



CHAPTER 1 – INTRODUCTION

STANMORE ID EXTENSION PTY LTD
ISAAC DOWNS EXTENSION PROJECT

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1. INTRODUCTION

1.1 Background

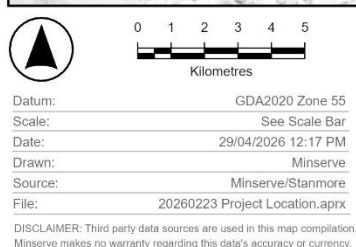
Stanmore ID Extension Pty Ltd (ID Extension), a wholly owned subsidiary of Stanmore Resources Ltd (Stanmore), proposes to develop the Isaac Downs Extension (IDE) Project (the Project). The Project will extend the life of mining operations at Isaac Plains Complex (IPC) through the development of an open cut coal mine pit and associated infrastructure, primarily mining metallurgical (steel making) coal. Approximately 46 million tonnes (Mt) of run of mine (ROM) coal will be mined over 15 years, at a rate of 2 – 4.5 million tonnes per annum (Mtpa).

IPC comprises Isaac Downs Mine (IDM) and Isaac Plains Mine (IPM), operated by wholly owned subsidiaries of Stanmore, Stanmore IP South Pty Ltd (IP South) and Stanmore IP Coal Pty Ltd (IP Coal), respectively (refer to Figure 1-1).

The Project adjoins IDM and will be integrated into IPC (refer to Figure 1-1) with ROM coal washed at the IPM coal handling and preparation plant (CHPP), shared mine infrastructure area (MIA) at IDM, and connecting infrastructure such as water management infrastructure and power supply.

The Project is located in the Bowen Basin of central Queensland approximately 15 km southeast of Moranbah and 150 km southwest of Mackay, with the Project's mining lease (ML) application areas shown in Figure 1-1.

Mining of ROM coal at IDM is expected to ramp down between 2026 and 2028, with Project construction commencing late 2027 / early 2028 and ROM coal extraction in 2029. The IPC workforce will transition to IDE as mining ramps down at IDM and IPM, and ramps up at IDE. The Project, being an extension of mining activities at IPC, is therefore important to ensure a near steady state workforce across IPC beyond 2027 and 2028.



1.2 Project Proponent

ID Extension, a wholly owned subsidiary of Stanmore, is the proponent for the Project. ID Extension is located at Stanmore's office - Level 32, 12 Creek Street, Brisbane, QLD, 4000; with postal address - GPO Box 2602, Brisbane, QLD, 4001. ID Extension's Australian Business Number (ABN) is 44685301231.

Stanmore is an Australian Stock Exchange (ASX) listed Australian company which, through various subsidiary entities, owns metallurgical (steel making) coal mines and coal mining projects in Queensland's Bowen Basin.

The proponent has adopted the sustainability, environment and health and safety policies of Stanmore, which are provided at <https://stanmore.au/wp-content/uploads/2025/11/Stanmore-Sustainability-Policy.pdf>, <https://stanmore.au/wp-content/uploads/2025/11/Stanmore-Environment-Policy.pdf>, and <https://stanmore.au/wp-content/uploads/2025/12/Stanmore-Health-and-Safety-Policy.pdf>, respectively.

The directors of ID Extension are Stanmore's Chief Executive Officer (CEO) and Chief Development Officer (CDO). Stanmore's CEO has over 25 years of experience in the mining sector in a number of operations, projects, business development, marketing and sales, strategy and planning roles. Stanmore's CDO has more than 22 years' experience in the underground and open-cut mining industries in Queensland, New South Wales and Canada. Further information about ID Extension's directors can be found at <https://stanmore.au/about-us/board-leadership/>.

ID Extension, the proponent ('person') for the Project ('proposed action'), and the directors of ID Extension, have a satisfactory record of responsible environment management. The directors of ID Extension are also directors of Stanmore. Stanmore, together with its related bodies corporate, hold a number of State and Commonwealth approvals for various mines. Stanmore, together with its related bodies corporate, has a good environmental compliance history for its mines, most relevantly for approvals under the *Environmental Protection Act 1994* (Qld) (EP Act) and *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). Stanmore has submitted all annual returns required under the EP Act and complied with EPBC Act annual reporting requirements. Across all of Stanmore's operations there have been nine penalty infringement notices (PINs) and one environmental protection order (EPO) issued under the EP Act during its ownership. Stanmore has taken the required environmental management actions to respond to these PINs and comply with the EPO. Any non-compliances with conditions of the EPBC Act approval are reported in publicly available documents on Stanmore's website. There are no past or present proceedings against ID Extension, its directors, or its related bodies corporate under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources.

1.3 Project Overview

The proponent has applied for four MLs for the Project, ML application (MLA) 700081, MLA 700082, MLA 700083 and MLA 700084, as shown in Figure 1-2, which comprises the Project area.

The proposed Project layout, mining lease application (MLA) areas and proposed disturbance area are shown in Figure 1-2. The proposed disturbance allows for working and construction areas within and around proposed Project activities and infrastructure. The disturbance area has been refined to minimise and / or avoid sensitive ecological features (e.g. habitat for listed threatened species and riparian areas).

The open cut mining methods for the Project will be similar to those at IDM, including:

- clearing of vegetation, stripping and stockpiling of topsoil
- drilling and blasting of pre-strip overburden
- removing the pre-strip overburden using mining equipment at IDM being a dragline and / or truck and shovel fleets and / or dozers

- drilling and blasting of overburden
- drilling and blasting of pit floor for geotechnical stability to allow for in-pit dumping
- overburden removal using the dragline at IDM and / or truck and shovel fleets
- coal mining using excavators
- formation of out of pit and in-pit overburden dumps as mining progresses
- progressive rehabilitation of overburden dump areas.

