
KESTREL COAL
RESOURCES

# Kestrel West Mine Extension

## Initial Advice Statement

June 2024

## CONTENTS

## List of Tables

## List of Figures

# ACRONYMS AND ABBREVIATIONS

| Name | Description |
|---|---|
| AHD | Australian Height Datum |
| CDA | Co-Disposal Area |
| CHIMA | Cultural Heritage Investigation and Management Agreement |
| CHMP | Cultural Heritage Management Plan |
| CHPP | Coal Handling and Preparation Plant |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water |
| DESI | Department of Environment, Science and Innovation |
| EA | Environmental Authority |
| EIS | Environmental Impact Statement |
| EMS | Environmental Management System |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* |
| EP Act | *Environmental Protection Act 1994* |
| GHG | Greenhouse Gas |
| JORC | Joint Ore Reserves Committee |
| Kestrel | Kestrel Coal Resources Pty Ltd |
| IAS | Initial Advice Statement |
| LW | Longwall |
| MA | Million years ago |
| MDL | Mineral Development Lease |
| ML | Mining Lease |
| MNES | Matters of National Environmental Significance |
| MR Act | *Mineral Resources Act 1989* |
| MSES | Matters of State Environmental Significance |
| Mt | Million tonnes |
| Mtpa | Million tonnes per annum |
| NC Act | *Nature Conservation Act 1992* |
| PRCP | Progressive Rehabilitation and Closure Plan |
| RPI Act | *Regional Planning Interests Act 2014* |
| ROM | Run of Mine |
| SHMS | Safety and Health Management System |
| TEC | Threatened Ecological Communities |
| ToR | Terms of Reference |

# EXECUTIVE SUMMARY

Kestrel Coal Resources Pty Ltd (Kestrel), the proponent, proposes to develop an extension to the existing Kestrel underground mine that will continue to utilise standard development and longwall mining techniques to extract metallurgical coal (used for steel making) from coal resources that extend beyond the existing operations.

Kestrel is a joint venture company formed in 2018 between EMR Capital (52 %) and Adaro Energy (48 %). Kestrel (80 %) and Mitsui Kestrel Coal Investment (20 %) are in a joint venture for the ownership of Kestrel Mine, with Kestrel being the operating entity.

The extension is called the Kestrel West Mine Extension (herein referred to as the Project).

The Project is located approximately 40 km northeast of Emerald within the Central Highlands Regional Council local government area. Emerald, a town of approximately 15,000 people, is the regional hub and residence for most Kestrel mineworkers. An airport that links daily flights, to and from Brisbane, is located at Emerald.

The Project includes:

- A new mining lease in part of Mineral Development Licence (MDL) 182 (for which the majority of mining would occur)
- Minor extensions to mining within part of the existing approved mining leases (ML) 70301 and ML 70481
- Full utilisation of the existing approved Co-Disposal Area (CDA) footprint, along with a potential extension of the CDA facilities located on ML 1978.

The Project area is approximately 5,644 ha, with a total disturbance footprint (from mining and the CDA extension) of approximately 4,330 ha. The disturbance footprint of the CDA is expected to be up to approximately 396ha for the Project. There are no off-lease mining related activities expected to be required for the Project.

The Project will be a direct continuation of the existing mine, utilising the existing surface facilities, including administration and maintenance buildings, surface access roads, coal stockpiles and overland conveyor, Coal Handling and Preparation Plant, water infrastructure and train loadout facilities. The Project will also continue to utilise the same mining approach and type of equipment for the development of underground roadways and to setup longwall production faces. Extraction of coal from the German Creek seam will be undertaken using longwall mining equipment.

The Project will extend the life of the mine and provide continuity of employment for the existing workforce with associated direct and indirect community benefits.

The Project is expected to contribute $1.82 billion (total, undiscounted) in coal royalties and $173 million (total, undiscounted) in payroll tax revenue to the Queensland Government, along with additional corporate and employee income tax revenue for the Federal Government.

Mining operations are currently active on Mining Lease (ML) ML 1978, ML 70301, ML 70302, ML 70330, ML 70481 and Mineral Development Licence (MDL) 3050.

The inclusion of the proposed project would maintain annual production rates between 9.0 and 11.0Mtpa ROM coal which equates to between 7.0 and 8.6Mtpa of primarily metallurgical coal product for export markets. The current Kestrel Mine plan under existing approvals enables production to continue to approximately 2036. The proposed extension will allow the operating life of the Kestrel Mine to be extended until around 2050.

Kestrel applied for the Project to be assessed via a voluntary Environmental Impact Study (EIS) process under the *Environmental Project Act 1994* (EP Act), which was approved by the Queensland Department of Environment Science and Innovation (DESI) on 5 March 2024. The Project was also determined to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 23 May 2024 with controlling provisions being:

- World Heritage properties (Sections 12 and 15A)
- National Heritage places (Sections 15B and 15C)
- Listed threatened species and communities (Sections 18 and 18A)
- Great Barrier Reef Marine Park (Sections 24B and 24C)
- A water resource, in relation to unconventional gas development and large coal mining development (Sections 24D and 24E)

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

Community and stakeholder engagement in relation to the Project has already commenced and will continue through the course of the approval process. As a part of general business, Kestrel keeps the community engaged and aware of operations and this will continue, however specific engagement activities will also be undertaken for the Project's EIS.

This Initial Advice Statement (IAS) is designed to introduce the Project and identify the intended assessment pathway, with sufficient technical information for consideration when developing the Terms of Reference for the EIS.

The environmental aspects that have been considered for the Project include land, geology and soils, groundwater, surface water, terrestrial and aquatic ecology, air quality and greenhouse gas, noise and vibration, visual amenity, waste management, cultural heritage, socioeconomic, traffic and transport, hazard and risk and cumulative impacts. Some studies have commenced and will be further informed as part of the EIS.

The Western Kangoulu people are the registered Native Title Claimants for the Project area, which is covered under a regional native title claim lodged in 2013 (QC2013/002). Kestrel has a Cultural Heritage Investigation and Management Agreement (CHIMA) in place for the Kestrel Mine which includes MDL 182. The CHIMA has been registered as a Cultural Heritage Management Plan (CHMP) under Part 7 of the *Aboriginal Cultural Heritage Act 2003*. Based on previous surveys, Kestrel expects there will be areas of cultural significance identified that will need to be managed under the CHIMA and in liaison with the Western Kangoulu people.

The Project is in the Nogoa River Sub-basin of the broader Fitzroy River Basin, joining the Nogoa River south and east of the township of Emerald. The Nogoa River merges into the Mackenzie River to the east and then into the Fitzroy River before flow to ocean discharge near Rockhampton approximately 270 km away. The Fitzroy catchment is the most southerly complete catchment, out of a total of 35 catchments that drain to the Great Barrier Reef World Heritage Area.

The groundwater resource located within the Project is mainly associated with the basalt aquifer (upper Tertiary) and basal sand aquifer (lower Tertiary). Groundwater use in the region is primarily stock and domestic, with minor irrigation and industrial use. Many existing wells are sited near to creek lines to increase the probability of intersecting water. The Great Artesian Basin is not located within the Project area.

The Project is located within the Brigalow Belt bioregion, which extends from just north of Townsville to the New South Wales border in Queensland and covers approximately 36,400,000 ha. This area is characterised by Brigalow (*Acacia harpophylla*) communities, which forms forests and woodlands on clay soils (Sattler and Williams 1999).

During its operating life and on completion of mining activities, the following rehabilitation activities will take place:

- Progressive rehabilitation of surface disturbance and subsided areas; and
- Mine closure and final rehabilitation.

A Progressive Rehabilitation and Closure Plan (PRCP) for the Project will be submitted as part of the EIS. Key approvals for the Project include EPBC Act approval, an environmental authority amendment under the EP Act, a new mining lease approval under the *Mineral Resources Act 1989*, and a Regional Interests Development Application under the *Regional Interests Act 2014*.

# 1. INTRODUCTION

## 1.1 Project Overview

The Proponent, Kestrel Coal Resources Pty Ltd (Kestrel), proposes to develop an extension to the existing Kestrel underground mine that will continue to utilise standard development and longwall mining techniques to extract metallurgical coal used for steel making from resources adjacent to the existing operations. The extension is called the Kestrel West Mine Extension Project (herein referred to as the Project).

The Project is located approximately 40 km northeast of Emerald within the Central Highlands Regional Council local government area (refer Figure 1-1).

The Project will extend the life of the mine and provide continuity of employment for the existing workforce with associated direct and indirect community benefits.

The Project proponent will prepare a voluntary Environmental Impact Statement (EIS) under the *Environmental Protection Act 1994*. The Project has also been assessed to be a Controlled Action under the *Environment Project and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2024/09792). The EIS will be assessed under the EP Act and the EPBC Act in accordance with the assessment bilateral agreement between the Australian Government and the State of Queensland.

Mining operations are currently active on Mining Lease (ML) ML 1978, ML 70301, ML 70302, ML 70330, ML 70481, and Mineral Development Licence (MDL) 3050 (refer Figure 1-2).

The Project will involve the underground mining of the relevant portion of MDL 182 and some additional parts of the currently mined, ML 70301 and ML 70481. The Project will also include a potential extension of the Co-Disposal Area (CDA) located on ML 1978 associated with the existing Coal Handling and Preparation Plant (CHPP).

This IAS has been developed in accordance with the IAS checklist as shown in the table of contents of this document. It also demonstrates Kestrel's understanding, technical competency, and social and financial capability for preparing an EIS.

## 1.2 The Proponent

Kestrel is a joint venture company formed in 2018 between EMR Capital (52 %) and Adaro Energy (48 %). Kestrel (80 %) and Mitsui Kestrel Coal Investment (20 %) are in a joint venture for the ownership of Kestrel Mine, with Kestrel being the operating entity.

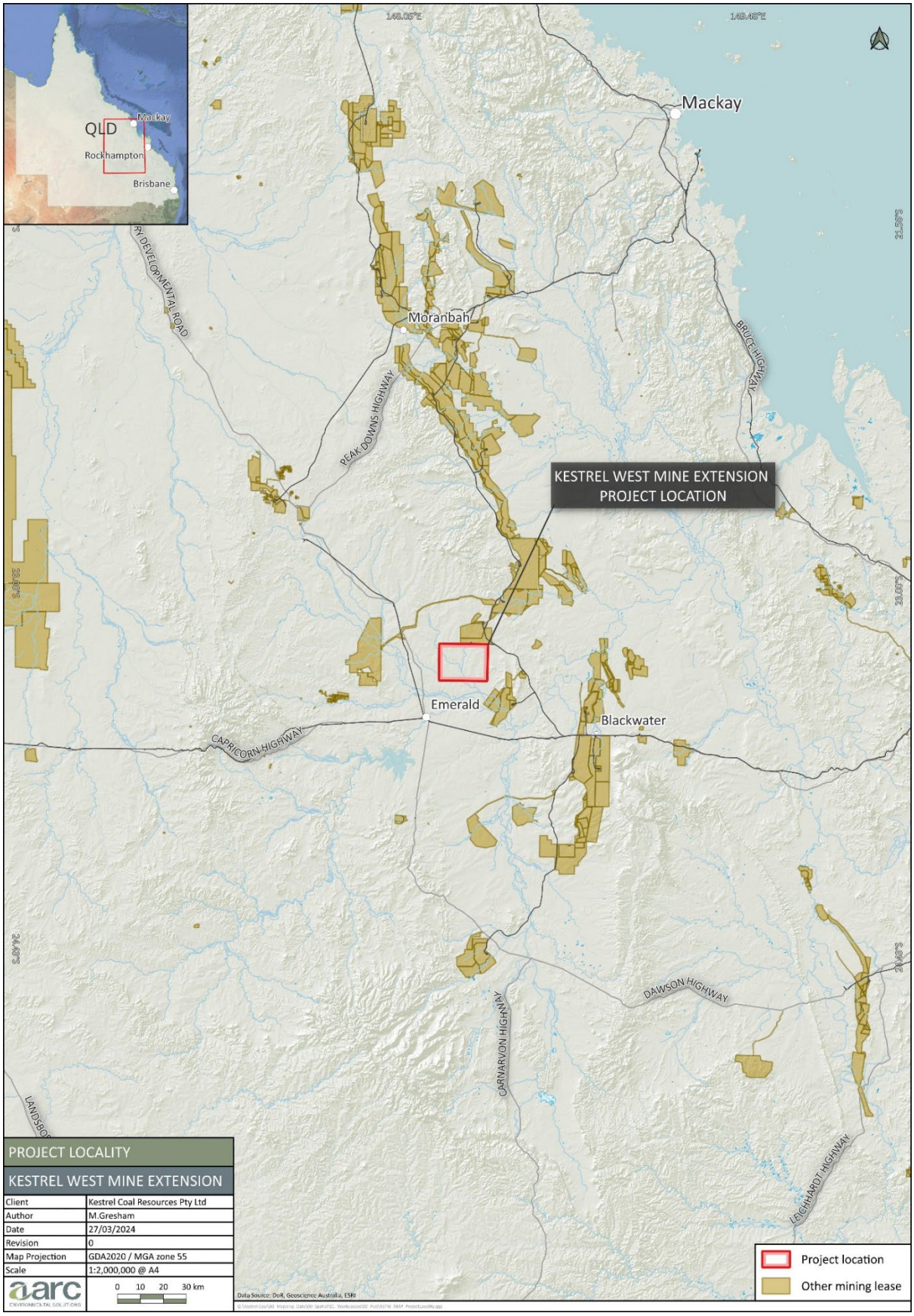
The Kestrel Mine is one of the world's largest producing underground metallurgical coal mines. It produces predominantly high volatile metallurgical coal which is shipped to key markets globally to be used in the blast furnace steel making process. The blast furnace is currently the most efficient path for production of industrial scale quantities of steel.

Kestrel employs an experienced operational and management team with capability that covers the entire mining process, from resource definition, underground panel development, longwall operation, coal processing, operational environmental management, and sustainable rehabilitation.

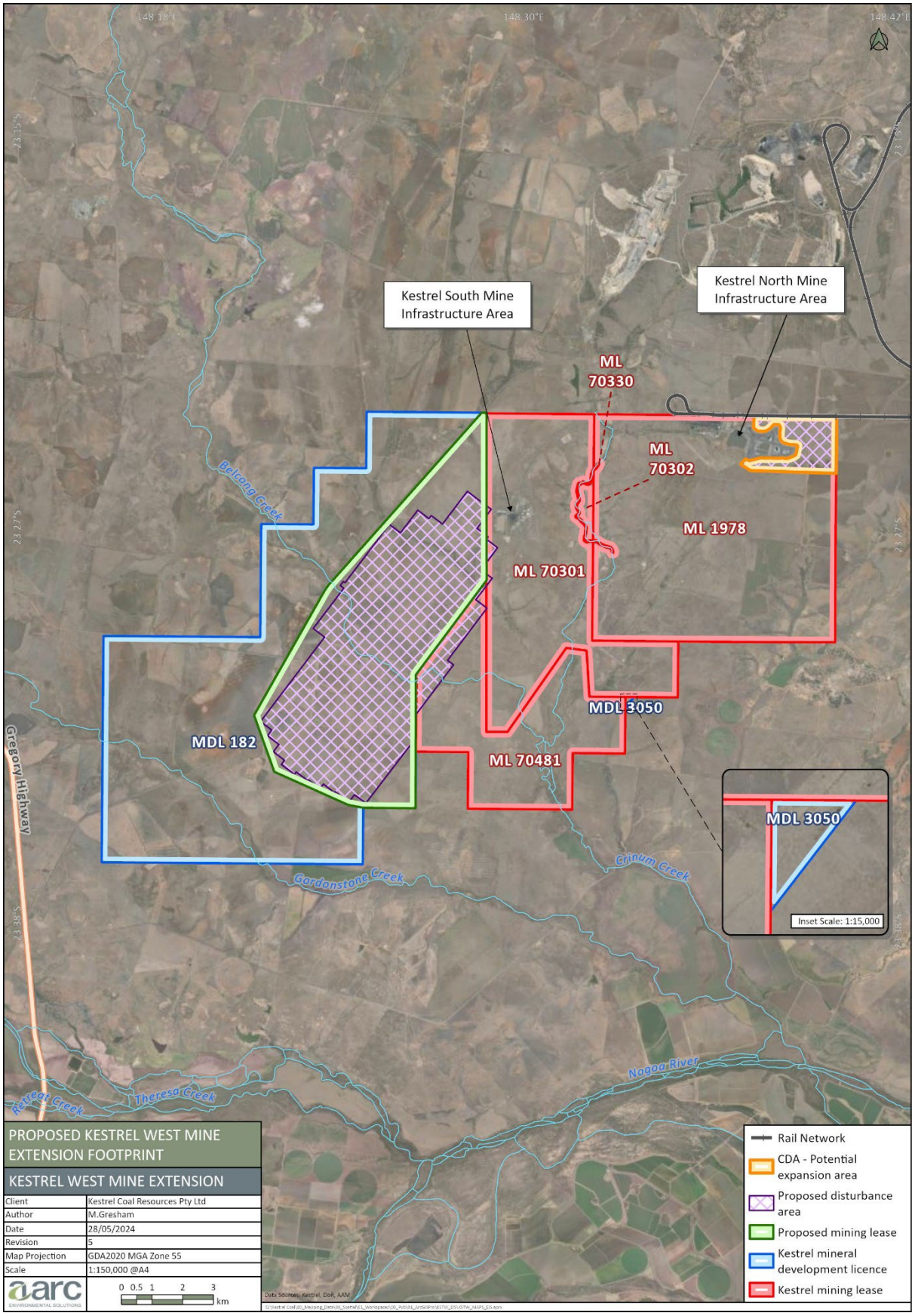
All of Kestrel Mine's product is shipped from Gladstone Port in Queensland. Steel mills across Asia and the Atlantic markets use Kestrel's coal niche coking properties. India and the traditional markets of north-east Asia are currently Kestrel's largest customer base.

Kestrel is a registered suitable operator under the EP Act (Reference number RSO001814). There are no past or present proceedings against Kestrel under a Commonwealth, State or Territory law in relation to the protection of the environment or the conservation and sustainable use of natural resources.

