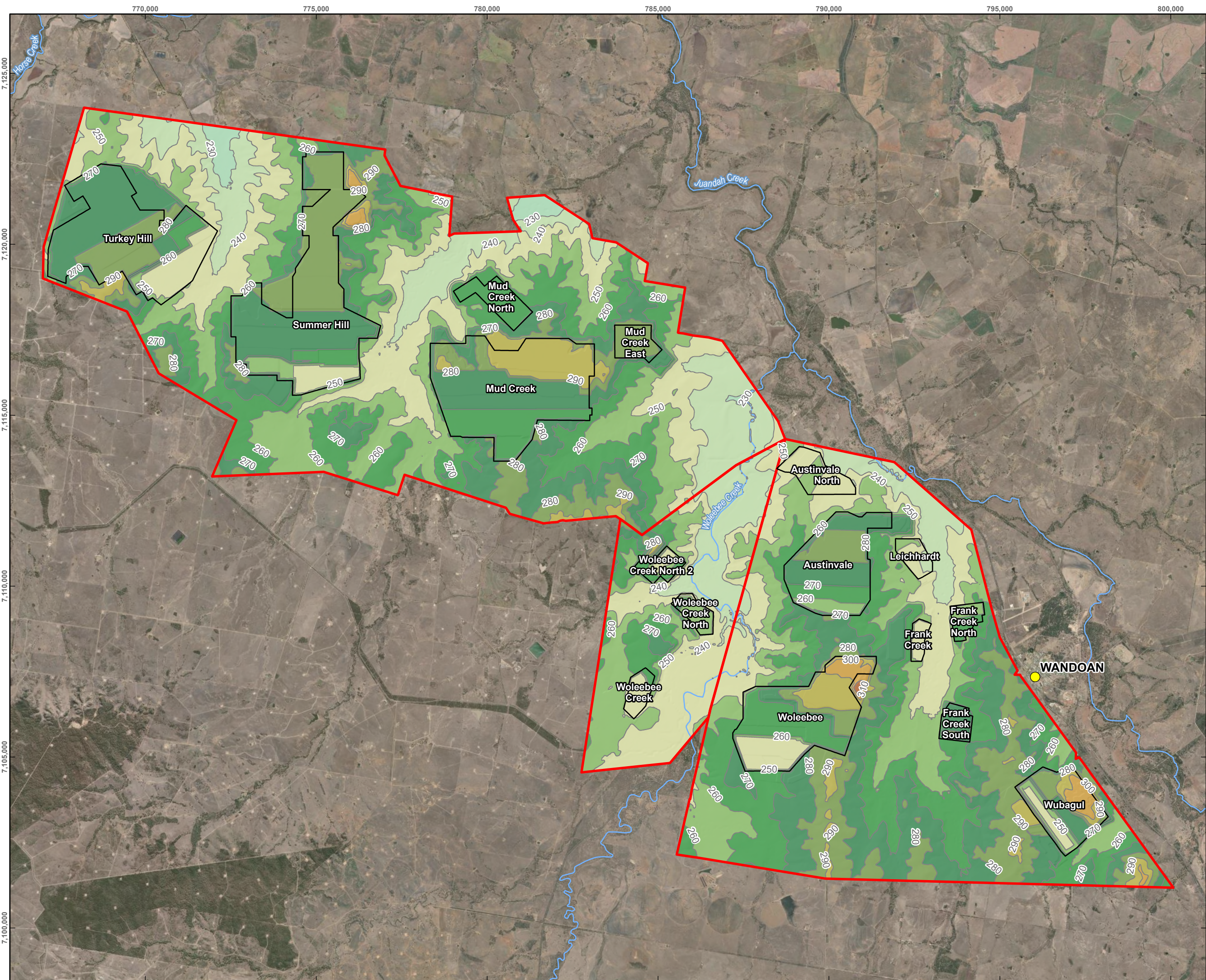
All 16 mined out pits will be progressively backfilled during mining operations with overburden material to a height of at least 5 m above the predicted post-closure groundwater level. Eight of the pits will subsequently be reprofiled to a void depression that is predicted to form an ephemeral waterbody at its base when the inflows (i.e., rainfall and runoff) are greater than the outflows (i.e., infiltration and evaporation). The remaining eight pits will be constructed as free draining landforms designed so that surface water is not retained within the landform. A summary of the physical characteristics of the reprofiled void depressions and free draining landforms is provided in Table 5-5.

The backfilling of pits with overburden material to a height of at least 5 m above the predicted post-closure groundwater level is expected to prevent the ingress of groundwater into the eight void depressions and assist with the maintenance of water quality in the ephemeral waterbodies that are predicted to develop at the base of the reprofiled void depressions.

Water balance modelling predicts most ephemeral waterbodies will have an annual cycle and water quality in all the waterbodies will be appropriate for stock watering use. Reprofiled void depressions are not predicted to overtop. Water balance modelling is detailed in Section 5.5.2. The flood extent of a 0.1 % AEP event is not predicted to interact with the void depressions or free draining landforms as described in Section 5.3.

Groundwater modelling detailed in Section 5.2 confirms that groundwater is predicted to be below the surface of the final landform.

Geotechnical investigations of the reprofiled void depressions, highwalls and free draining landforms confirm their geotechnical stability resulting from the shallow overall angle of lowwalls ($\leq 22\%$) and the limited overall height of highwalls. Geotechnical investigations are outlined in Section 5.7.



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 5-14
WCP FINAL LANDFORM

LEGEND

Town/City

Watercourse

Final Landform Topographic Contour (10mAHD)

Wandoan Coal Project Mining Leases

Final Landform Elevation (mAHD)

218 - 230

230 - 240

240 - 250

250 - 260

260 - 270

270 - 280

280 - 290

290 - 300

300 - 310

310 - 320

320 - 330

330 - 340

340 - 350

350 - 360

360 - 370

370 - 380

380 - 390

390 - 400

400 - 410

410 - 420

Service Layer Credits:
Earthstar Geographics

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012 km

Coordinate System:

GDA2020 MGA Zone 55

Scale:

1:100,000 at A4

Project Number:

626.30100.00800

Date Drawn:

29-Aug-2024

Drawn by:

AS

SLR

Table 5-5 Summary of reprofiled void depression physical characteristics (KCB, 2025b)

Pit area	Closure date (year from start of mining)	Maximum storage capacity (GL)	Base surface area (ha)	Base level of depression (mAHD)	Crest level of depression (mAHD)	Outlet type	Reprofiled void depression
Summer Hill	59	3.6	104.1	249	252.2	Crest overflow	Yes
Mud Creek	48	3.1	46.3	260.2	267.7	Crest overflow	Yes
Woleebee North Satellite	73	1.4	22.9	247.5	253.2	Crest overflow	Yes
Woleebee Creek	75	4	43	242.9	249.9	Crest overflow	Yes
Woleebee	38	29	24.3	243.6	264.9	Crest overflow	Yes
Austinvale	21	4.7	47.3	253.7	261.9	Crest overflow	Yes
Frank Creek	1	1.4	13.6	241	246.1	Crest overflow	Yes
Wubagul	72	9.3	85.5	250	259.9	Crest overflow	Yes
Turkey Hill	68	0	No depression			Free draining	No
Mud Creek North	46	0	No depression			Free draining	No
Mud Creek East	40	0	No depression			Free draining	No

Pit area	Closure date (year from start of mining)	Maximum storage capacity (GL)	Base surface area (ha)	Base level of depression (mAHD)	Crest level of depression (mAHD)	Outlet type	Reprofiled void depression
Woleebee North	74	0	No depression			Free draining	No
Austinvale North	75	0	No depression			Free draining	No
Leichhardt	75	0	No depression			Free draining	No
Frank Creek North	69	0	No depression			Free draining	No
Frank Creek South	69	0	No depression			Free draining	No

Key features of the reprofiled void depressions include:

- Highwalls to remain 'as is' where they comprise of material that is competent and unweathered, with slopes less than the maximum EA authorised slopes 214 % and will be geotechnically stable;
- Highwall weathered zone will be battered back to $\leq 22\%$ and will be geotechnically stable and revegetated to native bushland PMLU;
- Voids to be backfilled to be approximately 5 m above predicted post-closure groundwater levels;
- Lowwalls will be reshaped to a maximum of 22 % and will be geotechnically stable;
- PMLU for the lowwalls and reprofiled void depressions is grazing with access to ephemeral waterbodies permitted for the purposes of temporary stock water supply (water quality of less than 5,000 mg/L for TDS); and
- PMLU for highwalls will be native bushland for both the unweathered and reprofiled weathered zones.

Reprofiled void depressions are planned for eight of the pit areas (Summer Hill, Mud Creek, Woleebee North Satellite, Woleebee Creek, Woleebee, Austinvale, Frank Creek and Wubagul). The remaining eight pit areas (Turkey Hill, Mud Creek North, Mud Creek East, Woleebee North, Austinvale North, Leichhardt, Frank Creek North and Frank Creek South) will be reshaped to form free draining landforms.

5.5.2 Residual Void Water Balance

Water balance modelling was undertaken in accordance with the requirements of the PRCP Guideline (KCB 2025c). The WCP final landform was modelled to assess the water volume and quality characteristics of the reprofiled void depressions. The modelling report is appended as Appendix J -.

The aims and objectives of the water balance model were to:

- Predict the long-term water level within each reprofiled void depression waterbody considering surface and groundwater inputs and outputs;
- Determine whether any of the reprofiled void depression waterbodies are likely to overtop and release water to the receiving environment;
- Determine the likely water quality of each reprofiled void depression waterbody using salinity as an indicator and understand whether the waterbodies could provide a water source for beef cattle; and
- Undertake sensitivity testing on key model components to understand the potential variance in results.

5.5.2.1 Conceptual model

As detailed in Table 5-5, reprofiled void depressions are planned for the following eight pit areas:

- Summer Hill;
- Mud Creek;
- Woleebee North Satellite;
- Woleebee Creek;
- Woleebee;
- Austinvale;

- Frank Creek; and
- Wubagul.

The conceptual model for the water balance for the reprofiled void depressions remaining at the WCP post-closure is presented in Figure 5-15.

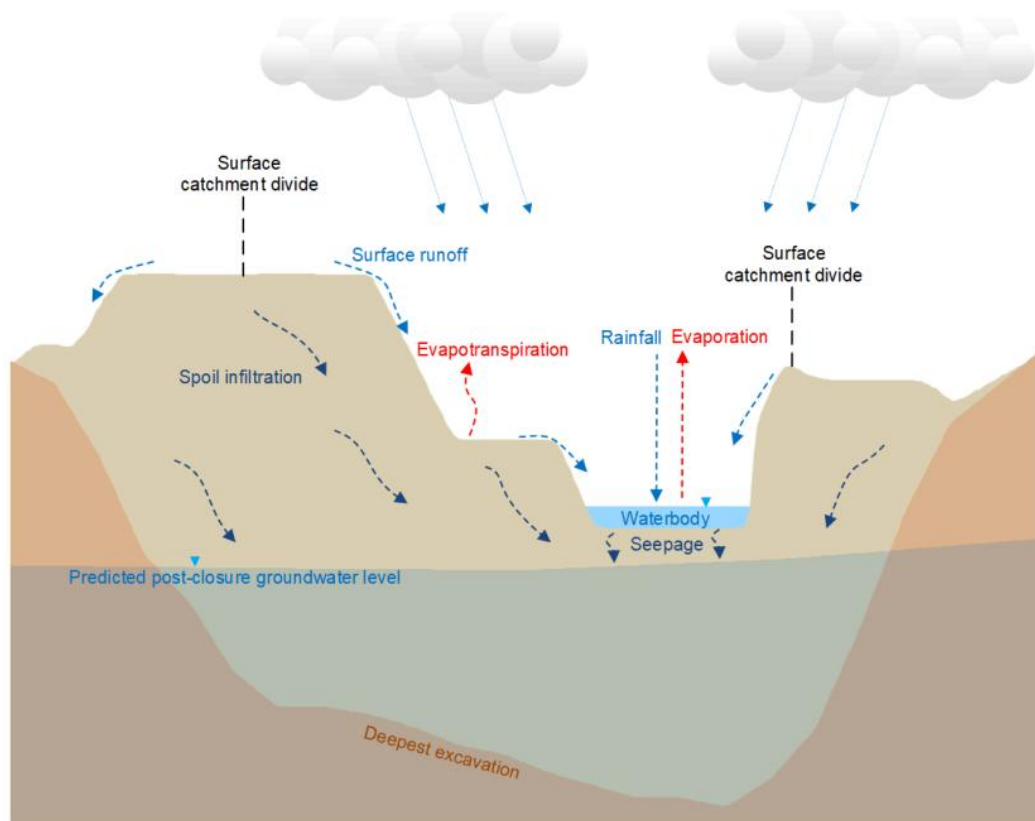


Figure 5-15 Conceptual reprofiled void depression water balance at WCP (KCB, 2025c)

Key model inputs and outputs comprise the following:

- Inputs:
 - Direct rainfall on the reprofiled depression surface; and
 - Runoff into the reprofiled void depression from the final landform surface (i.e., highwall, lowwall and overburden emplacements) and rehabilitated or natural upstream catchment areas.
- Outputs:
 - Evaporation from the reprofiled void depression (water only);
 - Evapotranspiration from the contributing catchment (water only);
 - Seepage outflow through the base of the reprofiled void depressions;
 - Cattle consumption; and
 - Surface outflow if the waterbody within the reprofiled void depression exceeds the containment of the depression (i.e., crest level).

As presented in Figure 5-15, the proposed final landform has been designed to use spoil to backfill the pit areas as much as practicable to be above the predicted post-closure groundwater level, with only

shallow reprofiled void depressions expected to remain in 8 of 16 pit areas. The design (physical characteristics) of these reprofiled void depressions indicates:

- No ingress of groundwater into the reprofiled void depression is expected because the base of each depression has been specifically designed and optimised to be above the predicted post-closure groundwater level (KCB, 2025a);
- The base of the reprofiled void depressions has been designed to be at least 5 m above the predicted post-closure groundwater level and this depth from surface to groundwater is expected to be sufficient that any groundwater that may seep up from the water table by capillary action will not reach the base of the depression (i.e., 5 m is greater than the capillary fringe); and
- No infiltration of water through the spoil and sub-surface drainage is expected to reach the reprofiled void depressions. Instead, due to the large expanse of spoil, infiltrated water is expected to percolate down to the groundwater table.

Ephemeral waterbodies are expected to form in the reprofiled void depressions. Inflows (via catchment runoff and direct rainfall) are expected to exceed outflows (via evaporation, evapotranspiration, cattle consumption, seepage, and overflow) during the wet periods, resulting in the temporary formation of waterbodies in the reprofiled void depressions. However, during dry periods, this waterbody is expected to dry out with the outflows exceeding inflows.

Dissolved salts are expected to enter the reprofiled void depressions via catchment runoff. In the absence of seepage or surface outflows to the environment, there would generally be no removal of salts from the system with salts expected to accumulate over time. However, seepage will likely occur from the base of each reprofiled void depression because of the nature and deposition method of the backfilled spoil material (i.e., material likely to be porous) with water and salt lost to adjacent spoil material (i.e., removing salt). Cattle also remove dissolved salts from the system via the consumption of water.

5.5.2.2 Interaction with groundwater

Groundwater systems and their expected interaction with the water contained within reprofiled void depressions have been assessed as part of groundwater modelling undertaken by KCB (2025a) as detailed in Section 5.2 of this PRCP (and appended as Appendix H -). Groundwater modelling predicts that no groundwater fed waterbodies will develop within the WCP final landform, including reprofiled void depressions, and that groundwater levels will remain below the surface of the final landform. For further information on the assumptions of the regional groundwater system as part of the groundwater model, see Appendix H -.

5.5.2.3 Methodology

A water balance/ water quality mass balance was developed for each reprofiled void depression in the GoldSim (Version 14.0) by KCB (2025c). This water balance model simulates the generation, movement and loss of water and TDS on a daily time step in each reprofiled void depression waterbody over a 1,000-year period. The model simulation is started at the onset of closure in the first mining area to be reshaped to the final landform and comprises:

- A component to simulate the water inflows and outflows (i.e., runoff, and direct rainfall inflows and evaporation, seepage, overflow, and cattle consumption outflows); and
- A component to allow prediction of the reprofiled void depression waterbody salinity (modelled as a TDS mass balance).

Both components are interlinked as the inflows and outflows and associated salinity loads contribute to the reprofiled void depression waterbody water quality. These components are used to estimate the volume of water and associated salinity of the water, that report to each reprofiled void depression, from other identified or known sources.

5.5.2.4 Water balance model results

The results of the void water balance assessment for the eight reprofiled void depression are summarised below.

- Waterbodies are expected to form during the first wet season following closure in each mining area. From then, the reprofiled void depressions are expected to have ephemeral waterbodies, filling during wet periods when the inflows (runoff and rainfall) are greater than outflows (seepage, evaporation and cattle consumption) and empty in dry periods when outflows are greater than inflows.
- Most reprofiled void depressions (Summer Hill, Woleebee North Satellite, Woleebee Creek, Woleebee, Austinvale, Frank Creek and Wubagul) are expected to follow an annual cycle of filling and emptying.
- Mud Creek reprofiled void depression is unique in its expected ability to sustain a waterbody over longer periods, potentially decades, because of the smaller, tiered base area of the void, with reduced seepage and evaporation (refer to physical characteristics in data sheets – Appendix II of Appendix J -). This prolonged water retention, in an otherwise ephemeral environment, may influence vegetation growth:
 - Hydrophytic vegetation: extended saturation may support wetland or riparian species adapted to moist conditions, enhancing ecological stability and biodiversity.
 - Soil moisture and structure: sustained water may improve soil moisture and structure, aiding root development and plant establishment. However, waterlogging, particularly in fine-textured soils, may inhibit oxygen availability for root systems (though only a small area of the base of the reprofiled void depressions is expected to sustain area).
 - Vegetation planning: species selection should reflect the expected hydrological regime, prioritising plants tolerant of periodic inundation and low oxygen to support regrowth and long-term sustainability.
- Waterbodies are expected to remain less than 25 % full, with maximum modelled water levels well below overflow levels (i.e., no overflow into downstream watercourse via surface pathways expected).
- Salinity (modelled as TDS) is expected to fluctuate dependent on the volume in the waterbodies of each reprofiled void depression (i.e., higher volumes – lower salinity).
- Salt accumulation in the reprofiled void depressions is not expected over time as salt is lost via infiltration. Additionally, the use of water from these areas for cattle supply appears to offset salt mass inflow from surface runoff inflows.
- Salinity levels in existing ephemeral streams and pools in the vicinity of WCP fluctuate with the natural wetting-drying cycle. Initially, salinity tends to be elevated because of concentrated dissolved salts and organic acids in surface runoff, which are subsequently diluted during flow or runoff events. As drying progresses, salinity increases again because of evapoconcentration (Australian Government 2020). This naturally occurring pattern is expected to be reflected in the reprofiled void depressions with modelled salinity levels increasing when water volumes are low or nearing depletion. However, the magnitude of these salinity spikes is inherent in the mass balance modelling approach, which assumes the entire salt load remains dissolved (i.e., in

solution), leading to artificially elevated salinity concentrations during low-volume periods. This simplification provides conservative estimates that may overstate the likelihood and severity of salinity peaks under actual field conditions. In reality, as the water body recedes, salts are likely to precipitate and form crusts on the base of the reprofiled void depression, reducing salinity levels.

- Modelled TDS levels within the Austinvale reprofiled void depression are expected to exceed the beef cattle thresholds of 4,000 mg/L, with an estimated 1 in 26 AEP. While 4,000 mg/L has been used as the threshold, beef cattle can tolerate TDS levels up 5,000 mg/L without loss of production (refer to Table 5.12), with exceedance events above this level expected with a 1 in 125 AEP.
- Although the ephemeral nature of the waterbodies within the reprofiled void depressions aligns with the surrounding ephemeral streams and pools, elevated salinity during low-volume periods may pose a risk to livestock health. While beef cattle have a natural aversion to elevated salinity levels in drinking water, they can tolerate elevated salinity levels for short durations, access to these areas can be managed through appropriate control measures to mitigate potential impacts:
 - Alternative water sources (i.e., off-stream tanks and troughs), which are already used during dry seasons; and
 - Paddock rotation strategies to manage access to affected reprofiled void depressions.

Table 5-6 Summary of water balance results for reprofiled void depressions

Reprofiled Void Depression	Nature of Waterbody		Key Void Levels and Depth				Key Water Levels and Depth			Over flow	Total (mg/L) ^c		
	Ephemeral	Cycle	Base (mRL)	Dead Storage (mRL)	Crest (mRL)	Max Void Depth ^A (m)	Min (mRL)	Max (mRL)	Max Water Depth ^B (m)		P5	P50	P95
Summer Hill	Yes	Annual	249.0	249.0	252.2	3.2	249.0	249.9	0.9	No	198	300	804
Mud Creek	Yes	Decade	260.2	261.1	267.7	7.5	260.2	262.5	2.3	No	228	1,100	2,260
Woleebee North Satellite	Yes	Annual	247.5	247.5	253.2	5.7	247.5	247.9	0.4	No	220	310	595
Woleebee Creek	Yes	Annual	242.9	243.0	249.9	7.0	242.9	244.3	1.4	No	145	194	384
Woleebee	Yes	Annual	243.6	244.1	264.9	21.3	243.6	247.6	4.0	No	176	218	328
Austinvale	Yes	Annual	253.7	253.7	261.9	8.2	253.7	254.6	0.9	No	206	888	3,260
Frank Creek	Yes	Annual	241.0	241.0	246.1	5.1	241.0	241.8	0.8	No	213	283	430
Wubagul	Yes	Annual	250.0	250.0	259.9	9.9	250.0	250.5	0.5	No	231	331	655
Table Notes: A Maximum void depth (m) = crest of void – base of void													

Reprofiled Void Depression	Nature of Waterbody		Key Void Levels and Depth				Key Water Levels and Depth			Over flow	Total (mg/L) ^c		
	Ephem eral	Cycle	Base (mRL)	Dead Storage (mRL)	Crest (mRL)	Max Void Depth ^A (m)	Min (mRL)	Max (mRL)	Max Water Depth ^B (m)		P5	P50	P95

B Maximum water depth (m) = maximum water level – base of void

C TDS levels are expected to fluctuate dependent on the volume in the waterbodies of each reprofiled void depression but are not expected to accumulate over time due to loss of salt via infiltration and cattle consumption. Modelling has shown TDS spikes when the volume in the reprofiled void depression was low and nearly empty. These spikes in TDS are inherit in the mass balance modelling approach and may not occur to such an extent in practice. As such, the TDS levels for volumes lower than 0.05% of the reprofiled void depression volumes (dead storage volume) have been filtered out to depict a more realistic estimate for TDS levels

5.6 Soil and Capping Material Assessment

5.6.1 Erosion Risk Assessment

SLR (2025) undertook a landform erosion assessment in accordance with the requirements of Section 3.6.1 of the PRCP Guideline. The assessment is attached as Appendix K -.

The landform erosion assessment utilised Watershed Erosion Prediction Project (WEPP) modelling to analyse the stability of the proposed final landform and to predict the average annual soil loss over the hillslopes of the proposed final landform.

5.6.1.1 Numerical modelling results

The average annual erosion rates for the WCP final landform were derived using inputs into the WEPP model which included:

- 100 years of predicted daily rainfall data;
- Topsoil and subsoil data representative of the soils found *in situ* at the WCP and obtained from 14 samples taken across the WCP area;
- Vegetation cover representative of the proposed PMLUs of grazing and native bushland for the WCP; and
- Landform slope design criteria with slope angles of 10 %, 14 %, 16.6 %, 18 %, 20 %, 22 % and 25 % being modelled. These slope angles represent a number of slope present in the landform particularly:
 - 18 % external batters of overburden emplacements; and
 - 20 % lowwalls and battered back weathered zone of highwalls.

Results are presented in Table 5-7, Figure 5-16 and Figure 5-17.

These results assumed that vegetation cover starts at 0 % following (i) landform construction, final trim and topsoiling, and (ii) soil amelioration (not considered in the soil input file) and seeding. Within the WEPP model analysis, the slopes remained at this level of cover for the first 18 months.

The assumptions for vegetation cover were:

- For a grazing PMLU
 - 0 % grass cover from Months 0 to 18;
 - 30 % vegetation cover comprised of grasses from Months 18 to 30; and
 - 75 % stable vegetation cover beyond Month 30.
- For a native bushland PMLU
 - 30 % tree/ shrub canopy cover with 60 % grass cover is achieved 10 years after rehabilitation.

This assumption acknowledges that vegetation cover will not establish immediately once topsoil respreading and seeding activities are completed.