ROM coal will be transported from the Project's ROM coal pad to the CHPP at IPM for washing, utilising existing haul roads at IPC and new haul roads, including a bridge across the Isaac River, constructed in the Project area. The dragline will be walked from IDM to the Project via a temporary crossing of the Isaac River.

Product coal from the IPM CHPP will be railed along the Goonyella rail line to Dalrymple Bay Coal Terminal (DBCT) for export with a small percentage railed via the Newlands rail system to the Port of Abbot Point. No changes are required at the CHPP to allow washing of the Project's ROM coal.

A satellite go line and crib area will be constructed at the Project, with the existing MIA at IDM continuing to service Project activities.

The primary access to the Project for workers and deliveries will be via IDM's existing access road and new access roads connecting with the Project, utilising the bridge to be constructed across the Isaac River. There is potential for a secondary access route to the Project between the Project and Stanmore's Eagle Downs project, utilising new and existing roads to connect with the Peak Downs Mine Road.

During operations, levees will be constructed to protect the open cut pit area from flooding of the Isaac River, Cherwell Creek and Conrock Gully up to a 0.1% annual exceedance probability (AEP) (1:1,000 year) flood event. Conrock Gully will be diverted around the active mining areas into the Isaac River, with the diversion remaining post mining. Any residual void remaining post mine life will not be located within the extent of the 0.1% AEP flood event.

A mine affected water dam will store water from the pit, ROM pad, go line and crib area, with the ability to transfer mine affected water to and from IDM and IPM within IPC's integrated water management system, thereby enabling the balancing of water supply and demand. Sediment water drains and dams will be constructed to capture runoff from overburden dumps. Clean water drains and dams will be constructed to separate clean water from mine affected water and sediment water.

IPC has access to external raw water supplied from SunWater and has excess storage capacity for water within existing mined voids and dams. As the Project's water management systems will be integrated into the rest of IPC, water supply will be available during dry periods, and storage capacity will be able to receive any excess water during wet periods. Therefore no new sources of water supply will be required.

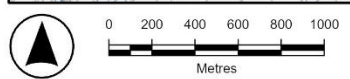
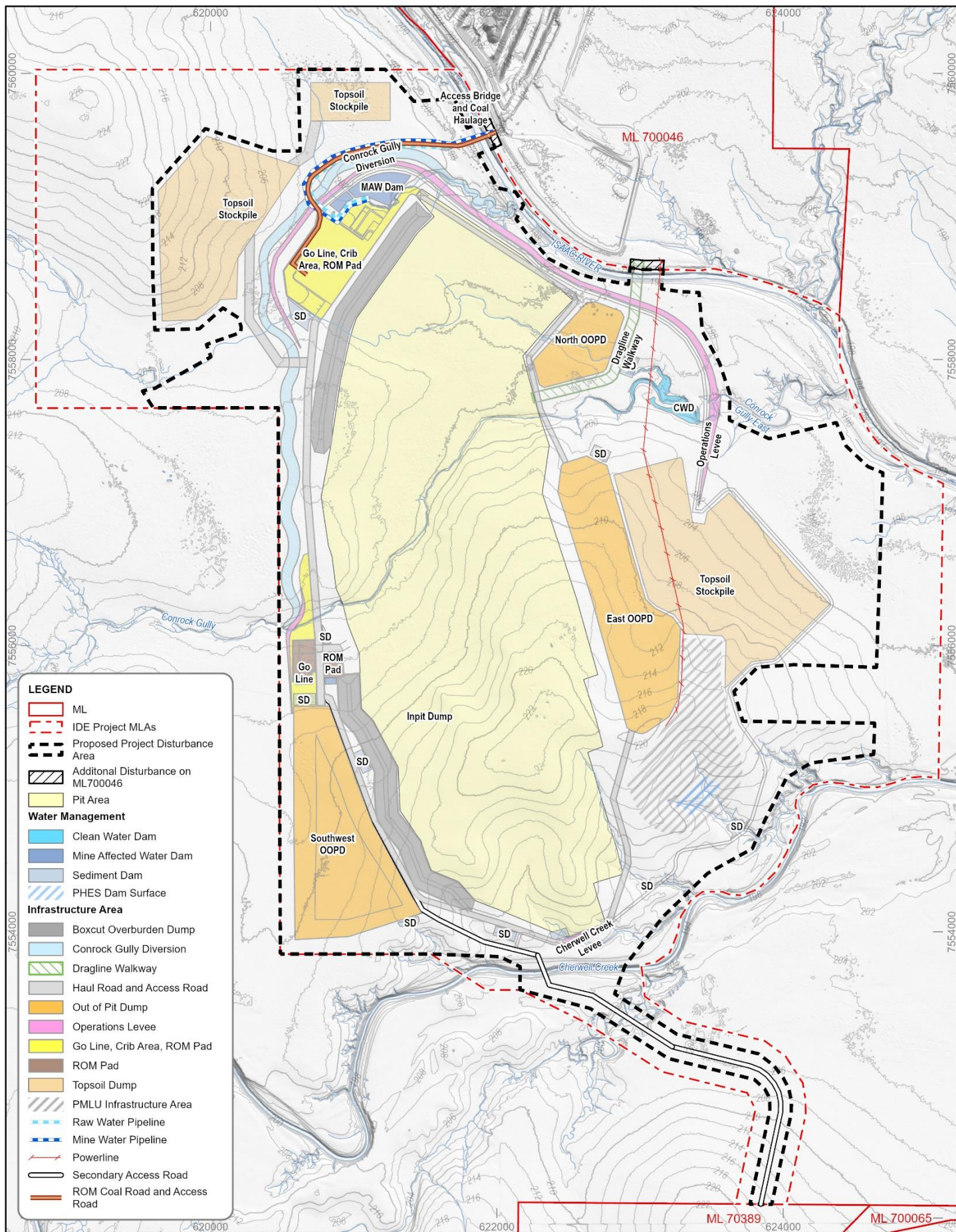
Topsoil stockpile areas will be used for storage of topsoil that has been stripped from mining and infrastructure areas, for future use in rehabilitation.