## Figure 1-1 Project Location



## Figure 1-2 Project Layout



## 1.3 Kestrel ESG Strategy

Kestrel has a reputation for responsible environmental management, and the Project will be undertaken in accordance with Kestrel's Environment, Social and Governance (ESG) Strategy, incorporating their established corporate policies and the associated management framework:

- Sustainability and Climate Change Policy;
- Environment and Land Policy;
- Indigenous Peoples and Heritage Policy; and
- Safety, Health, and Wellness Policy.

Stakeholder consultation is incorporated into each of the first three policies. The policies are displayed in Appendix A.

Under this framework, Kestrel recognises the overarching responsibility to operate in a manner which respects the ancient and shared landscape they interact with.

The Western Kangoulu People are the registered Native Title Claimants for the Project. Kestrel will continue working with the Western Kangoulu People to conserve the rich cultural heritage landscape as jointly agreed in the Cultural Heritage Investigation and Management Agreement (CHIMA).

Kestrel's ESG objectives are achieved through the incorporation of robust environmental and social management programs during all stages of mine life to address the range of environmental and social values across their operations. Under the social dimension, Kestrel collaborates and engages with our stakeholders to provide clear, consistent and transparent communications, ensuring we are always acting with integrity and respect in fostering productive relationships.

Kestrel's ESG Strategy is visualised on Figure 1-3.


**Figure 1-3 Kestrel ESG Strategy**

Kestrel has a responsibility to ensure the health, safety and well-being of its workers and local communities. The Project will be undertaken in accordance with Kestrel's Safety Health Management System (SHMS) developed in compliance with the *Coal Mining Safety and Health Act 1999* and associated regulations.

As part of the SHMS, Kestrel understands that risk management is a key part of operating a successful business and Kestrel is committed to proactive and effective risk management within all parts of their business. Kestrel's risk management approach seeks to provide business resilience through protection from loss and sustainability of all relevant values, including people, community, stakeholders, environment, ongoing operation and business viability to prosperity.

Kestrel seeks to empower the workforce to achieve their highest potential by installing and supporting a safety mindset in everything Kestrel does.

## 1.4 Background

Kestrel acquired the existing Kestrel mine in August 2018 and maintained operations with the existing work force, applying various strategic changes to achieve improvement targets. Operational improvements were significant, allowing Kestrel Mine to be named the Australian Mine of the Year in 2019 and 2022.

Mining operations are well established in the Kestrel Mine with over 30 years of consecutive underground mining operations, including the most recent extraction of twelve longwall panels from the 400's domain within ML 1978 and ML 70301. Mining of the 500's domain is currently underway and extending into ML 70481.

To continue operations in the area and support the current workforce, Kestrel intends to extract coal from the approved 500's domain and, pending approval, extend operations into a portion of MDL 182, ML 70301 and ML 70481. Resource and reserve estimates have been undertaken within MDL 182 to characterise and determine viability of the proposed extension. Additional information related to resource and reserves estimations is available in Section 2.12 of this IAS.

The full extent of the mine plan will be determined following a more detailed assessment of environmental constraints. The proposed mine plan will be provided in the EIS.

Approximately 85% of the proposed Project area is land owned by Kestrel.

## 1.5 Project Needs, Justification and Alternatives Considered

The long-term global demand profile for metallurgical coal remains robust and is expected to remain so over the next 20 to 30 years. It is forecast that Asia will continue to be the driver for demand growth for metallurgical coal, driven particularly by India and the Association of Southeast Asian Nations development.

The Project is directly adjacent to the existing Kestrel Mine and in proximity to all existing infrastructure (e.g. rail, road, power, water infrastructure), therefore, there no significant new surface infrastructure is required, and no increase in demand or impact on existing services and service providers, when compared to a similar greenfield development.

The local and regional community surrounding Emerald and the central highlands, has established itself to service the region, including the existing Kestrel Mine, and is therefore accustomed to the benefits, costs and demands associated with the proposed mining operations. Development of the Project will maintain employment opportunities to the regional communities, and long-term social and economic benefits.

A Pre-Feasibility Study, supported by annual Life of Mine planning processes, undertaken for the Project, has evaluated alternatives, and considered strategic options, including:

- No Extension;

- Extension – Business as usual; and
- Extension – Dual longwall with bord and pillar mining method potential.

The 'No Extension' option would result in the mineral resource not being optimised and significant economic contributions not being achieved. This option showed that employment for the operational workforce, and the community and economic benefits to the regional, State and national economies reduce over the years of the current mining operation transitioning to mine closure in 2036.

If the Project does not proceed, up to approximately 750 full time equivalent (FTE) direct jobs (including Kestrel employees and contractors) would be lost, along with contributions from the Project of $1.82 billion (total, undiscounted) in coal royalties and $173 million (total, undiscounted) in payroll tax revenue to the Queensland Government from the coal resource. The predicted $14.05 billion of Gross State Output and $9.92 billion of Regional Output would also not be realised if the Project does not proceed. The contribution to Queensland's metallurgical coal export industry, vital for the steel-making industry, would not be realised.

Within each of the potential 'Extension' strategies, scenarios were developed, scheduled, and evaluated for physical and financial performance criteria. The various configurations include panel orientation, location of main headings and panel lengths. Information is being obtained to definitively select an optimum layout and mining strategy that would be included in the EIS document.

Following part of early community consultation, Kestrel undertook to voluntarily reduce the mining footprint of the 600-panel area by removing longwall panel 610 (LW610) from the Project mine plan to avoid crossing Lilyvale Road and making minor incursion into several neighbouring properties in that area, including Lot on Plans 7RP613596, 11RP864580, 2SP197536 and 12RP864580. This decision was made following engagement with the potentially impacted landowners and in consideration of potential impacts to the Lilyvale Road (refer to Figure 1-3). The identified portions are shown in Figure 1-3and Figure 1-4.

Some impacts to Lilyvale Road may still occur as a result of mining the proposed 700 longwall panels. A Subsidence Impact Assessment Report is being prepared to consider potential impacts to Lilyvale Road, along with any other third-party owned infrastructure, that will include proposed mitigation and management of any potential impacts. It is noted that there remains a viable resource in this area that remains within the current MDL 182 boundary.

The final Project design will be assessed as part of the EIS, to demonstrate that potential environmental impacts can be adequately avoided, minimised, or mitigated, and, that the economic and social benefits can be maximised.

**Figure 1-4 Location of Lilyvale Road and Previous Location of LW610 and LW609**

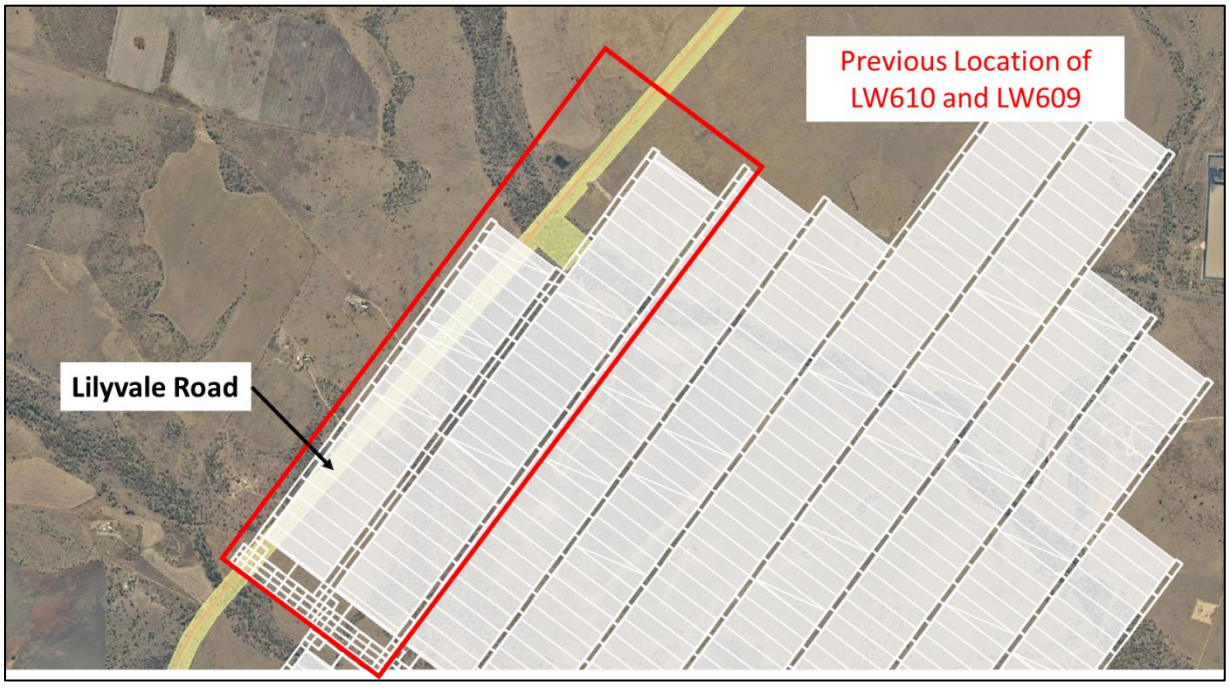



**Figure 1-5 Indicative Amendment of Mine Plan (Change to LW610 and LW609)**

## 1.6 Purpose and Scope of the Initial Advice Statement

An IAS is required to accompany a submitted draft Terms of Reference to address Section 41(3) of the EP Act.

This IAS has been developed to demonstrate Kestrel's knowledge of the nature, scope, and potential consequences of the Project, that will assist preparation of the draft TOR for the voluntary EIS process. It also consecutively informs interested stakeholders and the public on the size and nature of the proposed extension, the environment in and around the project location, the scale and extent of the Projects potential environmental impacts, and proposed measures to mitigate potential adverse impacts.

Detailed discussion to address the final Terms of Reference is reserved for the EIS, where additional technical detail will be available to confirm the measures to be implemented.

## 1.7 Application Requirements

In consideration of information required as per Guideline ESR/2016/2171, a review of application requirements and location of information in this IAS is presented in Table 1-1.

**Table 1-1 Draft IAS Application Criteria and Compliance**

| Item | Request | Location in this Report |
|---|---|---|
| **Section 41 (3) of the EP Act** | | |
| 3 | Also, if an approval has not been given under Part 2 for the project, the submitted draft must be accompanied by the following: | Refer following items. |
| a) | a written description of the project and the operational land; | Refer to Section 2 |
| b) | a list stating the name and address of each person the proponent proposes as an interested person for the project; | Provided to DESI |
| c) | a statement of how the proponent proposes to consult with the interested persons; | Provided to DESI |
| d) | a list of the names and addresses of the affected persons for the project; | Provided to DESI |
| e) | a summary of the potential adverse environmental impacts of the project, and the measures proposed to avoid or minimise the adverse impacts. | Refer to Sections 3 and 4 |

# 2. PROJECT DESCRIPTION

## 2.1 Kestrel West Mine Extension

The Project proposes to develop an extension to the existing Kestrel underground coal mine that will utilise the current development and longwall mining techniques to extract coal from the German Creek Seam. The Project will be a direct continuation of the existing mine.

The Project area (refer Figure 1-2) comprises:

a) A new mining lease in part of Mineral Development Licence (MDL) 182 (for which the majority of mining would occur)
b) Minor extensions to mining within part of the existing approved ML 70301 and ML 70481
c) Full utilisation of the existing approved Co-Disposal Area (CDA) footprint, along with a potential extension of the CDA facilities located on ML 1978.

The Project area is approximately 5,644 ha, with a total disturbance footprint (from mining and the CDA extension) of approximately 4,330 ha. The disturbance footprint of the CDA is expected to be up to approximately 396ha for the Project. There are no off-lease mining related activities expected to be required for the Project. The collective area of items a) and b) above is referred to as the Mine Extension Area.

The Project has sought to minimise environmental impacts by utilising existing infrastructure to the greatest extent possible, including:

- Utilising the two existing mine access portals to access to the proposed 600 and 700 underground workings, rather than creating a more localised access, and thereby eliminating the need for significant drift drilling and constructions works, along with additional access roads and conveyors
- Utilising all existing surface infrastructure including administration and maintenance buildings, coal stockpiles, the overland conveyor, CHPP, water infrastructure and train loadout facilities
- Maximising storage of coal washery wastes within the existing CDA footprint to minimise the potential extension area required.

Kestrel has also modified the proposed mine plan following consultation with our neighbouring landowners, and reduced impacts by removing an entire longwall panel that impacted Lilyvale Road and a number of landowners. This is discussed further in Section 1.5.

This Project approach avoids and minimises impacts to environmental values associated with the land, ecology, noise, and air by:

- Avoiding the need to clear land for additional surface infrastructure
- Avoidance of additional construction and operational waste
- Minimising potential noise impacts from additional infrastructure
- Avoiding unnecessary interactions with groundwater aquifers
- Avoiding dust and greenhouse generation associated with the construction and operation of additional infrastructure.

The Project commits to progressive rehabilitation of surface disturbance and a final rehabilitation and closure plan for the end of mine life. These details will be incorporated into the Progressive Rehabilitation and Closure Plan (PRCP) that will be submitted as part of the EIS. High level details regarding the intended PRCP are available in Section 2.14 of this IAS.

## 2.2 Project Description Components

### 2.2.1 Mining Methodology

The current Kestrel Mine undertakes longwall mining utilising an electro-hydraulic powered, high capacity and modern longwall system. The same mining methods will be used for the Project, including:

- Cutting roadways or “headings” in the form of tunnels out into the new mining area. Roadway development is by electric powered, simultaneous cutting and bolting continuous miners;
- These headings are driven in pairs that are joined every 130m by roadways connecting them called cut-throughs. These roadways in the underground workings fill several requirements including:
  - Transport roads for machine and personnel access in and out of the mine
  - Conveyor routes that transport the coal to the surface after it has been mined
  - Access for power, services and ventilation which provides clean, breathable air to coal mine workers while they work at the coal face. The ventilation also removes contaminants such as dust, heat and gases.

Building these roadways for the future development of the mine is a critical task as it allows for the infrastructure and services to be installed for the future extraction of the coal seam by the longwall. The coal removed during development is included as production coal and treated the same as longwall coal.

### 2.2.2 Mining Sequence and Schedule

The extraction of the 600 and 700 longwall panels (refer Figure 2-1) will generally occur following the completion of the 500 domain, although a small crossover period may occur when development and/or mining is occurring in both. The 600 and 700 series panels are planned to be extracted in a westerly sequence.

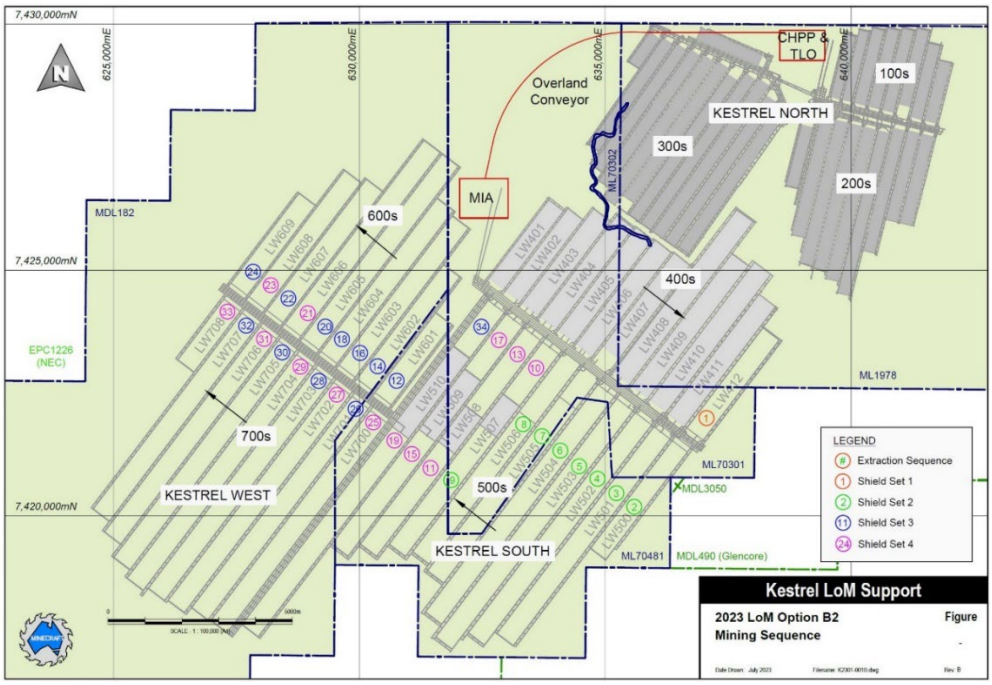



**Figure 2-1 Indicative General Sequence Plan – Walk-On Walk-Off**

### 2.2.3 Mine Entry

Current Kestrel Mine access is via twin drifts from the surface to the seam at 220 m depth. The conveyor drift gradient is 1:6 and is 1,822m long end to end, the transport drift gradient is 1:8 and is 1,800m long. No additional mine entries are expected to be required for the Project.

### 2.2.4 Coal Transport

The ROM coal from the underground is transferred to the ROM stockpile at Kestrel North via an 8 km of overland conveyor. In periods of excess ROM production or conveyor maintenance, an overflow ROM stockpile is located at Kestrel South to prevent downtime to the LW mining operations. ROM coal is then transferred from the Kestrel North ROM stockpile to the CHPP also located at Kestrel North. Product coal is then stockpiled before being loaded onto the rail network at the train loadout facility and railed approximately 370 km to the RG Tanna Coal Terminal at the port of Gladstone. No changes to the existing Kestrel Mine coal handling and processing system are expected for the Project.

The Kestrel rail network is serviced via Aurizon and Pacific National. Diesel haulage is currently a more cost-effective option for Kestrel. Longer trains with 20% more capacity have been successfully trialled and their implementation have reduced haulage costs.

The RG Tanna Coal Terminal has a dedicated stockpile space of around 500 kt. Dedicated stockpiles at the port enable Kestrel to closely control the quality of marketable coal product and to ensure lower costs through demurrage and rail optimisation.