Table 5-7 Soil loss rates due to erosion according to predictions using the WEPP model under various scenarios of slope and vegetation cover percentage (SLR, 2025)

Soil Association		Sample ID	Slope length (m)	10% Slope										14% Slope									
				Soil Loss (Avg. of Net Detachment Areas) tonne/ha/yr				Av. Thickness of Soil Loss mm/m²/yr				Soil Loss in mm for the first 10 years	Soil Loss in mm for 100 years	Soil Loss (Avg. of Net Detachment Areas) tonne/ha/yr				Av. Thickness of Soil Loss mm/m²/yr				Soil Loss in mm for the first 10 years	Soil Loss in mm for 100 years
Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland				
Brigalow upland cracking clay	Teviot	C258_TS	100 m	91.4	33.6	3.0	5.0	6.9	2.5	0.22	0.4	18.9	52.4	141.5	54.4	5.3	8.6	10.6	4.1	0.4	0.6	30.1	88.3
		C258_SS		60.8	25.0	3.2	5.3	4.6	1.9	0.24	0.4	14.0	49.9	90.8	38.4	5.3	8.4	6.8	2.9	0.4	0.6	21.3	78.4
	Rolleston	R330_TS		86.5	40.7	6.4	6.1	6.5	3.1	0.48	0.5	20.1	61.4	132.9	63.5	11.0	9.9	10.0	4.8	0.8	0.7	31.4	98.4
		R330_SS		85.3	40.2	5.6	6.2	6.4	3.0	0.42	0.5	20.0	61.9	131.7	63.2	9.9	10.1	9.9	4.8	0.7	0.8	31.3	99.9
	Downfall	C505_TS		66.4	29.2	3.7	4.7	5.0	2.2	0.28	0.4	15.1	46.9	101.9	46.2	6.6	7.6	7.7	3.5	0.5	0.6	23.6	75.1
		C505_SS		78.8	35.1	4.7	6.4	5.9	2.6	0.35	0.5	18.4	61.9	120.4	55.0	8.5	10.4	9.0	4.1	0.6	0.8	28.6	99.3
Brigalow upland non-cracking clay	Cheshire	R352_TS		68.3	29.3	4.1	5.7	5.1	2.2	0.31	0.4	15.8	54.4	102.9	45.3	7.1	9.0	7.7	3.4	0.5	0.7	24.2	85.2
		R352_SS		75.2	31.6	3.9	6.2	5.7	2.4	0.29	0.5	17.2	59.0	113.9	49.5	6.9	10.0	8.6	3.7	0.5	0.7	26.6	94.1
		R350_TS		76.2	33.5	4.5	6.0	5.7	2.5	0.34	0.5	17.6	58.4	116.0	52.4	7.9	9.7	8.7	3.9	0.6	0.7	27.3	93.3
		R350_SS		69.1	28.0	3.2	5.6	5.2	2.1	0.24	0.4	15.6	53.5	105.2	43.9	5.4	9.0	7.9	3.3	0.4	0.7	24.2	84.7
Poplar box alluvial texture contrast	Woleebee	C506_TS		68.0	26.3	3.0	4.8	5.1	2.0	0.22	0.4	14.8	47.5	103.0	41.4	5.1	7.9	7.7	3.1	0.4	0.6	23.0	76.4
		C506_SS		65.3	26.2	3.0	5.7	4.9	2.0	0.22	0.4	14.9	53.5	97.9	40.4	5.0	9.1	7.4	3.0	0.4	0.7	22.7	84.1
Poplar box alluvial uniform soil	Juandah	R657_TS		76.2	34.5	4.9	5.8	5.7	2.6	0.37	0.4	17.7	57.0	116.6	54.0	8.5	9.4	8.8	4.1	0.6	0.7	27.5	91.0
		R657_SS		83.6	38.8	4.8	6.0	6.3	2.9	0.36	0.5	19.4	60.0	129.6	61.6	8.7	9.8	9.7	4.6	0.7	0.7	30.6	97.2
Subsoil (0.6-1.7 m)			50 m	99.2	37.9	5.0	5.6	7.5	8.0	0.4	0.4	20.8	58.8	18.9	52.4	9.1	10.0	12.4	5.0	0.7	0.7	35.5	102.9
Subsoil (0.6-1.7 m)			70 m	147.9	57.5	7.5	8.2	11.1	12.1	0.6	0.6	31.2	86.8	238.5	97.0	14.0	14.6	17.9	7.3	1.1	1.1	51.7	150.4

Table 5-8 Soil loss rates due to erosion according to predictions using the WEPP model under various scenarios of slope and vegetation cover percentage (SLR, 2025)

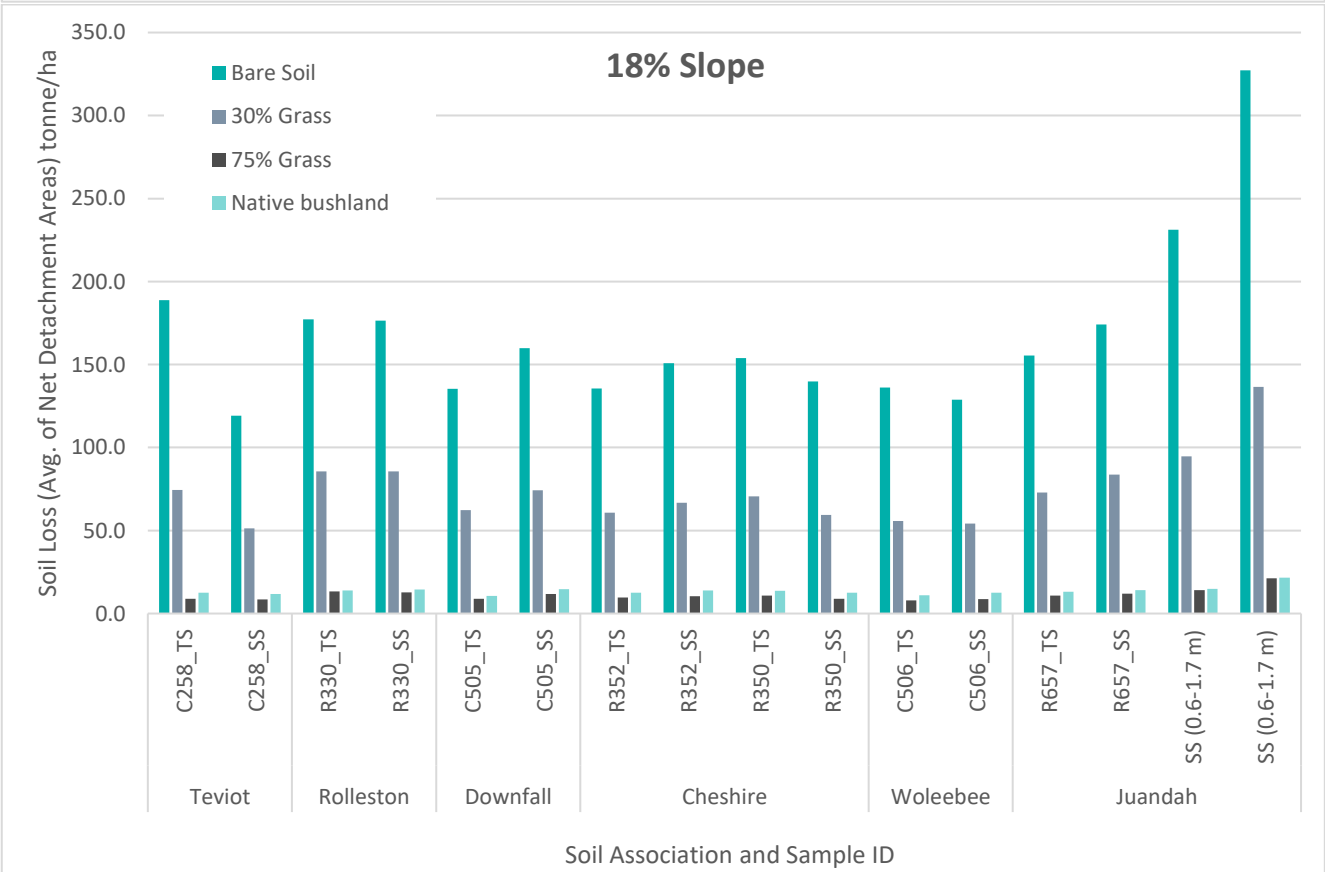
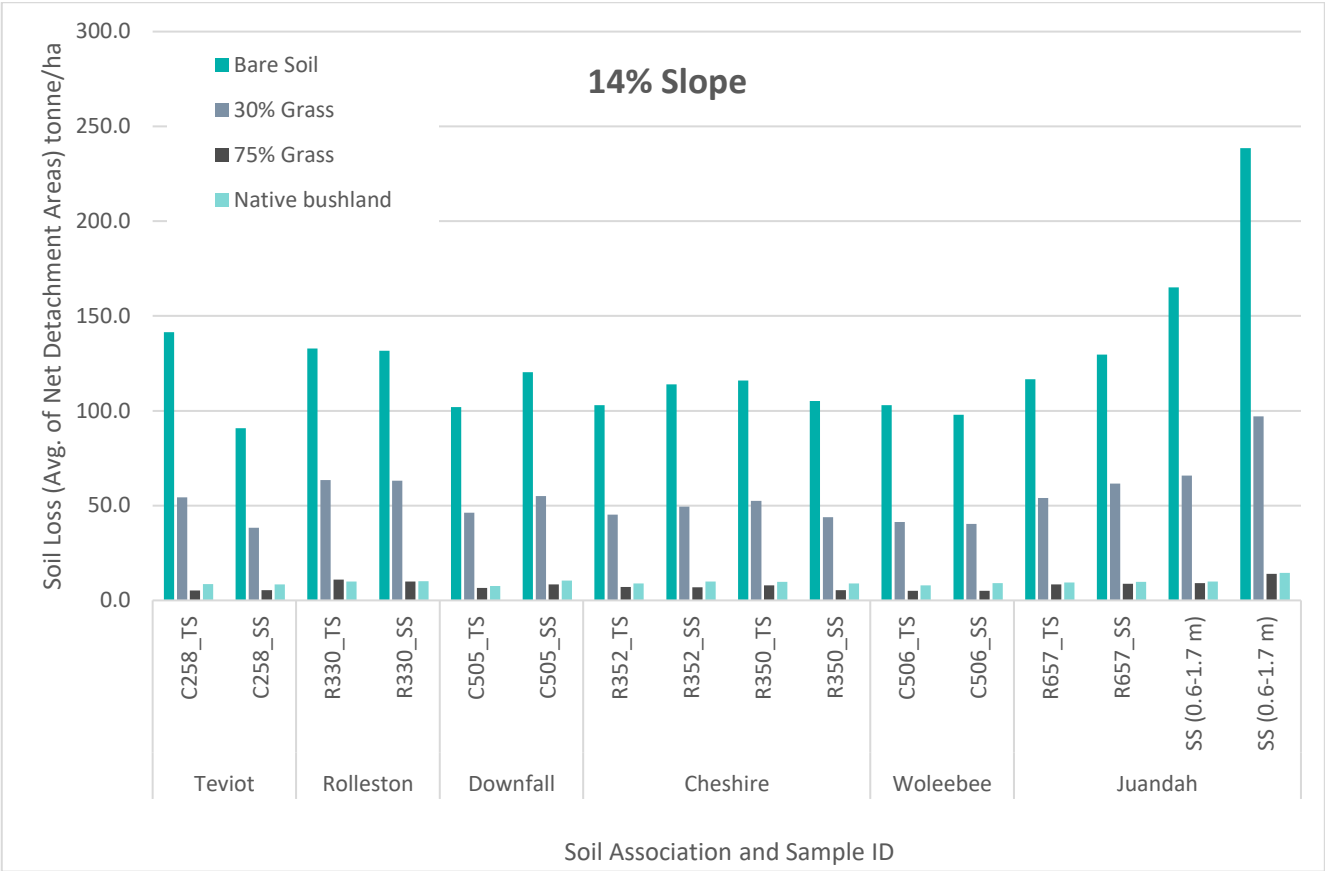
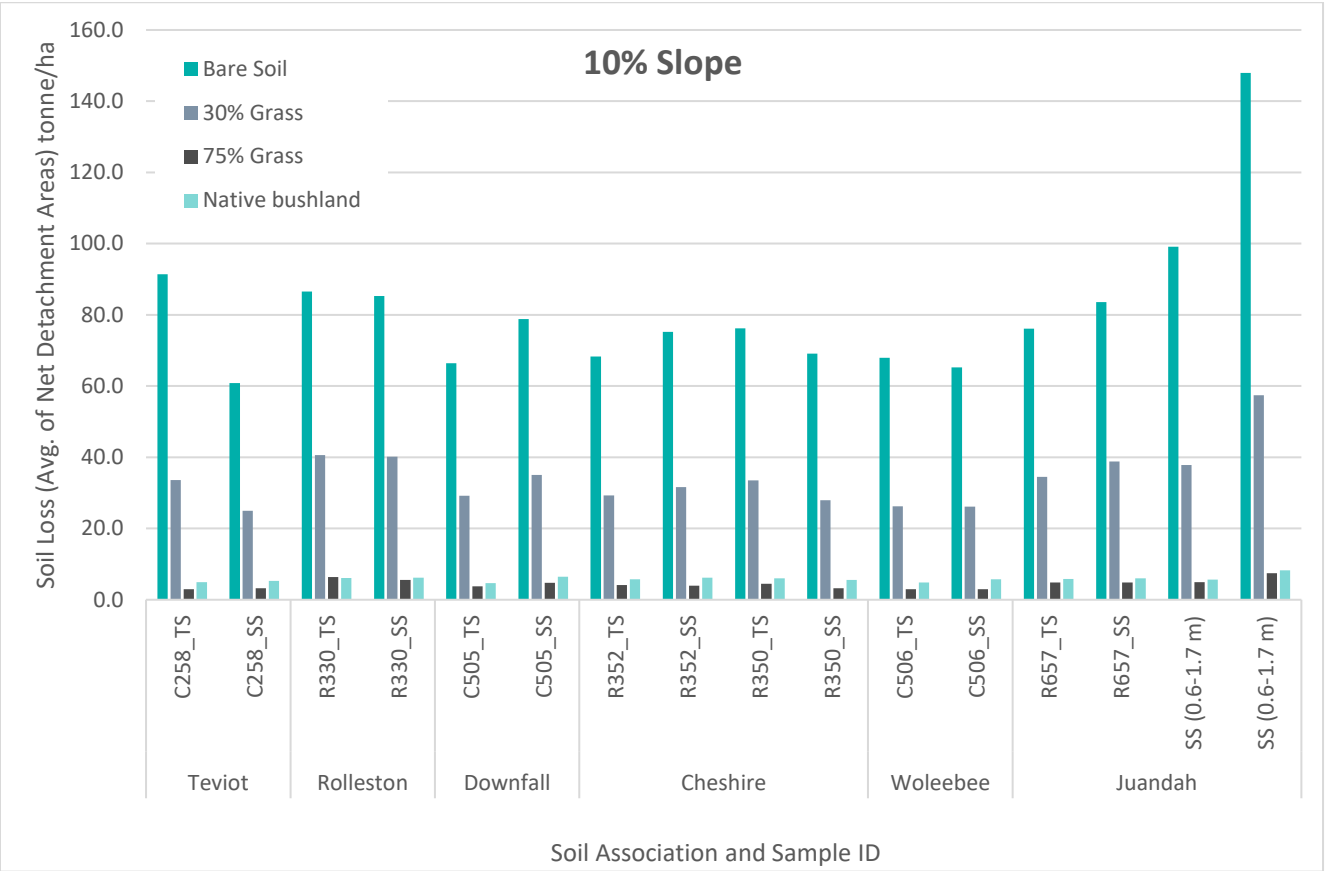
Soil Association		Sample ID	Slope length (m)	16.6% Slope										18% Slope									
				Soil Loss (Avg. of Net Detachment Areas) tonne/ha/yr				Av. Thickness of Soil Loss mm/m²/yr				Soil Loss in mm for the first 10 years	Soil Loss in mm for 100 years	Soil Loss (Avg. of Net Detachment Areas) tonne/ha/yr				Av. Thickness of Soil Loss mm/m²/yr				Soil Loss in mm for the first 10 years	Soil Loss in mm for 100 years
Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Soil Loss in mm for the first 10 years	Soil Loss in mm for 100 years		
Brigalow upland cracking clay	Teviot	C258_TS	100 m	172.7	67.6	6.9	11.2	12.98	5.08	0.52	0.8	37.2	112.9	188.9	74.5	9.0	12.6	14.20	5.60	0.67	0.9	41.0	126.3
		C258_SS		109.5	64.8	6.8	10.6	8.23	4.88	0.51	0.8	29.3	100.7	119.1	51.3	8.6	11.7	8.95	3.85	0.64	0.9	28.3	107.5
	Rolleston	R330_TS		162.0	78.0	13.9	12.5	12.18	5.86	1.04	0.9	38.6	123.3	177.3	85.6	13.3	14.0	13.33	6.44	1.00	1.0	42.4	136.8
		R330_SS		161.0	77.9	12.7	12.9	12.11	5.86	0.95	1.0	38.6	125.9	176.4	85.7	12.8	14.4	13.26	6.44	0.96	1.1	42.5	139.9
	Downfall	C505_TS		123.9	56.8	8.5	9.5	9.32	4.27	0.64	0.7	28.9	93.4	135.4	62.3	8.9	10.6	10.18	4.69	0.67	0.8	31.8	103.2
		C505_SS		146.3	67.6	10.9	13.2	11.00	5.08	0.82	1.0	35.2	124.5	159.8	74.3	11.7	14.7	12.02	5.58	0.88	1.1	38.6	138.1
Brigalow upland non-cracking clay	Cheshire	R352_TS		124.4	55.4	9.0	11.3	9.35	4.17	0.67	0.8	29.5	105.7	135.6	60.7	9.7	12.5	10.20	4.56	0.73	0.9	32.3	116.7
		R352_SS		138.1	60.7	8.8	12.6	10.38	4.56	0.66	0.9	32.6	117.6	150.7	66.7	10.4	14.0	11.33	5.01	0.78	1.1	35.8	130.4
		R350_TS		140.9	64.4	10.1	12.3	10.60	4.84	0.76	0.9	33.5	116.6	154.0	70.6	10.8	13.7	11.58	5.31	0.81	1.0	36.8	129.3
		R350_SS		127.9	54.1	7.0	11.2	9.61	4.06	0.53	0.8	29.7	105.7	139.7	59.4	8.9	12.5	10.51	4.47	0.67	0.9	32.6	117.1
Poplar box alluvial texture contrast	Woleebee	C506_TS		124.8	50.8	6.5	10.0	9.38	3.82	0.49	0.7	28.1	95.5	136.1	55.8	7.9	11.1	10.23	4.20	0.59	0.8	30.8	105.9
		C506_SS		118.2	49.4	6.4	11.3	8.89	3.71	0.48	0.9	27.7	104.4	128.7	54.1	8.7	12.6	9.68	4.07	0.65	0.9	30.4	115.4
Poplar box alluvial uniform soil	Juandah	R657_TS		142.0	66.5	10.8	11.8	10.68	5.00	0.81	0.9	33.8	113.8	155.3	73.0	10.9	13.2	11.68	5.49	0.82	1.0	37.2	126.2
		R657_SS		158.8	76.1	11.3	12.5	11.94	5.72	0.85	0.9	37.9	122.7	174.2	83.8	11.9	14.0	13.09	6.30	0.90	1.1	41.7	136.5
Subsoil (0.6-1.7 m)			50 m	208.2	84.5	12.3	13.1	15.66	6.35	0.92	1.0	45.3	134.0	231.2	94.7	14.0	14.9	17.39	7.12	1.05	1.1	50.6	151.4
Subsoil (0.6-1.7 m)			70 m	296.5	122.7	18.6	19.1	22.29	9.23	1.40	1.4	65.1	194.6	327.2	136.6	21.2	21.7	24.60	10.27	1.59	1.6	72.3	219.1

Table 5-9 Soil loss rates due to erosion according to predictions using the WEPP model under various scenarios of slope and vegetation cover percentage (SLR, 2025)

Soil Association		Sample ID	Slope length (m)	20% Slope										22% Slope									
				Soil Loss (Avg. of Net Detachment Areas) tonne/ha/yr				Av. Thickness of Soil Loss mm/m²/yr				Soil Loss in mm for the first 10 years	Soil Loss in mm for 100 years	Soil Loss (Avg. of Net Detachment Areas) tonne/ha/yr				Av. Thickness of Soil Loss mm/m²/yr				Soil Loss in mm for the first 10 years	Soil Loss in mm for 100 years
Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland				
Brigalow upland cracking clay	Teviot	C258_TS	100 m	211.6	84.3	9.2	14.6	15.9	6.3	0.7	1.1	46.3	145.4	233.6	93.8	11.8	16.7	17.56	7.05	0.89	1.3	51.5	164.6
		C258_SS		132.6	57.4	8.7	13.4	10	4.3	0.7	1.0	31.8	122.2	145.6	63.4	11.1	15.0	10.94	4.77	0.83	1.1	35.1	136.7
	Rolleston	R330_TS		198.7	96.4	17.8	16.0	14.9	7.2	1.3	1.2	47.7	156.0	219.4	106.8	17.4	18.0	16.5	8.03	1.31	1.4	53.0	175.0
		R330_SS		198	96.7	16.4	16.6	14.9	7.3	1.2	1.2	48.0	160.0	219	107.4	16.8	18.7	16.46	8.08	1.26	1.4	53.3	179.9
	Downfall	C505_TS		151.4	70.1	11	12.1	11.4	5.3	0.8	0.9	35.7	117.4	166.9	77.7	11.7	13.6	12.55	5.84	0.88	1.0	39.6	131.5
		C505_SS		178.8	83.6	14.1	16.9	13.4	6.3	1.1	1.3	43.5	157.6	197.2	92.6	15.4	19.0	14.82	6.96	1.16	1.4	48.2	176.9
Brigalow upland non-cracking clay	Cheshire	R352_TS		151.3	68.2	11.5	14.2	11.4	5.1	0.9	1.1	36.3	132.5	166.4	75.4	12.6	16.0	12.51	5.67	0.95	1.2	40.1	148.2
		R352_SS		168.4	75	11.5	16.0	12.7	5.6	0.9	1.2	40.3	148.6	185.5	83.1	13.6	18.0	13.94	6.25	1.02	1.4	44.7	166.6
		R350_TS		172.2	79.5	13.2	15.7	12.9	6	1	1.2	41.4	147.5	189.8	88.2	14.2	17.7	14.27	6.63	1.06	1.3	45.9	165.5
		R350_SS		156.3	67	9.1	14.3	11.8	5	0.7	1.1	36.7	133.5	172.4	74.3	11.7	16.1	12.96	5.59	0.88	1.2	40.7	149.7
Poplar box alluvial texture contrast	Woleebee	C506_TS		151.8	62.8	8.4	12.7	11.4	4.7	0.6	1.0	34.7	120.6	167	69.6	10.2	14.3	12.56	5.23	0.77	1.1	38.4	135.2
		C506_SS		143.5	60.8	8.3	14.4	10.8	4.6	0.6	1.1	34.1	131.2	157.6	67.2	11.2	16.1	11.85	5.05	0.85	1.2	37.7	146.8
Poplar box alluvial uniform soil	Juandah	R657_TS		174	82.2	14	15.1	13.1	6.2	1.1	1.1	41.9	144.0	192	91.2	14.3	17.0	14.44	6.85	1.07	1.3	46.5	161.7
		R657_SS		195.7	94.7	14.6	16.1	14.7	7.1	1.1	1.2	47.1	156.4	216.7	105.3	15.7	18.3	16.29	7.92	1.18	1.4	52.5	176.1
Subsoil (0.6-1.7 m)			50 m	263.7	109.2	16.6	17.5	19.8	8.2	1.3	1.3	58.2	176.6	295.6	123.5	19.2	20.2	22.2	9.3	1.4	1.5	65.7	202.1
Subsoil (0.6-1.7 m)			70 m	370.3	156	25	25.4	27.8	11.7	1.9	1.9	82.5	254.5	412.3	175.1	28.7	29.2	31	13.2	2.2	2.2	92.6	290.2

Table 5-10 Soil loss rates due to erosion according to predictions using the WEPP model under various scenarios of slope and vegetation cover percentage (SLR, 2025)

Soil Association		Sample ID	Slope length (m)	25% Slope									
				Soil Loss (Avg. of Net Detachment Areas) tonne/ha/yr				Av. Thickness of Soil Loss mm/m²/yr				Soil Loss in mm for the first 10 years	Soil Loss in mm for 100 years
				Bare Soil	30% Grass	75% Grass	Native Bushland	Bare Soil	30% Grass	75% Grass	Native Bushland		
Brigalow upland cracking clay	Teviot	C258_TS	100 m	265.1	107.7	14.0	19.8	19.93	8.10	1.05	1.5	59.1	193.2
		C258_SS		164.2	72.1	13.0	17.4	12.35	5.42	0.97	1.3	39.9	157.9
	Rolleston	R330_TS		249.4	122.1	20.4	21.1	18.75	9.18	1.54	1.6	60.6	203.2
		R330_SS		249.3	123.0	19.8	21.9	18.75	9.25	1.49	1.6	61.1	209.4
	Downfall	C505_TS		189.1	88.6	13.8	15.8	14.22	6.66	1.04	1.2	45.1	152.2
		C505_SS		223.7	105.8	18.1	22.2	16.82	7.96	1.36	1.7	55.1	205.5
Brigalow upland non-cracking clay	Cheshire	R352_TS		188.0	85.8	14.7	18.6	14.14	6.45	1.11	1.4	45.7	171.3
		R352_SS		210.0	94.9	16.0	21.0	15.79	7.13	1.21	1.6	51.0	193.3
		R350_TS		215.2	100.6	16.7	20.6	16.18	7.56	1.25	1.6	52.5	192.1
		R350_SS		195.4	85.0	13.7	18.8	14.69	6.39	1.03	1.4	46.5	173.9
Poplar box alluvial texture contrast	Woleebee	C506_TS		188.8	79.4	12.0	16.7	14.20	5.97	0.90	1.3	43.8	156.8
		C506_SS		178.0	76.5	13.2	18.7	13.38	5.75	0.99	1.4	42.9	169.7
Poplar box alluvial uniform soil	Juandah	R657_TS		218.1	104.2	16.8	19.9	16.39	7.83	1.26	1.5	53.1	187.7
		R657_SS		247.0	120.8	18.5	21.4	18.57	9.08	1.39	1.6	60.2	205.3
Subsoil (0.6-1.7 m)			50 m	342.2	145.1	23.3	24.2	25.7	10.9	1.8	1.8	76.8	240.8
Subsoil (0.6-1.7 m)			70 m	473.5	204.1	34.5	34.9	35.6	15.3	2.6	2.6	107.5	343.9