Power for the dragline will be supplied to the Project via powerline connections with existing power supply at IDM. The Project may require additional linear infrastructure at IDM to facilitate the extension of IDM mining activities to the Project, however this will be within areas authorised for disturbance.

The Project operational workforce will be similar to, but lower than that for current operations at IPC, with around 300 - 400 workers, compared to around 400 - 450 workers. Approximately 100 – 150 workers will be engaged at the Project for infrastructure construction. The Project, being an extension of mining activities at IPC, is therefore important to ensure a near steady state workforce across IPC beyond 2027 and 2028.

Workforce accommodation arrangements will continue in a similar manner to those for the current IPC workforce, being a mix of residences in Moranbah and other local or regional towns, and mine

accommodation villages in the region. Through the Project, Stanmore will continue to support local and regional suppliers and contractors, providing additional economic benefits and employment in the region. The Project is not proposing any novel or unproven resource extraction process, technology or activity.



Datum: GDA2020 Zone 55
 Scale: See Scale Bar
 Date: 7/04/2026 12:23 PM
 Drawn: Minserve
 Source: Minserve/Stanmore
 File: 20260223 Project Layout.aprx

DISCLAIMER: Third party data sources are used in this map compilation. Minserve makes no warranty regarding this data's accuracy or currency.

1.4 Social and Economic Benefits

The Project will provide the following social and economic benefits:

- Contribute significantly to the State's economy and provide ongoing employment opportunities through the transition the IPC workforce to the Project.
- Contribute, during the construction phase, an estimated to \$17.7 million in gross regional product (GRP) for the regional catchment and \$32.9 million in gross state product (GSP) for Queensland. The mining phase is estimated to support an average annual contribution of \$106.6 million in GRP for the regional catchment and \$198.5 million in GSP for Queensland.
- Employ approximately 100 - 150 people during the construction phase and approximately 300 – 400 people during operations. In addition, there will be opportunities for local employment in construction, transport and the supply of goods and services.
- Support for incomes is estimated to be around \$180 - 220 million more per annum in Queensland relative to the base case (i.e. without the Project).
- Require approximately \$190 million in capital investment to bring it to full production.
- Result in various taxation and royalty payments to the commonwealth and the state. The Project is estimated to provide additional revenues of approximately \$965 million over the life of Project operations to the Australian Government, equating to \$60.3 million per annum. The Project is estimated to provide additional revenues of approximately \$698 million over the life of Project operations to the Queensland Government, equating to \$43.6 million per annum.
- Provide a continuous and steady level of economic activity in Moranbah and the region, as the Project's mining activities replace existing mining activities at IPC, with ongoing opportunities for engagement of local and regional suppliers.
- Capitalise on existing infrastructure and activities located at IPC, and reduce the Project's environmental footprint, by utilising existing:
 - coal processing and railing infrastructure
 - open-cut voids for disposal of rejects and storage of mine affected water
 - raw water supply and power supply.
- The social impact assessment (see **Chapter 21**) identified that social benefits, as enhanced through associated social impact management measures, will result from:
 - enhanced and ongoing Project workforce and contributions in community
 - enhanced long-term employment security
 - generation of new, ongoing and replacement employment opportunities
 - opportunities for training and skills development
 - enhanced access to affordable accommodation options for visiting trades and services
 - ongoing economic benefits for worker accommodation village providers
 - increase in supply and procurement opportunities
 - ongoing economic benefits for local and regional businesses
 - population retention influencing community vitality and, cohesion in local communities
 - post-mining land use and land rehabilitation opportunities.

The cost benefit analysis for the Project (see **Chapter 22**) identified, across all discount rates examined, that the Project would be deemed economically desirable, with the benefits outweighing the costs. At a 7% discount rate, the Project's modelling delivers a net present value (NPV) of \$653.5 million over the assessment period.

1.5 Legislative Framework

On 17/06/2025 the Department of the Environment, Tourism, Science and Innovation (DETSI) approved an application by the proponent under the EP Act to prepare a voluntary environmental impact statement

(EIS) for the Project. ID Extension will apply for an environmental authority (EA) and progressive rehabilitation and closure plan (PRCP) for the Project.

The proponent applied to Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (DNRMMRRD), under the *Mineral Resources Act 1989* (MR Act), for four MLs for the Project on 24/06/2025; MLA 700081, MLA 700082, MLA 700083 and MLA 700084.

The Project was referred under the EPBC Act on 28/04/2025 to the Australian Government (EPBC 2025/10183). On 06/06/2025 the Department of Climate Change, Energy, the Environment and Water (DCCEEW) determined that the Project was a controlled action under the EPBC Act subject to the following controlling provisions for matters of national environmental significance (MNES):

- listed threatened species and ecological communities
- water resources that relate to large coal mining development.