It is expected these existing arrangements will be used for the Project.

### 2.2.5 Gas Drainage and Management

Gas drainage is undertaken for the purpose of ensuring the safety of Kestrel's underground workforce. The process consists of drilling holes within the target coal seam to allow the extraction of methane gas from the ROM coal. The methane gas that is obtained from this activity is then safely flared. By combusting the methane (with a global warming potential of 28 times carbon dioxide equivalence) to produce carbon dioxide, Kestrel materially reduces its greenhouse gas emissions by this activity.

Kestrel has adopted a gas drainage strategy comprising both pre-drainage and post drainage. The pre-drainage strategy is to reduce the inseam gas content prior to mining by Surface to In Seam (SIS) lateral holes which drain the gas from the targeted horizon. More recently Kestrel has introduced additional pre-drainage through the Underground In Seam (UIS) drilling methodology to drain gas from the overlying coal seam as an additional safety control.

The post drainage strategy is by vertical wells drilled from the surface along the length of the panel which connect into the longwall goaf following coal extraction.

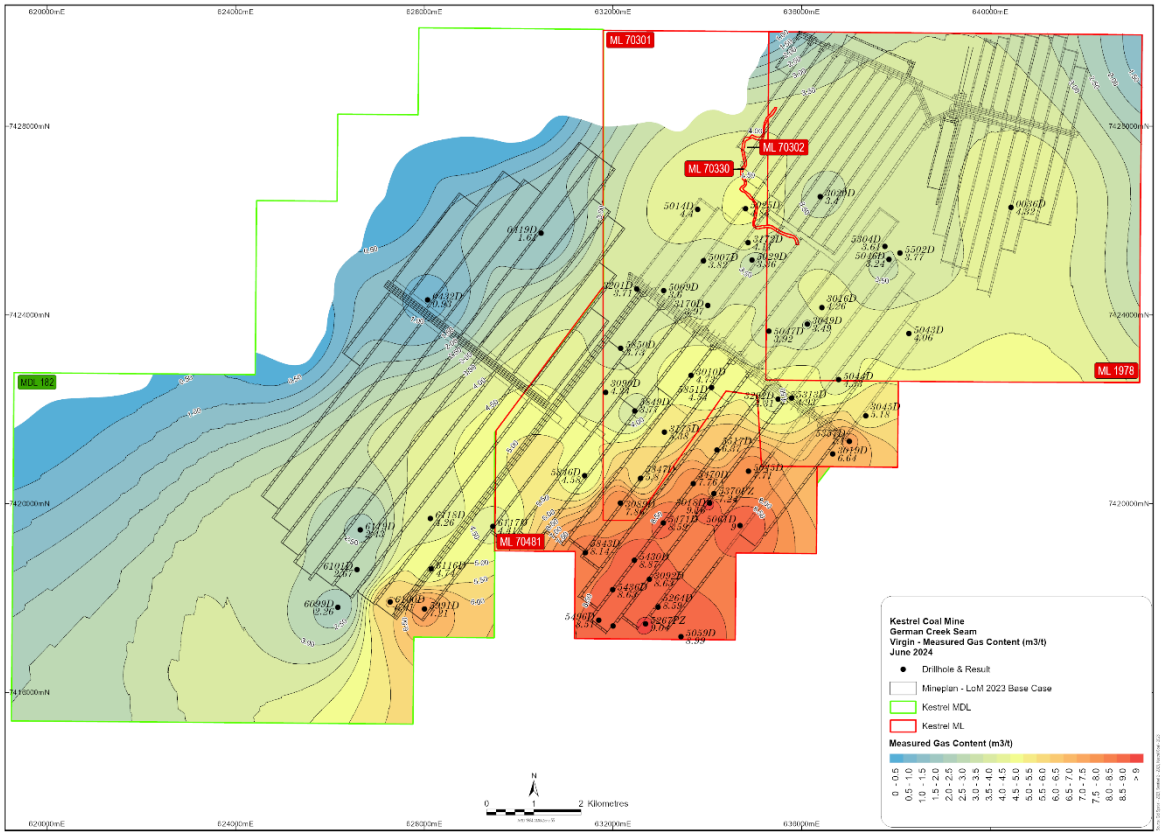
Currently, gas modelling is being undertaken to confirm the extent of gas drainage activities that may be required for the Project. Information to date indicates that methane concentrations and overall gas quantities will decrease significantly in the Project panels. A map showing methane gas content is shown in Figure 2-2.

Kestrel is committed to conducting its operations in a manner which safely minimises the greenhouse gas emissions. Kestrel will provide a greenhouse gas abatement strategy for the Kestrel West mining operations.

### 2.2.6 Co-Disposal Area

For the Project to deal with the volume of coal reject materials resulting from the extension, Kestrel plans to utilise the existing approved CDA footprint to the greatest extent possible, and then determine what is the smallest extension required to manage the remaining rejects volume. The new or expanded CDA facility will be located in the immediate vicinity of the current CDA.

## Figure 2-2 Methane Gas Content




The existing CHPP will continue to be utilised for the Project. The CHPP undertakes a process to separate marketable coal from reject products. Rejects are then moved to a purpose-built disposal facility that may be designed to incorporate wet disposal, dry disposal or a combination of both (co-disposal).

For the Project, rejects are likely to be a combination of dried coarse and fine material. The course rejects are mostly solid with some water content. The fine rejects are initially much wetter but are currently subject to significant moisture removal using solid bowl centrifuges to allow for a combined dry-stack disposal. An options assessment is currently being undertaken as part of the EIS process to determine a preferred approach for the Project.

The CHPP consists of key infrastructure including:

- ROM stockpile capacity of approximately 160kt;
- 3 Stage dense media separation (Bath, Primary and Secondary Cyclone);
- 2 Stage flotation separation;
- 2 Product stockpile storage with capacity of approximately 320kt;
- Fine rejects thickening and dry disposal storage;
- Solid bowl centrifuges; and
- Train loadout facility.

## 2.3 Project Phases

### *2.3.1 Phase 1 – Project Development*

No specific or immediate surface infrastructure is expected to be developed, beyond some minor surface works associated with pre-mine dewatering, gas drainage and ventilation, as required for safe mining operation and methane capture for carbon reduction opportunities.

A plan for construction of the new or extended CDA will be included as part of the EIS, however construction may not need to occur immediately if adequate rejects storage is available within the existing facility in the short term.

### *2.3.2 Phase 2 – Project Operation*

The underground Project area will be accessed via the two existing drifts, for personnel and materials access and intake air. New shafts for exhaust and intake ventilation will be constructed and commissioned prior to the commencement of longwall mining into 600's area and eventually the 700's.

Longwall panels will be developed off both sides of a centralised set of mains where possible. The following underground mining equipment will be used during the extraction of coal:

- Development Continuous miners;
- Development Shuttle cars (two per panel);
- Development Track mounted feeder breakers;
- Ancillary equipment – fans, ventilation ducting, pumps;
- Load-Haul-Dump loaders;
- Mine Graders;
- People transporters;
- Development Gate conveyors – development;
- Trunk conveyors (conveys ROM coal to surface ROM stockpile);
- Longwall Roof supports (Shields);
- Longwall Shearer;
- Longwall Armoured Face Conveyor;
- Longwall Beam Stage Loader;
- Longwall Crusher;
- Longwall Bootend;
- Longwall Monorail system;
- Track mounted pump and tank stations;
- Track mounted transformers; and
- Longwall Gate conveyors.

Mine production will commence with the first coal being extracted from development mining units to establish and intersect the main ventilation shaft, before commencing a set of sub mains out to the main headings and the first gate road. Production from the first longwall face would occur in approximately year 5 and the inclusion of the proposed Project would maintain annual production rates between 9.0 and 11.0Mtpa ROM coal which equates to between 7.0 and 8.6Mtpa of coal product for export markets.

During the Project, the CHPP will produce a Primary A product at 6.5% ash, with a Secondary C product target of 14% ash. In future years, as coal quality changes in the latter 600 and 700 series panels, it is planned that the CHPP will produce a single Primary B product at approximately 9.5% ash.

Table 2-1 shows the anticipated average quality parameters.

An indicative mine schedule showing the progress of the longwall face throughout the entire mine line is shown in Figure 2-3. The schedule for the Project is still being finalised and will be included in the Kestrel West EIS.

**Table 2-1 Average Quality Parameters (2023)**

| Product Quality | Average Product A | Average Product B | Average Product C |
|---|---|---|---|
| Ash (% ad) | 6.5 | 9.5 | 12.8 |
| $Fe_2O_3$ (%) | 4.39 | - | - |
| CSN | 7.7 | 6.3 | 5.3 |
| Inherent Moisture (% ad) | 2.3 | 2.3 | 2.3 |
| Dilatation (%) | 69 | 48 | - |
| Maximum Fluidity (ddm) | 2342 | 896 | 371 |
| Maximum Fluidity (log) | 3.20 | 2.72 | 2.21 |
| Phosphorus (% ad) | 0.019 | 0.017 | 0.015 |
| RoMax (%) | 0.88 | 0.87 | - |
| Specific Energy (DAF MJ/kg) | 33.83 | - | 34.5 |
| Total Sulphur (% ad) | 0.60 | 0.61 | 0.64 |
| Vitrinite (%) | 74.6 | 7.7 | - |
| Volatile Matter (DAF %) | 37.4 | - | 37.5 |
| Arsenic % ppm | - | - | 1.59 |
| Yield (%) | 71.8 | 83.70 | 12.0 |

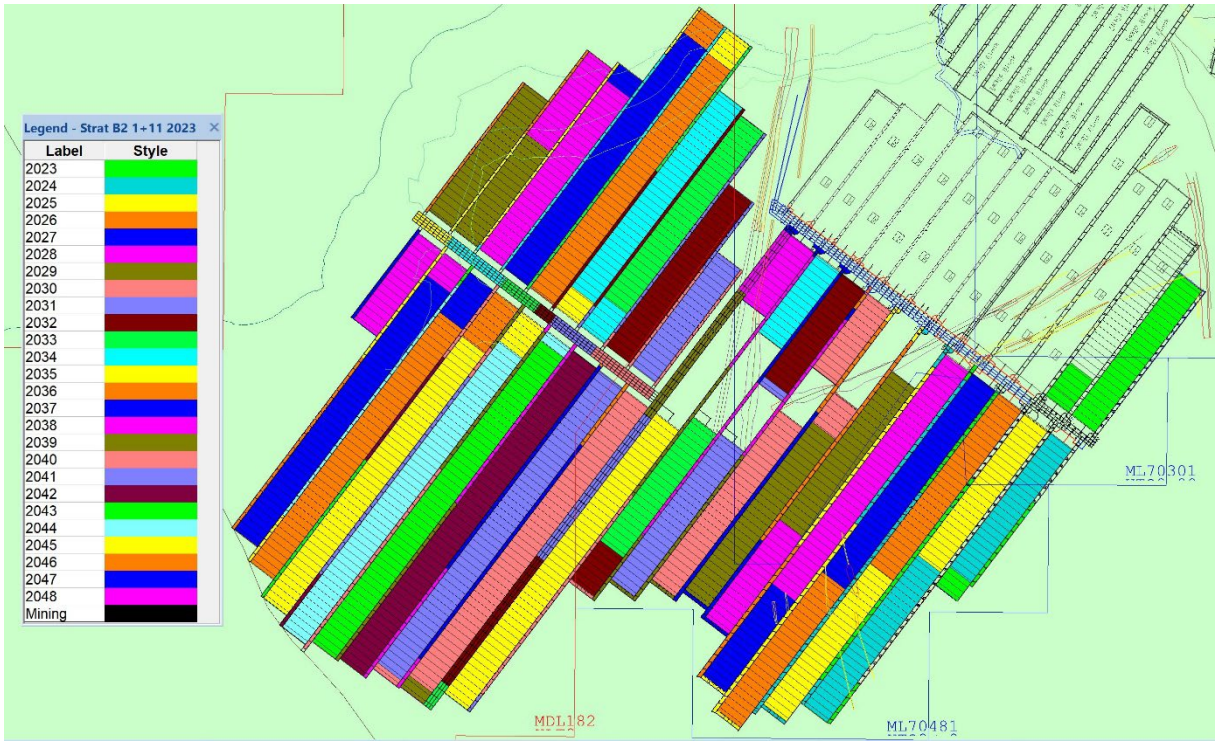



**Figure 2-3 Indicative Mine Schedule**

## 2.4 Project Location and Tenure

### *2.4.1 Location*

The Project is located in Central Queensland and lies approximately 40 km northeast of Emerald within the Central Highlands Regional Council local government area. Road access from Emerald is by driving 17 km north along the Gregory Highway, and then turning east (right) off the highway and driving 34 km along the sealed Lilyvale road.

Emerald, a town of approximately 15,000 people, is the regional hub and residence for most Kestrel mineworkers. An airport that links daily flights, to and from Brisbane, is located at Emerald.

Light gauge rail for freight links Emerald with the major coastal towns. Heavy gauge rail for coal haulage links Kestrel with the coal ports at Gladstone and Dalrymple Bay near Mackay (north-east). All of Kestrel's coal is railed to the RG Tanna coal loading facility at Gladstone for export.

### *2.4.2 Project Tenure*

A summary of the Project area land tenure details is provided in Table 2-2 and shown in Figure 2-4.

**Table 2-2 Project Area Tenure Details**

<table>
<tr><td>Project Area Tenement</td><td>■ MDL 182<br>■ ML 70301, ML 70481 and ML 1978</td></tr>
<tr><td>Project Area Real Property Description and Owner – Mine Extension Area</td><td>Refer to table below.
<table>
<tr><th>Lot and Plan</th><th>Tenure</th><th>Owner</th><th>Approximate Percentage of Mine Extension Area (%)</th></tr>
</table></td></tr>
</table>

| | | | |
|---|---|---|---|
| 7RP613596 | Freehold | Private landowner | 2.0 % |
| 60TT380 | Freehold | Kestrel Coal Resources Pty Ltd | 5.7 % |
| 11SP178401 | Freehold | Kestrel Coal Resources Pty Ltd | 63.6 % |
| 10TT71 | Freehold | Kestrel Coal Resources Pty Ltd | 11.3 % |
| 2SP197536 | Freehold | Private landowner | 6.4 % |
| 27TT451 | Freehold | Kestrel Coal Resources Pty Ltd | 3.7 % |
| 11RP864580 | Freehold | Private landowner | 2.2 % |
| 12RP864580 | Freehold | Private landowner | 5.1 % |
| 2RP615380 | Below the Depth Plans | Kestrel Coal Resources Pty Ltd | Below the depth plans -not included in Project area calculation) |

**Project Area Real Property Description and Owner –CDA**

Refer to table below.

| Lot and Plan | Tenure | Owner | Approximate Percentage of CDA (%) |
|---|---|---|---|
| 9RP849020 | Freehold | Kestrel Coal Resources Pty Ltd | 57.5 |
| 2SP258941 | Freehold | Kestrel Coal Resources Pty Ltd | 20.6 |
| 8RP849020 | Freehold | Kestrel Coal Resources Pty Ltd | 2.1 |
| 3RP843144 | Freehold | Kestrel Coal Resources Pty Ltd | 19.1 |
| 3RP848766 | Leasehold | Kestrel Coal Resources Pty Ltd | 0.8 |

**Land Tenure**

Non-mining Land Tenure of the Project area is a combination of the following as identified above:

- Below the Depth Plan;
- Freehold; and
- Leasehold.

**Local Government Area**

- Central Highlands Regional Council

| | |
|---|---|
| **Regional Plan** | ■ Central Queensland Regional Plan, October 2013 |

### 2.4.3 Access for Surveys Required for the EIS

Kestrel is the owner for all but four landholdings being Lot 7 on RP613596, Lot 2 on SP197536, Lot 11 on RP864580 and Lot 12 on RP864580. Kestrel aims to maintain good relationships with neighbouring landowners and has already commenced negotiations with our neighbours.

Chapter 3, Part 2 of the *Mineral and Energy Resources (Common Provisions) Act 2014* stipulates the land access requirements for access to private land for a resource authority, including an MDL. Under Kestrel's MDL 182, Kestrel is permitted to conduct preliminary activities on private land. Preliminary activities must have no impact or only a minor impact on land use or business activities of the landholder. This would be relevant for any potential access required to support the EIS.

In accordance with the MDL and landholder agreements, prior to accessing private land for surveys or preliminary activities required for the EIS, Kestrel will provide a formal Entry Notice for preliminary activities and comply with all relevant aspects of the Land Access Code 2023.

Other land subject to the Project are located under land owned, and MLs held by Kestrel.