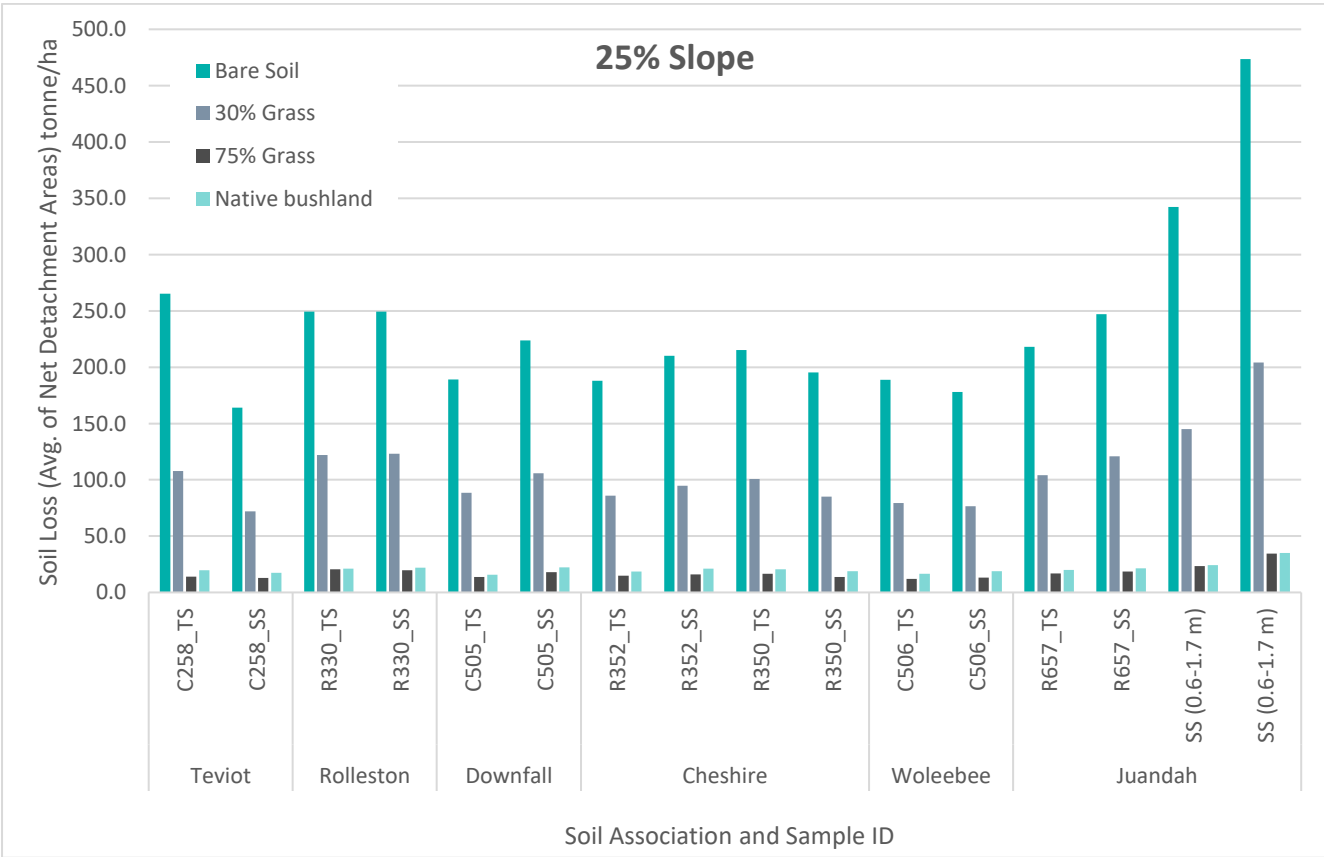
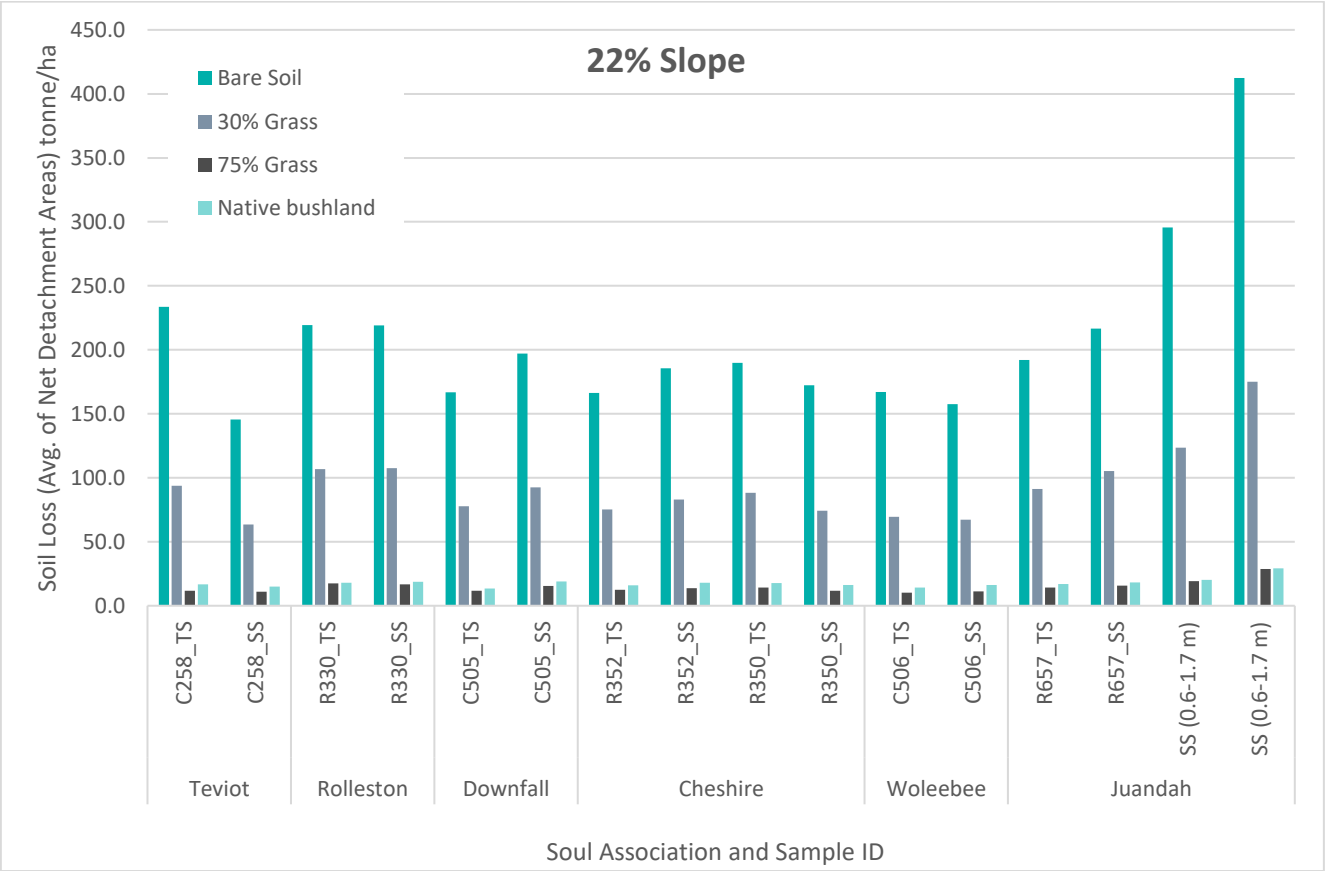
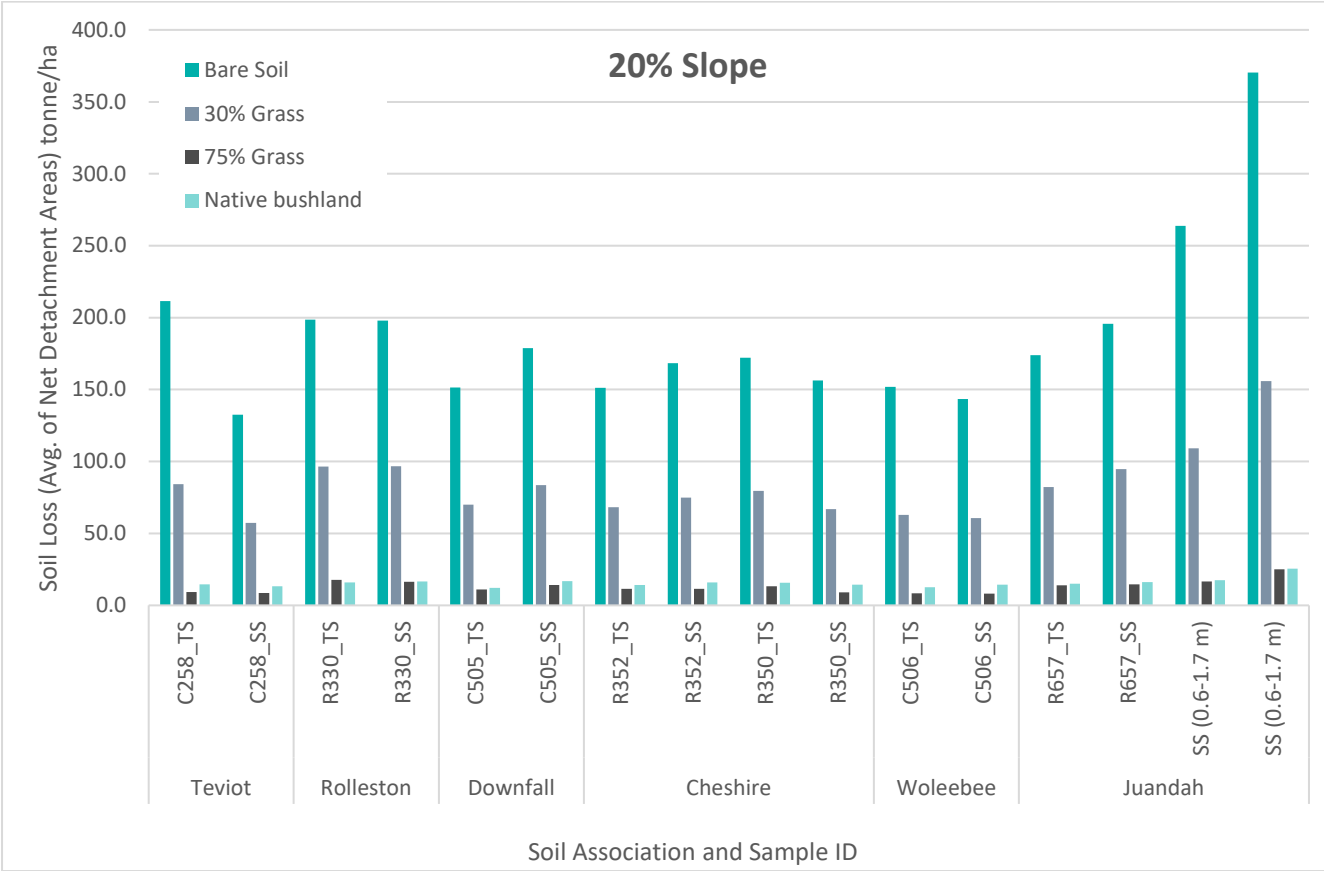
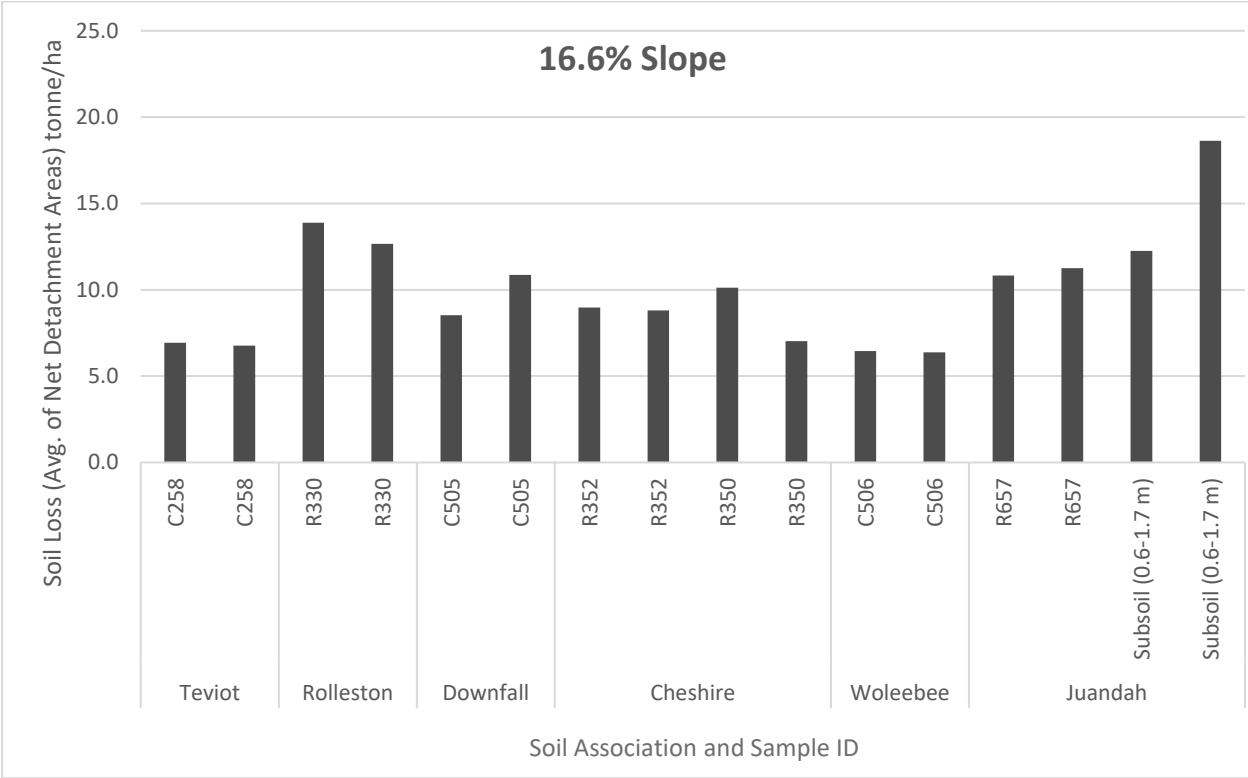
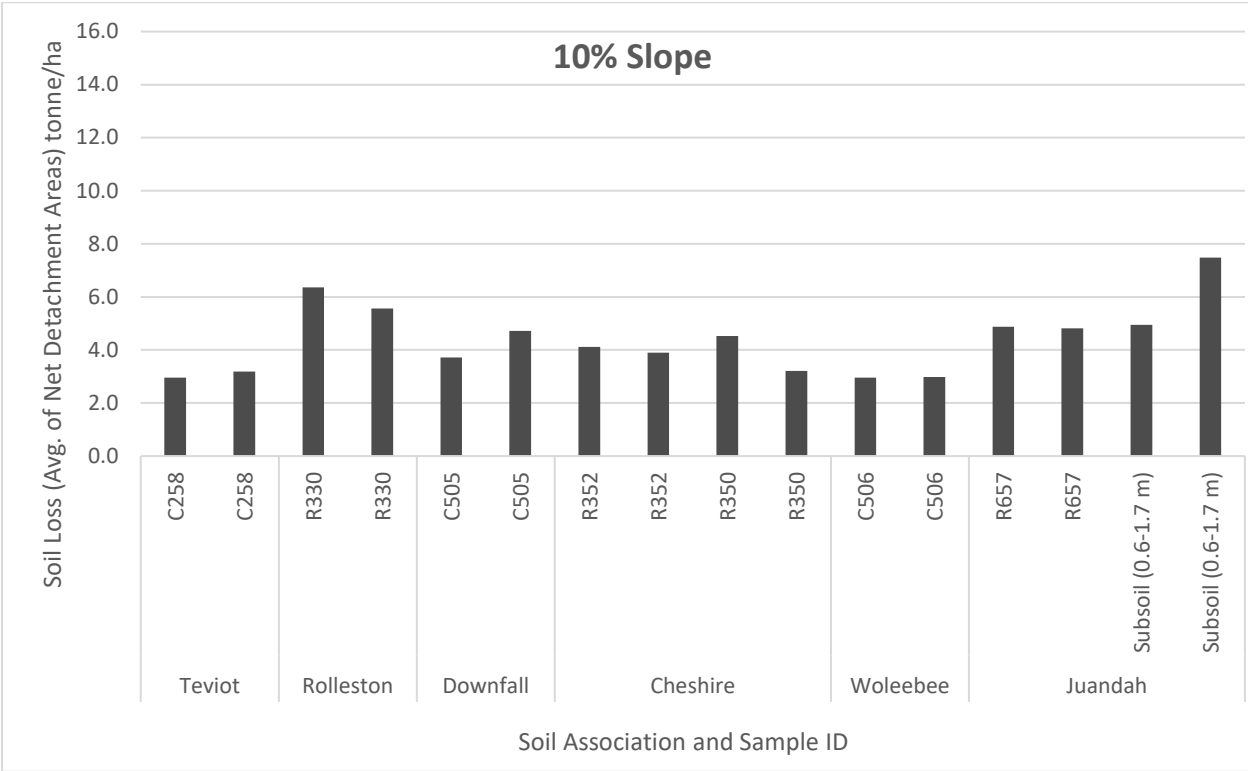


Figure 5-16 The average annual soil loss on different slopes and vegetation cover % for the soil types under investigation in the WCP area (SLR, 2025)



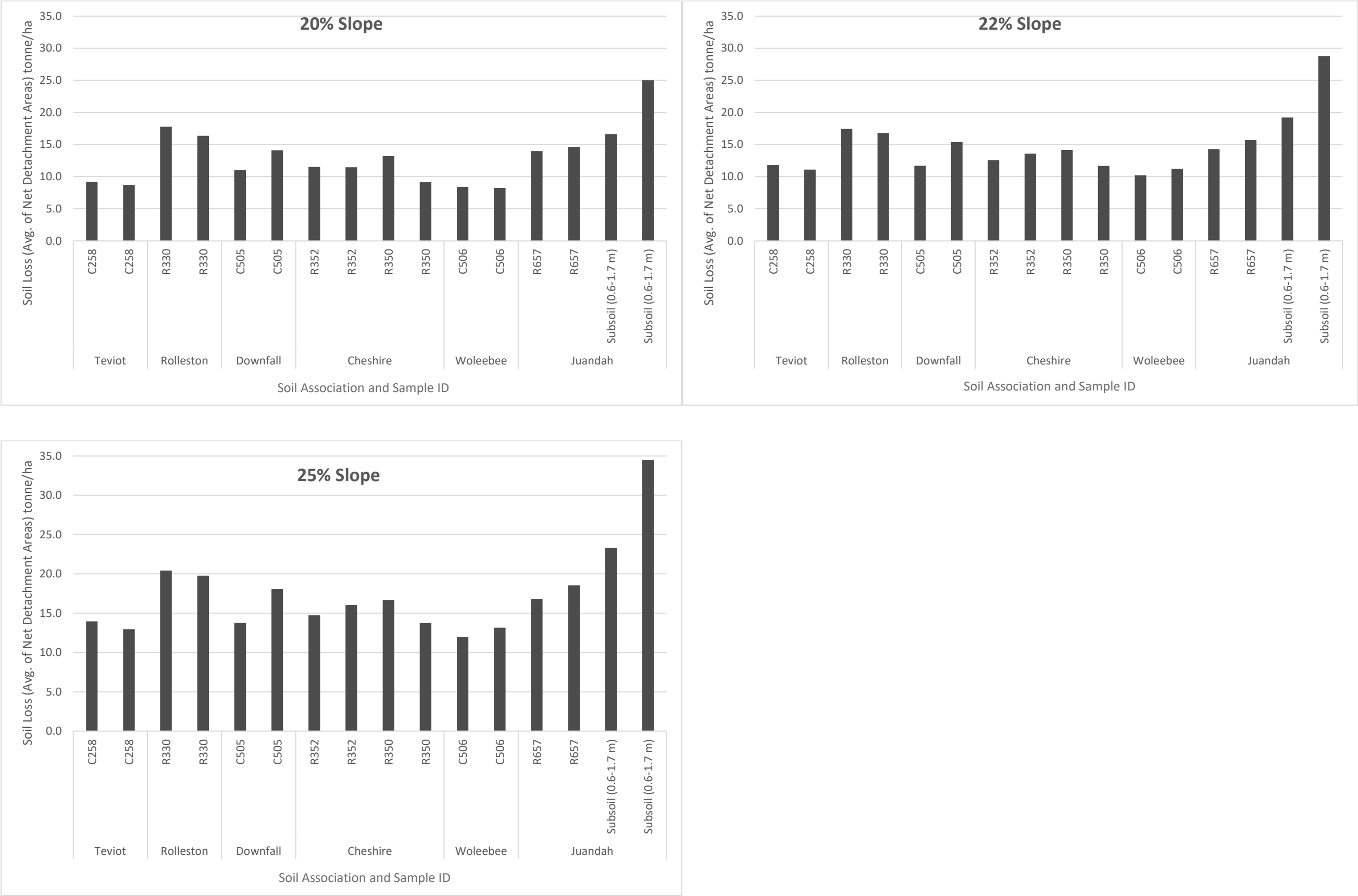


Figure 5-17 The average annual soil loss across various slopes with relevant PMLU vegetation coverage for the soil types in the WCP area (SLR, 2025)

The proposed final landform was informed by the WEPP modelling outputs. The model was run to compute annual soil erosion rates across multiple slope gradients including those proposed on the final landform within the disturbance area and under various vegetation cover scenarios (bare, 30 % grass cover, 75 % grass cover and for native bushland 30 % canopy cover and 60 % grass cover). Vegetation cover scenarios are representative of the proposed PMLUs of grazing and native bushland.

Slope grades and slope lengths were optimised for each material type and the landform design updated through multiple iterations to confirm a final landform stable to erosion. Slopes of 18 % to 22 % have been designed in the landform and include the lowwalls and the weathered zone of the highwalls. External batters of overburden emplacements have been designed with slopes of $\leq 18\%$.

All topsoiled and vegetated overburden emplacements and weathered highwall slopes have been designed to be stable to erosion in a closure context with maximum slope grades of 22 % and slope lengths of approximately 100 m. Giving consideration to the slope analysis detailed in Section 5.1 and shown in Table 5-11, erosion results were applied to slope areas across the WCP landform to provide an estimate of the maximum areas that the maximum erosion rate can be adopted. Whilst this provides an overestimate of the area that the maximum erosion rate is applied to it is useful in highlighting the relative proportion of the landform that is characterised by slopes $>15\%$.

Table 5-11 Maximum erosion rates from WEPP outputs on proposed WCP final landform slopes after vegetation establishes

PMLU	Slope Gradient	Approx. Total Area (ha)	Area of Disturbance (%)	Maximum Average Erosion Rate (t/ha/yr)	Maximum Average Soil Loss (mm/m ² /yr)	Time to establish vegetation cover
Grazing 75% Grass Cover	0-5%	13,655	80.3	< 6.4	< 0.48	3 Years
	5-10%	1,555	9.1	6.4	0.48	
	10-15%	1,385	8.1	13.3	0.8	
	15-22%	198	1.1	17.4	1.31	
Native Bushland 30% Canopy with 60% Grass cover	15-22%	174	1.2	19	1.41	10 Years
	>22%	38	0.2	Only occurs on remnant unweathered highwall		
Total area of disturbance		17,005	100			

Whilst modelling predicted an increase in erosion rates with increasing slope gradients, the model also predicted the impact of vegetative cover on reducing erosion rates. The modelled vegetation cover scenarios are shown to be effective in reducing erosion rates by approximately 90 % across all modelled slopes and soil type scenarios. Various management strategies (including deep ripping prior to seeding) can be employed during rehabilitation activities to minimise erosion rates until vegetation cover is achieved.

For the PMLU of grazing, the maximum average erosion rate under the 75 % grass cover scenario on proposed PRCP final landform slopes is 11.1 t/ha/yr to 17.4 t/ha/yr which equates to 0.8 mm/m²/yr to 1.3 mm/m²/yr of soil loss. The equivalent maximum predicted soil losses of 0.8 mm/m²/yr to 1.3 mm/m²/yr occur on 22 % slope gradients with a 100 m slope length after 75 % vegetation cover has been established. It is expected these erosion rates would be reached approximately 3 years after rehabilitation is completed.

For the native bushland PMLU comprising 30 % tree and shrub cover with 60 % grass cover, the modelling shows maximum erosion rates of 13.6 t/ha/yr to 19 t/ha/yr. This occurs on slopes of up to 22 % which occupy approximately 1.5 % of the WCP proposed PRCP final landform and include some highwall unweathered zones.

These maximum erosion scenarios are predicted to occur on very small areas (< 10 %) of the proposed final landform. The majority of the site (80 %) has slope gradients below 5 %. The modelling shows the maximum average annual rate of erosion on these slopes will be below 6.4 t/ha/yr once 75 % vegetation cover is reached.

Over the long term, it is anticipated that this erosion rate will be balanced by soil genesis driven by organic matter accumulation and microbial activity. Whilst modelling shows minor variations in erosion rates between the topsoil types available for rehabilitation activities, a minimum cover depth of 100 mm will be required to ensure predicted erosion rates are balanced with soil genesis.

Remanent unweathered (competent rock) highwall slopes between 0 % - 214 % are authorised under the EA. Whilst these slopes have not been specifically considered in the WEPP model, they occur within competent rock and therefore not subject to significant erosional risk. The geotechnical stability of these remanent highwall slopes has been addressed by PSM (2024) (Appendix M -of this PRCP) with all highwall slopes assessed as having Factors of Safety (FoS) > 1.2 with a very low risk of instability.

The WEPP analysis performed did not indicate any significant areas of rill erosion. However, any area of the landform that receives concentrated surface flows may have the potential to develop rill and gully erosion. These will be identified by rehabilitation monitoring and management actions implemented to achieve relevant milestone criteria.

5.6.1.2 Erosion risk

The role of the cover system is to support vegetation and the associated soil biota, maximise the infiltration of water into the new soil profile and enhance moisture retention to support the vegetation by increasing soil organic matter and organic carbon.

The maximum average soil loss rates obtained from the WEPP numerical analysis of bare topsoil is modelled in the range of 10 mm/m²/yr to 20 mm/m²/yr at 22 % slopes with a 100 m length. Slopes under this scenario occur on approximately 1 % of the disturbance area. The majority of the disturbance area (89 %) is modelled to experience maximum average soil loss rates of 4.6 mm/m²/yr to 6.9 mm/m²/yr correlating to 0 % to 10 % slopes.

It is assumed that bare topsoil would only exist in the WCP rehabilitation area for less than 1.5 years while vegetation cover establishes. The erosion rates from bare topsoil, during the initial 1.5 years post-rehabilitation, can be mitigated by:

- Undertaking rehabilitation within the year of topsoil spreading, largely in spring prior to the wet season;
- Using high seeding rates for grasses and high fertiliser rates to facilitate establishment;
- Applying gypsum to reduce exchangeable sodium percentage to a maximum of 6 %; and

- Ripping immediately prior to seeding to enhance infiltration, form a friable seed bed and minimise initial bare soil runoff and erosion above the modelled parameters.

As described above, modelling predicts maximum average soil losses of 0.8 mm/m²/yr to 1.3 mm/m²/yr at 22 % slopes with a 100 m slope length and with 75 % vegetation cover. It is anticipated that over the long term this erosion rate will be balanced by soil genesis activities driven by organic matter accumulation and microbial activity. As such, to maintain a balance between topsoil loss and soil genesis, a minimum topsoil cover of 100 mm is recommended to ensure topsoil sustainability and provide a suitable seedbed for vegetation establishment. The WCP rehabilitation methodology prescribes topsoil reinstatement depths on these slopes of 200 mm.

With the encapsulation of all tailings, rejects and potential spontaneous combustion forming material within the final overburden emplacements and a low risk of acid production, the risk of exposure of any hostile materials at the landform surface is extremely low.

5.6.2 Stockpile Planning and Placement

The following sections outline the requirements for managing long term soil stockpiles, which are stockpiles expected to exist for longer than six months.

Where feasible, stockpiles should be located as close as possible to final re-spread location to minimise haulage length post recovery. Direct return / placement of topsoil should be utilised where mine scheduling and haul distances apply to minimise the disturbance footprint. Additionally, maximising topsoil stockpile heights to 3 m whilst maintaining topsoil health (Fischer A et al, 2025) (Mackenzie DD et al) also reduces the disturbance footprint required to store topsoil.

Topsoil stripping will be undertaken with the following considerations:

- All topsoil stockpiled will be stripped based on the stripping depth guideline provided and may be stored separately dependent upon classification;
- Placement of topsoil should consider the landscape position the topsoil was stripped from, with soils of the undulating topography (Brigalow uplands cracking clays and non-cracking clays) used on slopes and hilltops, and the alluvial soils (Poplar box alluvial uniform and texture contrast) used in lower slopes and flat areas;
- Stockpile height to a maximum of 3 m (where practical) as per the GCAA rehabilitation planning and management guidelines (GCAA, 2023); and
- All topsoil units to be removed will remain separated from each other based on the limitations identified with each material and the stockpile or final respread area will be recorded to ensure individual soil units are tracked from in situ to final rehabilitation.

Care should be taken to ensure topsoil stripping is done efficiently to allow for optimal material recovery for use in future rehabilitation, to prevent and to prevent exposing subsoils during stripping.

5.6.2.1 Soil inventory

Stockpile locations will be planned prior to stockpiling and will be communicated to the relevant parties to ensure materials are placed at appropriate locations, ideally close to rehabilitation areas (if practical) to support rehabilitation. Signs nominating whether stockpiles contain topsoil will be placed appropriately to support rehabilitation. Signs will include the following information:

- Identification of soil type (topsoil referenced by colour) presented in Appendix L -; and
- Stockpile number.

A geospatial database will be maintained detailing the following:

- Soil type;
- Date stripped;
- Volume; and
- Stockpile number.

5.6.2.2 Erosion control and drainage management

Erosion control measures specifically relating to topsoil stockpiles will consider:

- Seeding or establishment of vegetation cover on long-term topsoil stockpiles to minimise wind and water erosion;
- When topsoil susceptible to wind erosion (e.g. Woleebie and Retro topsoils) are stripped and stockpiled, even if for only a few months, the stockpiles should be covered by grass, other vegetation, geofabric or less erosive topsoil to minimise wind erosion;
- Diverting clean water from areas upslope of all topsoil stockpiles around stockpile areas using contour banks or diversion channels, thereby reducing water flowing into the stockpile area;
- Bunding topsoil stockpiles with earthen bunds or similar, with sediment traps or similar features installed downslope of stockpiles to prevent eroded sediment entering waterways; and
- Only disturbing stockpiles for weed and erosion control or for seeding and fertilising purposes until required for rehabilitation.