The voluntary EIS for the Project will support the EA and PRCP (including PRCP schedule) applications. On 23/06/2025 DCCEEW decided that the Project would be assessed by an accredited assessment process under the bilateral agreements between the State and Commonwealth, being the voluntary EIS required under the under EP Act.

ID Extension applied for the draft terms of reference (ToR) for the EIS on 06/08/2025, supported by an initial advice statement (IAS) for the Project. Following ID Extension's responses to the comments received on the draft ToR (under Section 45 of the EP Act), the final ToR was issued on 11/12/2025.

1.6 EIS Purpose

The purposes of this EIS are to:

- Assess the potential adverse and beneficial environmental, economic and social impacts of the Project; and management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the Project.
- Consider feasible alternative ways to carry out the Project.
- Give enough information about the above matters to the Commonwealth and State authorities and the public.
- Inform the EA and PRCP application.
- Give information to other Commonwealth and State authorities to help them make informed decisions.
- Meet any assessment requirements under the EPBC Act as the Project is a controlled action under a bilateral agreement.
- Allow the State to meet its obligations under a bilateral agreement.

The EIS approval's process is described in **Chapter 2**, including the process for making public submissions on the EIS. The EIS has been informed by comprehensive consultation and engagement with a range of stakeholders, as described in **Chapter 3**.

1.7 EIS Structure

The structure of this EIS is provided in Table 1-1 and Table 1-2 below comprising:

- chapters describing the approvals process, consultation, the Project and, for each identified environmental aspect, the environmental values, potential impacts, risk assessment and mitigation measures
- appendices supporting the chapters, including draft EA and PRCP schedule conditions (as proposed by the proponent) and specialist technical reports on identified environmental aspects.

References are provided in each separate chapter and appendix, where applicable.

Table 1-1 EIS Chapters

Chapter	Chapter Name
	Executive Summary
	Table of Contents
1	Introduction
2	Approvals
3	Consultation
4	Project Description
5	Rehabilitation and Closure
6	Climate
7	Land
8	Surface Water and Water Management
9	Hydrology and Geomorphology
10	Groundwater
11	Terrestrial Ecology
12	Aquatic Ecology
13	Biodiversity Offsets
14	Greenhouse Gas
15	Air Quality
16	Noise and Vibration
17	Non-mining Waste
18	Transport
19	Hazards and Safety
20	Culture Heritage
21	Social
22	Economics
23	Matters of National Environmental Significance – Part 1
24	Matters of National Environmental Significance – Part 2
25	Matters of National Environmental Significance – Part 3

Table 1-2 EIS Appendices

Appendix	Appendix Name
A	Commitments Register
B	Glossary
C	Terms of Reference Cross Reference
D	Materials Characterisation and Erosion Assessment for the Rehabilitated Landform
E	Soils Assessment
F	Geochemical Characterisation and Assessment – Mineral Waste
G	Preliminary Contaminated Land Investigation
H	Geotechnical Assessment – Final Landform
I	Surface Water and Water Management Assessment
J	Flooding, Hydrology and Geomorphology Assessment
K	Groundwater Assessment
L	Groundwater Assessment Peer Review
M	Void Hydrogeochemical Modelling
N	Groundwater Dependent Ecosystem Assessment
O	Stygofauna Assessment
P	Terrestrial Ecology Assessment
Q	Aquatic Ecology Assessment
R	Offset Area Management Plan
S	Offsets Delivery Plan
T	Greenhouse Gas Assessment and Abatement Plan
U	Air Quality Assessment
V	Noise and Vibration Assessment
W	Road Transport Assessment
X	Non-Indigenous Cultural Heritage Assessment
Y	Social Impact Assessment
Z	Economic Impact Assessment
AA	Draft Environmental Authority
AB	Progressive Rehabilitation and Closure Plan
AC	Draft Progressive Rehabilitation and Closure Plan Schedule
AD	Erosion and Sediment Control Plan
AE	Groundwater Monitoring and Management Plan
AF	Groundwater Dependent Ecosystem Monitoring and Management Plan

Appendix	Appendix Name
AG	Groundwater Dependent Ecosystem Habitat Quality Monitoring Program
AH	Significant Species Management Plan
AI	Weed and Pest Management Plan
AJ	Emergency Response Plan
AK	Social Impact Management Plan
AL	Algae Cultivation and Processing as a Post Mining Land Use

1.8 Environmental Objectives and Performance Outcomes

For each environmental value assessed, ID Extension has developed environmental objectives and performance outcomes based on Schedule 8 of the *Environmental Protection Regulations 2019* (EP Regulation) and the ToR. This has been supplemented by proponent generated environmental objectives and performance outcomes. These are presented in each relevant chapter of the EIS.

As stated in Schedule 8 of the EP Regulation, in assessing whether an application achieves the relevant environmental objective the assessor is satisfied if the activity the subject of the application achieves—

- (a) item 1 of the performance outcome for the relevant environmental objective; or
- (b) item 2 of the performance outcomes for the relevant environmental objective.

In developing the environmental objectives and performance outcomes for the Project, ID Extension does not generally consider that the performance outcomes for item 1 of the relevant environmental objective to be achievable as they typically require no impact and no change in environmental values. Hence ID Extension has generally adopted the performance outcomes for item 2 for each environmental objective.