## 2.5 Interrelationship with Existing Kestrel Mine

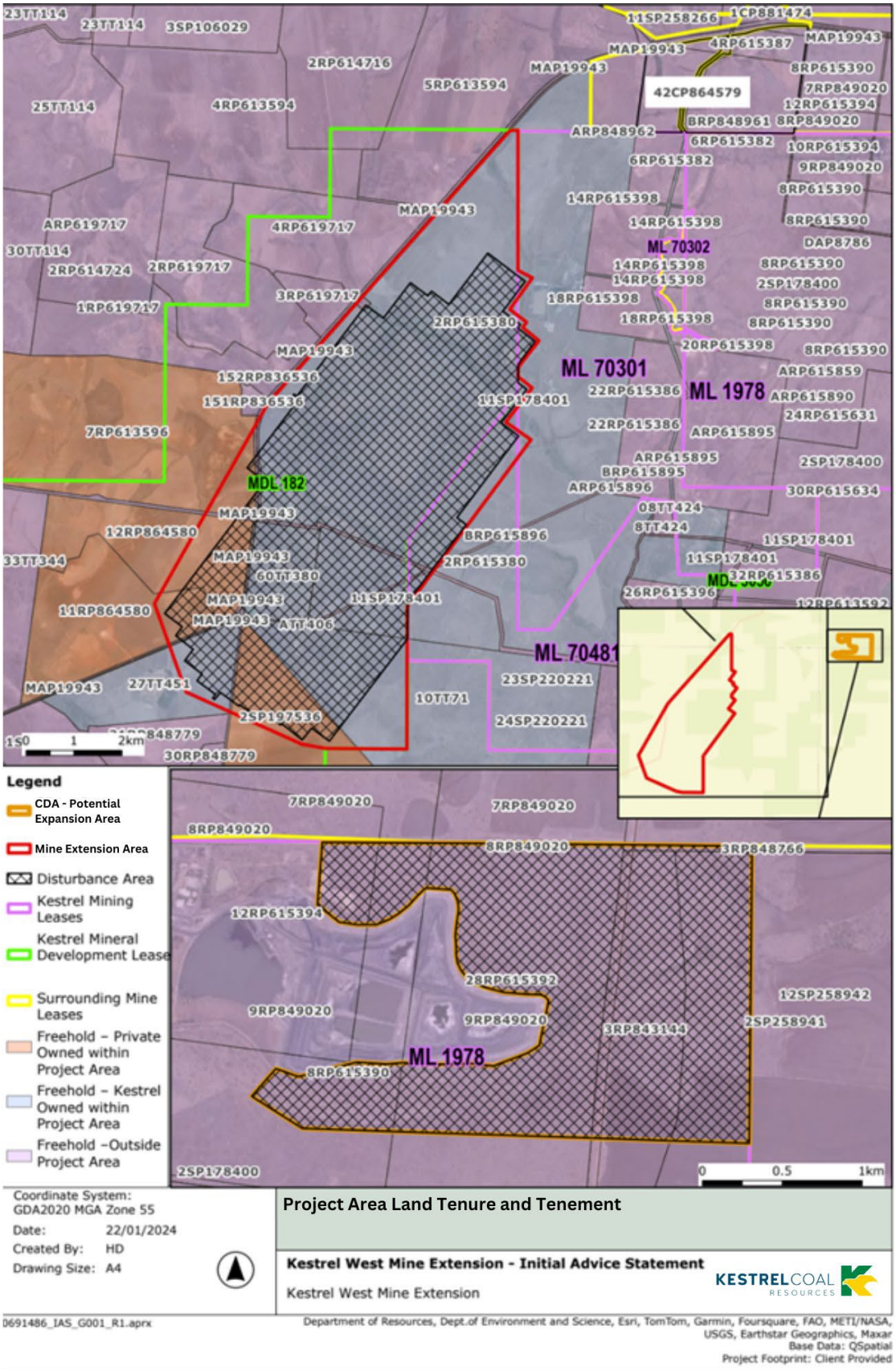
The Project is solely an extension of the existing Kestrel Mine utilising the infrastructure and supporting facilities. There is potential for an extended rejects disposal facility to be established as part of the Project, which will be confirmed as part of the EIS process.

The property tenure for the existing Kestrel Mine is held under several mining and exploration titles detailed in Table 2-3 and Figure 2-4.

**Table 2-3 Existing Kestrel Mine Location Details**

| | | | |
|---|---|---|---|
| **Existing Tenement Descriptions** | ■ ML 1978<br>■ ML 70301 | ■ ML 70481<br>■ ML 70302 | ■ ML 70330 |
| **Existing Tenement Real Property Descriptions** | ■ Lot 4 on RP613594<br>■ Lot 5 on RP613594<br>■ Lot 5 on RP613594<br>■ Lot 2 on RP619717<br>■ Lot 1 on RP619717<br>■ Lot 152 on RP836536<br>■ Lot 151 on RP836536<br>■ Lot 4 on RP619717<br>■ Lot 3 on RP619717<br>■ Lot 60 on TT380<br>■ Lot 9 on RP849020<br>■ Lot 8 on RP849020 | ■ Lot 3 on RP843144<br>■ Lot 3 on RP848766<br>■ Lot 8 on RP849020<br>■ Lot 65 on RP909055<br>■ Lot 2 on SP178400<br>■ Lot 3 on SP117847<br>■ Lot 2 on SP178400<br>■ Lot 11 on SP178401<br>■ Lot 8 on TT424<br>■ Lot 2 on SP258941<br>■ Lot 10 on TT71<br>■ Lot 2 on SP197536 | ■ Lot 23 on SP220221<br>■ Lot 1 on SP273862<br>■ Lot 31 on TT113<br>■ Lot 33 on TT344<br>■ Lot 27 on TT451<br>■ Lot 31 on RP848779<br>■ Lot 30 on RP848779<br>■ Lot 65 on RP855508<br>■ Lot 11 on RP864580<br>■ Lot 12 on RP864580<br>■ Lot 1 on SP117847<br>■ Lot 2 on SP117847 |

## Figure 2-4 Project Area Land Tenure and Tenement



### 2.5.1 Existing Mine Infrastructure and Associated Facilities

As the Project is an extension of the existing Kestrel Mine, accessing the coal within the Project area requires almost no additional surface infrastructure, and it will make use of and extend the life of already existing infrastructure.

Existing surface infrastructure that will be utilised by the Project includes but is not limited to:

- Underground access drifts;
- CDA;
- Administration offices;
- Maintenance and other support buildings;
- Overland conveyor;
- Raw and Product Coal Stockpiles;
- CHPP;
- Train loadout facilities;
- Dams;
- Sewage and water treatment facilities, including Reverse Osmosis plants;
- Laydown and waste management facilities;
- Electricity and water supplies; and
- Access roads.

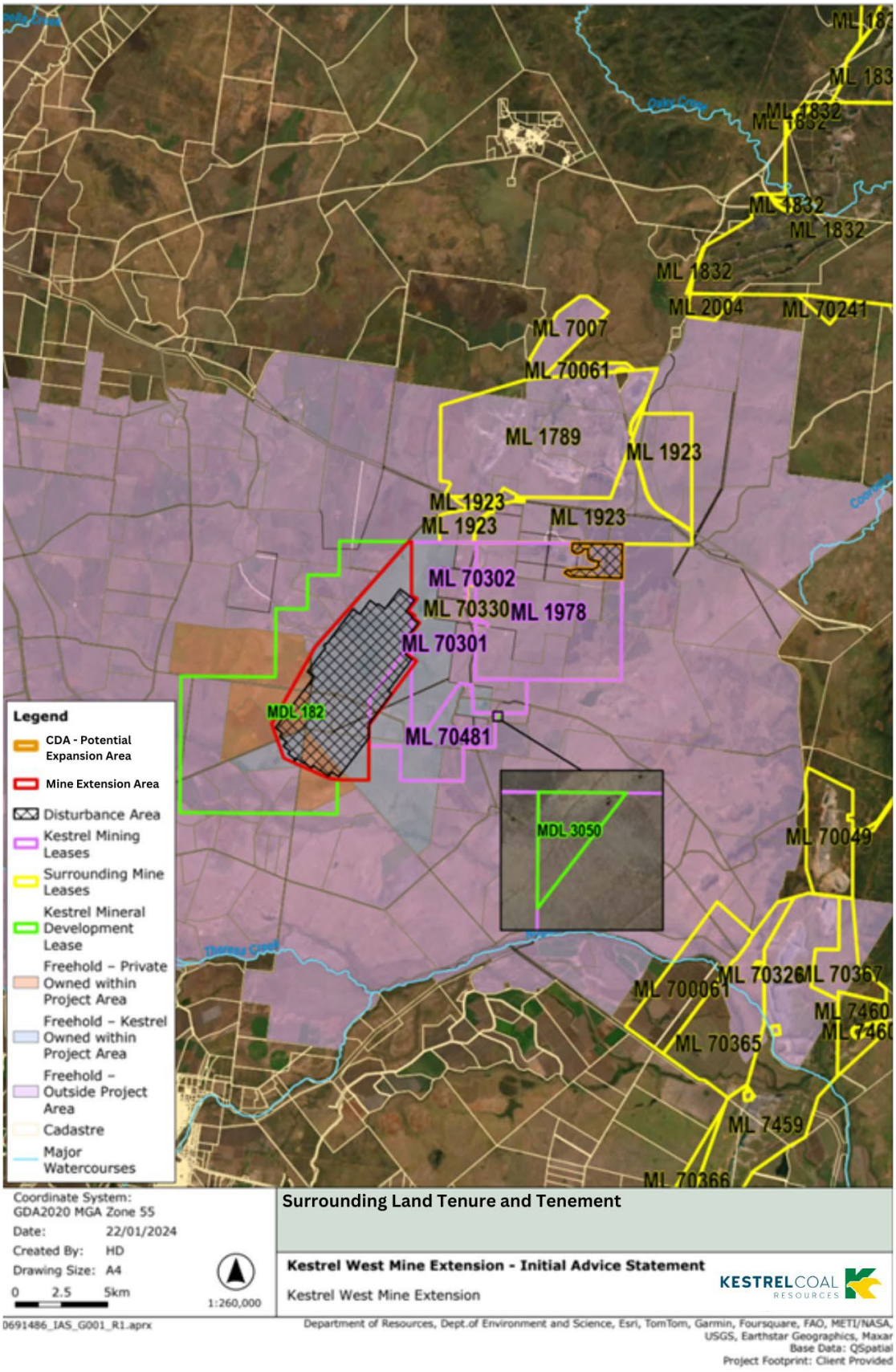
### 2.5.2 Land Tenure

The property tenure for the existing Kestrel Mine is held under a number of mining and exploration titles, detailed in Table 2-4 and identified on Figure 2-5.

## Table 2-4 Mining and Exploration Tenement Status

| Permit Number | Permit Type | Permit Status Type ID | Lodge Date | Grant Date | Expiry Date | Authorised Holder Name | Native Title Category | Minerals | Shape Area (Ha) | Permit ID | Object ID | Permit Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ML 1978 | Mining Lease | Granted | 2/06/1985 | 4/12/1990 | 30/04/2041 | Kestrel Coal Resources Pty Ltd (80 %) Mitsui Coal Holdings (20 %) | Mineral Rights Extinguished under Ancillary Agreement (Section 31) | COAL | 5,839.26 | 107471 | 7943 | KESTREL |
| ML 70301 | Mining Lease | Granted | 9/09/2002 | 25/09/2003 | 30/09/2033 | Kestrel Coal Resources Pty Ltd (80 %) Mitsui Coal Holdings (20 %) | Mineral Rights Extinguished under Ancillary Agreement (Section 31) | COAL | 3,579.00 | 109664 | 7942 | KESTREL EXTENSION #1 |
| ML 70302 | Mining Lease | Granted | 9/09/2002 | 22/11/2004 | 30/11/2034 | Kestrel Coal Resources Pty Ltd (80 %) Mitsui Coal Holdings (20 %) | Mineral Rights Extinguished under Ancillary Agreement (Section 31) | COAL | 79.77 | 109665 | 7928 | KESTREL EXTENDED #2 |
| ML 70330 | Mining Lease | Granted | 19/05/2004 | 11/06/2009 | 30/06/2039 | Kestrel Coal Resources Pty Ltd (80 %) Mitsui Coal Holdings (20 %) | Mineral Rights Extinguished under Ancillary Agreement (Section 31) | COAL | 9.30 | 109686 | 7946 | KESTREL EXTENSION #3 |
| ML 70481 | Mining Lease | Granted | 10/04/2012 | 05/04/2016 | 31/03/2041 | Kestrel Coal Resources Pty Ltd (80 %) Mitsui Coal Holdings (20 %) | Mineral Rights Extinguished under Ancillary Agreement (Section 31) | COAL | 2,467.00 | 112158 | 48415 | KESTREL EXTENSION #4 |
| MDL 182 | Mineral Development Licence | Granted | 24/02/1995 | 25/11/1996 | 01/12/2026 | Kestrel Coal Resources Pty Ltd (80 %) Mitsui Coal Holdings (20 %) | CHMP in place. Negotiation Rights Established (Section 31) | COAL | 11,619.00 | 107036 | 48675 | N/A |
| MDL 3050 | Mineral Development Licence | Granted | 23/11/2021 | 24/06/2022 | 30/06/2027 | Kestrel Coal Resources Pty Ltd Mitsui Kestrel Coal Investment Pty Ltd. | 100 % Exclusive Land | COAL | 5.0 | 223302 | TBA | Kestrel East |

## Figure 2-5 Surrounding Land Tenure and Tenement



### 2.5.3 Exploration Permits and Tenements

Current mining tenements include ML 1978, ML 70301, ML 70302, ML 70330, ML 70481 and MDL 3050, which cover the current and historic operating areas of the mine, and MDL 182 which includes the majority of the Project area. There are currently no overlapping tenements for petroleum or gas across the Project area.

## 2.6 Timeframes for the Project

The current Kestrel Mine operations and approvals enable production to continue to approximately 2036. To extend the operating life of the Kestrel Mine beyond this date, it will be necessary to extend the underground mining operations. This extension will enable the operating life of the Kestrel Mine to be extended to around 2050.

## 2.7 Built Environment

Emerald is the nearest regional centre located in the Central Highlands of Queensland with a strong economy developed through rich agricultural lands and coal mining.

The Project has a number of neighbouring properties, many of which incorporate homesteads along with some agricultural infrastructure.

The Project is located to the south-west of the Gregory Crinum open cut and underground coal mine, with existing on-site infrastructure including a CHPP, tailings storages, final voids, access drifts, maintenance workshops and administration facilities.

To the south-east (20 km) of the Project is the Ensham Mine that also includes open-cut and underground coal mining.

Several other MDLs have been granted to other operators in the area which may indicate further built development being considered. The plans and timeframes associated with any other operators is not publicly available and cannot be assumed. However, for the purposes of future consideration of cumulative impacts, identification of potential developments involving neighbouring operators is considered and will be continued to be monitored through the draft TOR and EIS stages.

Cumulative impacts of these neighbouring operations will be required to be assessed where information is available as part of the EIS.

## 2.8 Economic Indicators

Pre-Feasibility and some Feasibility Definition studies have been conducted as part of the Project's inception to support Kestrel's decision-making process and ensure current and future viability of the Project. Economic analysis undertaken to date has considered capital and operational costs and the potential economic benefit to the surrounding community resulting from the Project.

Project-specific economic modelling has been completed to allow for consideration of the local, State and national benefits anticipated from the Project. An overall summary of the outcomes of the indicative economic impact model for the Project over a period of 15 years are presented in Table 2-5. The economic impact model may be updated during the EIS.

Not surprisingly, the modelled impacts are lower for the regional results than the State results. This is because Queensland represents a whole economy, and particular sectors will be more integrated with other sectors in the economy i.e. inter-industry linkages are fewer and shallower in small regions since they do not have the capacity to produce the wide range of goods needed for inputs and consumption.

The average annual impacts attributable to the additional production from the Project are detailed in the Table 2-6(Queensland) and Table 2-7 (Central Queensland Statistical Area 4).

Note that for the economic summaries in Table 2-5, Table 2-6 and Table 2-7, a conservative number of 648 FTEs has been used for the economics study however employment numbers may to be up to approximately 750 FTEs and will be confirmed as part of the EIS process.

**Table 2-5 Summary of the Indicative CAPEX Economic results for the Project**

| Metric | Queensland | | Central Queensland | |
|---|---|---|---|---|
| | Average annual | Total | Average annual | Total |
| Total output | $1.89 billion | $30.21 billion | $1.35 billion | $21.7 billion |
| Gross State/Regional Output | $878 million | $14.05 billion | $620 million | $9.92 billion |
| Labour income | $219 million | $3.5 billion | $95 million | $1.52 billion |
| Employment supported (Average Annual) | 2,442 FTEs (includes employment of 648 FTEs comprising Kestrel employed staff contractors) | | 937 FTEs (includes employment of 648 FTEs comprising Kestrel employed staff contractors) | |

**Table 2-6 Indicative Queensland Average Annual Production Results (15-year timeframe)**

| Metric | Direct Impacts (Average Annual) | Indirect Impacts (Average Annual) | Induced Impacts (Average Annual) | Total Impacts (Average Annual) |
|---|---|---|---|---|
| Total output | $1,188 million | $379 million | $321 million | **$1,888 million** |
| Gross State/Regional Product | $549 million | $168 million | 131 million | **$878 million** |
| Labour income | $74 million | $79 million | $66 million | **$219 million** |
| Employment Supported | 648 FTEs | 944 FTEs | 850 FTE | **2,442 FTEs** |

**Table 2-7 Indicative Central Queensland Statistical Area 4 Average Annual Production Results (15-year timeframe)**

| Metric | Direct Impacts (Average Annual) | Indirect Impacts (Average Annual) | Induced Impacts (Average Annual) | Total Impacts (Average Annual) |
|---|---|---|---|---|
| Total output | $1,188 million | $76 million | $90 million | **$1,354 million** |
| Gross State/Regional Product | $566 million | $30 million | $24 million | **$620 million** |
| Labour income | $71 million | $10 million | $13 million | **$95 million** |

| | | | | |
|---|---|---|---|---|
| Employment Supported | 648 FTEs | 118 FTEs | 172 FTE | **937 FTEs** |

Tax contributions from the Project have also been considered with the Project projected to contribute $1.82 billion (total, undiscounted) in coal royalties and $173 million (total, undiscounted) in payroll tax revenue to the Queensland Government. The Project will also produce additional corporate and employee income tax revenue for the Federal Government.

## 2.9 Financing Requirements and Implications

Capital expenditure as a result of the Project proceeding is $1.27 billion. As noted in Section 1.2,the Kestrel mine is wholly owned by the Kestrel Joint Venture (Kestrel JV), an Australian unincorporated joint venture. Kestrel (80 %) and Mitsui Coal (20 %) are the joint venture partners. Kestrel is a joint venture between EMR Capital (52 %) and Adaro Energy (48 %). Kestrel and its owners have a proven record of funding and operating the Kestrel Mine and other developments. Funding for the Project may be sourced from a combination of cash flows generated from the existing Kestrel Mine, debt market funding and other contributions from within the Kestrel JV.

## 2.10 Project Construction and Operational Processes

As the Project involves the continuation of existing mining operations and utilisation of existing key infrastructure, no construction activity other than minor construction of the Project's additional ventilation and cooling shafts, gas drainage, dewatering bores and some extension of existing and/or new minor supporting infrastructure such as overhead powerlines and communications would be required.