5.6.2.3 Monitoring and maintenance

Regular inspections of the stockpile areas will be undertaken particularly after significant rainfall events and include:

- Integrity of sediment control;
- Effectiveness of drainage;
- Integrity of erosion control measures;
- Pasture/ grass growth; and
- Weed infestation.

5.6.3 Quality of Available Cover Materials

SLR (2024a) undertook a soils assessment to address the requirements of Section 3.6.1 of the PRCP Guideline and considers the availability, location, treatment and application of topsoil resources in rehabilitation activities at the WCP. The soils assessment is attached in Appendix L -.

Waste characterisation and capping requirements are addressed in the Geochemical, physical, and spontaneous combustion assessment of mine materials (RGS, 2024) which is further detailed in Section 5.8 of this PRCP.

This section discusses the quality and quantity of resources available for rehabilitation, location and accessibility of cover material, need for ameliorants and fertilisers and the relationship between soils and vegetation ecosystems for the PMLU and rehabilitation methodology.

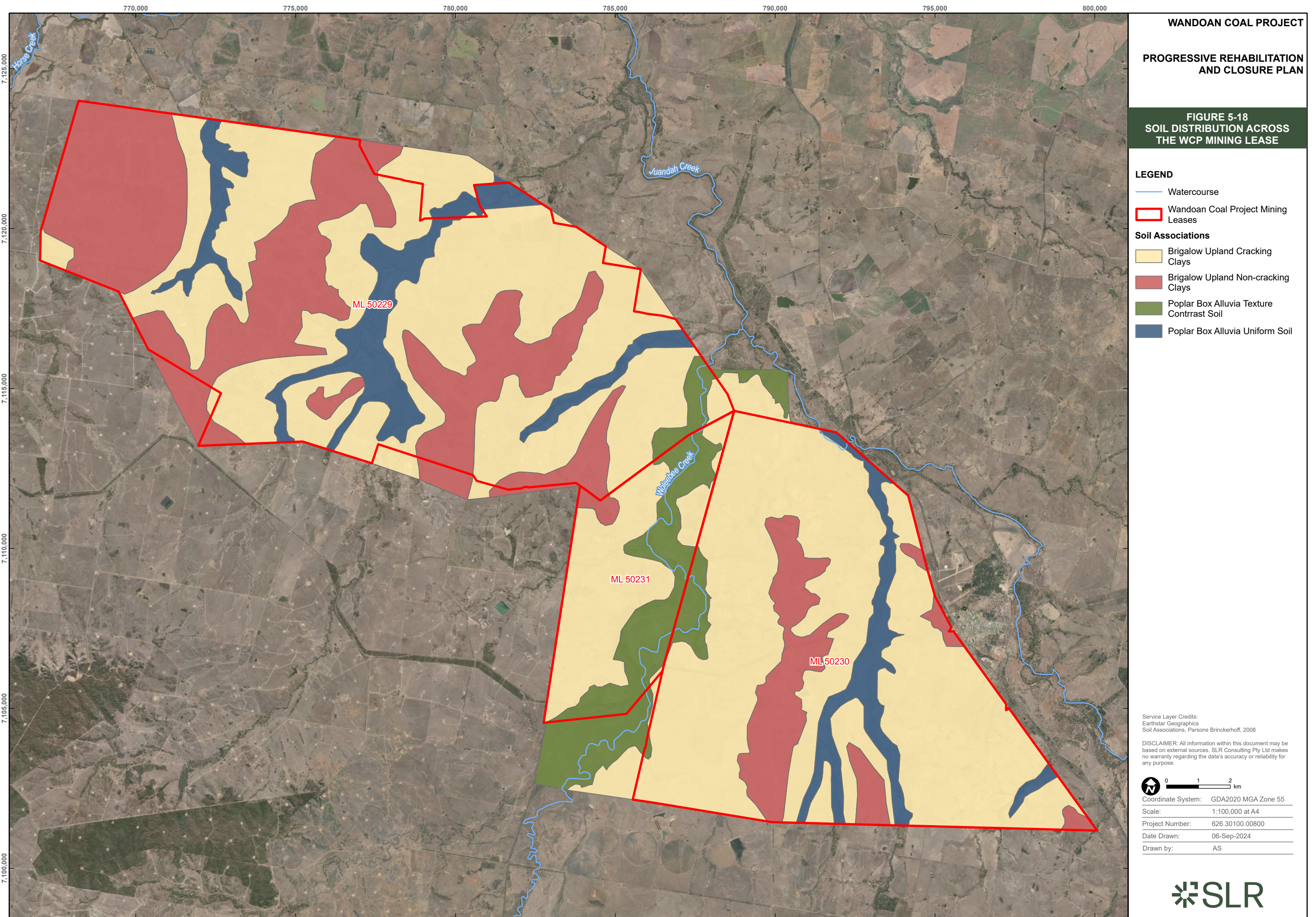
There is sufficient topsoil available within the WCP disturbance footprint to complete rehabilitation activities associated with the proposed final landform. Topsoil can be spread to sufficient depths to achieve the land suitability classes as conditioned by the EA (discussed in Table 3-1).

5.6.3.1 Soil properties

As discussed in Section 2.3.4 of this PRCP, two LRAs were identified in the WCP area by SLR (2024a):

- ‘Brigalow Uplands’ with cracking and non-cracking clays, usually found in undulating plains, broad ridges and low hills; and
- ‘Poplar Box Alluvia’ with uniform soils and texture contrast soils, found in floodplains and drainage channels.

Within these LRAs, eight soil types and their geomorphic / topographic positions were described and have informed the pre-mining land suitability assessment described in Section 5.6.5. Soil associations across the WCP MLs and within current LOM pit extents (updated from PB (2008)) are presented in Figure 5-18 and Figure 5-19. A summary of the soil types as prepared by SLR (2024a) is presented in Table 5-12 and chemistry of each soil type is presented in Table 5-13.



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FIGURE 5-18
SOIL DISTRIBUTION ACROSS
THE WCP MINING LEASE

LEGEND

Watercourse

Wandoan Coal Project Mining Leases

Soil Associations

Brigalow Upland Cracking Clays

Brigalow Upland Non-cracking Clays

Poplar Box Alluvia Texture Contrast Soil

Poplar Box Alluvia Uniform Soil

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Soil Associations, Parsons Brinckerhoff, 2008

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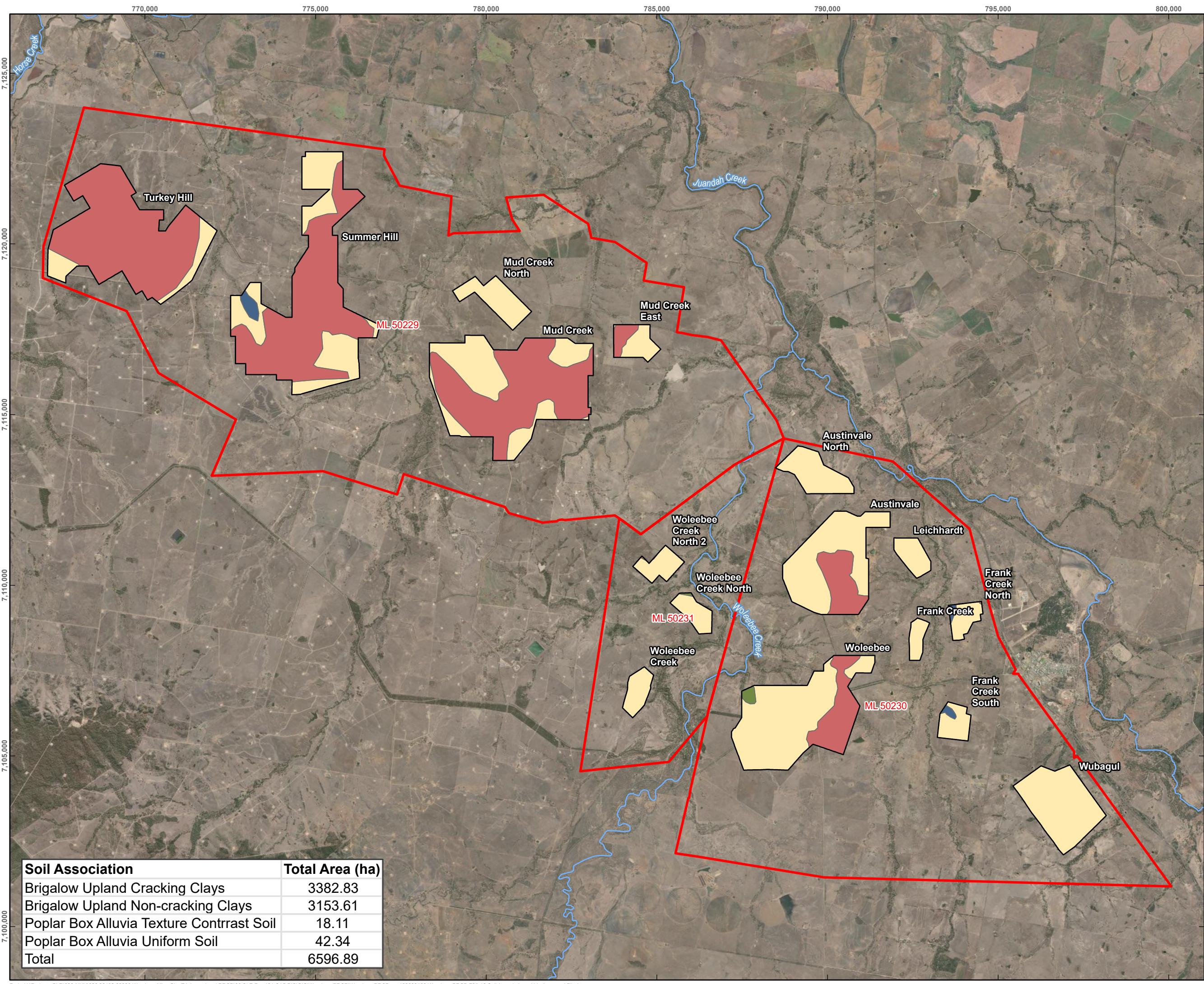
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WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 5-19
SOIL ASSOCIATION WITHIN THE LOM PIT DISTRIBUTION FOOTPRINT (SLR, 2024A)

LEGEND

Watercourse

Wandoan Coal Project Mining Leases

Pit Extent

Soil Associations

Brigalow Upland Cracking Clays

Brigalow Upland Non-cracking Clays

Poplar Box Alluvia Texture Contrast Soil

Poplar Box Alluvia Uniform Soil

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SLR

Soil Association	Total Area (ha)
Brigalow Upland Cracking Clays	3382.83
Brigalow Upland Non-cracking Clays	3153.61
Poplar Box Alluvia Texture Contrast Soil	18.11
Poplar Box Alluvia Uniform Soil	42.34
Total	6596.89

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Table 5-12 Soil Classification within the WCP MLs (SLR, 2024a)

Soil Association	Soil type	Australian Soil Classification	Slope	A1 horizon depth (mm)	Depth to weathered horizon	Dispersivity
LRA: Brigalow Upland Soils - Undulating plains, broad ridges and low hills						Topsoil
Cracking clays	Rolleston	Brown Dermosol	Mid or lower slopes 1 % to 4 %	200	Weathered sandstone or siltstone >1.5 m	Non-dispersive
	Teviot	Brown Vertosol	Gently inclined mid slope 1 % to 3 %	200	Weathered sandstone 1.0 m -1.5 m	Non-dispersive to dispersive
	Downfall	Brown Vertosol	Mid to lower slopes 2 %	50 – 150	Weathered sandstone or colluvium >1.5 m	Dispersive
Non-cracking clays	Kinnoul (Shallow Cheshire)	Brown Dermosol	Upper slopes	300 - 400	Weathered sedimentary rock 0.75 m	Non-dispersive
	Cheshire	Brown Dermosol	Steeper gradient upper slopes. Up to 3 %	400 - 600	Weathered sandstone or siltstone 1.0 m – 1.5 m	Non-dispersive
LRA: Poplar Box Alluvia Land Resource Area – Floodplains and drainage channels						Topsoil
Texture contrast soils	Retro	Brown Chromosol	Gently undulating floodplains < 0.5%	150	Weathered sediments or colluvium 1.0 m	Non-dispersive
	Woleebee	Brown Sodosol	On floodplains	150	Weathered alluvium 1.0 m	Dispersive
Uniform texture soil	Juandah	Brown Vertosol	Flat floodplains with less than 1% gradient	500	Weathered alluvium > 1.5 m	A1 non-dispersive A2 dispersive

Table 5-13 Chemistry of topsoils within the WCP MLs (SLR, 2024a)

Soil Association	Soil type	Profiles analysed	Texture	pH	Salinity	Cation exchange capacity	Calcium to magnesium ratio	Trace metals	Nitrate as N	Bicarbonate phosphorus	Organic matter
LRA: Brigalow Upland Soils - Undulating plains, broad ridges and low hills											
Cracking clays	Rolleston	4	Heavy clay	Neutral to strongly alkaline	Low	Very low to high	Low Ca to balanced	Medium Cu, medium to high Mn and medium Zn	Low to high	Moderate	Low to moderate
	Teviot	8	Clay	Mildly to moderately alkaline	Low	Very low to high	Low Ca to balanced	Medium Cu, medium to high Mn, low to medium Zn	Low to moderate	Very low to low	Moderate to high
	Downfall	5	Clay	Neutral to moderately alkaline	Low	Very low to high	Low Ca	Medium Cu, Mn and Zn	Low to high	High	Moderate
Non-cracking clays	Kinnoul (Shallow Cheshire)	6	Sandy clay or light clay	Neutral to mildly alkaline	Low to moderate	Low	Balanced	Zn and Cu below detection limit, Mn medium	Low to high	Very low	Moderate to high
	Cheshire	4	Sandy clay to light clay	Neutral to mildly alkaline	Low to moderate	Low to high	Low Ca	Medium Cu and Zn, medium to high Mn	Moderate to high	Very low to low	Moderate to high

Soil Association	Soil type	Profiles analysed	Texture	pH	Salinity	Cation exchange capacity	Calcium to magnesium ratio	Trace metals	Nitrate as N	Bicarbonate phosphorus	Organic matter
LRA: Poplar Box Alluvia Land Resource Area – Floodplains and drainage channels											
Texture contrast soils	Retro	3	clay loam	Neutral to mildly alkaline	Low	Very low to low	Balanced	Zn below detection limit, medium Mn, very high Zn	Low to moderate	Low	Moderate
	Woleebee	1	Silt loam	Mildly alkaline	Low to moderate	Moderate	Balanced	Low Cu, medium Mn and Zn	High	High	Moderate
Uniform texture soil	Juandah	4	Clay	Neutral	Low	Very low to high	Low Ca to balanced	Medium Cu, medium to high Mn and low to medium Zn	Low to high	Moderate	Moderate to high
Cu: Copper, Mn: Manganese, Zn: Zinc Ratings are provided (Appendix A - of SLR (2024a))											

Topsoil

The soils of the WCP area are predominantly Vertosol, with some minor areas of Sodosol. as documented in The Atlas of Australian Soils (Northcote et al., 1960-68).

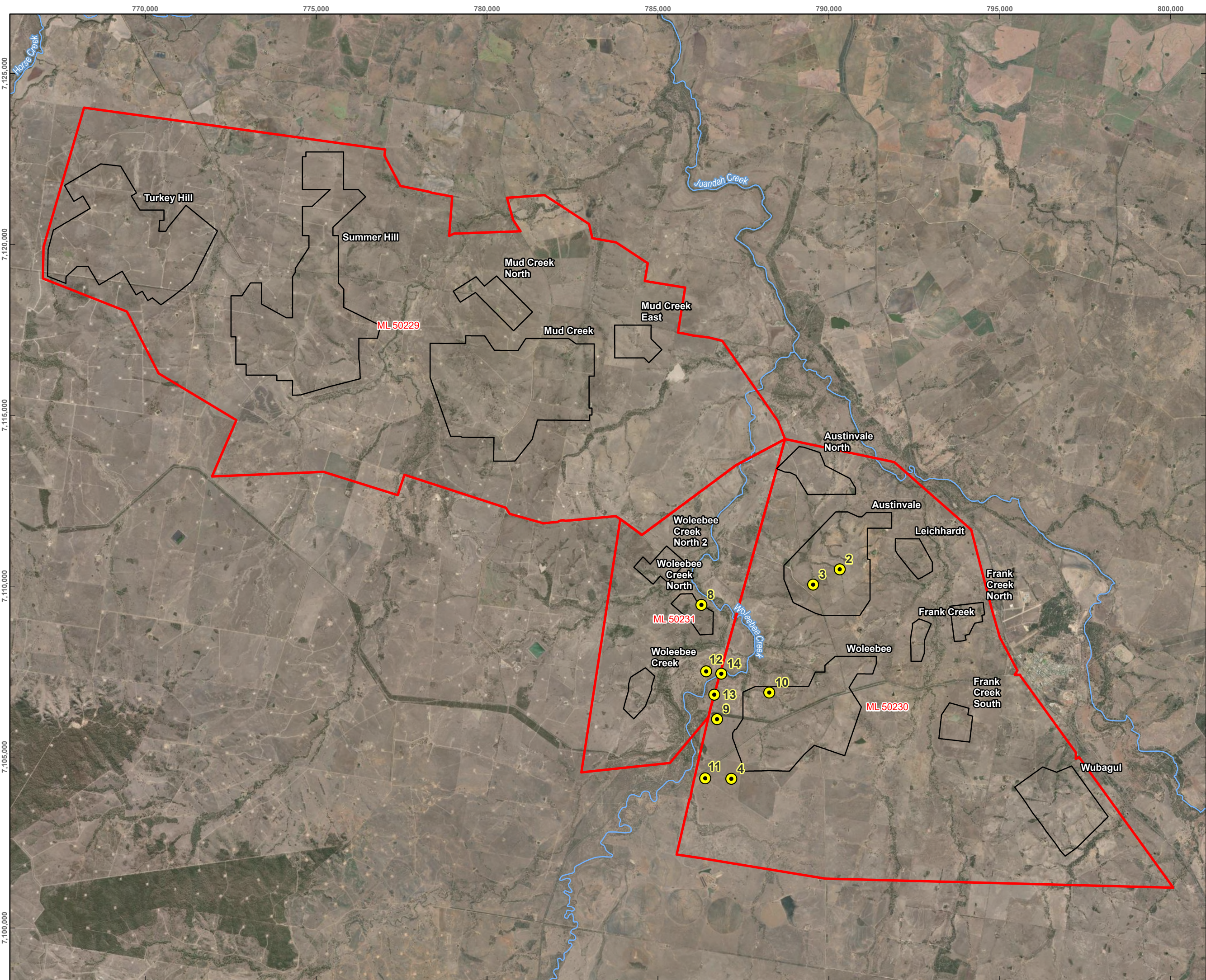
As part of the detailed investigations undertaken to support the development of the WCP EIS, 41 test pits were developed, sampled and analysed for physiochemical attributes. The locations of the test pits are presented in Figure 5-20. Results showed that all A1 topsoil horizons were identified as alkaline, except for Juandah which was neutral. The soils are rich in clay and highly plastic, which can likely be attributed to the proportion of swelling clay minerals, such as smectite/montmorillonite. Soil texture ranges from clays to silty clays and they have a good water retention capability. Nutrients such as organic matter and plant-available P and K are low but are sufficient to support native vegetation. The soils were also identified having low to moderate salinity and non-dispersive qualities except for Downfall and Wolleebee. The Brigalow Upland Soils cracking, and on-cracking clays are nutrient deficient.

Subsoil

Subsoils from the Cheshire, Wolleebee, Rolleston and Teviot soil units were identified as having moderate to extreme alkalinity and sodicity. All other subsoil within the Brigalow Uplands soil mapping unit were considered dispersive to a lesser extent (PB, 2008). Due to their physical characteristics' subsoils are not intended for use as a cover material or growth material in rehabilitation activities at the WCP.

5.6.3.2 Fertilisers and ameliorants requirement

There is sufficient quality topsoil available at the WCP for use in rehabilitation activities. Topsoil characterisation indicated the soils of the WCP area present negligible to moderate limitations to supporting cattle grazing and native bushland PMLUs. The Brigalow Upland Soils cracking, and non-cracking clays are nutrient deficient, and the addition of an initial fertiliser application at the time of seeding will facilitate plant establishment and growth. A controlled release fertiliser is to be applied at the time of ripping and seeding activities. Application rates should follow the manufacturer's guidelines depending on nutrient concentrations. For stockpiled topsoil, the rate of application of ameliorants is best assessed before placement to ensure the ameliorants are specifically tailored to the quality of the soil at the time of placement.



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PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 5-20
2008 SOIL SAMPLING AND TEST PIT LOCATIONS
(PARSONS BRINCKERHOFF, 2008)

LEGEND

Soil Sampling Site

Watercourse

Wandoan Coal Project Mining Leases

Pit Extent

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5.6.4 Quantity - Topsoil Balance

Topsoil depths to be applied over rehabilitation areas will be dependent on erosion modelling outcomes, disturbance type, slope and the land suitability limitations, namely plant water availability, required to be addressed to achieve the prescribed land suitability classes. Land used for exploration and infrastructure including roads; and generally located on lower gradient slopes will be rehabilitated with approximately 100 mm of topsoil whilst overburden emplacements, lowwalls and the weathered zone of highwalls will be treated with approximately 200 mm of topsoil.

Proposed topsoil stripping depths as presented in Table 5-14 are conservative to ensure *in situ* dispersive subsoils are not exposed. The texture contrast topsoil of Retro and Woleebee have been excluded from material balance calculations based on the constraints of their soil characteristics. The topsoil volume available for use in rehabilitation activities is approximately 21,962,250 m³. Topsoil is anticipated to be stripped from the majority of disturbed areas and when direct placement on rehabilitation areas is not possible, will be stockpiled for future use.

Table 5-14 Proposed topsoil stripping depths and available volumes for use per soil associations in LOM pit disturbance footprint

Soil Association	Area (ha)	Topsoil Stripping Depth (mm)	Topsoil Volume (m ³)
Brigalow upland cracking clay	5,899	200	11,798,000
Brigalow upland non-cracking clay	4,165	300	12,495,000
Poplar box alluvia uniform soil	73	150	109,500
Total available (excluding Poplar box alluvia texture contrast soil)	10,137	-	24,402,500
Total available (including handling loss of 10%)	-	-	21,962,250

The erosion risk assessment detailed in Section 5.6.1 outlines the minimum topsoil depth required as being 100 mm to balance any soil loss via erosion with soil genesis. These depths are also informed by land suitability limitations, namely plant water availability, required to be addressed to achieve the prescribed land suitability classes. Topsoil reinstatement depths of 100 mm on roads and infrastructure areas and 200 mm on overburden emplacements, lowwalls and the weathered zone of highwalls can be re-instated. The topsoil balance takes into consideration a 10 % handling loss of stockpiled topsoil. The re-instatement depth is designed to allow for variation in spreading and settling. In open cut mining, settling over time is not likely to impact the availability of rehabilitation areas. There may be natural variations in the topsoil depths available. Topsoil availability will be revised based on actual topsoil stripping depths post stripping activities.

Table 5-15 Proposed topsoil placement depths (SLR, 2024a)

Disturbance Type	Area (ha)	Topsoil Respread Depth (mm)	Topsoil Volume Required (m ³)
Spoil emplacements, lowwalls and highwalls etc	8,595	200	17,190,000

Disturbance Type	Area (ha)	Topsoil Respread Depth (mm)	Topsoil Volume Required (m ³)
Infrastructure (including contingency for retained water storages if required and excluding retained haul roads (RA4) and exploration and ancillary area (RA7))	1,236	100	1,236,000
Total required for rehabilitation activities	-	-	18,426,000
Total available (including handling loss of 10%)	-	-	21,962,250

Based on initial calculations of topsoil availability and topsoil required for rehabilitation activities, sufficient topsoil will be available to rehabilitate the total disturbance footprint as presented in Table 5-15, with the surplus being available as a contingency to provide topsoil for approximately 50% of the area associated with exploration and ancillary activities.

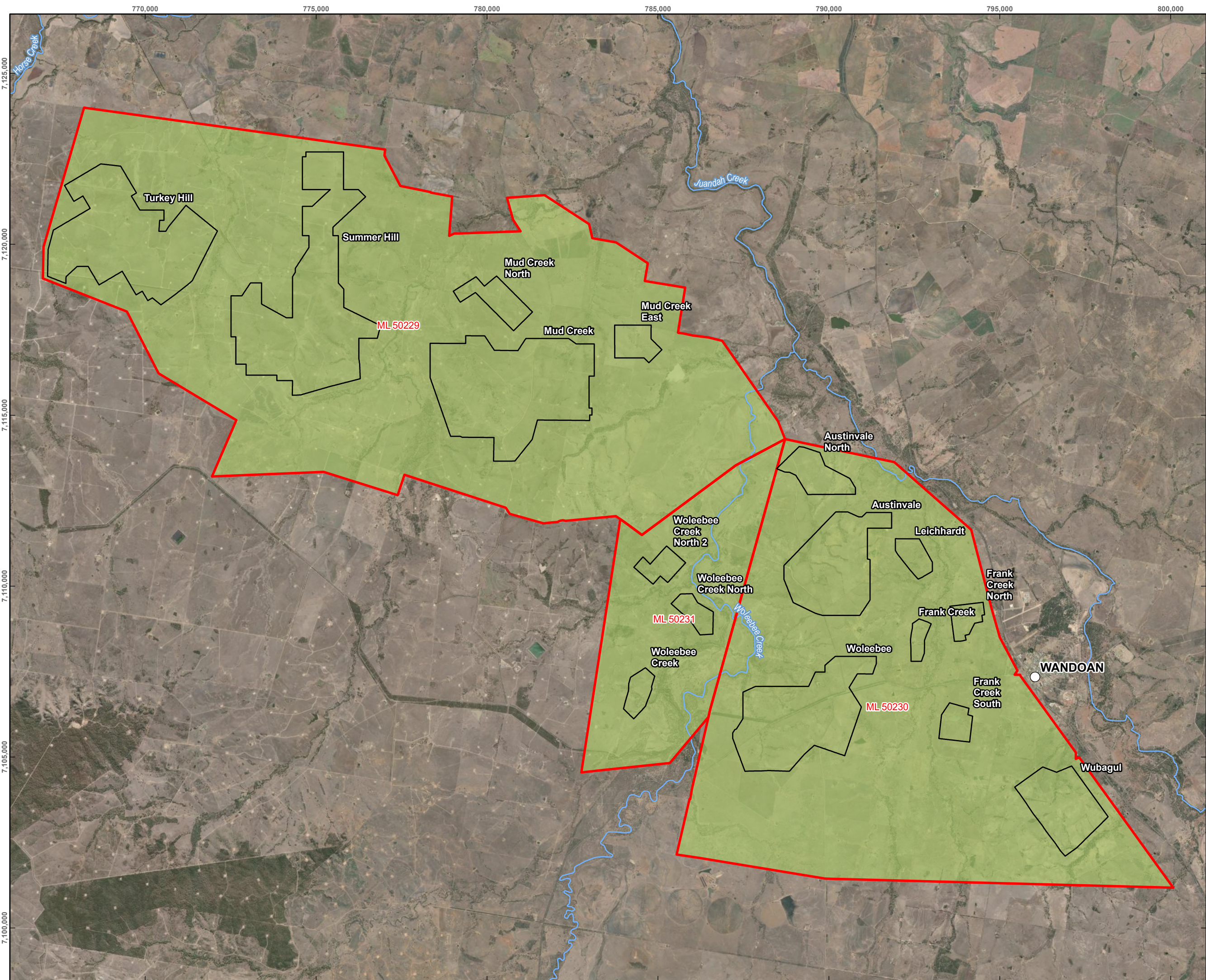
5.6.5 Pre-mining Land Suitability Assessment

A pre-mining land suitability assessment was undertaken in 2008 and revised in 2009 (SLR, 2024a) for the WCP EIS and as the basis for conditioning the WCP EA as it relates to the land suitability outcomes for land to be rehabilitated to a PMLU of grazing. This assessment followed the Guidelines for Agricultural Land Evaluation in Queensland (DNRMMRRD, 1990) with reference to the Department of Mines and Energy (DME) Land Suitability Assessment Techniques (DME, 1995). The pre-mining land suitability classes were derived from a combination of the identified soil types, and geomorphic/topographic position. Pre-mining land suitability classifications for the WCP MLs are presented in Table 5-16.