1.9 Contributors to the EIS

The persons and organisations involved in preparing the EIS, their experience and capabilities, and the work done by these persons and organisations is provided in Table 1-3. All contributors to this EIS are highly experienced in their respective fields, with relevant experience for a mining project in the Bowen Basin.

Table 1-3 EIS Contributors

Organisation	Company and Personnel Experience	Persons	Contribution
Reach Environmental Pty Ltd	Reach Environmental has managed and prepared environmental impacts assessments for multiple resource projects. Reach Environmental's director, Richard Oldham, has over 18 years' experience in managing approvals' processes for resource projects in the coal, coal seam gas and minerals industries, including coal mining projects in the Bowen Basin	Richard Oldham	EIS report management, authorship and regulatory liaison
	David worked for New Hope Group for a period of approximately 24 years, during which time he was responsible for the delivery of a majority of New Hope Group's primary and secondary	David Genn	EIS report management and authorship

Organisation	Company and Personnel Experience	Persons	Contribution
	environmental approvals for mining at New Acland Coal Mine.		
The Minserve Group (Minserve)	Russell Aspland is a Director of Minserve and possesses over 30 years of experience in the provision of cartographic services, geographic information system (GIS) spatial data, and mapping solutions to the mining industry. Throughout this period, Minserve has made significant contributions to numerous major Bowen Basin environmental approval applications, supporting mining studies through the delivery of mapping products and the provision of expert advice in relation to mine closure options and rehabilitation scheduling.	Russell Aspland	Spatial data management and cartographic services
Terrenus Earth Sciences Pty Ltd (Terrenus)	Terrenus' director is Ian Swane. Ian is environmental geochemist with over 20 years of experience in the earth sciences as they relate to the environmental characteristics and impacts associated with mineral wastes, primarily related to mining. Ian has a Doctorate (PhD) in the field of hydrogeochemistry and a Bachelor (hons.) degree in environmental science with an earth science major. Ian has undertaken environmental geochemical assessments and provided advice regarding the characterisation, assessment and management of mineral wastes at a number of coal mines and projects close to the Project. Within his area of expertise, Ian is an Appropriately Qualified Person (AQP) as defined in contemporary Environmental Authority documents for coal mines in Queensland.	Ian Swane	Geochemistry assessment
Landloch Pty Ltd (Landloch)	Landloch is a specialist land, soil, vegetation, and water management consultancy with mining and other industry experience, founded in 1996. Landloch is defined by their ability to generate and apply a broad range of environmental data to support and guide project planning, delivery, and land rehabilitation monitoring across a wide range of industries. Landloch places high value on technical excellence and quality science. Evan Howard is principal consultant at Landloch. Evan is an Environmental Engineer and Certified Professional Soil Scientist (CPSS) with over 25 years' experience in land management related issues. He specialises in soil and mineral waste characterisation, land rehabilitation planning, erosion and landform evolution modelling, mining landform design, rehabilitation auditing and assessment, irrigation water use efficiency assessments, and mining landform cover modelling.	Evan Howard	Soils assessment, including surveys. Materials characterisation, geochemical and geophysical assessments of waste rock. Landform erosion modelling.

Organisation	Company and Personnel Experience	Persons	Contribution
	Mark Crawford is a senior consultant at Landloch. Mark is a Certified Professional Soil Scientist (CPSS) and a Registered Soil Practitioner in Soil Management (RSP). He holds a Bachelor of Land and Water Science and a Master of Science (Soil Suitability). He has over 18 years' experience in matters relating to soil science. He specializes in soil survey, land capability, and erosional stability assessments and rehabilitation, project management, and land resource management.	Mark Crawford	
Blackrock Mining Solutions Pty Ltd (Blackrock)	Ty Grantham is General Manager - Technical Services at Blackrock. He is a geotechnical engineer with 25+ years of experience in the mining and civil industries and holds a master's degree in geomechanics. He is an accredited Chartered Professional through the AusIMM, and a Registered Professional Engineer of Queensland.	Ty Grantham	Geotechnical stability assessment
SGME Pty Limited (SGME)	SGME provides geoscientific, ecological, and geotechnical services, with a strong focus on mine rehabilitation, monitoring, and closure. Timothy Rohde over 25 years of extensive experience in both coal and metalliferous mining. Timothy has PhD in Mining Engineering, and a Bachelor of Environmental Science.	Timothy Rohde	Assessment of potential for existing land contamination
	Willy Van Vaerenbergh is a contaminated land practitioner and hydrogeologist with more than 30 years' experience. Willy is a Suitably Qualified Person (SQP) with respect to contaminated land.	Willy Van Vaerenbergh	
Hydrobalance (B&H Water Engineering Pty Ltd)	HydroBalance is a specialist water engineering consultancy that focuses on delivering surface water and water balance assessments for the resources sector, with particular expertise in coal mining projects across Queensland and other Australian jurisdictions. Matthew Briody holds bachelor's degree in civil engineering (Hons). He has over 22 years' experience delivering water engineering services across Queensland and other jurisdictions. His experience spans all stages of mine development, including conceptual planning, environmental impact assessment, feasibility studies, detailed design, operational support and PRCP development. Matthew has co-authored three technical papers on leading practice approaches to modelling residual mine voids for rehabilitation planning, for the Queensland Mine Rehabilitation Commissioner.	Matthew Briody	Surface water and water management assessment, including analysis of water quality and flows, water management system design, operational water balance modelling, and void water balance modelling Hydraulic, hydrology and geomorphological assessments and modelling.
	Ashleigh Hackett holds bachelor's degree in civil engineering (Hons). She has over nine years' experience in the development of water balance models, hydrologic and hydraulic modelling, and	Ashleigh Hackett	