Construction for this infrastructure will involve vegetation and topsoil removal, topsoil stockpiling, earthworks, civil works, construction of road access, and building of ventilation structures and associated supporting facilities.

Operational processes will continue as per the existing Kestrel Mine. Relevant management plans will be updated to include the Project as required.

## 2.11 Accommodation and Workforce

The Project will ensure that ongoing employment is provided in the region and will include both direct and indirect benefits and provide job security for members of the local community. The Project will retain a predominately local workforce who will continue to reside in local accommodation and housing. The expected workforce will be maintained at up to approximately 750 FTE comprising directly employed Kestrel employees and contractors.

The expected Project employment level is consistent with the current level of employment at the Kestrel Mine.

Kestrel operates on a 24/7 roster system to provide continuous coverage and maximise production and safety. The following crews currently operate and it is proposed that these will continue to operate for the Project:

- The underground crew operate on a rotating day and night 12-hour shift roster. The roster pattern is 7 rostered shifts, 7 days off;
- The CHPP production and maintenance crews operate on a rotating day and night 12-hour shift roster. The roster pattern is 7 rostered shifts, 7 days off; and
- Administration, support, technical and leadership functions operate on a 9-day fortnight, 10hr per day roster.

For any additional infrastructure construction, the required workforce will be sourced from local providers where possible. These personnel are expected to reside in the region and will travel to the Project daily during construction.

## 2.12 Coal Resource Characterisation

As of 1st September 2023, the total Joint Ore Reserves Committee (JORC) Coal Resources for all of Kestrel's tenements are estimated at 411.2 Million tonnes (Mt), of which 115.1 Mt are categorised as Measured, 273.2 Mt are classified as Indicated and 22.9 Mt are classified as Inferred (rounded).

Tables showing calculated tonnages and qualities for resource classifications per tenement within the Project are shown in Table 2-8 and Table 2-9.

**Table 2-8 Total Mineral Resources (1st Sept. 2023)**

| Tenement | Measured | Indicated | Inferred | Total |
|---|---|---|---|---|
| ML 1978 | | 18.9 | 14.3 | 22.9 |
| ML 70301 | 41.0 | 36.6 | | 77.6 |
| ML 70481 | 74.1 | 17.0 | | 91.1 |
| MDL 182 | | 200.7 | 8.6 | 209.3 |
| MDL 3050 | | 0.2 | | 0.2 |
| **Total** | 115.1 | 273.3 | 22.9 | 411.2 |

The extent of the latest measured, indicated, and inferred resource polygons defined over the area is shown in Figure 2-6.

A recent JORC Reserves Report was prepared as defined in Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 (JORC Code). The reserves estimates are reported as of 1st September 2023 which reported a combined Proven and Probable ROM Reserve of 228.1 Mt from the combined Measured and Indicated Resource of 411.2 Mt as reported 1st September 2023.

To demonstrate the conversion of Mineral Resources to Coal Reserves, the JORC Code describes to use of modifying factors to determine the level of geological knowledge and confidence. In addition, the consideration of mining, processing, metallurgical, infrastructure, economic, marketing, legal, environment, social and government factors will convert Resources to Reserves.

As of 1st September 2023, the combined Marketable Coal Reserves of 175.4 Mt is comprised of 71.2 Mt of Proved and 104.1 Mt of Probable classification. Proved Reserves may only be attributable from Measured Resources and Probable Reserves may be attributable from Indicated and Measured Resources.

As of 1st September 2023, the coal reserve estimates for the project, are 71.5 Mt ROM for the 600 series and 63.4 Mt ROM for the 700 series. The Mains development attributable to the Project are estimated at around 1 Mt ROM. Combining to a total of 135.9 Mt ROM.

**Table 2-9 Total Coal Reserves**

| Year | Classification | Proved | Probable | Total |
|---|---|---|---|---|
| 2023 | ROM (Mt) | 92.0 | 136.2 | 228.1 |
| | Marketable (Mt) | 71.2 | 104.1 | 175.4 |

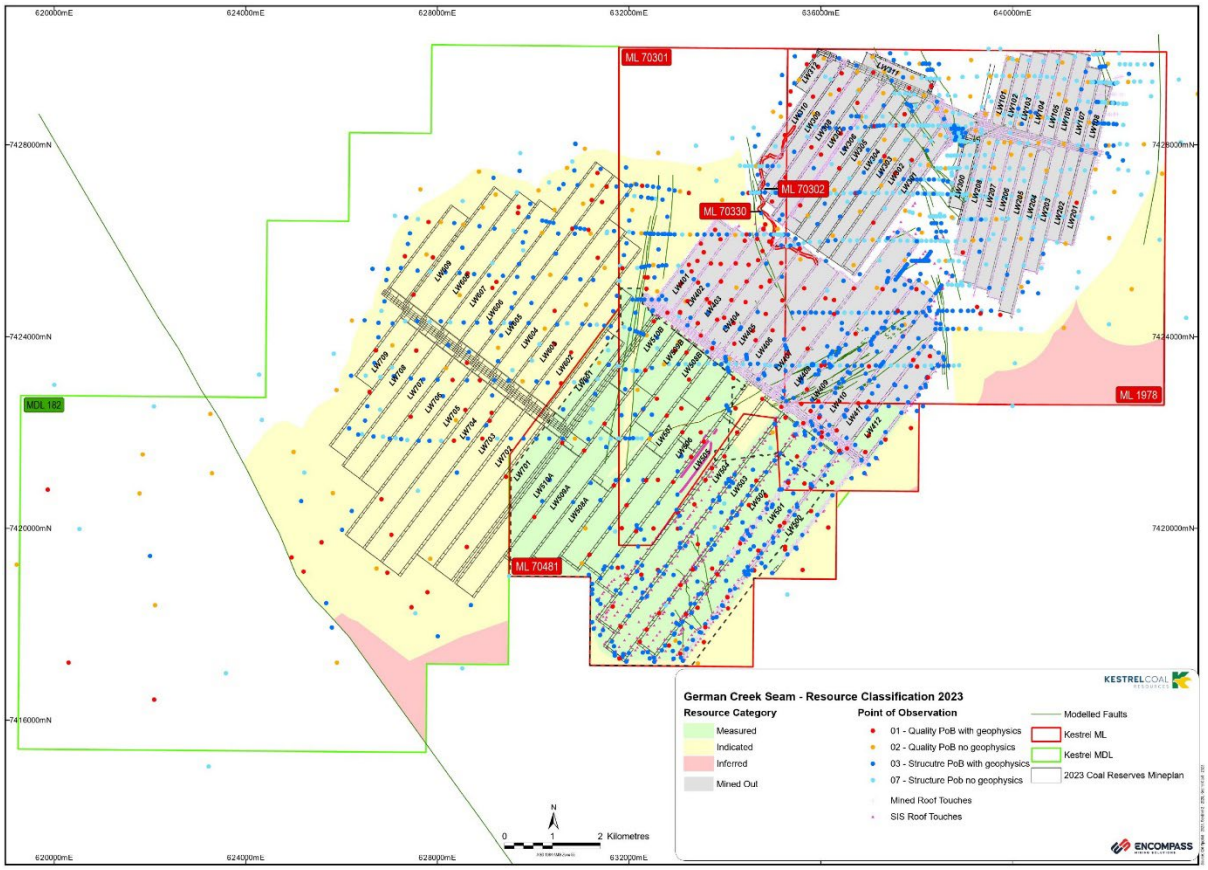



**Figure 2-6 Resource Classification Plan (1st Sept. 2023)**

## 2.13 Water Management

The Kestrel Mine operates in accordance with the site's Water Management Plan developed to achieve compliance with relevant EA conditions and regulatory requirements. The site Water Management Plan details the commitment to managing water resources in a responsible manner by accounting for social, cultural, environmental, and economic values.

Water management includes:

- Site Water Balance – A site water balance is calculated for site operations. All water onsite is recycled for reuse through the dam system, excluding potable water and sewage. A major water reduction program implemented in 2016/17 reduced the raw water demand by 65 % and integrated water re-use across the site. This system has been maintained over time, with minor improvements implemented as they were identified.
- Raw water supply – Raw water is sourced from a shared water source on the Nogoa-McKenzie water system and delivered via a dedicated pipeline. Water pumped from underground to

maintain safe working conditions is also utilised as a raw water supply, to minimise raw water importation from the pipeline.

- Water Monitoring – Kestrel maintains an extensive surface water and groundwater monitoring network for flow, levels and quality, including within the site as well as upstream and downstream, neighbouring and regional locations.

Key water storages already in place at Kestrel that will be utilised for the Project include:

- Holding dam – 597 megalitre capacity;
- Environmental Dam – 92 megalitre capacity;
- Rejects Return Water Dam – 1,166 megalitre capacity;
- 10 ML Water Dam – 10 megalitre capacity; and
- 40 ML Raw Water Dam – 40 megalitre capacity.

During the wet season, Kestrel operates under a Trigger Action Response Plan to ensure they can contain water onsite while taking advantage of opportunities to return stored water that complies with licence conditions and maintains good quality water flows, to the natural system in times of high flow.

All the existing water management strategies implemented at Kestrel would be transitioned across to the Project, along with any improvements or additions identified through the EIS process.

Underground water supply and dewatering strategies will require engineering studies that will be undertaken as part of the EIS process.

## 2.14 Decommissioning and Rehabilitation

Kestrel submitted a transitional PRCP for the existing approved Kestrel Mine operations on 15th September 2023, and received notice of a Properly Made Application on 29th September 2023. Once approved, this PRCP will be amended to include the Project and submitted as part of the EIS.

Kestrel has undertaken soil and land suitability analysis over the Project that will be used to inform the development of the PRCP. Results of the soil and land suitability analysis has identified the environmental characteristics, including the major soil types and land values, as well as providing recommendations for the management of soil resources within the Project area.

The land suitability analysis, combined with stakeholder expectations, regional and State land management guidelines, will help to inform the ultimate post closure land use. All elements are to be addressed in the PRCP currently under development. The final Post Mining Land Use (PMLU) will be addressed in both the EIS and the draft PRCP that will accompany the EIS.

# 3. EXISTING ENVIRONMENT AND IMPACT ASSESSMENT

The environment aspects that have been considered in this IAS include climate, land resources including soils, geology, surface water, groundwater, terrestrial and aquatic ecology, air quality and greenhouse gases, noise and vibration, visual amenity, waste management, cultural heritage, socioeconomic, traffic and transport, hazard and risk, matters of national environmental significance, and cumulative impacts.

## 3.1 Climate

### *3.1.1 Existing Environment*

The average climate is subtropical with warm to hot, wet summers and mild, dry conditions in winter with variable rainfall in summer which is dominated by locally intense storm activity.

Temperature data has been drawn from the Emerald Airport weather station (Station number 035264), which is the close weather station to the Project area that collects temperature data. Rainfall data is drawn from the Lucknow weather station (035221), the closest weather station that collects rainfall data.

The warmer months are November to February with average maximum temperatures which range from 33.9 °C and 34.6 °C (BoM, 2024a). The cooler months are May to August with average maximum temperatures which range from 23.4 °C and 26.4 °C (BoM, 2024a).

The average annual rainfall for the area is 585.3 mm (BoM 2024b). The estimated mean annual evaporation is 2,005 mm which is approximately 3.5 times higher than the average annual rainfall. Rainfall is seasonal and highly variable (Matrix+, 2006), with the majority occurring in the warmer months of December, January and February averaging approximately 88.5 mm per month (BoM 2024b).

Rainfall in the region is usually short in duration but high in intensity in the wet season occurring as part of thunderstorms.

Long term climate projects predict that conditions will become warmer, with maximum, minimum and average temperatures projected to rise overall (DES 2019a). Rainfall is likely to remain high variable but with high rainfall events increasing in intensity (DES 2019a), with the same variability and greater intensity.

## 3.2 Geology

### *3.2.1 Existing Environment*

The regional geology of the Project area is well understood and informed by Kestrel's operational history in the area incorporating geological drill logs from extensive exploration drilling and seismic survey programs. The Project area is located within the German Creek Formation of the Bowen Basin, which is a sedimentary basin comprising Permian to Triassic age geology (approximately 300 million years ago to approximately 200 million years ago). The Kestrel coal deposit forms part of the German Creek Seam, which lies at the base of the German Creek Formation to extract coal from the German Creek Seam that is located within the Blackwater Group.

Seam height ranges from 2.5 m in the southeast to 3.6 m in the northwest which is considered a medium height for underground coal mining. This classification is supportive of high productivity longwall extraction and allows for a good development roadway height. The seam thins to the east and south into the adjacent leases, thickens to the northwest, and sub-crops to the west.

The dip of the German Creek seam ranges from sub-horizontal to 6 degrees to the east and south-east. Dips tend to be steeper towards the sub-crop and flatten to the east, with the depth of seam increasing from 100m at the northwestern sub-crop to 450m at the southeastern corner.

## 3.3 Land

Soil and land suitability assessments were undertaken across the Project area. This included desktop investigations and field investigations completed between 25-29 July 2022. The assessment was focused on Kestrel owned land and the predicted disturbance areas. The following sections provide information obtained from this assessment.

### *3.3.1 Existing Environment*

The existing land use of the surrounding area is grazing of native and improved pastures, dryland cropping and some residential infrastructure. The land within the Project area has been extensively cleared for grazing of native and improved pastures (DES 2019a). The Project area is traversed by a local road of regional significance (Lilyvale Road), and access tracks to several residential and farm infrastructure sites. Natural waterways and small wetlands also occur within the Project area which remain as natural vegetation and were not accessed and mapped for this study (both for natural area conservation and cultural heritage reasons).

The site topography is low relief, gently undulating land, predominantly cleared of vegetation for agricultural use. Elevations range from 210 m above the Australian Height Datum (AHD) in the east, falling to 160 mAHD in the south along Crinum Creek, and to 190 mAHD in the west. Slope gradients are typically between 1 % and 5 %.

The Project area is rated as class A1/C2 (DES 2020) agricultural land based on the Agricultural Land Classification scheme (DSITI and DNRM 2015). The Project area is largely classified as cropping land that is suitable for a wide range of current and potential broadacre and horticultural crops (A1), with remaining areas classified as suitable for grazing of native pastures in accessible areas (C2). The Project area also contains mapped strategic cropping land.

### *3.3.2 Potential Impacts*

The principal land disturbance impact associated with underground mining activities at the Project is subsidence arising as longwall panels progressively extract the coal seam. Potential impacts associated with subsidence include:

- Localised changes in slope and subsequent change to existing erosion patterns;
- Surface tensile cracking;
- Changed drainage systems including localised ponding in some areas;
- Localised longitudinal slope increases and waterway re-alignment, where waterways traverse subsidence areas; and
- Changes to soil physical characteristics.
- Contamination of soil

Potential impacts related to soil are likely to result from topsoil clearing and storage activities, such as for exploration and trenching for water pipelines which – if not managed appropriately - may lead to negative impacts on the chemical and physical attributes of soil. Impacts associated with topsoil stripping include the following:

- Exposure of dispersive subsoil during soil clearing;
- Loss of soil physical structure due to excavation and handling;
- Loss of soil seedbank; and
- Impacts on soil fertility due to mixing of inviable subsoils and resulting changes in soil chemistry.

### 3.3.3 Management Considerations

A number of soils, subsidence and rehabilitation studies and research projects have been undertaken based on Kestrel's history of longwall operations. Experience with previous longwall panel series, and where subsidence has occurred on similar soils, has shown no significant subsidence impacts on soil characteristics. In almost all prior mining areas, agricultural activity has been resumed or actively continued while mining occurs, with no observable change in productive capacity. Kestrel Mine has achieved a total of 570.5 ha of certified progressive rehabilitation on site which indicates that the above potential impacts can be mitigated as demonstrated to date.

The minimisation of subsidence impacts to Lilyvale Road by adjusting the mine design is discussed in more detail in Section 1.5.

Soil and land mitigation measures will be included in the EIS. A Progressive Rehabilitation and Closure Plan which outlies in detail the proposed rehabilitation plan and rehabilitation schedule for the Project will be prepared for the EIS.

## 3.4 Surface Water

Several preliminary surface water studies have been undertaken to identify the general surface water values associated with the Project area. More detailed studies are currently underway and will be completed once final TOR for the Project are confirmed. Completed studies include:

- Receiving Environment Monitoring Program – 2022-2023 Wet Season;
- Geomorphology, Hydraulics and Ecology Creek Assessment in June 2023;
- An initial desktop assessment of surface water resources was undertaken in October 2022; and
- Disturbance within Riparian Zones of the Kestrel West area in September 2022.

### 3.4.1 Existing Environment

The Project is within the Nogoa River Sub-basin of the broader Fitzroy River Basin, joining the Nogoa River south and east of the township of Emerald. The Nogoa River merges into the Mackenzie River to the east and then into the Fitzroy River before flow to ocean discharge near Rockhampton approximately 270 km away. The Fitzroy catchment is the most southerly complete catchment, out of a total of 35 catchments, that drain to the Great Barrier Reef World Heritage Area.

The western catchment above the Project is large and broad, extending 39km northwest and covering an area of 39,000 hectares. The total Project area extends for 4km laterally and includes 3,900 ha in catchment.

A review of the Queensland Government Water Identification Map has identified the Project intersects with two mapped watercourses under the *Water Act 2000*, being Belcong Creek and Gordonstone Creek. In addition, an unnamed tributary of Crinum Creek to the north-east of Belcong Creek is identified as a drainage feature, and there are several 'unmapped features' including several tributaries from each of the identified watercourses.

Creeks in the Project area are generally ephemeral, flowing intermittently after significant rainfall. The only perennial surface water in the vicinity of the Project is Lilyvale Waterhole, located in Crinum Creek 4 km upstream of the mine to the north. Policeman's Lagoon, located further south on Crinum Creek and within the currently approved mining area, is not perennial, but does maintain water for extended periods. The Policeman's Lagoon area has cultural and historical significance.