Table 5-16 Pre-mining land suitability area

Land Use	Area (ha)
Land Suitability (DME, 1995)	Beef Cattle Grazing Class 2
Total ML Area	30,100
Total LOM Disturbance Footprint within all MLs	17,005
Undisturbed Area within all MLs	13,096

The beef cattle grazing pre-mining land suitability assessment is relevant to the areas of the proposed WCP final landform that have a PMLU of beef cattle grazing. Whilst a pre-mining land suitability assessment was conducted for dryland cropping, no further consideration was given as dryland cropping is neither proposed as a PMLU for the WCP nor authorised under the EA. The pre-mining soil suitability for the WCP MLs for beef cattle grazing was assessed as Class 2 for all soil types across the WCP MLs as presented in Figure 5-21.



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FIGURE 5-21

PRE-MINING LAND SUITABILITY
CLASS FOR BEEF CATTLE GRAZING

LEGEND

○

Town/City

—

Watercourse

▭

Wandoan Coal Project Mining
Leases

▭

Pit Extent

Land Suitability Class

■

2

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Land Suitability Class, Parsons Brinckerhoff, 2008

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5.6.1 Post-mining Land Suitability Assessment

The post-mining land suitability classes were assessed using DME 1995 which aligns with the framework that was used to condition the EA, specifically the requirements in Table F1 that authorise a post mining land suitability class e.g. Class 4 for a PMLU of grazing on steeper gradient overburden disposal stockpiles and final void areas. More recent land suitability assessment frameworks, such as DSITI & DNRMMRRD (2015) and Short (2023) have redefined the limitations and descriptions associated with each land suitability class. As such, the use of DSITI & DNRMMRRD (2015) for the post-mining land suitability assessment is not appropriate as it does not enable a direct comparison with the pre-mining land suitability assessment and ultimately changes the nature of the EA authorised post-mining land suitability class conditions. For the sake of comparison and to maintain the intent of the EA authorised post-mining land suitability class conditions the DME 1995 framework has been used for the WCP post-mining land suitability assessment.

The WCP EA approves beef cattle grazing and native bushland as PMLUs and conditions the achievement of a post mining land suitability class for the beef cattle grazing PMLU per disturbance type. The post-mining land suitability classes required to be achieved for the beef cattle grazing PMLU as per the EA are outlined in Table 5-17 and the limitations of the land are described below:

- Where slopes gradients are < 12 %, the rehabilitated land can be returned to Class 2 grazing land if the reinstated profile also comply with the other requirements outlined in DME 1995 for Class 2 grazing land;
- Land used for exploration, infrastructure including roads, and MIA will have limitations related to water availability (through compaction and breakdown of the subsoil structure). This land will be returned to Class 3 grazing. Class 2 grazing will be considered where practicable; and
- Overburden emplacements will have limitations related to plant water availability, slope, and nutrient content. Flatter slope gradient sections will be returned to Class 2 grazing land where practicable. Steeper overburden slopes will be returned to Class 4 grazing land.

Where slopes gradients are <12 %, the rehabilitated land can be returned to Class 2 grazing land if the reinstated profile also meets the other criteria outlined in DME 1995 for Class 2 grazing land including plant available water capacity (PAWC), ESP and Root Zone EC. (refer to Appendix B of Appendix L -of this PRCP).

Topsoil depths to be applied over rehabilitation areas will be dependent on disturbance type and slope and limitations identified in the post mining land suitability assessment. Land used for exploration and infrastructure including roads; and generally located on lower gradient slopes will be rehabilitated with approximately 100 mm of topsoil which is sufficient to address the limitations of plant water availability.

Overburden emplacements, lowwalls and the weathered zone of highwalls will be treated with approximately 200 mm of topsoil which exceeds the 100 mm required to balance any soil loss via erosion with soil genesis and address the plant water availability limitations. Low nutrient levels will be addressed through fertiliser application.

In Table 5-17, disturbance types were compared to the corresponding PMLU as described in Table F1 of the EA and compared against the PMLU proposed in the PRCP and their subsequent land suitability classification. The post-mining landform has been designed to ensure both a beef cattle grazing PMLU and the associated land suitability classes, as outlined in the EA, can be achieved.

Table 5-17 Summary of EA PMLU and final landform land suitability assessment for WCP

Area/ EA Disturbance Type (EA Table F1)	Total Area (ha) and percentage (%) of total area to be rehabilitated	Pre-approved PMLU (EA Table F1)	PMLU to be Achieved	Proposed Final Landform Slope (%) (EA Table F2)	Land Suitability Criteria for Water Erosion (slopes) (DME, 1995)	WCP Final Landform Land Suitability Class for Grazing PMLU (DME, 1995)
a) Exploration, Infrastructure including roads, MIA, etc.; and b) Low gradient overburden disposal stockpiles including tailings disposal	15,978 (94 %)	Beef cattle grazing, native bushland or plantation forestry	Grazing	Roads and Tracks < 10 % Infrastructure and Spoil areas < 18 %	3 % – 20 %**	Class 3*
a) Steeper gradient overburden disposal stockpiles; and b) Final voids (ephemeral waterbodies and lowwalls)	815 (4.8 %)	Low density beef cattle grazing or native bushland	Grazing (light)	Spoil Areas and Waste Rock Dumps < 18 % Lowwalls < 22 %	20 % – 45 %	Class 4
Final voids (highwalls including weathered and unweathered zones)	212 (1.2 %)	Native bushland (highwall) and low density beef cattle grazing (lowwall as included above))	Native bushland	0 % - < 214 %	20 % – 45 %	N/A as this is native bushland and not a grazing land use.
Table Notes: * Where practicable, this land will be returned to Class 2 grazing land, otherwise slopes over 3 % will be returned Class 3 grazing land. ** non-sodic rigid soils						

5.7 Geotechnical Stability

A geotechnical stability assessment of the WCP proposed final landform was undertaken by PSM Consulting Pty Ltd (PSM) (PSM, 2024) and is attached as Appendix M -. The stability assessment addresses the geotechnical requirements of the PRCP Guideline and was conducted on:

- The final landform, including lowwalls and overburden emplacements, where there are areas with regraded slopes of up to 22 % and highwalls; and
- The stability of the overburden emplacements in proximity to tailings and reject disposal cells.

The WCP has adopted a FoS of 1.2 as a minimum design standard for the geotechnical stability of final landforms and at the crest of highwalls. Abandonment bunds located behind highwalls, will be offset at a distance that achieves a minimum FoS of 1.5. All landforms assessed by PSM achieve the minimum design standards.

5.7.1 Methodology

Final landform slope geometrics were assessed using Limit Equilibrium Stability Analysis (LESA), which was applied to 11 cross sections of the WCP landform highlighting:

- Final overburden emplacement profile;
- Final regraded profile;
- Extent of in-situ and backfilled overburden material;
- Base of weathering in the in-situ material; and
- Final groundwater level.

Stability analyses were undertaken to address the following aspects:

- Stability of overburden emplacements: three cross-sections of the highest overburden emplacements were analysed including those of Summer Hill, Turkey Hill and Wubagul pit areas;
- Stability of overburden emplacements focusing on where proximity of tailings and reject disposal near final exposed landform may impact on stability; and
- Stability of highwalls: three cross-sections were selected to assess the maximum height of exposed highwalls (competent rock and weathered zone); one in Austinvale pit (maximum height of 26 m), one in Wabagul pit (maximum height of 30 m) and one in Woleebee pit (maximum height of 32 m).

The locations of the geotechnical investigation cross sections are presented in Figure 5-22 with individual cross sections provided in Appendix M -.

5.7.1.1 Critical failure mechanisms

The stability analyses undertaken considered the following failure mechanisms:

- For the final landform including lowwalls and overburden emplacements, where there are areas with regraded slopes of up to 22 %, circular failure mechanism was considered;
- For the overburden emplacements in proximity to tailings and reject disposal cells, a bi-linear failure mechanism was considered with shearing along the base of the deposited tailings/ rejects and failure through the overburden. The potential impacts of drained and undrained tailings behaviour were also considered when calculating FoS; and

- For stability analyses considering highwalls, a circular mechanism was considered.

5.7.2 Stability Analysis

5.7.2.1 Overburden emplacement stability

The FoS generated from the stability analysis undertaken by PSM (2024) are presented in Table 5-18 and Table 5-19. The high FoS values generated are indicative of the low risk of instability in the final landforms including lowwalls and overburden emplacements, mainly resulting from the shallow overall angle (22 %) and the limited overall height. All landforms considered exceed the minimum design standard FoS of 1.2.

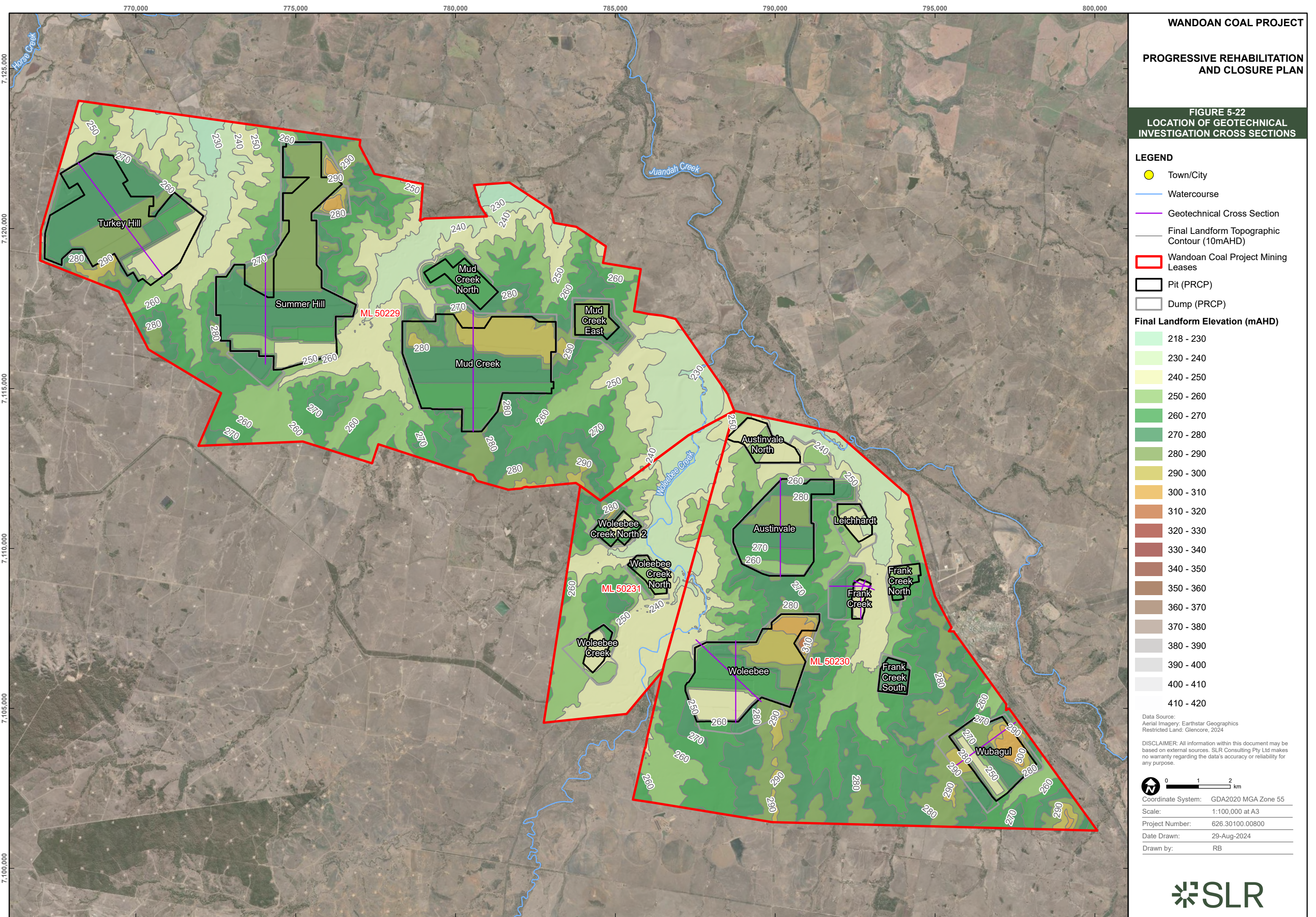
Table 5-18 FoS results of stability analyses – overall overburden emplacement stability (PSM, 2024)

Pit Area	Location	Overburden Emplacement FoS	Minimum Design Standard FoS
Wubagul	Lower Slope	2.66	1.2
	Upper Slope	3.18	1.2
Summer Hill	Lower Slope	2.35	1.2
	Upper Slope	4.72	1.2
Turkey Hill	Lower Slope	4.68	1.2
	Upper Slope	2.29	1.2

5.7.2.2 Tailings/reject encapsulation stability

During mining operations, the tailings and rejects disposal method at the WCP is the placement of tailings and rejects within cells that will be encapsulated with each lift of the overburden emplacement. Bunded cells will be constructed within the overburden emplacements, nominally 1.5 m high, which are progressively filled with tailings and reject and allowed to dry *in situ*. These are finally encapsulated as part of the construction of the overburden emplacement and subsequent final landform.

A critical component of construction will be ensuring offset distances between encapsulation cells, and the nearest exposed face of the overburden emplacement is constructed appropriately. A minimum offset distance of 20 m will be adopted to minimise the risk of exposing cells during the reshaping of the final landform. FoS have been determined for both a drained (i.e., materials that have effectively dried out) and undrained state. Further detail on tailings and reject encapsulation is provided in Section 5.9.



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AND CLOSURE PLAN

FIGURE 5-22
LOCATION OF GEOTECHNICAL
INVESTIGATION CROSS SECTIONS

LEGEND

- Town/City
- Watercourse
- Geotechnical Cross Section
- Final Landform Topographic Contour (10mAHD)
- Wandoan Coal Project Mining Leases
- Pit (PRCP)
- Dump (PRCP)

Final Landform Elevation (mAHD)

- 218 - 230
- 230 - 240
- 240 - 250
- 250 - 260
- 260 - 270
- 270 - 280
- 280 - 290
- 290 - 300
- 300 - 310
- 310 - 320
- 320 - 330
- 330 - 340
- 340 - 350
- 350 - 360
- 360 - 370
- 370 - 380
- 380 - 390
- 390 - 400
- 400 - 410
- 410 - 420

Data Source:
Aerial Imagery: Earthstar Geographics
Restricted Land: Glencore, 2024

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Date Drawn: 29-Aug-2024

Drawn by: RB



Table 5-19 FoS results of stability analysis – overburden emplacement stability near tailings cells (PSM, 2024)

Pit Area	Tailings Cell Location	Tailings Strength	Overburden Emplacement Near Tailings Cells FoS	Minimum Design Standard FoS
Wubagul	Top	Undrained	3.79	1.2
		Drained	5.59	1.2
	Middle	Undrained	3.62	1.2
		Drained	4.68	1.2
	Bottom	Undrained	3.32	1.2
		Drained	4.89	1.2
Summer Hill	Top	Undrained	66.18	1.2
		Drained	73.56	1.2
	Bottom	Undrained	3.28	1.2
		Drained	4.75	1.2
Turkey Hill	Top	Undrained	3.17	1.2
		Drained	4.49	1.2
	Bottom	Undrained	2.95	1.2
		Drained	3.83	1.2

The stability analyses indicate the following FoS for the landform within proximity to the tailings/ rejects cells:

- Bilinear mechanism impacted by undrained tailings/ rejects: FoS = 2.95 to 3.79; and
- Bilinear mechanism impacted by drained tailings/ rejects: FoS = 3.83 to 5.59.

Results highlight that in the event that tailings are encapsulated when not fully dried out (an undrained state) the landform in proximity to the tailings cell achieves FoS that exceed the minimum design standard of 1.2.

5.7.2.3 Highwall stability

A summary of FoS for highwalls from the stability assessment is presented in Table 5-20. The FoS of highwalls demonstrate a low risk of instability, noting that the weathered zone of highwalls will be battered to a maximum angle of 22 %. All highwalls analysed exceed the minimum design standard FoS of 1.2. The minimum design criteria for abandonment bunds behind highwalls, is an offset of a distance that achieves a minimum FoS of 1.5. All highwalls analysed exceed this minimum design standard of FoS 1.5 for safety bunds which will be located at the backside of the regraded weathered zone.

Table 5-20 FoS results of stability analyses – highwalls (PSM, 2024)

Pit Area	Location	Highwall FoS	Minimum Design Standard FoS
Wubagul	Upper Slope	3.9	1.2
Woleebee	Upper Slope	3.67	1.2
	Overall Slope	5.36	1.2
Austinvale	Overall Slope	4.96	1.2

5.8 Waste Characterisation

The types of contaminants associated with mined materials from an open cut coal mine can include elevated concentration of trace metals/metalloids and major ions resulting from acid and metalliferous drainage (AMD), neutral mine drainage (NMD), and saline drainage (SMD).

A geochemical, physical and spontaneous combustion (GPSC) assessment of mine materials at the WCP was undertaken by RGS Environmental Consultants Pty Ltd (RGS) (RGS, 2024) (appended as Appendix B -), to meet the requirements of the PRCP Guideline.

5.8.1 Methodology

The assessment of mine materials from the WCP included the analysis of 142 samples taken from the Wandoan Bulk Sample Pit (WBSP), located within the footprint of the planned Austinvale Pit, and a distribution of drill core samples taken from across the WCP, including eight drill holes representing materials likely to be generated from the Woleebee, Leichhardt, and Austinvale Pits. Sample locations are presented in Figure 5-23 and Figure 5-24. Samples were also obtained from three of the proposed 16 pits that will be mined at the WCP. Samples were taken from the major lithologies of concern including the Quaternary Alluvium, Springbok Sandstone and Juandah Coal Measures which contain the Kogan, Macalister Upper and Lower and Wambo coal seams, which are the target coal seams at the WCP. Coal quality data supported the understanding that mine material characteristics are consistent over the WCP area, thus these samples were considered representative of the WCP area. Table 5-21 and Table 5-22 further describe the sampling distribution and frequency.

Table 5-21 The WCP mine material assessment sampling summary

Material Type	WBSP	Drill hole	Total
Soil	4	7	11
Overburden	2	18	20
Interburden	3	11	14
Coal / potential reject	9	31	40
Partings / roof / floor	N/A	52	52
Basement	N/A	3	3
Coal reject	1	N/A	1

Material Type	WBSP	Drill hole	Total
Tailings	1	N/A	1
Total	20	122	142

Table 5-22 The WCP mine material assessment drill hole frequency and distribution

Drill hole ID	Overburden	Interburden	Coal / potential reject	Partings / roof / floor	Basement	Seams	Total
R9595P	4	1	3	2	N/A	MU	10
R9608P	2	4	9	2	3	MU, ML, WA	20
C9610GP	4	3	5	12	N/A	MU, ML, WA	24
C9606GP	6	N/A	11	6	N/A	K, MU, ML, WA	23
L9612	1	N/A	N/A	10	N/A	MU, ML, WA	11
L9611	N/A	N/A	N/A	5	N/A	MU, ML, WA	5
L9614	1	1	3	8	N/A	MU, ML, WA	13
C9605GP	7	2	N/A	7	N/A	K, MU, ML	16
Total	25	11	31	52	3		122

Mine materials from the WCP were classified into three groups:

- Spoil (soil, overburden, interburden, and basement materials);
- Potential coal rejects (roof, floor, and parting materials); and
- Coal and coal rejects (coal, coarse reject, and tailing materials).

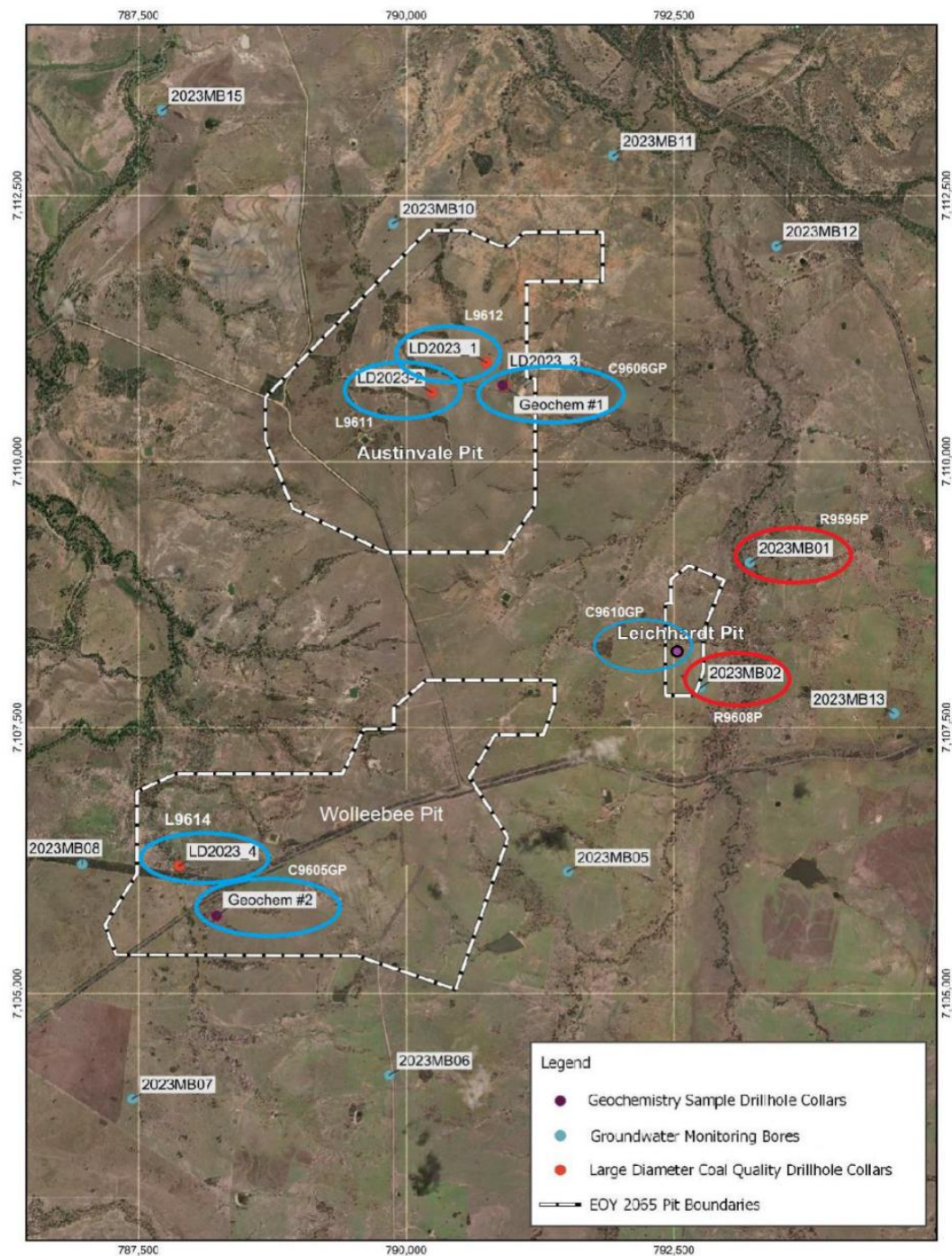
Selected samples of mine materials were then subjected to a program of GPSC tests, including:

- Static and kinetic geochemical testing;
- Soil quality testing;
- Physical testing;
- Mineralogy; and
- Spontaneous combustion testing.

Section 5.8.2 summarises results of static and kinetic geochemical testing and Section 5.8.3 presents conclusions of the assessment (RGS 2024).



Figure 5-23 Location of the WBSP (RGS, 2024)



5.8.2 Results and Interpretation

Results are summarised from RGS (2024) to discuss geochemistry of the spoil, coal and coal rejects and potential coal rejects characterisation. Soil characterisation is discussed in detail in Section 5.6.1 of this PRCP.

The results of geochemical testing demonstrate that the acid, metalliferous, and saline drainage potential of the mine materials is low. Mine materials have been classified as non-acid forming (NAF) or NAF-Barren and generally have low oxidisable sulfur content and excess acid neutralising capacity (ANC). Materials have a low risk of acid generation with respect to potential AMD with kinetic testing producing a leachate that is circumneutral with low salinity.

5.8.2.1 Static geochemistry

Static geochemistry tests were completed to screen individual samples before selecting either individual and/or composite samples for more detailed static test work. The Acid Base Account method was used as a screening procedure whereby the acid-neutralising and acid-generating characteristics of the samples were assessed. All 142 individual samples were screened using the Acid Base Account method, which involved static geochemical testing for the following parameters:

- pH [1:5 w:v. sample:deionised water];
- EC[1:5 w:v. sample:deionised water];
- Total sulfur [LECO analyser]; and
- Acid Neutralising Capacity (ANC) [AMIRA, 2002 method].

From the total sulfur value (or Scr value, where available), Maximum Potential Acidity (MPA) values were calculated by multiplying by the standard stoichiometric factor of 30.625 for pyrite/marcasite oxidation. Scr data was preferentially used where available to provide a more accurate representation of the potential MPA, as acid generation primarily forms from the oxidation of reactive sulfide measured by this method.

pH and Electrical Conductivity

Spoil

Spoil samples analysed were found to be generally alkaline, demonstrating pH1:5 range between 5 and 10.1, expected to add some alkalinity to contact water. The EC1:5 values for spoil samples were variable, ranging from 67 $\mu\text{S}/\text{cm}$ to 1,430 $\mu\text{S}/\text{cm}$ and typically low (median 592 $\mu\text{S}/\text{cm}$). Slightly elevated EC values ($> 1,000 \mu\text{S}/\text{cm}$) were associated with one sample in each of the material types and were not consistent.

Potential coal rejects

The pH1:5 values for potential coal rejects were found to range from 7.9 to 10.7. These materials are also expected to add some alkalinity to contact water. The EC1:5 values for potential coal rejects were variable, ranging from 245 $\mu\text{S}/\text{cm}$ to 1,820 $\mu\text{S}/\text{cm}$ and were typically low (median 545 $\mu\text{S}/\text{cm}$).

Coal and coal rejects

The pH1:5 values for coal and coal rejects ranged from 5.5 to 9.8 with a slight increase in alkalinity with depth. The EC1:5 values for coal and coal rejects were variable, ranging from 206 $\mu\text{S}/\text{cm}$ to 1,800 $\mu\text{S}/\text{cm}$ and were typically low (median 564 $\mu\text{S}/\text{cm}$).