Organisation	Company and Personnel Experience	Persons	Contribution
	environmental impact assessment for mining projects across Queensland and other jurisdictions. She has contributed to the preparation of surface water assessments for several EISs for mines in the Bowen Basin.		
SLR Australia (SLR)	SLR is a leading provider of groundwater impact assessment services for mining, industrial, and infrastructure projects. SLR's capabilities include advanced numerical modelling to predict groundwater flow, contaminant transport, and drawdown effects; baseline hydrogeological investigations, aquifer testing, and conceptual model development; and surface water–groundwater interaction studies for sensitive ecological and water-dependent assets. SLR has over 20 years delivering groundwater impact assessments across Australia's major mining regions, including the Bowen Basin, with technical innovation in predictive modelling, uncertainty analysis, and integration of climate and land use change scenarios Brian Rask is Technical Director Hydrology & Hydrogeology (Asia-Pacific) at SLR. Brian has over 30 years' experience specializing in mining-related impact assessments, regulatory submissions, and innovative groundwater modelling approaches. He has extensive experience with groundwater assessments for resource projects in the Bowen Basin and other locations.	Brian Rask	Groundwater impact assessment, including groundwater bore installation supervision, bore monitoring, and conceptual and numerical groundwater modelling. Groundwater monitoring and management plan.
	Derwin Lyons is Technical Director Hydrology & Hydrogeology (Asia-Pacific) at SLR. Derwin has with 20+ years' experience in groundwater resource development, specializing in mining impact assessments and regulatory compliance. He has managed and delivered numerous mining-related groundwater impact assessments, including for those in the Bowen Basin.	Derwin Lyons	
Manewell Groundwater Pty Ltd (Manewell)	Manewell is a specialist hydrogeology consultancy providing groundwater modelling, peer review and technical advisory services for mining, coal seam gas and water supply projects across Australia. Dr Neil Manewell is the Director of Manewell. Neil holds a PhD and has more than 18 years of experience in groundwater modelling for coal mining projects, as well as metals and water supply projects, in Australia and overseas. He has provided groundwater impact assessment and technical support for environmental approvals for major resource projects. His experience includes conceptualisation, model development, impact assessment and peer review. Neil has extensive experience with MODFLOW, predictive uncertainty analysis, data	Neil Manewell	Groundwater assessment peer review

Organisation	Company and Personnel Experience	Persons	Contribution
	assimilation and contaminant transport modelling for mining impact and water supply risk. He has also undertaken independent third-party peer review for open-cut and underground coal mining projects and has served as a reviewer for the journal Groundwater.		
Marine & Earth Sciences Pty Ltd (MES)	MES was founded in 2004 and is a leader in the field of geotechnical engineering in Australia, with an experienced geoscientists using the latest equipment, techniques and methodology to deliver high quality geophysical and spatial data. David King is the founder of MES and has worked extensively in Australia and the Asia Pacific region for the past 19 years. In this time, he has applied innovative geophysical techniques and approaches to deliver reliable geotechnical models to help clients understand the earth and reduce project risks.	David King	Electrical resistivity surveys
RGS Environmental Pty Ltd (RGS)	RGS is a specialised geoscience consulting company that has completed over 400 mine waste and water management projects for proposed and operating mines. Matt Landers, PhD, is Principal Geochemist and Director at RGS. Matt has over 15 years' experience in project management, development, implementation and delivery of hydro-geochemical programs for the mining and energy industries. Matt specialises in the hydro-geochemical and mineralogical characterisation of mine waste and has extensive experience in constructing hydro-geochemical models, surface and groundwater quality assessments, waste storage facility investigations and pit lake water quality.	Matt Landers	Void water geochemistry modelling and assessment
	David Faulkner, PhD, is an Environmental Geochemist with over ten years of experience in environmental consulting. He specializes in Acid Rock Drainage prediction, materials characterisation, hydro-geochemistry, and geochemical modelling.	David Faulkner	
Watermark Ecohydrology Pty Ltd (Watermark) (previously 3D Environmental Pty Ltd)	Watermarks' director is David Stanton. David Stanton holds a BSc (Hons) in geology. His professional career spans over 30 years acquiring experience in the assessment of geology, geomorphology and terrestrial ecosystems, with extensive experience in the assessment of groundwater dependent ecosystems. His expertise has been utilised by sectors that include mining, infrastructure, government and indigenous organisations and his work has been undertaken in Queensland, the Northern Territory, north-Western Australia and Papua	David Stanton	Groundwater dependent ecosystem (GDE) assessment GDE monitoring and management plan