There are no naturally occurring surface water bodies defined within the Project area and there are no currently defined users for surface water within the Project. Within the Project area, there are no known dams or diversions on the creeks, and the water is only used for agricultural purposes when stock is physically present to access the water. Environment values are present to maintain flow and

riparian environment. Heritage values are also present, linked to culturally modified trees, use of water or occupation areas, and will be subject to further cultural heritage surveys as part of the EIS.

Kestrel operates three surface water flow monitoring stations on Woolshed Creek and Belcong Creek as part of a site level network to monitor flow regimes and quality of surface water around the region. Relative flows in each creek depend on where the rain falls (given the high spatial variability of each rainfall event), time of year (saturation of catchment) and for Crinum Creek, storage levels of upstream historical coal mining pits.

### 3.4.2 Potential Impacts

The extent of surface water impacts is restricted to potential ponding across subsided longwall panels, any associated change to flow velocity, and, any potential impacts relating to changed groundwater interactions.

No changes to water quality are expected as rehabilitation works will be undertaken to maintain flows, with the rehabilitation works timed to occur during no flow periods; this will be confirmed as part of studies to support the EIS.

There is limited potential for contamination of surface water due to:

- Improper storage and handling of fuels and chemicals;
- Seepage from mine water or rejects storages;
- Uncontrolled release of mine impacted waters; and
- Erosion and sediment runoff from power lines construction and trenching for water pipelines.

Further studies will be undertaken as required during the EIS process.

### 3.4.3 Management Considerations

A hydrology and flooding assessment will be undertaken as part of the EIS. Surface water mitigation measures will be included in the EIS once additional detail relating to works required for the mine plan are confirmed as part of the mine design.

It is expected that monitoring of surface water flow and quality will be undertaken in accordance with the EA.

## 3.5 Groundwater

Several preliminary groundwater studies have been undertaken to identify the general groundwater values associated with the Project area. More detailed studies are currently underway and will be completed once final TOR for the Project are confirmed.

Kestrel also has a detailed groundwater model that has been developed in conjunction with a neighbouring mining operation and will be utilised to identify potential groundwater impacts from the Project, however this model needs to be updated to meet current best-practice guidelines. Details will be provided as part of the EIS. Completed studies include:

- Desktop assessment of groundwater resources undertaken in October 2022;
- Landholder Bore Census undertaken in 2022; and
- Monitoring Bore Installation Program, MDL 182 Site Investigation in May 2022.

### 3.5.1 Existing Environment

Geology in the vicinity of the Project can be generally characterised as a capping of Tertiary sediments and Basalt lava flows, underlain by Permian coal measures of the Bowen Basin.

The groundwater resource located within the Project is mainly associated with the basalt aquifer (upper Tertiary) and basal sand aquifer (lower Tertiary) (refer to Figure 3-1), both of which are selectively targeted by regional landholders where quality is suitable for stock and domestic water supply. These aquifers are often separated by a clay aquitard.

In the Tertiary, groundwater presence, quality and yields are variable due to variable flow and connectivity of the host seams.

The deeper Permian aquifer, including the coal seams, is not as widely utilised as a resource due to the depth of the water bearing strata and the typically high salinity of the water. Faults also occur within the Permian which often act as barriers to flow through fault offsets.

Groundwater use in the region is primarily stock and domestic, with minor irrigation and industrial use. Many existing wells are sited near to creek lines to increase the probability of intersecting water.

Groundwater levels associated with the Kestrel Mine and surrounding area have been monitored since 1992. Additional monitoring bores have recently been constructed within the Project area and will be used to supply site specific information for the EIS.

The Project does not fall within the extent of the Great Artesian Basin.

A survey to confirm the presence of any stygofauna is being undertaken as part of the EIS process.

### 3.5.2 Potential Impacts

Potential groundwater impacts associated with the Project are anticipated to fall within the range of impacts that have occurred from mining over the last 50 years within the Region.

Any groundwater impacts will predominantly be due to dewatering of the underground operations for safety purposes, along with water removed as part of the coal resource itself. This may result in drawdown from the immediately impacted aquifers and any interconnected systems. Detailed studies will be undertaken to determine the likelihood and scale of potential impacts.

Project activities may cause the following impacts to groundwater, groundwater users and GDEs within and surrounding the Project and are considered in terms of future impact assessment for the EIS:

- Reduction in groundwater head, potentially causing decline in water levels for groundwater users;
- Reduction of baseflow to watercourses, potentially impacting surface water availability and GDEs;
- Contamination of shallow groundwater systems due to improper storage and handling of fuels and chemicals; and
- Changes in groundwater quality through seepage from water and rejects storages onsite.

Further studies will be undertaken as required to address these potential impacts during the EIS process.

### 3.5.3 Management Considerations

The groundwater model incorporating the Project will be used to predict potential impacts and assist in developing groundwater mitigation measures for the EIS. It is expected that monitoring of groundwater will be required in accordance with the existing EA.

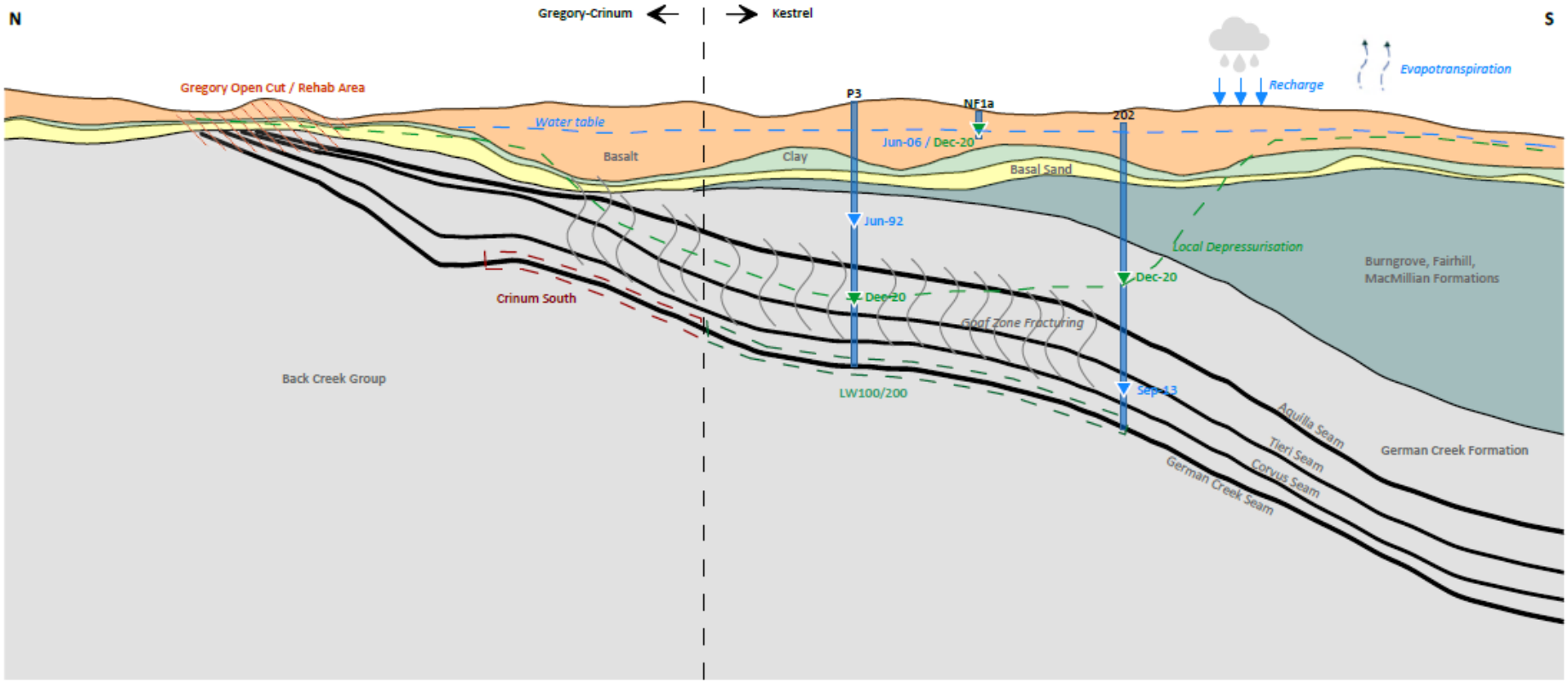



**Figure 3-1 Hydrogeological Conceptual Model Summary (KCB 2022)**

## 3.6 Terrestrial and Aquatic Ecology

Terrestrial and aquatic ecology surveys were undertaken throughout 2022. This included desktop investigations and field investigations completed over four survey efforts (17-22 November 2021, 1-5 March 2022, 8-11 April 2022 and 14-20 June 2022). The assessment was focused on Kestrel owned land, with sampling west of Lilyvale Road limited due to private landholder agreements and arrangements. The following sections provide a summary of information obtained from this assessment.

### *3.6.1 Existing Environment*

The Project is located within the Brigalow Belt bioregion, which occurs just north of Townsville to the NSW border in Queensland covering approximately 36,400,000 ha. This area is characterised by the tree brigalow (*Acacia harpophylla*) which forms forests and woodlands on clay soils (Sattler and Williams 1999). It is divided into two areas including the Brigalow Belt North and Brigalow Belt South which encompasses 36 provinces (Sattler and Williams 1999).

#### *Protected Areas*

The Project area predominately consists of cleared highly modified grasslands, with tracts of remnant vegetation present along the ephemeral watercourses, and throughout the middle and western position of the Project area. The main areas providing potential connectivity is those associated with the ephemeral watercourses.

There are no Protected areas within 12 kms of the Project. The closest Protected area is the Caroa Island Paddock Nature Reserve (12 kms). Belmah Conservation Park, Burn State Forest, Rifle Range Nature Refuge and Crystal Creek State Forest are also located within the region. These Protected areas are disjointed and are at least 25 km from the Project area.

#### *Regional Ecosystems*

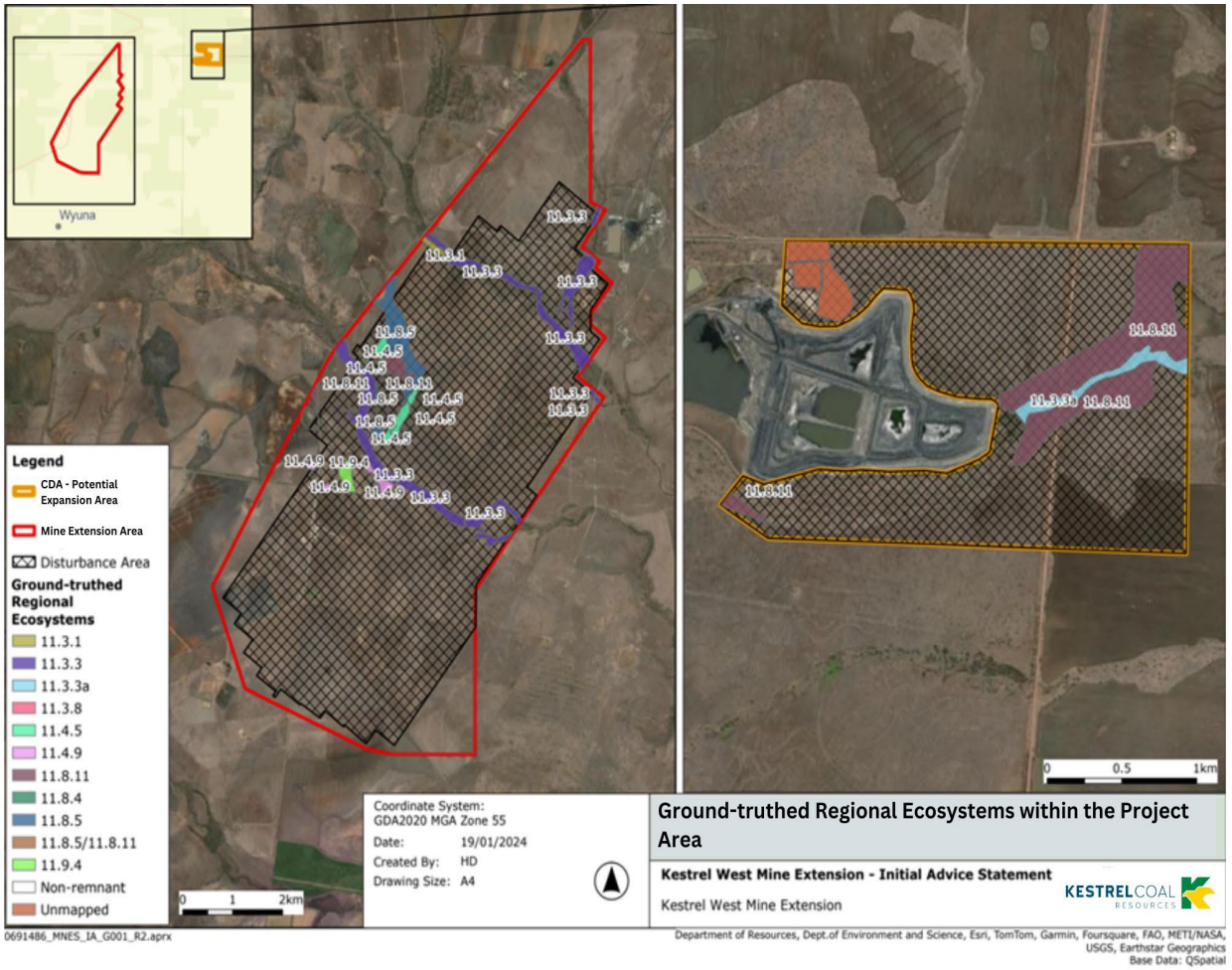
Ground-truthing of Regional Ecosystems within the Project area was performed during 2021 and 2022 as part of field surveys. These surveys confirmed the presence of eight Regional Ecosystems within the Project area (Table 3-1). The field surveys confirmed that the Mine Extension Area comprises non-remnant and remnant vegetation, with scattered patches of remnant vegetation occurring mainly through the central portion of the Mine Extension Area. Field surveys confirmed the Regional Ecosystems with some level of regulatory status, as shown in Table 3-1, occur in the Project area (refer to Figure 3-2).

**Table 3-1 Ground-Truthed Regional Ecosystems within the Project Area**

| RE | Short Description | Biodiversity Status | Vegetation Management Act Status | Area (ha) |
|---|---|---|---|---|
| 11.3.1 | *Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains | Endangered | Endangered | 5.6 |
| 11.3.3 | *Eucalyptus coolabah* woodland on alluvial plains | Of Concern | Of Concern | 200.4 |
| 11.3.3a | *Melaleuca bracteata* woodland on alluvial | Of Concern. | Of Concern. | 7.8 |
| 11.4.5 | *Acacia argyrodendron* woodland on Cainozoic clay plains | Endangered | Of Concern | 31.1 |
| 11.4.9 | *Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains | Endangered | Endangered | 16.5 |

| RE | Short Description | Biodiversity Status | Vegetation Management Act Status | Area (ha) |
|---|---|---|---|---|
| 11.8.5 | *Eucalyptus orgadophila* open woodland on Cainozoic igneous rocks | No Concern at Present | Least Concern | 77.4 |
| 11.8.11 | *Dichanthium sericeum* grassland on Cainozoic igneous rocks | Of Concern | Of Concern | 155.5 |
| 11.9.4 | Semi-evergreen vine thicket or *Acacia harpophylla* with a semi-evergreen vine thicket understorey on fine-grained sedimentary rocks | Endangered | Of Concern. | 11.3 |
| Unmapped | | | | 12.5 |
| Non-remnant | | | | 5,468.1 |

## Figure 3-2 Ground-Truthed Regional Ecosystems



## Essential Habitat

Areas of essential habitat are mapped within and surrounding the Project area. Under Queensland Government Regulated Vegetation Management mapping (Department of Resources, 2024), these areas are mapped as Regulated Vegetation Management Category A or B. These areas are predominantly associated with Ornamental snake (*Denisonia maculata*) habitat. The following areas of Essential Habitat – Regulated Vegetation Management Category A or B are mapped within the Project area:

- Mine Extension Area – Approximately 215.2 ha; and
- CDA – Approximately 63.0 ha.

## Threatened Ecological Communities

Two Threatened Ecological Communities (TECs) under the EPBC Act were identified within the Project area as part of the field surveys:

- Brigalow *(Acacia harpophylla* dominant and co-dominant) vegetation community (represented by RE 11.3.1 and 11.4.9), and
- Natural grasslands of the Queensland Central Highlands and the Northern Fitzroy Basin (represented by RE 11.8.11).

## Conservation Significant Flora

Field surveys identified King blue-grass listed as Endangered under the EPBC Act and Vulnerable under the *Nature Conservation Act 1992* (NC Act) within the Project area and the adjacent Kestrel MLs. Of the individuals recorded, one population was recorded within the Mine Extension Area. Potential habitat for King blue-grass is shown on Figure 3-3 and is based on ground-truthed data from previous surveys. This potential habitat has been mapped as approximately 156.2 ha within the Project area.

The species occurs on black cracking clay in tussock grasslands in association with other grass species including Bluegrass, White speargrass (*Aristida leptopoda*), Feathertop wiregrass (Aristida latifolia) and *Panicum decompositum*. Within the Mine Extension Area, it was recorded within RE 11.8.11.

## Fauna

A review of database search results identified ten threatened species that have are known, likely or have the potential to occur within the Project area, including two known, five likely and three potential to occur (Table 3-2). It should be noted that these are being refined as part of the EIS process.