Potential Acidity

All spoil, potential coal reject samples and majority of the coal and coal reject samples are classified NAF (barren). Materials with a total sulfur content less than or equal to 0.1 %S are essentially barren of sulfur and have negligible capacity to generate acidity through sulfide oxidation when exposed to oxidising conditions. Coal samples tend to have a higher total sulfur content than spoil and potential coal reject materials. The median total sulfur content by coal seam is relatively low [(Kogan (0.18 %S), Macalister Upper (0.12 %S), Macalister Lower (0.17 %S), and Wambo (0.14 %S)]. While the total sulfur content of some of the coal and tailings samples from the WCP is greater than 0.1 %S the total sulfur concentrations are relatively low and may not be present in a sulfide form. Sulfides such as pyrite/marcasite have the potential to generate acidity. Typically, mine materials at the WCP have low oxidisable sulfur content and excess ANC.

The AMD potential of the mine materials represented by the samples tested can be classified as low as shown in Table 5-23.

Table 5-23 Geochemical classification criteria and results for mine materials at the WCP

Geochemical Classification	Total Sulfur ¹ (%)	ANC: MPA Ratio	NAPP (kg H ₂ SO ₄ /t)	Number of Samples (n=142)	% Samples
Non-Acid Forming (Barren)	≤ 0.1	-	-	138	97 %
Non-Acid Forming	> 0.1	≥ 2	≤ -5	4	3 %
Uncertain	> 0.1	< 2	> -5 and ≤ +5	0	0 %
Potentially Acid Forming	> 0.1	< 2	> 5	0	0 %
Notes: 1. Sulfide sulfur (using the S_{CR} test) has been measured for selected samples and where available, sulfide sulfur has been used in place of total sulfur for sample classification and to calculate the MPA value.					

Spoil

Total sulfur content of spoil samples ranged from < 0.01 %S to 0.18 %S (median 0.02 %S) and was generally very low, with negligible capacity to generate acidity through sulfide oxidation when exposed to oxidising conditions. The Net Acid Producing Potential (NAPP) value for spoil samples ranged from -178 kg H₂SO₄/t to -2.1 kg H₂SO₄/t (median -13.5 H₂SO₄/t) and was negative for all samples. Strongly negative NAPP values generally indicate that a material is NAF or Acid Consuming (AC).

Potential coal rejects

Total sulfur content was low (0.01 to 0.13 %S) and had a median 0.04 %S. Over 96% of the samples contained ≤0.1 %S and were essentially barren of sulfur. The NAPP values ranged from -280 to -1.7 kg H₂SO₄/t (median -9.0 H₂SO₄/t) and was negative for all samples. Samples with strongly negative NAPP values were occasionally associated with the Macalister Lower and Wambo seams.

Coal and coal rejects

Total sulfur content ranged from 0.03 to 0.32 %S (median 0.14 %S) and was generally low. While the total sulfur content of some samples was greater than 0.1 %S, the total sulfur concentrations were relatively low and may not be present in a sulfide form. Sulfides such as pyrite/ marcasite have the

potential to generate acidity. The sulfide sulfur content of selected coal and coal reject samples was verified using the chromium reducible sulfur (SCR) test by RGS (2024). These tests concluded that the total sulfur is likely to be present as non-acid generating forms of sulfur, such as sulfate or organic sulfur.

The NAPP value ranged from -81 to +2.0 kg H₂SO₄/t and was typically negative or close to zero. The coal materials had generally consistent slightly negative NAPP values and most (90 %) values are in the range -30 to 0 H₂SO₄/t. Three samples had slightly positive NAPP values (≤ 2 kg H₂SO₄/t), and these samples were all from the poor-quality coal in the Macalister Upper seam in the Austinvale Pit.

5.8.2.2 Kinetic geochemistry

The dynamic quality of contact water (if the mine materials are left unmanaged and exposed to oxidising conditions) and the potential risk for saline drainage at the WCP was investigated using a Kinetic Leach Column (KLC) test program. Leachate results from the KLC test program are as follows:

- Surface runoff and seepage from NAF materials is likely to have a pH that is circumneutral to slightly alkaline and will have a relatively low salinity value;
- Acidity levels were typically low (≤ 11 mg/L, as calcium carbonate (CaCO₃) equivalent);
- Alkalinity values were typically higher than acidity levels leading to a positive net alkalinity value in most leachate collected over the test period;
- Concentration of sulfate was relatively low and generally < 200 mg/L (less than the applied livestock water quality guideline criterion of 1,000 mg/L);
- The concentrations of major ions in leachate from coal and mine waste materials were relatively low and dominated by sodium, chloride, sulfate and bicarbonate, with lower concentrations of other major ions;
- The concentration of most dissolved trace metals and metalloids in water in contact with the mine materials is low, predominantly below the laboratory level of reporting (LoR), and below the applied livestock water quality guideline criteria. The only exception is selenium, which can have a concentration greater than the livestock drinking water value (ANZG, 2018) under ideal oxidising conditions. Overall, dissolved metal/ metalloid concentrations in surface runoff and seepage from the mine materials are unlikely to present a significant risk to surface and groundwater resources; and
- The KLC test results demonstrate that materials from the WCP are likely to present a relatively low level of risk with respect to potential to impact upon the quality of surface water and groundwater resources.

5.8.3 Conclusions

The main findings of the GPSC assessment undertaken by RGS (2024) are summarised below:

- Mine materials typically have low oxidisable sulfur content, excess ANC, and are typically classified as NAF or NAF-(barren). These materials have a low risk of AMD;
- Initial and ongoing surface runoff and seepage from most mine materials is expected to be pH neutral to slightly alkaline and with low salinity. Poor quality coal materials from the Macalister Upper seam may generate contact water quality that has a lower pH and is slightly more brackish than the other mine materials tested;
- The concentration of major ions in surface runoff and seepage from mine materials is expected to be low and generally dominated by sodium, chloride, sulfate and bicarbonate.

- The concentration of trace metals/ metalloids in mine material solids are expected to be low compared to applied guideline criteria for soils and median crustal abundance in un-mineralised soils and are not expected to present any environmental issues associated with revegetation and rehabilitation;
- Trace metals/ metalloids are sparingly soluble at the neutral to slightly alkaline pH of the leachate expected from most mine materials. Dissolved metal/metalloid concentrations in surface runoff and seepage from bulk NAF materials are expected to be low and unlikely to pose a significant risk to the quality of surface and groundwater resources at the WCP;
- Sodic overburden materials will be covered using topsoil as part of rehabilitation activities to limit the potential for dispersion and erosion; and
- Coal materials from the Macalister Upper, Macalister Lower, and Wambo seams have a high risk of spontaneous combustion. Coarse reject and tailings materials generated from processing the Macalister Upper seam have a lower risk of spontaneous combustion.

Static and kinetic leaching testing suggests the geochemical characteristics of rejects / tailings at the WCP present a low risk with respect to AMD and saline drainage. The encapsulation of rejects / tailings within overburden emplacements is an appropriate management methodology commensurate to the risk of AMD. Furthermore, the spontaneous combustion risk of coal rejects can be managed through the design of the tailings / reject encapsulation cells and ensuring critical thickness is not achieved and tailings / reject are stacked $\leq 2\text{m}$ high. Airflow to the tailings / reject is minimised via encapsulation within the overburden emplacements and successive overburden emplacement lifts.

The design of the rejects / tailings encapsulation cells within overburden emplacements is discussed in further detail within Section 5.9.

5.8.4 Waste Placement Strategy

Using the classification criteria outline by RGS (2024) and as described in Table 5-23 all the mine materials analysed can be classified as NAF (barren) with the exception of four samples classified as NAF and associated with coal and coal reject materials. Kinetic testing results also highlight the potential for saline drainage is low. These results support the progressive mine material placement strategy of constructing overburden emplacements both in pit and out of pit and the progressive encapsulation of tailings and reject within the overburden emplacements during their construction.

5.9 Tailings Management

The WCP will not require a tailings storage facility (TSF) to store tailings. Dry tailings will be progressively co-disposed with rejects materials in-pit within overburden emplacements.

Tailings are a fine coal waste material produced as a watery slurry during processing at the CHPP. The tailings from the WCP will be actively dewatered within the CHPP producing a filter cake of approximately 20 - 30 % total moisture. The tailings filter cake is then transferred onto a reject conveyor for stockpiling and subsequent encapsulation within the overburden emplacements during mining and processing operations.

The management of tailings by dewatering and progressive encapsulation minimises the interactions between the tailings and the surrounding environment, preventing the release of contaminants to the receiving environment and negating the need for a TSF to store and dry a larger volume of a traditional tailings slurry. Considerations such as hydraulic sorting, settling, rheology and other parameters related to wet or liquid tailings will not apply at the WCP. Additionally, by drying the tailings at the CHPP plant, the volume of tailings produced at the WCP are minimised.

The encapsulation of coarse coal rejects and tailings at the WCP aims to minimise oxidising conditions and involves the construction of bunded cells, in which both tailings and coarse rejects will be progressively placed, and encapsulated during the construction of the final landform and within the overburden emplacements.

The tailings and rejects encapsulation process is as follows:

- Bunds of nominal height 1.5 m will be set out to define a 50 m x 50 m tailings and rejects encapsulation cell, with one wall left open for entry (Figure 5-25 and Figure 5-26);
- Cells will be progressively filled with tailings and rejects. Each cell will be closed off with a bund wall once completely backfilled;
- Backfilled rejects and dry cake tailings will be allowed to dry out prior to full encapsulation with a subsequent overburden placement lift.
- Tailings / reject are stacked $\leq 2\text{m}$ high, or less than nominal bund height of 1.5 m, to ensure spontaneous combustion risk is managed by ensuring critical thickness is not achieved.

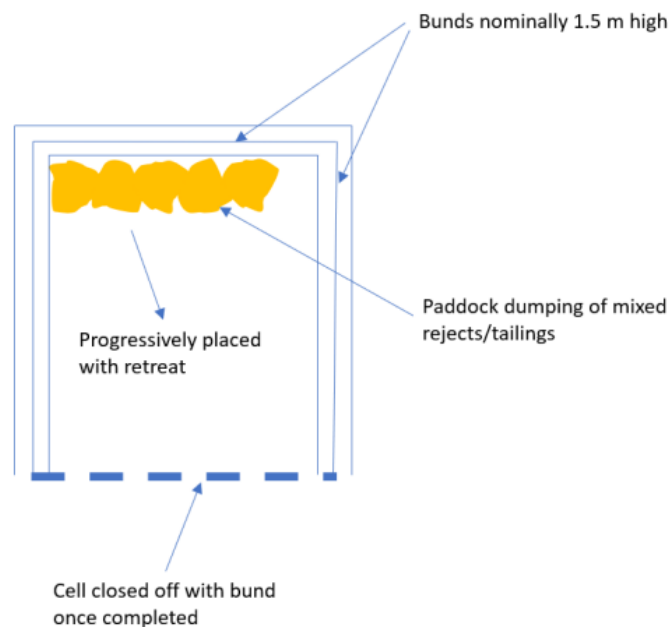


Figure 5-25 Plan view of cells for tailings/ rejects encapsulation (PSM, 2024)

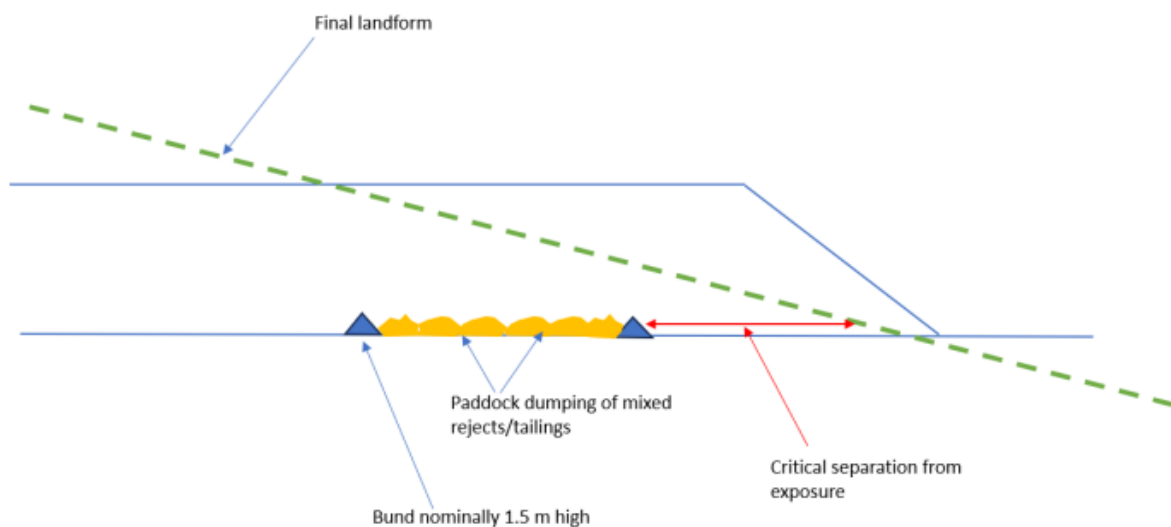


Figure 5-26 Sectional view of cells for tailings and rejects encapsulation (PSM, 2024)

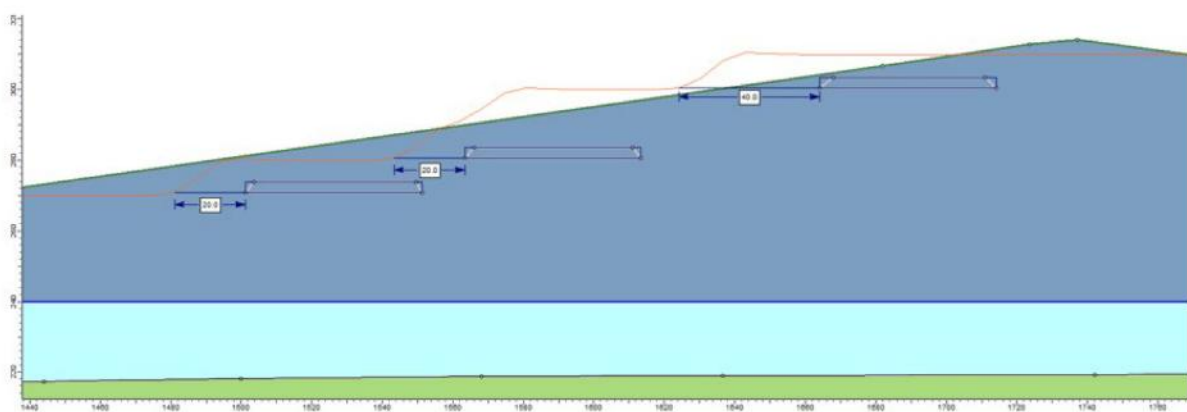


Figure 5-27 Sectional view of tailings and rejects encapsulation cells in overall overburden placement profile (note the larger offset required in upper lifts to ensure final encapsulation of rejects and tailings) (PSM, 2024)

A minimum distance of 20 m from the face of the final landform will be adopted to minimise the risk of exposing cells during the reshaping of the final landform. A greater offset will be required for higher lifts based on final landform configuration (Figure 5-27).

Rejects and tailings encapsulation within overburden placement strategy adopted at the WCP is considered appropriate based on material characteristics identified by sampling and testing program undertaken by RGS (2024) (discussed in Section 5.8) and geotechnical assessment undertaken by PSM (2024) (discussed in Section 5.7).

Geochemical testing (RGS, 2024) shows all samples of potential coal rejects and tailings are NAF (barren), are moderately alkaline and have low EC (median 592 $\mu\text{S}/\text{cm}$) indicating the encapsulated tailings material is non-reactive and will not have any influence on rehabilitation or the capacity of the final landform to support revegetation.

5.10 Cover Design

A cover system is a type of engineered barrier used to manage mine waste during operations or at mine closure. Cover systems may address concerns related to surface water management, dust and erosion control. Cover designs can also address chemical stability whereby water movement through a cover system and into stockpiles of reactive mine rock is to be minimised, leading to reductions in contaminant loadings into the receiving environment.

No engineered cover systems are required to manage the storage of mine materials at the WCP due to the low risk posed by the NAF/ NAF (barren) material as discussed in Section 5.8.

Rejects and dewatered tailings at the WCP will be encapsulated within overburden emplacements. This is an appropriate management methodology commensurate to the low risk of AMD and to manage spontaneous combustion risks.

Spontaneous combustion risks are managed through the design of the encapsulation cells and ensuring the height of the reject and tailings paddock dumped within the cells stay within the critical thickness limits ($\leq 2\text{m}$). Airflow to the tailings and reject is minimised as materials are encapsulated with successive overburden emplacement lifts.

5.11 Underground

The WCP is a proposed open cut coal mine with no underground mining operations approved. PRCP requirements relating to underground operations have not been considered.

5.12 Revegetation

Revegetation is required to achieve a safe, stable, sustaining and non-polluting landform and PMLU. The three main objectives for revegetation are:

- To stabilise the final landform;
- To establish the planned PMLU; and
- To create a stable and sustainable PMLU over time.

The WCP is a greenfield site. Initial revegetation monitoring activities associated with the PRCP will commence two years prior to construction activities. Initial revegetation monitoring activities include:

- Include evidence and justification for any analogue sites of the monitoring plan.
- Identify the proposed location of any infrastructure required to protect revegetation.

The methodology associated with revegetation is outlined below.

It is noted that no fauna management and monitoring plan is required and no species of conservation significance are relevant to the WCP approval.

5.12.1 Methodology

The revegetation methods for land disturbed by mining activities at the WCP consist of the following:

- Bulk pushing and trimming of to achieve the final landform;
- Topsoil and subsoil/ overburden testing prior to placement to identify if any ameliorants are required;
- Respreading stockpiled or freshly stripped topsoil;

- The installation of water management structures to control erosion, where required;
- Contour ripping to a depth of > 200 mm with tyne at 1.5 m maximum centres;
- Seeding with the appropriate seed mix for the PMLU;
- Application of appropriate fertiliser(s) for vegetation establishment (if required);
- Installation of temporary measures to limit slope lengths and runoff velocities; and
- Installation of collection drains and sediment dams to collect runoff and allow for settlement of suspended solids until such time as these are no longer required.

5.12.2 Surface Preparation

The preparation of the rehabilitated surface will be undertaken described as above. Before resspreading the topsoil, analysis of the topsoil stockpiles or direct stripping areas will be undertaken to determine the requirements for fertiliser and other ameliorants. Following the results of the topsoil analysis, the amelioration requirements will be applied at rates recommended by an appropriately qualified person (AQP).

The resspread depth of topsoil for spoil emplacements, lowwalls and highwall weathered zones are to 200 mm and for infrastructure areas and roads, topsoil will be resspread to a depth of 100 mm, as detailed in Section 5.6.4.

5.12.3 Seeding

A major part of rehabilitation is re-establishing vegetation with supportive rehabilitative properties (e.g. fast-growing cover crops), to minimise erosion, and to promote revegetation with species appropriate for each PMLU. A list of flora species within the grazing and native bushland seed mixes that can be selected from to produce a seed mix used in rehabilitation at the WCP are provided in Table 5-24. The seed mix used on site will be dependent on availability of seed, with local sourcing preferable where available, and other potential limiting factors.

A controlled release fertiliser is to be applied at the time of seeding as required. Application rates should follow the manufacturer's guidelines. Native bushland fertiliser rates will be reduced in comparison to those for grazing to reduce Buffel grass competition from the topsoil seedbed and to maintain nutrient levels commensurate to those to which native species have adapted.

Table 5-24 Seed list for native bushland and grazing PMLU

Scientific Name	Common Name	Application Rate (kg/ha)
<i>Native bushland trees (T) / shrubs (S) (Native Bushland PMLU)</i>		
<i>Acacia harpophylla</i> (T)	Brigalow	
<i>Acacia oswaldii</i> (T)	Umbrella Wattle	
<i>Acacia pendula</i> (T)	Weeping Myall	
<i>Acacia salicina</i> (S)	Sally Wattle	
<i>Acacia stenophylla</i> (T)	Shoestring Acacia	

Scientific Name	Common Name	Application Rate (kg/ha)
<i>Alectryon diversifolius</i> (T)	Scrub Boonaree	Between 6-10 species from the list with bulk seed at 3 kg/ha (assuming some chaff and impurities in seed lots). Use 1.5 kg/ha if using pure seed for trees.
<i>Alectryon oleifolius</i> (T)	Boonaree	
<i>Allocasuarina luehmannii</i> (T)	Bull Oak	and
<i>Alphitonia excelsa</i> (T)	Soap Tree	
<i>Atalaya hemiglauca</i> (S)	Whitewood	Between 8-12 species from the list with bulk seed at 8 kg/ha, subject to availability of seed stock for shrubs.
<i>Bauhinia carronii</i> (T)	Bean Tree	
<i>Brachychiton populneus</i> (T)	Kurrajong	
<i>Brachychiton rupestris</i> (T)	Queensland Bottle Tree	
<i>Capparis lasiantha</i> (S)	Nipan	
<i>Carissa ovata</i> (S)	Currant bush	
<i>Casuarina cristata</i> (T)	Belah	
<i>Citrus glauca</i> (S)	Desert Lime	
<i>Corymbia tessellaris</i> (T)	Moreton Bay Ash	
<i>Dodonaea viscosa</i> (S)	Hopbush	
<i>Ehretia membranifolia</i> (T)	Weeping Koda	
<i>Eremophila bignoniiflora</i> (S)	Bignonia Emu-bush	
<i>Eremophila deserti</i> (S)	Turkey Bush	
<i>Eremophila maculata</i> (S)	Spotted Emu-bush	
<i>Eremophila mitchellii</i> (S)	Budda	
<i>Eucalyptus crebra</i> (T)	Narrow-leaved red ironbark	
<i>Eucalyptus melanophloia</i> (T)	Narrow-leaved ironbark	
<i>Eucalyptus orgadophila</i> (T)	Silver-leaved ironbark	
<i>Eucalyptus populnea</i> (T)	Poplar Box	
<i>Flindersia australis</i> (T)	Australian Teak	
<i>Geijera parviflora</i> (S)	Wilga	
<i>Grevillea striata</i> (S)	Beefwood	
<i>Lysiphyllum carronii</i> (T)	Queensland Ebony	

Scientific Name	Common Name	Application Rate (kg/ha)
<i>Notelaea macrocarpa</i> (S)	Native Olive	
<i>Psyrdrax oleifolia</i> (S)	Wild Lemon	
Native bushland grass / legumes (Native Bushland PMLU)		
<i>Ancistrachne uncinulata</i>	Hooky Grass	3-6 species from the list with a bulked seed weight of 3 kg/ha.
<i>Atriplex muelleri</i>	Lagoon Saltbush	
<i>Aristida caput-medusae</i>	Many-headed Wiregrass	
<i>Aristida latifolia</i>	Feathertop Wiregrass	
<i>Aristida personata</i>	Purple Wiregrass	
<i>Boerhavia dominii</i>	Tarvine	
<i>Bothriochloa bladhii</i>	Forest Bluegrass	
<i>Bothriochloa ewartiana</i>	Creeping Bluegrass	
<i>Bothriochloa insculpta</i>	Desert Bluegrass	
<i>Breynia oblongifolia</i>	Coffee bush	
<i>Chloris divaricata</i>	Slender Chloris	
<i>Cyperus fulvus</i>	Sticky Sedge	
<i>Cyperus gracilis</i>	Slender Flat Sedge	
<i>Dichanthium sericeum</i>	Queensland Bluegrass	
<i>Echinochloa esculenta</i>	Jap Millet	
<i>Einadia nutans</i>	Climbing Saltbush	
<i>Enchylaena tomentosa</i>	Ruby Saltbush	
<i>Enneapogon lindleyanu</i>	Lindley Nineawn	
<i>Enteropogon acicularis</i>	Curly Windmill Grass	
<i>Enteropogon unispiceus</i>	Windmill Grass	
<i>Eragrostis megalosperma</i>	Lovegrasses	
<i>Eragrostis spartinoides</i>	Lovegrasses	
<i>Goodenia glabra</i>	Shiny pansy	
<i>Heteropogon contortus</i>	Black Speargrass	

Scientific Name	Common Name	Application Rate (kg/ha)
<i>Paspalidium caespitosum</i>	Brigalow Grass	
Grazing pasture / legumes (Grazing PMLU)		
<i>Bothriochloa bladhii</i>	Creeping Bluegrass / Forest Bluegrass	3-6 species from the list with a bulked seed weight of 3 kg/ha.
<i>Astrebula lappacea</i>	Curly Mitchell Grass	
<i>Astrebula squarrosa</i>	Bull Mitchell Grass	
<i>Bothriochloa ewartiana</i>	Desert Bluegrass	
<i>Clitoria ternatea</i>	Butterfly Pea	
<i>Desmanthus virgatus</i>	Desmanthus	
<i>Dichanthium sericeum</i>	Silky Bluegrass / Queensland Bluegrass	
<i>Digitaria brownii</i>	Cotton Panic	
<i>Digitaria ciliaris</i>	Summer Grass	
<i>Echinochloa esculenta</i>	Jap Millet	
<i>Enchylaena tomentosa</i>	Ruby Saltbush	
<i>Enteropogon acicularis</i>	Curly Windmill Grass	
<i>Heteropogon contortus</i>	Black Speargrass	
<i>Megathyrsus maximus</i>	Green Panic	
<i>Panicum effusum</i>	Hairy Panic	
<i>Panicum maximum</i>	Gatton Panic	
<i>Paspalidium caespitosum</i>	Brigalow Grass	
<i>Paspalidium globoideum</i>	Shot Grass	
<i>Stylosanthes scabra</i>	Shrubby Stylo	
<i>Stylosanthes seabrana</i>	Caribbean Stylo	
<i>Themeda triandra</i>	Kangaroo Grass	

5.12.4 Timing

Revegetation must consider both correct season and timing of the potential germination during the drier months. Where possible, seeding will be undertaken in spring prior to the commencement of the wet season (i.e., October to December) to avoid the risk of erosion from heavy rainfall events and to minimise weed colonisation. Seeding will take place directly after topsoil application. This timeframe ensures that seeding takes place during the correct time of year and accounts for re-seeding, if required.

5.12.5 Weed Management

Prior to stripping and placement of soils, inspections will be carried out to identify and undertake weed control measures, with a focus on identification and control of weeds. Selective herbicides will be used wherever possible. Machinery and vehicles will be required to be cleaned to remove weed seeds, and a weed clearance certificate obtained prior to entry.

Weed management will be used to control weeds in rehabilitation areas with weed identification included in rehabilitation monitoring. Selective herbicides will be used wherever possible.

6. Rehabilitation Methodology

The rehabilitation goals for the WCP are that the mined land will be rehabilitated to a safe, stable, self-sustaining and non-polluting condition as follows:

- The rehabilitated landform is safe and structurally stable;
- The land can sustain its assigned PMLUs;
- There is no environmental harm being caused by anything on or in the land; and
- Allow the EA to be surrendered and mining leases relinquished.

6.1 Voids

Over the LOM, the 16 open cut pits will be progressively backfilled to minimise rehandling and reduce disturbance. Backfilling will occur as close as possible to the proposed final landform as mining activities progress. Of the 16 pits shown in Table 6-1, eight will be backfilled to achieve a free draining landform and the remaining eight pits will be backfilled to ≥ 5 m above the post-closure groundwater level to form reprofiled void depressions. Reshaping will be completed in accordance with the following specifications:

- ≤ 22 % slope for the lowwalls;
- ≤ 22 % slope for highwall weathered zones; and
- Highwall unweathered competent rock remain 'as is' with slopes less than the maximum EA authorised slopes of 214 % and will be geotechnically stable.