Organisation	Company and Personnel Experience	Persons	Contribution
	New Guinea. David has co-authored several technical papers on issues relating to landscape scale hydrology, ecology and fire management.		
Trend Environmental Pty Ltd (Trend)	Trend has extensive experience undertaking terrestrial, aquatic and marine ecological assessments, protected plant surveys, threatened species surveys, impact assessments, environmental management planning and compliance monitoring. Trend's team regularly supports projects requiring flora and fauna surveys, biodiversity offset management plans and biodiversity assessments. Emily Krunes is the director and principal of Trend. Emily is an ecologist and environmental scientist with over 16 years of experience. She holds Bachelor's degrees in Marine Biology and Marine Biology Advanced, a Class I Honours degree, and a Masters of Environmental Management. Emily has extensive experience delivering ecological studies and environmental approvals including ecological surveys and assessments, and the preparation of offset management plans. She also as recognised as a suitably qualified person under the Queensland protected plant flora survey guidelines and holds a range of relevant field and industry certifications and accreditations.	Emily Krunes	Terrestrial ecology assessment Biodiversity offset area management plan Biodiversity offset delivery plan. Ecological management plans
	Max Gunther is a senior ecologist and environmental scientist with eight years of experience in ecological and environmental consulting. He holds a Bachelor of Environmental Management (Class 2 Honours) and a Graduate Certificate in Geographical Information Science. Max has strong experience in ecology surveys, regional ecosystem verification, spatial analysis and GIS mapping, and preparation of environmental reports and management plans.	Max Gunther	
Freshwater Ecology Pty Ltd (Freshwater)	Freshwater's Director and Principal is Dr Timothy Howell, who holds a degree with honours in Aquatic Science and a PhD (research) in fish ecology and river rehabilitation. Tim is a career aquatic ecologist with over 20 years' experience in assessing aquatic ecosystems across eastern Australia. He has worked on a broad range of projects for industry, government agencies, universities, and in collaboration with multiple organisations. Tim is knowledgeable in designing, leading and completing scientific investigations for various purposes, such as environmental impact assessment, receiving environment monitoring programs (REMP), targeted species monitoring programs, baseline surveys, stygofauna assessment and management plans.	Timothy Howell	Aquatic ecology assessment. Stygofauna assessment

Organisation	Company and Personnel Experience	Persons	Contribution
	He has co-authored several scientific papers on fish ecology and river rehabilitation.		
Katestone Environmental Australia Pty Ltd (Katestone)	Katestone provides services in climate vulnerability and risk assessment, and developing climate adaptation and greenhouse gas mitigation strategies. Dr Craig Miller has 30 years' experience in sustainable natural resource and extractive resource management, including conducting climate risk assessments. Craig leads Katestone in climate change assessments, as the inaugural Science Director for the CSIRO Climate Adaptation Flagship, and has worked on climate change risk and resilience issues.	Craig Miller	GHG assessment and abatement plan
	Paul Wright is an experienced hydraulic, environmental and carbon management engineer.	Paul Wright	
CoalBed Energy Consultants Pty Ltd (Coalbed)	Coalbed provides project management, technical services, business development, due diligence and consulting services in coal mining, Coal Seam Gas (CSG), Coal Bed Methane (CBM), fugitive emissions and related areas. Scott Thomson is a managing director of Coalbed. Scott is a geologist with more than 40 years' experience in the coal mining and energy industries. He holds a B.Sc., M.Sc. And M.B.A. He has held leadership roles in industry and has worked as a consultant to the coal mining and CSG industry for the past 20 years. Scott has worked in most of the major coal bearing basins throughout the world, and assisted with technology transfer into emerging markets.	Scott Thomson	CSG fugitive emissions estimates to support the GHG assessment.
	Duncan Thomson is a director of Coalbed. Duncan has management experience in mining and unconventional gas, and has specialised in geology, mining engineering, drilling and fugitive emissions for the last 20 years. Duncan has worked as a project manager on many of the mining, CSG / CBM exploration, and fugitive emissions projects undertaken in Australian coal basins. He has extensive experience and skills in the interpretation of gas data and the application of a wide variety of drilling programs. Duncan is actively involved in aiding open-cut coal mines with the management and mitigation of fugitive emission gasses. He holds a BSc in Geology and a Masters of Mining Engineering.	Duncan Thomson	
Katestone	Katestone has been a leading provider of expert air quality services in Australia since 1989. Katestone has extensive experience in conducting air quality impact assessments from all types of industries and specifically for mining and bulk	Daniel Gallagher	Air quality impact assessment

Organisation	Company and Personnel Experience	Persons	Contribution
	material handling operations, including for mines in the Bowen Basin. Daniel Gallagher is a senior air quality consultant at Katestone. Daniel has extensive knowledge of meteorological and dispersion modelling using industry standard tools. His experience includes air quality assessments for heavy industry with a particular emphasis on open-cut coal mining. Daniel holds an Honours (Environmental Toxicology) and Bachelor of Science (Environmental Science).		
ViridAU (Virid)	Virid provide noise and vibration modelling and assessment services for multiple industries. Alex Vuillemin is a Principal Noise Engineer with over 20 years of international experience in noise and vibration. He holds a master's degree and is a Member of the Australian Acoustical Society (MAAS). Alex's experience includes noise and vibration assessments for coal mines in the Bowen Basin.	Alex Vuillemin	Noise and vibration assessment
The Transport Planning Partnership (TPPP)	TPPP provides specialist traffic engineering and transport planning advice to government agencies and the private sector. Penny Dalton is a chartered professional engineer with over 30 years of consulting experience in the field of traffic and transport planning. Penny has particular expertise in the assessment of the road transport implications of major mining and resource projects in rural and regional locations. She is a Fellow of Engineers Australia, Registered Professional Engineer of Queensland, and member of Transport Professionals Association, and Transport Australia Society.	Penny Dalton	Traffic assessment
Niche Environment and Heritage Pty Ltd (Niche)	Niche provide expert services in cultural heritage management and heritage planning and advice. Chloe Barr is a heritage consultant and Niche with expertise in project-specific strategies and demonstrating applied knowledge of cultural heritage and sustainability.	Chloe Barr	Non-Indigenous cultural heritage assessment
EMM Consulting Pty Limited (EMM)	EMM is a specialist environmental and social consultancy established in 2010. Myf Jagger is an Associate Director at EMM with over 17 years' experience in social impact assessment, social performance, policy development and evaluation across major infrastructure, mining, energy and government projects. Myf holds a Master of Environment (Education for Sustainability) and a Bachelor of Arts.	Myf Jagger	Social impact assessment and social impact management plan
	Malcolm McDowell is a social and statutory land use planner with 10 years' experience delivering social impact assessment, strategic planning and development assessments across multiple	Malcolm McDowell	