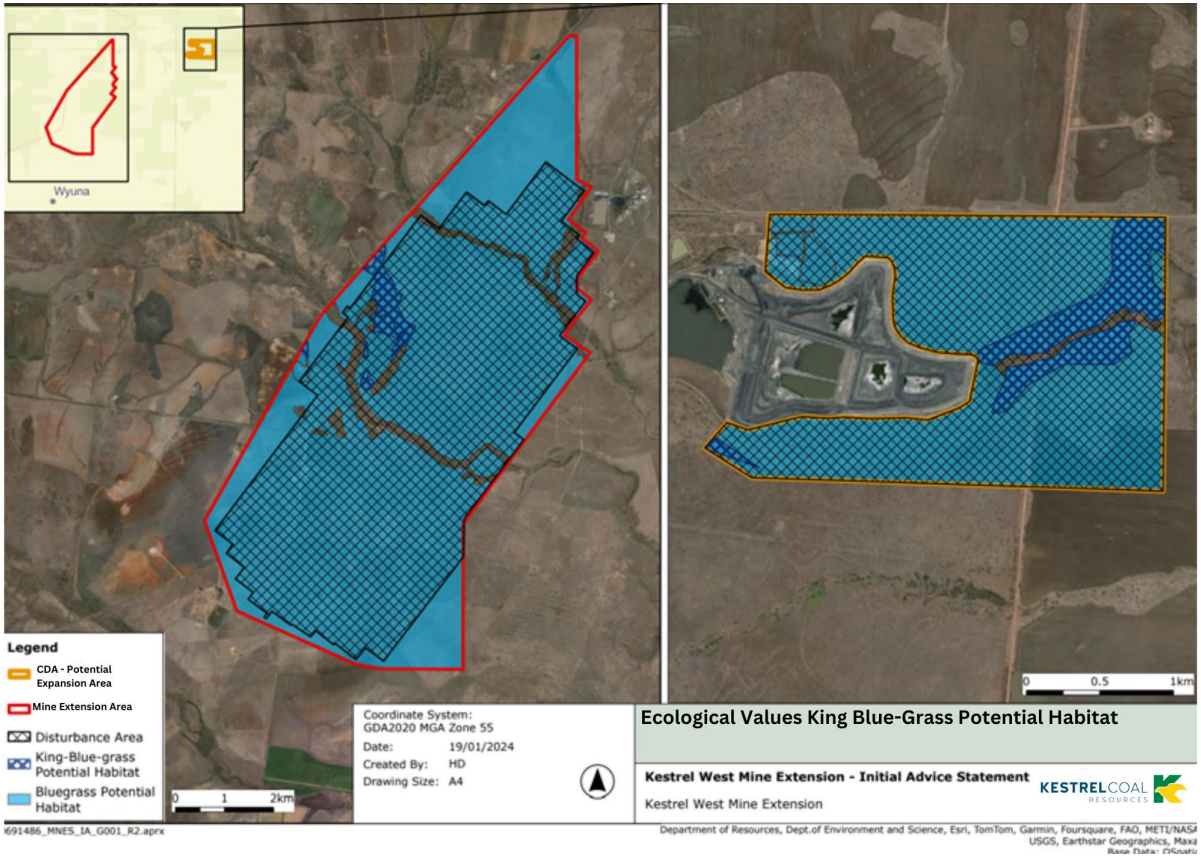
The field survey recorded 109 fauna species within the Project area occupying a variety of habitat types. The most diverse fauna group was birds with 73 species, followed by mammals (20 species), reptiles (eight species) and amphibians (eight species). Of these, one migratory fauna species was recorded consisting of Rufous fantail (*Rhipidura rufifrons*). No other conservation significant species were recorded as part of the field survey.

Under Queensland Government Matters of State Environmental Significance mapping (Department of Resources, 2023), there are areas mapped as Wildlife Habitat – Ornamental Snake which is based on areas which contain cracking clay with gilgais or soil cracks near freshwater waterholes or creeks, and low lying poorly drained areas that are frequently inundated by freshwater. Potential habitat for the Ornamental snake is shown on Figure 3-4 and is based on ground-truthed data from previous surveys. This area has been mapped as approximately 260.5 ha within the Project area.

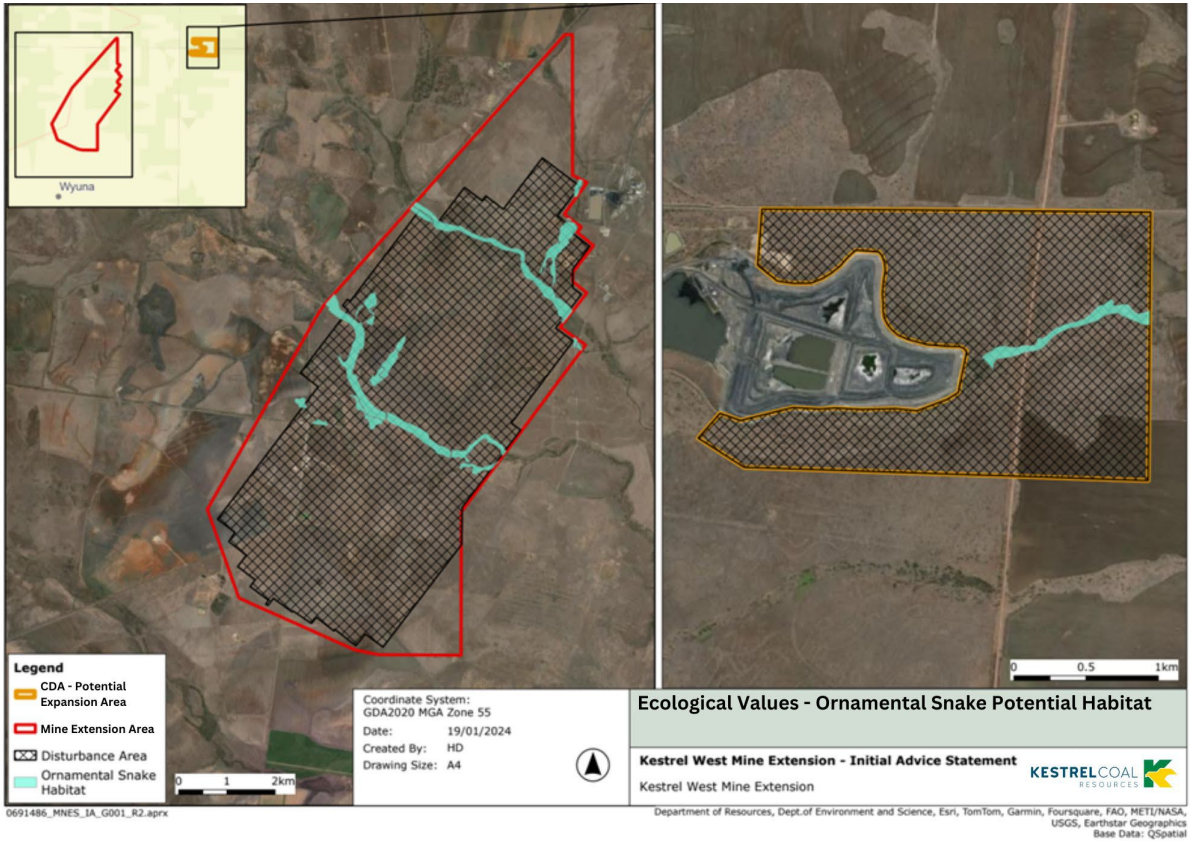
## Table 3-2 Listed Fauna Species with Potential to be in the Project Area

| Scientific Name | Common name | NC Act | Comm. EPBC Act |
|---|---|---|---|
| **Known** | | | |
| *Dichanthium queenslandicum* | King blue-grass | Vulnerable | Endangered |
| *Rhipidura rufifrons* | Rufous fantail | Special least concern | Migratory |
| **Likely** | | | |
| *Geophaps scripta scripta* | Squatter pigeon (southern) | Vulnerable | Vulnerable |
| *Cyperus clarus* | null | Vulnerable | - |
| *Dichanthium setosum* | Bluegrass | Least concern | Vulnerable |
| *Apus pacificus* | Fork-tailed swift | Special least concern | Migratory |
| *Myiagra cyanoleuca* | Satin flycatcher | Special least concern | Migratory |
| **Potential** | | | |
| *Cerbera dumicola* | null | Near threatened | - |
| *Phascolarctos cinereus* | Koala (combined populations of QLD, NSW and the ACT) | Vulnerable | Endangered |
| *Denisonia maculata* | Ornamental snake | Vulnerable | Vulnerable |

## Figure 3-3 Ecological Values – King Blue-Grass



## Figure 3-4 Ecological Values – Ornamental Snake



### 3.6.2 Potential Impacts

Development and operation of the Project will occur primarily underground. For any surface activities requiring vegetation clearing, there is potential to remove or disturb small areas of terrestrial and aquatic vegetation and habitats. Any increased activity or land disruption in the Project area would have the potential to introduce and spread additional weeds and feral animals.

The Project area is adjacent to the existing Kestrel Mine operations, and given the lack of any significant new infrastructure, it could be inferred that the existing dust, noise, and lighting conditions will not significantly change. Operation of the Project itself is not expected to significantly increase traffic numbers, lighting, dust, or noise beyond current Kestrel Mine conditions but rather extend such conditions over a longer period, and therefore the impacts to ecology, are expected to be negligible and consistent with the current operations.

Potential habitat and areas for MNES TECs and threatened species are included in Table 3-3, noting that this includes species that were recorded in the Project area or within 10 km of the Project area. These species and additional species with potential to be in proximity to the Project area will be assessed as part of the EIS process.

There are areas mapped as Matters of State Environmental Significance (MSES) which are identified in Table 3-4. While there is limited ground disturbance associated with the underground mining operations, there is the potential that the Project may impact on these matters. This will be confirmed as part of the EIS Process.

The EIS will include technical reports on Terrestrial and Aquatic Ecology Assessments.

**Table 3-3 Potential Disturbance to Matters of National Environmental Significance**

| Matters of National Environmental Significance | Approximate MNES Area (ha) – Mine Extension Area | Approximate MNES Area (ha) - CDA |
|---|---|---|
| **Threatened Ecological Communities (TECs)** | | |
| Brigalow TEC | 16.9 | 0 |
| Natural Grassland TEC | 17.9 | 56.3 |
| **Potential Threatened Species Habitat** | | |
| King blue-grass Potential Habitat | 84.0 | 54.3 |
| Bluegrass Potential Habitat | 3,703.4 | 388.2 |
| Ornamental Snake Habitat | 220.1 | 7.8 |
| Koala Foraging and Breeding Potential Habitat | 7.8 | 220.1 |
| **Potential Migratory Species** | | |
| Rufous Fantail Habitat | 11.3 | 0 |
| Fork-tailed swift | 220.1 | 7.8 |
| Satin flycatcher | 231.4 | 7.8 |

**Table 3-4 Potential Disturbance to Matters of State Environmental Significance**

| Matters of State Environmental Significance | Approximate MSES Area (ha) – Mine Extension Area | Approximate MSES Area (ha) – CDA |
|---|---|---|
| **Wildlife Habitat** | | |
| Ornamental Snake | 215.2 | 63.0 |
| **MSES Regulated Vegetation** | | |
| Category B – Endangered or of Concern | 389.3 | 79.0 |
| Category C – Endangered or of Concern | 0.5 | - |
| Category R – GBR River | - | 2.1 |
| **MSES Regulated Vegetation (Essential Habitat)** | | |
| A or B | 215.2 | 63.0 |

### *3.6.3 Management Considerations*

Clearing has been largely avoided by reusing existing infrastructure. Only additional minor infrastructure will be required (described in Section 2) will be required. A significant impact assessment will be undertaken in accordance with the EPBC Act Significant Impact Guideline, as well as a state residual impact assessment in accordance with the Significant Residual Impact Guidelines. These assessments will identify the potential impact of the Project on species, communities and other ecological values, and also to provide suitable management measures.

## 3.7 Air Quality and Greenhouse Gases

### *3.7.1 Existing Environment*

Regional air quality may already be influenced by emissions of dust from the existing Kestrel Mine, other mining operations and agricultural activities. Sensitive receptors with regards to dust are typically defined as residential, commercial, community or heritage land uses under the EP Act. The Project is in a rural setting, a significant distance away from major population centres and is associated with the existing Kestrel Mine. The only sensitive receptor that apply to the Project are neighbouring rural dwellings.

Kestrel undertakes the required reporting for the National Greenhouse and Energy Reporting Scheme (NGERS) including reporting in accordance with the Safeguard Mechanism requirements.

### *3.7.2 Potential Impacts*

Underground operations associated with the Project are unlikely to have a significant impact on air quality relating to dust. The main impacts are expected to be associated with vehicle movements and operation of plant.

Construction and operation of the Project will include several air quality emission sources, including:

- Dust generated during earthmoving as part of minor construction activities;
- Operation of the CHPP infrastructure (crushers, conveyors, train load-out);
- Dust emissions from coal and soil stockpiles;
- Air pollutants emitted from diesel powered equipment;
- Air pollutants associate with flare gas;
- Dust emissions from train loading and train movement; and
- Direct (scope 1) and indirect (scope 2) GHGs from electricity and diesel usage and fugitive coal seam methane release during construction and operation.

### *3.7.3 Management Considerations*

Air quality and GHG emission studies are currently in progress and will form part of the EIS. Management of potential air quality impacts are expected to be in line with the existing commitments and measures the Kestrel Mine has incorporated.

Strategies to avoid, mitigate, and manage the generation of direct (Scope 1) and indirect (Scope 2) GHGs will be further understood and developed as part of the EIS process. Currently, gas modelling is being undertaken to confirm the extent of gas drainage activities that may be required for the Project. Information to date indicates that methane concentrations and overall gas quantities will decrease significantly in the Project panels. To minimise its greenhouse gas emissions, methane gas drainage is currently undertaken and safely flared (refer Section 2.2.5 for further details). By combusting the methane (with a global warming potential of 28 times carbon dioxide equivalence) to produce carbon dioxide, Kestrel materially reduces its greenhouse gas emissions by this activity. Flaring is expected to be continued for the Project. In addition, Kestrel will provide a greenhouse gas abatement strategy for the Kestrel West mining operations.

A high-level assessment of Scope 3 emissions will also be incorporated into the EIS where required. This will include a review of mine operations and Kestrel mine's decarbonisation plan which is currently in development.

## 3.8 Noise and Vibration

### *3.8.1 Existing Environment*

Noise and vibration are expected to be influenced by several sources from the existing Kestrel Mine operations and agricultural activities. Sensitive receptors as defined in the EP Noise Policy 2019 are typically defined as residential, commercial, community or ecosystems. The Project is in a rural setting, a significant distance from major population centres and is associated with the existing Kestrel Mine.

The following activities are currently associated with the existing approved Kestrel South Mine which influences the existing noise and vibration of the area:

- Noise associated with mine ventilation;
- Noise and vibration associated with operation and processing infrastructure including the overland conveyor; and
- Noise associated with vehicle movements, including earthmoving equipment on stockpiles.

### *3.8.2 Potential Impacts*

Above ground and underground operations associated with the Project are likely to have an insignificant impact on existing noise and vibration levels as the Project will utilise all of the existing infrastructure, including the existing mine access drifts and transporting of ROM coal to the CHPP.

The main impacts are expected to be associated with operation of the CHPP which has been in place for over 30 years. Construction and operation of the Project will include several noise and vibration sources, including for example:

- Noise and vibration generated associated with earthmoving and engineered fill;
- Noise associated with mine ventilation;
- Noise and vibration associated with potential minor handling and processing infrastructure; and
- Noise associated with vehicle movements.

Noise and vibration studies and assessments will be prepared during the EIS process. Management and mitigation of potential noise and vibration impacts are expected to be in line with the existing commitments and measures the Kestrel Mine has incorporated.

### *3.8.3 Management Considerations*

The underground works and associated infrastructure are expected to have a negligible impact on existing noise levels. Management of potential noise and vibration impacts are expected to be in line with the existing commitments and measures that the Kestrel Mine has incorporated.

## 3.9 Visual Amenity

### *3.9.1 Existing Environment*

The Project is located in a landscape that is already considerably influenced by the presence of mining and agricultural activities affecting both the perception of character and quality of views. The landscape on or around the Project area is not subject of code or zones to protect valued landscape or scenic values.

The Project area and surrounding area is dominated by cleared agricultural land, mostly comprised of non-remnant vegetation, as well as existing mining activities associated with Kestrel Mine. The roads in the local area consist of local roads and private roads. There are limited publicly accessible views towards the Project area.

### *3.9.2 Potential Impacts*

The Project is located primarily underground with some relatively minor additional surface infrastructure associated with the Project. Current surface infrastructure has been in place for at least 10 years and fits with the current use of the Kestrel Mine and surrounding agricultural activities. Consequently, views of the Project's above-ground facilities and activities would be consistent with existing mining activities except for the extended co-disposal / dry disposal facility if undertaken, and, the continuation of the existing flare infrastructure where required.

Visual amenity studies and assessments will be prepared during the EIS process. Management of visual impacts are expected to be in line with existing commitments and measures undertaken by the Kestrel Mine.

### *3.9.3 Management Considerations*

Views are expected to be consistent in scale with the existing mining activities. There are expected to be some changes due to the pre-drainage flares and some above-ground facilities and activities would be consistent with. Management of potential impacts are expected to be in line with the existing commitments and measures the Kestrel Mine currently incorporates.

## 3.10 Waste Management

### 3.10.1 Existing Environment

Coal coarse and fine rejects from the CHPP is disposed at the CDA. Kestrel has submitted the PRCP to DESI for the existing operations that include detailed rehabilitation and mine closure commitments for the CDA.

Kestrel work with appropriately licenced waste contractors to ensure all other waste streams are handled, stored, transported, tracked and disposed of in accordance with legal requirements and the current EA.

There is expected to be minimal waste from construction activities due to the minor works. Operational wastes will be consistent with the current mine. Management of waste generated by the Project would be governed by the following relevant Queensland legislation:

- EP Act;
- Environmental Protection Regulation 2019;
- *Waste Reduction and Recycling Act 2011*; and
- Waste Reduction and Recycling Regulation 2011.

### 3.10.2 Potential Impacts

The Project will result in additional wastes associated with the mining rejects as well as everyday wastes from operations. Coarse and fine rejects produced from the existing CHPP for the Project ROM coal will either be incorporated into the existing approved footprint of the CDA for Kestrel Mine, or potentially will require the development of an extension to the existing CDA. The location for any extension will be risk-assessed and will be followed by a conceptual design for inclusion in the EIS. This is expected to be the primary impact associated with wastes.