Water balance modelling predicts the eight reprofiled void depressions may contain ephemeral waterbodies periodically of a quality suitable for stock watering. The ephemeral waterbodies will support the grazing PMLU.

Final void geometry ensures all highwalls achieve a FoS of ≥ 1.2 and 1.5 at the safety bund. Due to the limited heights of highwalls (i.e., only four highwalls have heights in weathered material > 10 m), lower slope gradients and the voids being fully or partially backfilled.

Lowwalls, the base of the voids and weathered highwall areas will be topsoiled to a depth of 200 mm, ripped, ameliorated (if required) and seeded as outlined in Section 5.11. Weathered highwall zones will be seeded to achieve a native bushland PMLU and lowwalls and the base of voids will be reseeded with pasture species to achieve a PMLU of grazing.

Table 6-1 WCP approximate final landform highwall heights and slopes

Pit Name	Free Draining (Yes / No)	Unweathered Competent Rock Highwall Average Height (m)	Unweathered Competent Rock Highwall Max Slope (%)
Summer Hill	No	8	46
Mud Creek	No	10	45
Woleebee	No	20	95
Woleebee Creek	No	2	18

Pit Name	Free Draining (Yes / No)	Unweathered Competent Rock Highwall Average Height (m)	Unweathered Competent Rock Highwall Max Slope (%)
Woleebee Creek North 2	No	3	40
Austinvale	No	14	108
Frank Creek	No	5	36
Wubagul	No	17	134
Turkey Hill	Yes	8	46
Mud Creek North	Yes	8	21
Mud Creek East	Yes	No Highwall	No Highwall
Woleebee Creek North	Yes	No Highwall	No Highwall
Austinvale North	Yes	7.5	20
Leichhardt	Yes	3	15
Frank Creek North	Yes	2	12
Frank Creek South	Yes	No Highwall	No Highwall

6.2 Overburden Emplacements

The WCP final landform has been designed to minimise the out of pit placement of overburden and maximise pit backfilling. Overburden emplacements will be recontoured as per the final landform design and as authorised under the EA to:

- A maximum slope of 18 % as per the final landform specifications (the lowwalls are included in the reshaping of the voids at ≤ 22 % slope); and
- Topsoiled to a depth of 200 mm, ripped, ameliorated (if required) and seeded to achieve a PMLU of grazing as outlined in Section 5.11.

Tailings / rejects will be encapsulated in the overburden emplacements. The encapsulation of tailings / rejects within the overburden emplacements is an appropriate management strategy given the low risk of AMD and requirement to manage spontaneous combustions. The encapsulation of tailings / rejects will not affect the rehabilitation of the overburden emplacements. The tailings / rejects cells are located below surface level of surrounding topography and are required to have separation from the nearest final exposed face of the overburden emplacement. The proposed final landform incorporates an approximate 20 m offset in the lower dumps and a larger offset in the upper lifts of the dump.

6.3 Infrastructure

Infrastructure supporting the WCP includes:

- The CHPP, MIA and rail loop;
- The power plant;
- ROM pads and conveyors;

- Laydown yards and hard stands;
- Buildings including workshops and stores;
- Reticulated services; and
- Haul roads, access roads and tracks.

All surface infrastructure will be decommissioned, demolished, salvaged and / or disposed of, except for where a written agreement is held with the underlying landholder. Demolition planning and execution will be undertaken in accordance with relevant standards, policies and legislative requirements.

The following methodology will be utilised for the rehabilitation of infrastructure areas:

- Removal and demolition of all buildings and supporting infrastructure including powerlines and pipelines;
- Completion of Phase 1 and 2 Contaminated Land Assessments where required, including the ROM areas, power plant and MIA;
- Removal of carbonaceous material as required through inspection and testing from ROM areas (to an indicative depth of 0.5 m for ROM areas and 0.3 m for haul roads); and
- Placement of topsoil to a depth of 100 mm, ripped, ameliorated (if required) and seeded to achieve a PMLU of grazing as outlined in Section 5.11.

A search of the Environmental Management Register (EMR) was conducted for the purposes of the PRCP. Search results show no land is registered on the EMR. Generally, areas of potential contamination include workshops, fuel farms and where contaminants may have been stored and used. These areas will require assessment to determine whether remediation and / or ongoing management are required and to ensure consistency with the PMLU.

Third-party infrastructure, including public main roads are not considered in the PRCP as per Section 3.2 of the PRCP Guideline.

6.3.1 Retained Infrastructure

To support the grazing PMLU, the majority of the site haul roads will be retained under written landholder agreement to provide ongoing site access for light vehicles, farm machinery and livestock transport. Carbonaceous material will be removed (to an indicative depth of 0.3 m) as required.

Features within the WCP MLs expected to remain after closure to support the PMLU include clean water storages, access tracks, haul roads, built infrastructure, water bores and essential services infrastructure. The purpose and justification of retained infrastructure is described in Table 6-2.

Table 6-2 Infrastructure to be retained by the landholder

Item	Purpose of retention	Benefit of retention
Clean water storages.	Stock watering and/or crop irrigation for grazing activities.	A source of clean water is essential for grazing activities and trucking in clean water can be very costly.
Roads, tracks and remediated haul roads including associated	Accessibility for grazing Activities.	Utilising existing access roads removes the need to construct

Item	Purpose of retention	Benefit of retention
infrastructure i.e. crossings, culverts etc.		additional infrastructure and create additional disturbance through rehabilitated areas.
Built infrastructure including repurposed buildings and sheds.	Supports ancillary activities for grazing activities.	Utilising existing infrastructure such as sheds, administrative buildings and facilities removes the need to construct additional buildings and create additional disturbance through rehabilitated areas.
Water bores.	Access to groundwater for grazing activities.	A source of clean water is essential for grazing activities and trucking in clean water can be very costly. This water can also be used for topping up water storages and for fire management.
Essential infrastructure including power lines, water supply pipelines, fencing, fire breaks.	Essential services and infrastructure for property management and grazing activities.	Utilising existing services removes the need to construct additional infrastructure and create additional disturbance through rehabilitated areas.

6.4 Water Management Infrastructure

All water infrastructure will be either:

- Retained under an agreement for stock watering purposes appropriate for a grazing PMLU; or
- Decommissioned and rehabilitated, if required.

Dams to be retained under written landholder agreement will be assessed for suitability against the stock watering requirements of ANZECC & ARMCANZ (2000) water quality guidelines. If these requirements are not met, prior to handover to the landholder or if decommissioning is to occur, dams will be:

- Dewatered and the water used for final coal mining operations;
- Subject to a Phase 1 and / or 2 contamination assessment; and
- Contaminated materials removed, if required.

Dams to be decommissioned will be rehabilitated by battering in the dam walls, topsoiling, contour ripping and seeding to establish vegetation to support a grazing PMLU.

7. Mine Closure Risk Assessment

This section outlines the mine closure risk assessment undertaken to determine the risks that may potentially affect the achievement of a stable condition as defined under s112 of the EP Act. Controls already in place or proposed to minimise these risks were also identified.

7.1 Principles and Methodology

A range of risks associated with rehabilitation, closure and post-closure phases were considered when undertaking the WCP PRCP mine closure risk assessment which aligned with the requirements of the ISO 31000:2018 Risk Management – Guideline (Standard Australia, 2018).

The key steps undertaken in the risk assessment process for the PRCP were:

- **Establish the Context:** Consideration should be given to both the internal and external environment, that the limits within the risk assessment are valid, the activity being assessed and the cross section of people contributing to the risk management process;
- **Identification of Hazards:** Risk identification refers to the process of identifying risks against a pre-defined set of business objectives, taking into account the context, the previous risk assessments, incidents and the findings of audits performed onsite;
- **Risk Analysis:** each potential consequence should be analysed separately, and existing or current controls should be identified, and their effectiveness and efficiency taken into account;
- **Risk Evaluation:** to assist in making decisions, and to define which risks need treatment and the priority for treatment implementation; and
- **Risk Treatment:** selecting control options for modifying risks and implementing those controls to reduce residual risk factors to a level as low as is reasonably achievable (ALARA). Costs and efforts of the controls versus the benefits derived should be reviewed. Reduction of the risks should be according to the hierarchy of controls:
 - Elimination;
 - Substitution;
 - Engineering controls;
 - Administrative controls; and
 - Personal protective equipment.

7.2 Risk Assessment Details

A Closure Risk Workshop was conducted on the 12 March 2024. Appendix N - presents the details and outcomes of the risk assessment including:

- Attendees;
- Details of the risk assessment objective, scope and methodology;
- The risk matrix used to assess the level of risk associated with certain events. The risk matrix considers the consequence and likelihood of each event. The consequence and likelihood categories have been developed based on the criteria in the Integrated Mine Closure Good

Practice Guide, 2nd Edition (ICMM, 2019), with the addition of a consequence category for PRCP schedule impacts; and,

- For each identified risk, details regarding:
 - The risk at closure;
 - The cause of the risk;
 - A description of consequences / impact of the risk occurring;
 - The rating of the uncontrolled risk considering its consequence and likelihood of occurring;
 - The proposed control / treatment / action to manage the identified risk;
 - The reason for selecting the proposed control / treatment / action;
 - The performance measures and constraints proposed to measure the success of the risk control/treatment / action;
 - The monitoring and reporting requirements for the control / treatment / action;
 - Resource requirement to implement the control/treatment / action;
 - Timing when the control / treatment / action is to be implemented;
 - Person responsible for implementation and management of the control / treatment / action; and
 - The rating of the controlled risk.

7.3 Summary of Key Closure Risks

The risk assessment details all risks prior to (uncontrolled risks) and post (residual risk) controls being in place. A total of 26 risks were identified and assessed. Prior to controls being implemented, no major risks were identified, whilst 12 significant, seven medium and seven low risks were classified in accordance with the risk matrix. With controls in place as outlined in this PRCP, 24 low risks and two medium risks were identified. The two residual medium risks were associated with highwalls in the final landform presenting a safety and PMLU risk. Both of these risks are deemed acceptable and have been managed as per best practice to ALARA.

The management actions associated with reducing all significant uncontrolled risks are outlined in Table 7-1.

Table 7-1 Major and significant closure risks and associated risk management

Risk	Uncontrolled Consequence	Risk Management	Controlled Consequence
Variance in mining commencement or mining rates cause delay and non-compliance with PRCP schedule.	Significant	- PRCP Schedule timeframes based on year of commencement, not calendar years; - PRCP Schedule delivery communicated to Mine Site Technical Services Department; and - Undertake PRCP Schedule amendment if required.	Low
Increasing/changing regulator expectations.	Significant	- Effective rehabilitation methodologies are employed at the WCP and Glencore sites; - PRCP Schedule delivery; and - Progressive rehabilitation certification at the WCP and Glencore sites.	Low
Highwalls in landform present safety risk.	Significant	- Competent design engineers and QA/QC; - Design Engineers undertake geotechnical assessment; - Maximum slope for unweathered highwalls as per EA; - Maximum slope for all weathered material above the highwall as per EA; - Highwalls achieve a FoS ≥ 1.2; - Safety bund at FoS 1.5; - Construction surveys and geological mapping; and - Implement a Land Management Plan.	Medium
Highwalls in landform present land use risk.	Significant	- Geotechnical and erosion assessments; - Maximum slope for unweathered highwalls as per EA;	Medium

Risk	Uncontrolled Consequence	Risk Management	Controlled Consequence
		- Maximum 22% for all weathered material above the highwall; - Residual void and highwalls within approved disturbance footprint; - Selective placement of growth medium; - Selective use of erosion controls ; - Selective species selection; and - Relinquishment / implement a Land Management Plan.	
Contamination of groundwater from residual void water.	Significant	- Voids partially backfilled so final void depressions are above groundwater levels; - Voids are ephemeral non-permanent void waterbodies; - Catchment yield and groundwater modelling and design input; and - Geochemistry assessment and design input.	Low
Residual void depression waterbodies becoming NUMAs.	Significant	- Final landform designed and reshaped so void depressions are above groundwater levels; - Ephemeral non-permanent void waterbodies; and - Catchment yield (depression water balance) and groundwater modelling.	Low
Final landform not constructed to design.	Significant	3D landform model produced; - Final landform designs issued by technical services; - Verify the swell assumption; - QA / QC process for landform construction; and - Dig and dump to design.	Low

Risk	Uncontrolled Consequence	Risk Management	Controlled Consequence
Incorrect placement of material results in landform instability.	Significant	- Materials characterisation program for overburden, tailings and rejects; - Spontaneous combustion controls to minimise exposure of waste coal to oxygen; - PRCP includes geotechnical and erosion studies for final landform design; - Landform construction and rehabilitation methodology communicated with Technical Services; - Final landform designs issued by technical services; and - QA / QC process for landform construction	Low
Potential for acid or saline drainage.	Significant	- Materials characterisation program for overburden, tailings and rejects; - PRCP includes acid and saline drainage studies; - Low acid production potential except for tailings and rejects; - Tailings and rejects encapsulated in overburden emplacements; and - QA / QC process for landform construction.	Low
Topsoil volume deficit for revegetation establishment.	Significant	- Topsoil characterisation completed; - Topsoil in disturbance areas is of sufficient quality and thickness; - Topsoil material balance and inventory tracking in place; - Topsoil Management Plan to control topsoil stripping and stockpiling during operations; - Amelioration to be applied if required in accordance with soil scientist's recommendations; - Rehabilitation QA / QC; and	Low

Risk	Uncontrolled Consequence	Risk Management	Controlled Consequence
		Ground disturbance permit system.	
Lack of maintenance to sustain post mining land use.	Significant	- Early identification of issues with rehabilitation; - Early maintenance activities; and - Rehabilitation Monitoring and Maintenance Plan.	Low
Drought impacting rehabilitation success.	Significant	- Allow contingency for weather events in PRCP schedule; - Species selection to consider drought tolerance; - Rehabilitation maintenance; - Rehabilitation Monitoring and Maintenance Plan; and - Retention of infrastructure required for rehabilitation works and maintenance activities.	Low

8. Monitoring and Maintenance

8.1 Monitoring Program

Regular rehabilitation monitoring will be undertaken as per ‘The rehabilitation monitoring manual for Glencore Coal operations, Queensland’ (the Manual) (Erskine & Fletcher, 2014), developed at the Centre for Mined Land Rehabilitation. The Manual provides a framework and methods to assess rehabilitated land across Glencore Coal Assets Australia (GCAA) operations in Queensland and describes the minimum data and data format required for each site. The Manual aims to ensure meaningful, consistent scientific data is collected across various stages of rehabilitation on GCAA operations for assessing compliance and performance against EA and PRCP milestone criteria, including any rehabilitation maintenance or management works, data quality for rehabilitation certification and relinquishment of grazing and native bushland PMLUs.

The monitoring program, as undertaken in accordance with the Manual, will be initiated by the selection of reference sites. This activity will commence 2 years prior to the commencement of construction.

GCAA has an existing rehabilitation reporting system called the Rehabilitation Report Card (RRC). The GCAA RRC methodology was originally developed by the University of Queensland (Erskine & Fletcher, 2014), subsequently expanded into a suite of manuals for different aspects of rehabilitation monitoring (GCAA 2022, 2023). The methodology has been developed to support GCAA and its operations to understand the progression of rehabilitated areas through to a standard that meets rehabilitation success / completion criteria, and to allow for corrective activities such as maintenance or rework to be undertaken when required.

Table 8-1 Rehabilitation status and criteria as defined by the GCAA RRC

Rehabilitation status	Criteria
Rework	Major re-work required.
Maintenance	Maintenance required e.g., weed control, seeding / plantings, repair of minor erosion, or fertiliser application.
Monitor	Stable, continue to track progress as per monitoring program.
Acceptable	Area could be certified, or close to (meets completion criteria).
Certified	Has been certified by the government.

8.1.1 Monitoring Methodology

8.1.1.1 Reference site selection

Rehabilitation success is often assessed using comparative reference sites. Reference sites will be established in REs and selected to attempt to reflect post-mining landform components which may include slope, aspect, water holding capacity and soil characteristic parameters. At each RE reference site a minimum of three transects is recommended and should be monitored every five years. Reference sites will be selected 2 years prior to the commencement of construction.

8.1.1.2 Site selection and establishment

Monitoring sites are established in rehabilitation areas to assess the recovery of post-mined lands toward the milestone criteria. Long-term transect placement and establishment shall be undertaken in accordance with the Manual and consider the following:

- Randomised transects for each rehabilitation area should be 50 m in length;
- No closer than 50 m to a road or similar disturbance;
- At a density of 11 per 100 ha and placed at a minimum of 100 m apart;
- Run across slope from the starting point; and
- Should attempt to remain within the one-year rehabilitation boundary (i.e., not run across the border of two rehabilitation years).

8.1.1.3 Assessing biomass and groundcover (for grazing land use only)

The Manual outlines the methods of monitoring biomass and groundcover and using transect, quadrat and photographic reference point monitoring methods within rehabilitated areas and includes the following methods:

- Collecting 1 m² of grass and pasture plants in areas of low (approximately 500 kg/ha) to high (approximately 5,000 kg/ha) biomass by fully harvesting and drying (at 60°C for two days) to generate a biomass curve. Corresponding pictures of these areas and a height stick within the vegetation are then used as a local guide to biomass / productivity; and
- Establishing 50 m transects for biomass and groundcover monitoring with 1 m² quadrats placed at 10 m intervals for the estimation of herbaceous and grass species in each quadrat.

8.1.1.4 Assessing species richness and framework species

To assess species richness and framework species (i.e., key cornerstone species within the PMLU), the following parameters are recorded at each permanent monitoring transect as per requirements of the Manual:

- Framework species presence and number of stems along the transect line;
- Cumulative species richness within each permanent transect block;
- Structural composition;
- Presence of weed species;
- Reproductive structures on framework species (trees and shrubs); and
- Resilience to disturbance (tolerance of natural climatic and land use associated pressures e.g., grazing, fire and drought).

8.1.1.5 Assessing erosion

Erosion is to be estimated along each transect with the following ratings:

- 1 – no erosion;
- 2 – sheet erosion;
- 3 – rill erosion (≤ 0.3 m deep);
- 4 – gully erosion (> 0.3 m to ≤ 1 m deep);

- 5 – gully erosion (≥ 1 m deep); and
- Tunnel erosion.

These are adapted from the ratings of National Committee on Soil and Terrain (2009), noting the distance along the transect. However, it should be noted that there is no Australian consensus on quantitative measures for minor, major or severe erosion and this measure is a broad aggregation of multiple (gully, sheet, rill) erosion measures.

8.1.1.6 Assessing tree height in native vegetation rehabilitation

Once tree establishment of native bushland PMLU has occurred, measure all trees over 2 m (using height stick, vertex or alternative method). Only measure height to the point on the tree that is living, even if dead vegetative material occurs beyond this.

8.1.1.7 Inspection of highwalls

To ensure the structural stability and integrity of the WCP highwalls, sign off from an AQP will be undertaken after any landform reshaping. Annual inspections of highwalls using remote sensing (e.g., drones, aerial imagery and/or LiDAR) will then be undertaken for the first three years from completion of reshaping / reprofiling pit, to report on evidence of:

- Cracking or slumping;
- Erosion;
- Water run-off; and
- Void creep.

8.1.1.8 Surface water monitoring

Surface water quality will be monitored in accordance with the locations and frequencies outlined in the PRCP Schedule (Appendix O -) attachments.

It is noted that a Receiving Environment Monitoring Program will be designed and implemented within three months of the commencement of Stage One activities as per Condition C20 of the EA

8.1.1.9 Groundwater monitoring

Groundwater quality and water levels will be monitored in accordance with the locations and frequencies outlined in the PRCP Schedule (Appendix O -) attachments.

8.1.1.10 Monitoring timeframes

Rehabilitation at the WCP will be monitored after rehabilitation has been completed in accordance with the timeframes and milestone criteria outlined in Table 8-2.

Table 8-2 Rehabilitation monitoring timeframes and monitoring methods

Monitoring Activity	Year 1-3	Year 5	Year 7	Year 10 onwards	Milestone Criteria
Safe to Humans, Wildlife and Stock					
Risk Assessment	Long-term safety aspects of the mine have risk controls implemented. Risk assessment review indicated that risk ratings are maintained, adequate and equivalent or lower than previous assessment.				
Stable					
Event Inspections	Wet Season	Wet Season	Wet Season	Wet Season	No maintenance required.
Inspection of Highwalls	Once			At relinquishment or until milestone met	- Constructed landform achieves geotechnical stability. - Highwall weathered zones have been battered back to $\leq 22\%$ and achieved a FoS of ≥ 1.2. - Highwall unweathered material is retained with slopes $\leq 214\%$ and achieved a FoS of ≥ 1.2. - Where highwalls remain, competent safety bund or equivalent landform in place at minimum FoS ≥ 1.5 to prevent access to the voids constructed to the following specifications: - A minimum 2m in height; - A minimum of 5m base width; and - Constructed from non-weathered, non-dispersive dumped rockfill. - Highwall safety bunds and fence installed on highwall weathered zones at a minimum FoS ≥ 1.5. - Drones, aerial imagery and/or LiDAR will be used to monitor highwalls.

Monitoring Activity	Year 1-3	Year 5	Year 7	Year 10 onwards	Milestone Criteria
Erosion Monitoring	Annually	Once	Once	Every five years until relinquishment or until milestone met	• An AQP certifies that there is no erosion classified as 'moderate' or 'severe' as defined by Attachment 2 – Erosion Classification Framework. • Despite above erosion is acceptable in the achievement of surface requirements provided an AQP certifies that all active erosion has been identified and remediation activities have been completed. • An AQP certifies that there is no erosion classified as 'moderate' or 'severe' as defined by Attachment 2 – Erosion Classification Framework. • Despite above, gullies are acceptable in the achievement of a stable landform provided they meet the following criteria as certified by an AQP: ○ does not exceed 1 m in depth at any point; ○ has not exposed environmentally problematic materials; ○ the cause of the gully is known and has been resolved; ○ has established and persistent vegetation cover, and/ or rock armouring at the head of the gully; ○ is in a stabilised state, demonstrated by monitoring data over a 5-year period; ○ does not provide a safety hazard within the context of the PMLU; and ○ are isolated.

Monitoring Activity	Year 1-3	Year 5	Year 7	Year 10 onwards	Milestone Criteria
No Environmental Harm					
Surface Water Quality Monitoring				Monthly for 5 years prior to relinquishment or until milestone met	- RM10.2 Surface water quality results will be monitored during flow at downstream locations specified in PRCP Schedule Attachment 6 – Surface Water Monitoring Locations. For Five (5) consecutive years prior to surrender, the quality characteristics listed in PRCP Schedule Attachment 7 – Surface Water Quality Limits must not exceed the limits in PRCP Schedule Attachment 7 – Surface Water Quality Limits. - RM10.3 If (A) the surface water quality results exceed the criteria in RM10.2; and (B) if there is flow at both the upstream and downstream monitoring location for each creek; then, each year by 1 November, an AQP must complete and provide to the administering authority an assessment of the cause of the exceedance, and the risk of rehabilitation not achieving a stable condition. Where the assessment concludes: (a) that there is low risk to achieving a stable condition, then no further action is to be taken; (b) that there is a risk greater than low to achieving a stable condition, then an assessment of potential environmental harm and any changes or rectification actions to

Monitoring Activity	Year 1-3	Year 5	Year 7	Year 10 onwards	Milestone Criteria
					rehabilitation activities must be determined and implemented. - If RM10.3(b) is triggered, then the 5-year timeframe under RM10.2 is reset. - All water infrastructure and ephemeral waterbodies which are to remain as part of the PMLU, or are to be retained, as evidenced by a written and signed landholder agreement for their retainment, comply with the following: - Safely accessible; - All contaminated sediment has been removed; and - Total dissolved solids $\leq 5,000$ mg/L
Groundwater Quality Monitoring				Quarterly for 5 years prior to relinquishment or until milestone met	Groundwater quality results will be monitored quarterly at the monitoring locations specified in PRCP Schedule Attachment 4 – Groundwater Monitoring Locations. For Five (5) consecutive years prior to surrender, the quality characteristics listed in PRCP Schedule Attachment 5 – Groundwater Quality Limits, must not exceed the limits in PRCP Schedule Attachment 5, for three (3) consecutive results.
Self-Sustaining					
Ecological Monitoring	Annually	Once	Once	At relinquishment or until milestone met	- PMLU Grazing: - Vegetation groundcover is ≥ 75 %. - Weed presence is less than 10 % of total vegetation cover.

Monitoring Activity	Year 1-3	Year 5	Year 7	Year 10 onwards	Milestone Criteria
					○ Vegetation species diversity includes ≥ 3 productive grass species. ○ Average pasture yield is $> 1,000$ kg/ha. • PMLU Native Bushland: ○ Vegetation groundcover and / or rock cover is ≥ 60 %. ○ Weed presence is less than 10 % of total vegetation cover. ○ ≥ 3 native tree / shrub species. • A rehabilitation performance assessment is completed using the methodology outlined in PRCP Schedule Attachment 3 – Method of Assessment.
Topsoil Depth	After Topsoil Application				• Topsoil placed to a depth of: ○ ≥ 100 mm for infrastructure areas and roads. ○ ≥ 200 mm for overburden emplacements and lowwall areas. ○ ≥ 200 mm for weathered zones of highwalls. • Contour ripping completed at a depth ≥ 200 mm.
Soil Quality Monitoring	Once			At relinquishment or until milestone met	• Testing demonstrates the following soil quality parameters are met: ○ pH 5.4 – 9.5; ○ Electrical Conductivity < 1800 μS/cm; ○ Nitrate > 5 mg/kg; ○ Total Kjeldahl Nitrogen > 500 mg/kg; ○ Total Phosphorus ≥ 50 mg/kg; ○ Exchangeable Sodium Percentage < 6 %.

8.1.2 Monitoring Reports

Within the WCP's rehabilitation monitoring process there are three deliverables to be provided annually once rehabilitation activities commence:

- The annual monitoring program results report;
- The annual Aftercare and Maintenance plan; and
- The annual rehabilitation implementation self-assessment forms.

These reports are prepared at the conclusion of each annual monitoring event. The purpose of the annual reports is to present an annual update of the rehabilitation progress towards the achievement of PMLU criteria. The results of each additional year of monitoring are compared to those of previous years by showing the trends towards the achievement of the safe, stable, non-polluting and self-sustaining PMLU criteria, and recommendations are provided to improve and further support the continued progression of the rehabilitation.

The reports may also describe corrective actions/contingency strategies, should these require implementation. These may include one or more of the following:

- Application of additional soil amelioration;
- Reshaping and stabilisation of erosion features;
- Reseeding and/or replanting;
- Review the seed mix, including species, supplier, viability, application method; and
- Weed and pest management.

8.1.3 Maintenance and Management

A range of maintenance and management activities may be required in rehabilitated areas to facilitate achievement of the PRCP milestone completion criteria. Upon completion of rehabilitation activities rehabilitation areas will be monitored at an early stage and results compared to the milestone completion criteria. Areas that are not on a trajectory to meet the milestone completion criteria will have maintenance activities undertaken to facilitate achievement of the completion criteria (Table 8-3).