Organisation	Company and Personnel Experience	Persons	Contribution
	jurisdictions in Australia. Malcolm holds a Bachelor of Regional and Town Planning.		
AEC Group (AEC)	AEC's core competencies include economics, finance, property, market research and visual communication. Kieron Lacey is Technical Director – Economics at AEC. Kieron holds a Masters of Business Economics and a Bachelor of Science (Biochemistry). He has 20 years' experience with AEC, primarily focusing on regional, state and national-scale projects involving socio-economic impact analyses, program/project evaluation, cost-benefit analyses and triple bottom line assessment, Kieron is an established expert in economic impact assessment. Kieron has considerable experience in the identification, analysis and assessment of economic and socio-demographic impacts of major projects and programs across Australia using a range of modelling tools including Computable General Equilibrium modelling, Input-Output analysis, Cost-Benefit Analysis and Triple Bottom Line assessment. Kieron has utilised these skills to provide technical economic and socio-economic impact assessments for a range of major resource and infrastructure projects to support environmental approvals processes.	Kieron Lacey	Economic impact assessment
University of Queensland (UQ) / CRC Time / Valarion Pty Ltd (Valarion)	The Centre for Solar Biotechnology at UQ and Valarion have collaborated on the continuous development of a microalgae-based post mining land use technology for almost five years. The outcomes of an initial feasibility study on microalgae cultivation as a residual void by industry partners, led to the Australian Coal Association Research Program and industry partners jointly funding laboratory and pilot studies across three subsequent research stages. The project has now entered a pre-commercial stage, funded by CRC TIME and industry partners, including Stanmore, which aims to construct and operate a TerraFont system adjacent to a Bowen Basin void. Dr Leigh Trevaskis is director of Valarion and has more than 6 years' experience collaborating with UQ's Centre for Solar Biotechnology to develop and confirm a microalgae-based void post mining land use. Leigh has led this project's conceptualisation and bioeconomic opportunity development. He has more than 15 years' experience delivering research projects related to sustainable food production, anthropogenic GHG emissions, and nutrient use efficiency within food production systems.	Leigh Trevaskis	Feasibility assessment for algae production as a post mining land use

Organisation	Company and Personnel Experience	Persons	Contribution
	Professor Ben Hankamer is an Eisenhower Fellow and the founding director of the Centre for Solar Biotechnology (2016), and is focused on developing next generation microalgae systems. These systems are designed to produce a wide range of products. Ben has worked extensively with industry (over 50 companies) in developing and commercialising microalgae-based solutions for wastewater management, biofuels, and sustainable food production.	Ben Hankamer	

1.10 Information Sources

Within this EIS the source of information used to inform the assessment of impacts is described, including in the specialist assessment reports listed in Table 1-2.

The primary sources of information has been through field surveys, field measurements, monitoring and community engagement within and surrounding the Project's MLAs, specifically to inform the Project's EIS, including:

- field surveys and monitoring for terrestrial ecology, aquatic ecology, biodiversity offsets, groundwater dependent ecosystems, stygofauna, soils, land use, pre-existing land contamination, Indigenous and non-Indigenous cultural heritage, background noise and baseline traffic data
- field measurements of groundwater levels and quality through the installation of groundwater bores (supplementing bores that already existed in the Project area and surrounds) for this purpose, with certified laboratory analysis of water quality
- hydrogeological field investigations to determine the extent of aquifers and faults
- field measurements of surface water quality and water levels, with certified laboratory analysis of water quality
- field data collection and certified laboratory analysis of geochemical and geophysical data pertaining to the coal resource and overburden
- laboratory analysis of material characteristics (e.g. soils, overburden) to be used in rehabilitation
- stakeholder engagement and consultation.

This information was collected over approximately 2 years and is reliable, having been collected by experienced professionals in the relevant disciplines. Field surveys and measurements provide information at a point in time, and are therefore supplemented by surveys or measurements at other times (e.g. multi-season ecology surveys, regular bore monitoring) to reduce uncertainty. Information from field surveys and measurements is therefore highly certain and reliable.

Information collected specifically for the Project has been supplemented by historical publicly available information across the Project area and surrounds, where available, as described in specialist assessment reports. This data is considered to be reliable and certain.

The assessment of impacts to environmental values relies on modelling informed by field data and publicly available data. This includes modelling of:

- groundwater / hydrogeology
- hydrology, hydraulics and geomorphology
- water balance and management
- void water balance and geochemistry
- geotechnical stability of the final landform

- noise and vibration
- air quality
- landform erosion
- economic benefits and impacts.

These complex models have been developed by experienced professionals in the relevant disciplines, and the technical reports describe the reliability and certainty provided by these models. All models have been calibrated to available data collected from field measurements and / or publicly available data, including reliable government data sources (e.g. Bureau of Meteorology or State Department surface and groundwater records). All models have inherent uncertainty; however the relevant technical assessments conclude that the levels of uncertainty in the models are acceptable. The numerical groundwater model was subject to an independent peer review which found the model to be fit for purpose.