Table 8-3 Maintenance and management program

Aspect	Management Action	Possible Maintenance Action
Vegetation	- Identify vegetation cover and compare with indicators on trajectory to meeting milestone completion criteria. - Manage grazing areas to prevent overgrazing, i.e., correct stocking rates / rotational system depending on maturity of system. - Check for dormancy. - Vegetation assessment to determine if completion criteria (cover, diversity, vitality, etc.) are predicted to be met.	- Apply additional ameliorants if required based on soil analysis. - Re-seed areas if soil quality is ameliorated. - Re-seed with selected species if diversity is not acceptable. - Stimulate growth with controlled grazing. - Increase roughness of surface or mulch layer to trap seeds. - Re-planting in some areas where vegetation establishment is limited.
Erosion	- Monitor extent and severity of erosion and determine causes – do not repair erosion if activity will cause excessive additional disturbance – allow another season to monitor the progression or stabilisation of small-scale erosion. - Identify unwanted concentration of runoff over large areas.	- Small rill erosion – selected branch or rock packing. - Gullies – backfill where needed by borrowing from surrounds or reshape using small earthworks equipment; use coarse material for backfilling. - Large gullies – import material to backfill from stockpiles or borrow pits; if required, construct water control structures. - Reinstate / upgrade water control structures. - Spread runoff where concentration occurs. - Improve vegetation cover.
Sediment Control	- Monitor and inspect sediment control. - Evaluate the need for de-silting with a view to stabilisation of rehabilitated areas and buffer capacity of sediment control structures. - Inspect sediment control structures especially after intense rain events.	- De-silt sediment control structures where capacity has been compromised – place silt on areas that is not subject to erosion, ameliorate and vegetate. - Construct new sediment control structures where needed. - Re-route runoff based on evaluation of drainage pattern after rehabilitation. - Repair upstream erosion. - Improve vegetation cover.
Weed Management	Continue with weed control program.	- Annual weed inspections and mapping. - Weed control with selected herbicides appropriate to the area concerned (e.g.,

Aspect	Management Action	Possible Maintenance Action
		rehabilitated areas vs. firebreaks). • Bush encroachment control follow upon previously cleared areas. • Thin out undesirable species where it may impact / affect grass cover. • Mowing / slashing periodically as removing biomass repeatedly causes reduced vigour in many weed species. Use in combination with herbicides. • Weed removal using mechanical methods (e.g., weed wrench or root talon).
Feral Animal Management	• Identify feral animals that can affect rehabilitated areas.	• Implement feral animal control plan. • Liaise with neighbouring stakeholders and / or applicable government agencies, where needed, to address the cause of the problem.
Fire Management	• Maintain firebreaks.	• Maintaining firebreaks on boundaries. • Vegetation control along firebreaks. • Clear firebreaks mechanically where needed.
Land Stability	• Monitor land stability.	• Erosion and sediment control structures are appropriately maintained.

9. PRCP Schedule

The PRCP schedule will become a statutory instrument once approved by DETSI. The purpose of the PRCP schedule is to set timeframes for completing rehabilitation over the LOM. The breakdown for how the proposed PRCP schedule has been developed is outlined below. The proposed PRCP Schedule for the WCP is provided in Appendix O -.

For the WCP, this PRCP schedule includes:

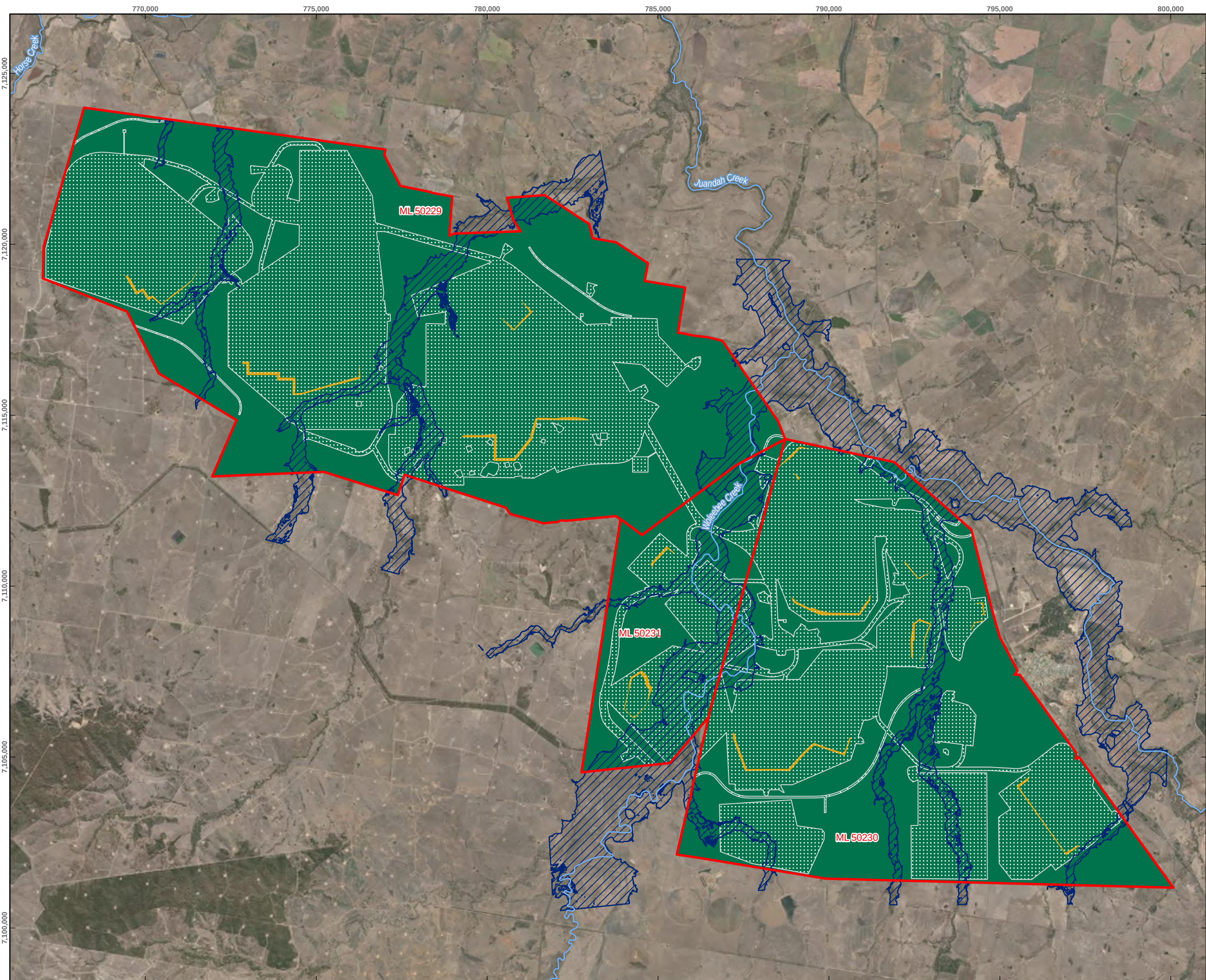
- A PMLU for all land within the relevant resource tenures, including undisturbed land;
- Identification of when land becomes available for rehabilitation or improvement;
- Rehabilitation milestones to achieve the PMLU outcomes;
- Milestone criteria that demonstrate when each milestone has been completed; and
- Completion dates for each milestone to be achieved.

Completion dates for the achievement of rehabilitation milestones cannot be determined as the WCP has no planned start date. This is discussed further in Section 9.5.

9.1 Final Site Design

The final site design for the WCP is shown in Figure 9-1 and includes the following features:

- The maximum disturbance footprint as permitted under the EA EPML00297613;
- ML 50229, ML 50230 and ML 50231;
- The PMLUs for the WCP area; and
- 0.1 % AEP flood extent.



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION
AND CLOSURE PLAN

FIGURE 9-1
FINAL SITE DESIGN

LEGEND

Watercourse

Wandoan Coal Project Mining Leases

PRCP Maximum Extent of Disturbance

1 in 1000 Year Flood

Post Mining Land Use

Grazing

Native Bushland

Service Layer Credits:
Earthstar Geographics

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

0

1

2

km

Coordinate System: GDA2020 MGA Zone 55

Scale: 1:100,000 at A4

Project Number: 626.30100.00800

Date Drawn: 31-Jul-2025

Drawn by: AS

SLR

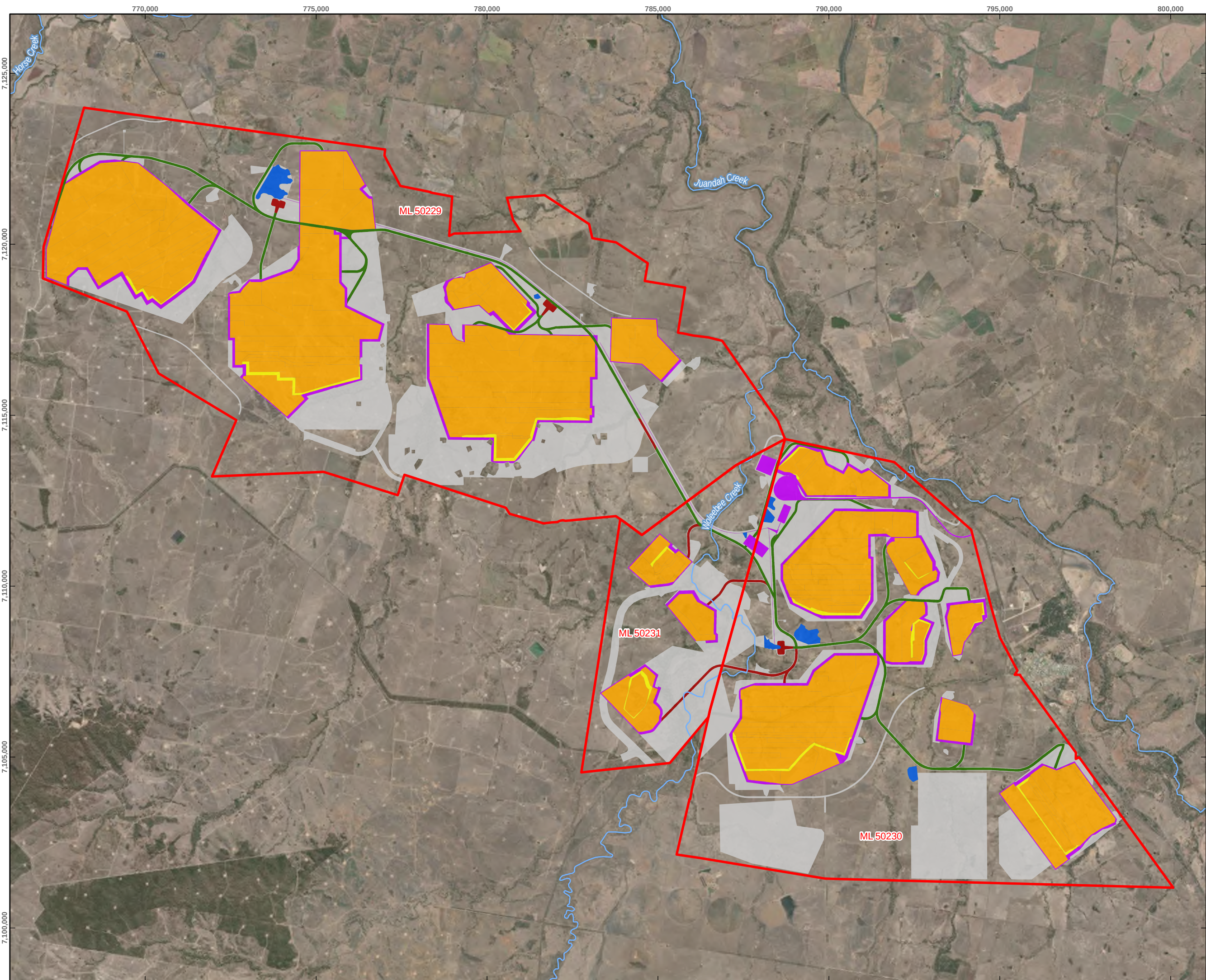
Path: \\au.slr.local\Corporate\Projects-SLR\626-MKY\626.30100.00000 Wandoan Mine Site EA Amend and PRCP\06 SLR Data\01 CAD\GIS\GIS\Wandoan PRCP\Wandoan PRCP.aprx\62630100 Wandoan PRCP F09-01 Final Site Design

9.2 Rehabilitation Areas

A Rehabilitation Area (RA) is defined in the EP Regulation as an area of land in the PMLU to which a rehabilitation milestone for the PMLU relates. The WCP has two PMLUs comprising of grazing and native bushland. The applicable rehabilitation methodology and milestones have been used to identify different rehabilitation areas. The WCP PRCP rehabilitation areas are detailed in Table 9-1 and shown in Figure 9-2.

Table 9-1 Proposed rehabilitation areas

Rehabilitation Area	Relevant Activity	Total Area (ha)	Post Mining Land Use
RA1	Pits including lowwalls and overburden emplacements	8,383	Grazing
RA2	Infrastructure	1,009	Grazing
RA3	Decommissioned haul roads and ROM pads	101	Grazing
RA4	Retained haul roads	548	Grazing
RA5	Water Infrastructure	126	Grazing
RA6	Highwalls and end walls including weathered zone	212	Native Bushland
RA7	Exploration and Ancillary Activities	6,627	Grazing



WANDOAN COAL PROJECT

PROGRESSIVE REHABILITATION AND CLOSURE PLAN

FIGURE 9-2
REHABILITATION AREAS

LEGEND

Watercourse

Wandoan Coal Project Mining Leases

Rehabilitation Areas

RA1 - Pits including Lowwalls and Overburden Emplacements

RA2 - Infrastructure

RA3 - Decommissioned Haul Roads and ROM Pads

RA4 - Retained Haul Roads

RA5 - Dams

RA6 - Highwalls and End walls including Weathered Zone

RA7 - Exploration and Ancillary Activities

Service Layer Credits:
Earthstar Geographics

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

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km

Coordinate System: GDA2020 MGA Zone 55

Scale: 1:100,000 at A4

Project Number: 626.30100.00800

Date Drawn: 31-Jul-2025

Drawn by: AS

SLR

Path: \\au.slr.local\Corporate\Projects-SLR\626-MKY\626.30100.00000 Wandoan Mine Site EA Amend and PRCP\06 SLR Data\01 CAD\GIS\GIS\Wandoan PRCP\Wandoan PRCP.aprx\62630100 Wandoan PRCP F09-02 Rehabilitation Areas

9.3 Available for Rehabilitation

Once mining activities are completed the land becomes available for rehabilitation. 'Available for rehabilitation' is defined in section 126D of the EP Act as land that is no longer being mined, unless one of the following circumstances applies:

- The land is being used for operating infrastructure or machinery for mining, including, for example, a dam or water storage facility;
- The land is identified in the proposed PRCP schedule as containing a resource to be mined within 10 years after the land would otherwise have become available for rehabilitation;
- The land is required for the mining of probable or proven ore reserve mentioned in b) above; and
- The land contains permanent infrastructure identified in the proposed PRCP schedule as remaining on the land for a PMLU.

Rehabilitation areas at the WCP will progressively become available throughout the LOM and once mining on site has ceased. The general timing for when rehabilitation areas become available has been based on the internal mine planning and available resources (e.g., equipment). The dates and areas for when land becomes available for rehabilitation are outlined in the PRCP Schedule in Appendix O -

9.4 Milestones and Milestone Criteria

Rehabilitation milestones and the associated criteria have been developed using the information presented in the PRCP. These milestones have been reflected in the proposed PRCP schedule (Appendix O -) and are outlined in Table 9-2.

Table 9-2 Rehabilitation milestones

Milestone Reference	Rehabilitation Milestone	Milestone Criteria	Justification
RM1	Infrastructure decommissioned and removed	1.1 With the exception of any infrastructure to remain as part of the post-mining land use (PMLU) or to be retained under landholder agreement, the following are complete: (a) All services disconnected and removed; (b) All buildings and associated infrastructure dismantled and removed offsite. (c) All hardstand, concrete areas and roads (bitumen, blue metal, aggregate etc.) removed. (d) All fencing and associated foundations removed. (e) All pipelines drained and removed. (f) All waste not authorised to be disposed of on-site under EA EPML00297613 removed. (g) All drillholes, bores, sediment ponds and sumps decommissioned. (h) All machinery and equipment, not required for rehabilitation works removed from site. (i) Watercourse crossings and culverts removed. 1.2 Below-ground infrastructure and services deeper than 0.5m in relation to the final landform surface may be retained provided: (a) All pipelines have been drained and capped or filled with inert material; and (b) All below-ground infrastructure to be retained is mapped; and	The criteria proposed for this milestone is consistent with the steps undertaken as part of the infrastructure decommissioning process.

Milestone Reference	Rehabilitation Milestone	Milestone Criteria	Justification
		(c) The intended PMLU is not compromised; and (d) There is no ongoing risk of environmental harm.	
RM2	Contaminated land remediated	2.1 Contaminated Land Investigation Document completed in accordance with the EP Act, including a site investigation report, and, where required, a Validation Report and/or a draft Site Management Plan. 2.2 Contaminated water and sediment removed from dams. 2.3 Contaminated and hazardous material either remediated in-situ or removed/transported to facility lawfully able to accept the material. 2.4 Suitably Qualified Person (SQP) provides a suitability statement that confirms the land is not unsuitable for the PMLU.	The criteria proposed for this milestone is consistent with the steps undertaken as part of the contamination investigation and remediation processes.
RM3	Landform reshaped / reprofiled	3.1 External batters of overburden emplacements have a maximum slope of 18 %. 3.2 Final void lowwall slopes are ≤ 22 %. 3.3 Highwall weathered zones have been battered back to ≤ 22 % and achieved a FoS of ≥ 1.2. 3.4 Highwall unweathered material is retained with slopes ≤ 214 % and achieved a FoS of ≥ 1.2. 3.5 Constructed landform achieves geotechnical stability. 3.6 Where highwalls remain, competent safety bund or equivalent landform installed at minimum FoS ≥ 1.5 to prevent access to the voids constructed to the following specifications: (a) A minimum 2m in height; (b) A minimum of 5m base width; and (c) Constructed from non-weathered, non-dispersive dumped rockfill.	This design criteria proposed in the final landform are well within the maximum allowed under the EA. Slope angles and length requirements are informed by the erosion assessment, Section 5.6.1 of the PRCP.

Milestone Reference	Rehabilitation Milestone	Milestone Criteria	Justification
		3.7 Where the waste placement strategy of tailings/reject encapsulation within overburden emplacements exists, a separation offset of 20 m between the encapsulation cell and the nearest exposed final batter is required. 3.8 Slope lengths of approximately 100 m. 3.9 The following pits are constructed to RM3.1 and RM3.4 and are reprofiled to form free draining landforms: Turkey Hill, Mud Creek North, Mud Creek East, Woleebee North, Austinvale North, Leichhardt, Frank Creek North and Frank Creek South. 3.10 The following pits are constructed to RM3.1 and RM3.4 and are reprofiled to create void depressions and may contain ephemeral waterbodies: Summer Hill, Mud Creek, Woleebee North Satellite, Woleebee Creek, Woleebee, Austinvale, Frank Creek and Wubagul . 3.11 For the interaction of landform and 0.1 % AEP, selective use of scour protection such as vegetation and/or rock mulch as determined by AQP.	
RM4	Carbonaceous material removed	4.1 Carbonaceous material removed from all haul roads by scalping to a depth of ≥ 300 mm. 4.2 Carbonaceous material removed from ROM by scalping to a depth of ≥ 500 mm.	The criteria proposed for this milestone is consistent with the steps to decommission haul roads and ROM.
RM5	Surface prepared	5.1 Topsoil placed to a depth of: (a) ≥ 100 mm for infrastructure areas and roads. (b) ≥ 200 mm for overburden emplacements and lowwalls areas. (c) ≥ 200 mm for weathered zones of highwalls. 5.2 Topsoil or growth medium is tested prior to placement on the landform for the below parameters:	This criterion is consistent with the methodology proposed in Section 5.6 of this PRCP.

Milestone Reference	Rehabilitation Milestone	Milestone Criteria	Justification
		(a) pH 5.4 – 9.5; (b) Electrical Conductivity < 1800 $\mu\text{S}/\text{cm}$; (c) Nitrate > 5 mg/kg; (d) Total Kjeldahl Nitrogen > 500 mg/kg; (e) Total Phosphorus $\geq$ 50 mg/kg; (f) Exchangeable Sodium Percentage $\leq$ 6 %. 5.3 Where the topsoil or growth medium tested does not meet the criteria under RM5.2, the topsoil or growth medium is ameliorated and fertilised to the recommendations of an AQP. 5.4 Contour ripping completed at a depth $\geq$ 200 mm.	
RM6	Surface revegetated	6.1 The seed mix will be derived from a selection of species listed in the species list provided in PRCP Schedule Attachment 1 or in the event of species not being available other suitable alternatives, for the relevant PMLU. 6.2 Seed mix applied at the rate listed in PRCP Schedule Attachment 1 for the relevant PMLU. 6.3 Livestock are excluded from newly seeded areas via physical or virtual fencing.	The seed mix has been developed based on seed used across the Western Downs Region.
RM7	Rehabilitation of water infrastructure	7.1 All water infrastructure, either retained as evidenced by a written and signed landholder agreement or ephemeral water bodies which are to remain as part of the PMLU to comply with the following: (a) All contaminated sediment has been removed; (b) Safely accessible; and (c) Total dissolved solids $\leq$ 5,000 mg/L	This criterion allows for water storages to be either retained or rehabilitated. Either method will tie in with the proposed grazing PMLU.

Milestone Reference	Rehabilitation Milestone	Milestone Criteria	Justification
		7.2 All water infrastructure which are not to remain or be retained under criterion RM7.1, comply with the following: (a) Where present, liners are removed; (b) All contaminated sediment has been removed; and (c) Earthworks are completed to decommission dam walls.	
RM8	Achievement of surface requirements	8.1 Grazing PMLU vegetation groundcover is $\geq 65\%$. 8.2 Native Bushland vegetation groundcover and / or rock cover is $\geq 50\%$. 8.3 Proportion of weeds is $< 10\%$ of total vegetative groundcover. 8.4 The landform is free draining with the exception of water management infrastructure retained under RM7 where residual voids hold ephemeral waterbodies. 8.5 An AQP certifies that there is no erosion classified as 'moderate' or 'severe' as defined by Attachment 2 – Erosion Classification Framework. 8.6 Despite RM8.5 erosion is acceptable in the achievement of surface requirements provided an AQP certifies that all active erosion has been identified and remediation activities have been completed. 8.7 There is no evidence of saline, metalliferous or acid mine drainage from landforms to the receiving environment.	Proposed criteria with the objective to demonstrate the landform surface requirements are achieved and stable.
RM9	Achievement of post-mining land use to a stable condition	9.1 For a Grazing PMLU, vegetation groundcover is $\geq 75\%$. 9.2 For a Grazing PMLU, vegetation species diversity includes ≥ 3 productive grass species. 9.3 For a Grazing PMLU, average pasture yield is $> 1,000$ kg/ha.	Proposed criteria with the objective to meet the native bushland PMLU Proposed criteria with the objective to meet the grazing PMLU.

Milestone Reference	Rehabilitation Milestone	Milestone Criteria	Justification
		9.4 For a Native Bushland PMLU, vegetation groundcover and / or rock cover is $\geq 60\%$. 9.5 For a Native Bushland PMLU, ≥ 3 native tree / shrub species. 9.6 Weed presence is less than 10% of total vegetation cover. 9.7 An AQP certifies that there is no erosion classified as 'moderate' or 'severe' as defined by Attachment 2 – Erosion Classification Framework. 9.8 Despite RM9.7 gullies are acceptable in the achievement of a stable landform provided they meet the following criteria as certified by an AQP: (a) does not exceed 1 m in depth at any point; and (b) has not exposed environmentally problematic materials; and (c) the cause of the gully is known and has been resolved; and i) has established and persistent vegetation cover, and/ or rock armouring at the head of the gully; and ii) is in a stabilised state, demonstrated by monitoring data over a 5-year period; and (d) does not provide a safety hazard within the context of the PMLU; and (e) are isolated. 9.9 Engineered Structures to remain in the final landform s (e.g., rock drains), must be certified by an AQP as stable and can be expected to remain stable and functional. 9.10 A rehabilitation performance assessment is completed using the methodology outlined in PRCP Schedule Attachment 3 – Method of Assessment.	

Milestone Reference	Rehabilitation Milestone	Milestone Criteria	Justification
		9.11 Risk Assessment completed demonstrates risks in the rehabilitation area are similar to risks in neighbouring unmined landscapes subject to a similar PMLU.	
RM10	Achievement of post-mining land use water quality	10.1 Groundwater quality results will be monitored quarterly at the monitoring locations specified in PRCP Schedule Attachment 4 – Groundwater Monitoring Locations. For Five (5) consecutive years prior to surrender, the quality characteristics listed in PRCP Schedule Attachment 5 – Groundwater Quality Limits, must not exceed the limits in PRCP Schedule Attachment 5, for three (3) consecutive results. 10.2 Surface water quality results will be monitored during flow at downstream locations specified in PRCP Schedule Attachment 6 – Surface Water Monitoring Locations. For Five (5) consecutive years prior to surrender, the quality characteristics listed in PRCP Schedule Attachment 7 – Surface Water Quality Limits must not exceed the limits in PRCP Schedule Attachment 7 – Surface Water Quality Limits. 10.3 If (A) the surface water quality results exceed the criteria in RM10.2; and (B) if there is flow at both the upstream and downstream monitoring location for each creek; then, each year by 1 November, an AQP must complete and provide to the administering authority an assessment of the cause of the exceedance, and the risk of rehabilitation not achieving a stable condition. Where the assessment concludes: (a) that there is low risk to achieving a stable condition, then no further action is to be taken; (b) that there is a risk greater than low to achieving a stable condition, then an assessment of potential environmental harm and any changes or rectification actions to rehabilitation activities must be determined and implemented.	

Milestone Reference	Rehabilitation Milestone	Milestone Criteria	Justification
		10.4 If RM10.3(b) is triggered, then the 5-year timeframe under RM10.2 is reset.	

9.5 Milestone Completion Timeframe

The PRCP Schedule completion dates have been based on when land becomes available and the estimated amount of time to achieve each milestone. The proposed PRCP Schedule is provided in Appendix O -.

The timing of when these milestones will be achieved must also be considered for rehabilitation to be completed effectively and efficiently. For example, seeding should take place at the end of the year before the wet season and ideally is done soon after the application of topsoil. Milestones should also be aligned to maximise efficiency, where possible.

Rehabilitation will commence as soon as reasonably practical and, therefore, rehabilitation milestones should be able to be completed as per the proposed PRCP Schedule.

The WCP has not commenced mining operations and there are no defined completion dates, as such the date the areas become available for rehabilitation has been adapted as 'XX' in the PRCP Schedule for the relevant RA (Appendix O -).

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Appendix A - Environmental Authority (EPML00297613)

Appendix B - Geochemical, Physical and Spontaneous Combustion Assessment of Mine Materials (RGS, 2024)

Appendix C - Terrestrial Ecology Technical Report (SLR 2024b)

Appendix D - Groundwater-Dependent Ecosystem Assessment

Appendix E - Underlying Landholders

Appendix F - Landholder Agreement

Appendix G - Community Consultation Plan

Appendix H - Hydrogeology Assessment (KCB, 2025a)

Appendix I - Flooding Assessment (KCB, 2025b)

Appendix J - Residual Void Water Balance Study (KCB, 2025c)

Appendix K - Erosion Risk Assessment (SLR, 2025)

Appendix L - Soil and Capping Material Assessment (SLR, 2024a)

Appendix M - Geotechnical Assessment (PSM, 2024)

Appendix N - Closure Risk Assessment

Appendix O - PRCP Schedule

GLENCORE