Options for the CDA are discussed in Section 2.2.2. The exact process and location for the potential extension of the CDA is yet to be confirmed, however upgrades to the reject disposal facility are expected as part of this Project even if not constructed immediately. The PRCP for the existing operations will be used as the basis for the PRCP for the Project, that will be included with the EIS and will incorporate the relevant level of detail.

Impacts associated with general waste production over the life of the Project are minor if managed in accordance with current operations and with the implementation of waste management options. Implementation of a responsible, proven waste management approach will minimise potential impacts on environment and community values.

### 3.10.3 Management Considerations

A detailed study into the conceptual placement and design of the coal coarse and fine rejects into the existing or an extended CDA will be included in the EIS and will incorporate extensive impact assessments around all relevant environmental values and aspects for the CDA, including surface water, groundwater, rehabilitation, geotechnical stability and final land use. As the existing CHPP and associated infrastructure will be utilised for the Project, it is considered likely that any extension to the existing CDA will occur in close proximity to the existing location. An options assessment is currently underway to allow selection of a preferred option.

General waste management at the Project would follow the waste management hierarchy described in the *Waste Reduction and Recycling Act 2011*:

a. Avoid unnecessary resource consumption;

b. Reduce waste generation and disposal;

c. Re-use waste resources without further manufacturing;

d. Recycle waste resources to make the same or different products;

e. Recover waste resources, including the recovery of energy;

f. Treat waste before disposal, including reducing the hazardous nature of waste; and

g. Dispose of waste only if there is no viable alternative.

Kestrel engages appropriately licenced waste management contractors to manage the existing site requirements and recycles waste where possible. Waste management for the Project would be incorporated into the existing arrangements undertaken on site. A waste assessment for the Project will be included in the EIS.

## 3.11 Cultural Heritage (Indigenous and non-Indigenous)

### *3.11.1 Existing Environment*

**Indigenous Cultural Heritage**

The Western Kangoulu people are the registered Native Title Claimants for the Project area, which is covered under a regional native title claim lodged in 2013 (QC2013/002).

Kestrel has a CHIMA in place for the Kestrel Mine which includes MDL 182. This CHIMA was agreed to in July 2018.

Indigenous Cultural Heritage surveys have been undertaken for large areas within the active Kestrel tenements, however additional surveys will be required as part of this Project. Kestrel has already commenced engagement with the Western Kangoulu for these additional surveys.

Based on previous surveys, Kestrel expects there will be areas of cultural significance identified that will need to be managed under the CHIMA and in liaison with the Western Kangoulu people.

A Heritage Management System, incorporating a Scarred Tree Management Plan, is under development between Kestrel and the Western Kangoulu, and is expected to be implemented as part of current operations, and would be incorporated into the Project as well.

**Non-Indigenous Cultural Heritage**

Non-Indigenous cultural heritage has been assessed through a number of studies in the region. Non-Indigenous cultural heritage values will be further described in the EIS.

### *3.11.2 Potential Impacts*

While underground mining does not require large-scale clearing of surface lands, there are still potential impacts to cultural heritage values associated with the pre and post gas drainage activities and any minor land disturbance activities, as well as minor potential impacts from the subsidence of longwall panels. Potential impacts associated with the Project are anticipated to generally be within the range of impacts that have occurred from mining over the last 30 years within the Kestrel Mine area.

The extent of potential impacts to both Indigenous and non-Indigenous cultural heritage values will be assessed during the EIS process.

### *3.11.3 Management Considerations*

All cultural heritage activities for the Project will be undertaken in accordance with the agreed CHIMA, which is also registered as a Cultural Heritage Management Plan (CHMP) under the Aboriginal Cultural Heritage Act 2003.

Kestrel will confirm any Native Title requirements during the EIS process and will negotiate with the Western Kangoulu on this matter as required.

Before undertaking any land disturbance, Kestrel's existing Ground Disturbance Permit process would be followed, which involves checking locations against mapped areas of Cultural Heritage significance and undertaking surveys and clearance works as required by the CHIMA.

The EIS will include additional details and requirements.

## 3.12 Socio-economic Conditions

### *3.12.1 Existing Environment*

At a regional scale, the Central Highlands region, including Emerald and Capella, experiences a low unemployment rate that falls below the State-wide and national rates. Notably, households in the Central Highlands region, including Emerald and Capella, experience a significantly higher income, however, similar expenditure when compared to state-wide and national data. The major employer in the region is coal mining with almost 20 % of the workforce being employed.

The demand for metallurgical coal continues to remain strong and is expected to remain strong due to industrial growth globally. Steel is also a major component of decarbonisation technologies, and this is expected to continue to drive metallurgical coal demand for a significant period. The development of the Project is therefore considered necessary to meet the current demand from this market. The Central Highlands region currently supports coal mining and is expected to support the Project.

### *3.12.2 Potential Impacts*

Section 2.8 identifies the significant economic contributions the Project will provide. The Project will result in significant economic benefits, including:

- Continuing the full-time permanent employment of up to approximately 750 people for an additional 20 years during operations;
- Economic stimulus to the regional, state and national economies during the Project;
- Flow-on effects and indirect benefits to the local and regional economies;
- Potential for development or expansion of new or established businesses in the local area and surrounds; and
- Payment of significant royalties to the State and other tax payments. The Project is expected to contribute $1.82 billion (total, undiscounted) in coal royalties and $173 million (total, undiscounted) in payroll tax revenue to the Queensland Government.

The Project may have a range of beneficial and adverse social impacts within the community, including the following examples:

- Continued employment and training opportunities;
- Continued injection of wealth into the local and regional economies;
- Land use changes;
- Potential amenity impacts (air quality, noise, vibration and visual); and
- Potential impacts on social cohesion.

Potential impacts will be considered during the EIS process. This will consider contributions at the local, regional and National levels.

### *3.12.3 Management Considerations*

As the Project does not involve any major surface construction activity, there is not expected to be any considerable additional workforce required. It is expected that current operational workforce arrangements will continue for the Project, however, additional workforce numbers are being considered during the EIS process. As such, additional accommodation facilities are being explored

should they be required. The EIS will address social and economic benefits and impacts in more detail in Chapter 19 – Social and Chapter 20 – Economics respectively.

## 3.13 Traffic and Transport

### *3.13.1 Existing Environment*

Major road transport routes in the vicinity of the Project are the Gregory Highway, located to the west, and the Capricorn Highway, located to the south. The Blackwater System rail spur line is located within the Project area.

Several minor roads and private unsealed roads and tracks are also located within the Project area including, Lilyvale Road.

Current reserves underly part of the local government area authorised Lilyvale Road, and the Kestrel South mine access road, which are both sealed roads, with heavy vehicle traffic.

The routes used by the Project will be the same as the existing routes used by Kestrel Mine.

The Kestrel rail network is serviced via Aurizon and Pacific National. Product coal is railed approximately 370 km to the RG Tanna Coal Terminal at the port of Gladstone.

### *3.13.2 Potential Impacts*

The Project is not anticipated to generate an increase in traffic volumes on the adjacent road network. Therefore, it is expected that the Project will have a non-material impact of the operation of the relevant State-controlled roads and local road networks. The existing access facilities and routes used for the Kestrel Mine will be suitable for the Project.

It can be expected that subsidence will occur with mining, with potential to impact both Lilyvale Road and the Kestrel South mine access road. Assessment of potential impacts to these roads will be undertaken as part of the EIS process, with management options being to relocate or actively manage the roads during subsidence. Notably, Lilyvale Road is a road also used by adjacent mines and neighbours, as well as a regional travel route to the east.

With incorporation of the Project, Kestrel will continue to generate a similar production output to the current operation, therefore no changes to the existing rail network or port arrangements are expected to be required.

Given there will be no material changes to the existing workforce, and that the construction workforce will be sourced largely from local suppliers wherever possible, no material changes to air travel requirements are expected.

Further to this, an assessment of the impact of the Project on the road, rail and shipping networks will be undertaken and prepared during the EIS process.

### *3.13.3 Management Considerations*

The Project is not expected to generate any increase in traffic volumes on the adjacent road network.

As a result of subsidence, and based on the current conceptual mine plan, Lilyvale Road may be impacted for a distance of up to 8 km and will require early engagement and agreed mitigation works to re-establish. Kestrel would be seeking to ensure that management and mitigation would be appropriate to handle any impacts associated with subsidence of the roads, however, also acknowledge that any requirement to relocate the existing road would require a compensation agreement with Council and private landholders. The existing agreement with Council may also need to be updated to allow for the ongoing road maintenance for an extended period.

Any traffic and transport management measures will be included in the EIS.

## 3.14 Hazard, Risk and Safety

### 3.14.1 Existing Environment

Kestrel has created a well-established coal mining operation. Hazards and risks identified are managed in accordance with Kestrel's Safety and Health Management System (SHMS). Kestrel's existing SHMS will continue to be used and updated to include any identified changes due to the Project.

Prior history, routine sampling and testing indicates that the German Creek seam has a medium to high potential for spontaneous combustion with minor incidences of spontaneous heating in underground roadway pillars and surface stockpiles. The stockpile heating events have occurred usually following a six-to-eight-month incubation time.

The Project's underground environment has a low potential for incendive sparking with low levels of silica in the immediate roof strata. Up to recently (2020) there had been no reported incidences of frictional ignitions at Kestrel Mine. However, on occasions while traversing fault impacted strata the shearer was required to cut higher into the roof stone than normal with a result of frictional ignition events (small ignition of gas at the face). While none of the incidents resulted in personnel injury or equipment damage, procedural changes were required to mitigate this issue and prevent future occurrence. The initial measures were to reduce cutting speed and increase capacity of gas pre-drainage, particularly from the Corvus seam that is 14-20 m above the German Creek seam.

Kestrel reports low incidences of operator exposure to coal dust, silica, and diesel particulates. It is highlighted that monitoring procedures have increased in recent years due to recent detections in the industry of pneumoconiosis.

### 3.14.2 Potential Impacts

The Project will use existing SHMS and operational systems to mitigate hazards, risk and ensure safety. Where identified, through risk-based processes, that specific hazards relating to the Project exist, then changes will be included in the SHMS system. Mining hazards related to underground coal mining in general include mine collapse, coal burst, coaldust/gas explosion, spontaneous combustion, frictional ignition, wind blasts, outbursts, inrushes, diesel particulates and respirable dust.

### 3.14.3 Management Considerations

An assessment which will review hazards and risks associated with the Project will be prepared during the EIS process. The assessment will recommend management and mitigation measures considering both on-site and any off-site risks.

## 3.15 Matters of National Environmental Significance

The Project was determined to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 23 June 2024 with controlling provisions being:

- World Heritage properties (Sections 12 and 15A)
- National Heritage places (Sections 15B and 15C)
- Listed threatened species and communities (Sections 18 and 18A)
- Great Barrier Reef Marine Park (Sections 24B and 24C)
- A water resource, in relation to unconventional gas development and large coal mining development (Sections 24D and 24E)

### 3.15.1 Threatened Ecological Communities

The EPBC Act Protected Matters Search Tool identifies the presence of TECs and Listed Threatened and Migratory Species within the proposed Kestrel West Extension area. Several TECs were identified within the area:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) – Endangered;
- Natural Grasslands of the Queensland Central Highlands and norther Fitzroy Basin – Endangered;
- Poplar Box Grassy Woodland on Alluvial Plains – Endangered; and
- Weeping Myall Woodlands – Endangered.

As identified in Section 3.6.1, two TECs were identified within the Mine Extension Area as part of the field surveys:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) vegetation community (represented by RE 11.3.1 and 11.4.9), and
- Natural grasslands of the Queensland Central Highlands and the Northern Fitzroy Basin (represented by RE 11.8.11).

### 3.15.2 Threatened Flora and Fauna

The field surveys and investigations have confirmed the following protected flora and fauna as potential, likely or known to occur within the Project area, including:

- King blue-grass – Endangered;
- Bluegrass – Vulnerable;
- Koala – Endangered;
- Ornamental snake – Vulnerable; and
- Squatter Pigeon (Southern) – Vulnerable.

### 3.15.3 Migratory Species

The EPBC Act Protected Matters Search Tool identified nine (9) listed migratory species with the potential to occur within the area. One migratory fauna species was recorded consisting of Rufous fantail. Two other species are likely to occur, being the:

- Fork-tailed Swift; and
- Satin Flycatcher.

A MNES impact assessment will be undertaken and will identify actions to avoiding, mitigating and managing potential impacts where possible.

### 3.15.4 A Water Resource, in relation to Large Coal Mining Development

Part 3 of the EPBC Act considers whether an action may have a significant impact on a water resource, in relation to coal seam gas development and large coal mining development (Sections 24D and 24E). A number of surface water and groundwater studies have been undertaken to inform Kestrel in relation to the EPBC Water Trigger. The EIS will provide more detail in Groundwater, Surface Water and Ecological studies which are currently underway to support development of the EIS.

## 3.16 Cumulative Impacts

The Project area is adjacent to the Crinum underground mine and the Gregory open cut mine. Approximately 20 km to the south-east is the Ensham Coal Operations. Crinum mine is a historical and active coal mine accessing metallurgical coal via open pit and underground. The Kestrel Mine and the Crinum mine are believed to be hydraulically linked within 50 m proximity of historical Kestrel north 100 series workings and the Crinum south workings. Current Kestrel mining horizons lay downgradient of Crinum workings and receive goaf flow from the Crinum mine site.

Moving into the Project, any impact from this interaction is expected to lessen. The Project is higher in elevation than the rest of the Kestrel Mine and sits near to the top of the German Creek coal seam.

An indirect point of interaction with Crinum exists in maintaining dewatering at the base of Kestrel South drift access as the primary access into Kestrel West. The base of drift lays at a lower elevation and will receive a component of flow from elevated pressure heads to the historical goafs to the north.

The known direct connection between the Kestrel Mine and Crinium mines is why groundwater modelling is undertaken as a joint model between the two sites, and mine water management will require ongoing consideration of the wider system during operation and closure planning.

There are also likely to be some cumulative impacts associated with air quality, noise and lighting. These impacts will be assessed during the EIS process. The EIS will provide more detail in Chapter 25 – Cumulative Impacts for the Project.

# 4. ENVIRONMENTAL MANAGEMENT SYSTEMS AND PLANS

## 4.1 Environmental Management System

Kestrel is in the process of developing an ISO 14001 aligned EMS. Kestrel currently operates with its own management system in place and has been doing so since operations commenced.

The EMS is expected to be utilised for the Project and will guide the monitoring and review process with the aim to continually improve environmental performance during the operations.

Kestrel will continue to employ a team of qualified environmental personnel to monitor compliance with the relevant legislation, approvals and planning frameworks and to ensure operations are carried out in accordance with the current management processes and future EMS.

## 4.2 Environmental Management Plans

Existing environmental management plans for the Kestrel will be updated to include the Project. These management plans include:

- Subsidence Management Plan;
- Water Management Plan;
- CHIMA;
- PRCP (submitted for approval);
- Erosion and Sediment Control Plan; and
- Hazmat Management Plan.

The plans will be updated in consultation with relevant stakeholders and utilised for the day-to-day management of the Project.

# 5. COMMUNITY AND STAKEHOLDER CONSULTATION

A comprehensive consultation program will be undertaken for the Project. The program will continue throughout the EIS process and feedback received will be assessed and integrated into the environmental impact planning phase of the Project.

The program will be undertaken with all affected and interested persons as defined under sections 38 and 39 of the EP Act. A summary of affected and interested persons and their contact details has been provided to DESI.

A consultation plan which includes stakeholder groups, proposed methods of engagement, objectives, and broad consultation program is shown in Table 5-1. The EIS will address Stakeholder Consultation in more detail in Chapter 4 – Stakeholder Consultation.

## Table 5-1 Consultation Plan

| Affected and Interested Parties | Methods of consultation | Objectives of Consultation | Consultation Actions / Timing |
|---|---|---|---|
| Affected Landowners | • Face-to-face meetings<br>• Community consultation<br>• Newsletters via email<br>• Website updates and accessing documents | • Raise awareness and understanding of the Project<br>• Discuss potential impacts/benefits of the Project<br>• Understand landowners' concerns<br>• Provide landowner feedback to Project planners including comments on the draft terms of reference and the advertised EIS<br>• Provide feedback to landowners on their concerns and proposed mitigation measures | • A Kestrel West information stand was in place for the June 2023 Ag Grow event held in Emerald.<br>• Landholder face to face Project meetings commenced in 2022 with an average of 2 discussions held with nearby landholders per year. These meetings will continue as required throughout the EIS process.<br>• Specific additional meetings will be held with directly affected parties in relation to any compensation commitments.<br>• Newsletters have been emailed to landholders an average of twice per year and will continue<br>• A project webpage will be established on Kestrel's website in June 2024 and will incorporate all newsletters and current documents for consultation (e.g. draft terms of reference, controlled action decision etc).<br>• The draft terms of reference will be sent to landholders for comment in approximately July 2024 and the draft EIS in H1 2025 |

| Affected and Interested Parties | Methods of consultation | Objectives of Consultation | Consultation Actions / Timing |
|---|---|---|---|
| Western Kangoulu People (WK) | • On-country site visits and tours<br>• Face-to-face meetings<br>• Community consultation<br>• Newsletters via email<br>• Website updates and accessing documents | • Raise awareness and understanding of the Project<br>• Discuss potential impacts/benefits of the Project<br>• Understand WK's concerns<br>• Provide feedback to Project planners including comments on the draft terms of reference and advertised EIS<br>• Provide feedback to WK on their concerns and proposed mitigation measures | • Project meetings with the WK have been ongoing since 2021 and include regular updates through the Cultural Heritage Consultation Committee<br>• Face to face meetings will continue with WK throughout the EIS process<br>• A Project webpage will be established on Kestrel's website in June 2024 and will incorporate all newsletters and current documents for consultation (e.g. draft terms of reference, controlled action decision etc).<br>• The draft terms of reference will be sent to landholders for comment in approximately July 2024 and the draft EIS in H1 2025 |
| Local/State/Commonwealth Government departments with key regulatory responsibility | • Face-to-face meetings<br>• Website updates and accessing documents<br>• Community consultation<br>• Newsletters via email | • Raise awareness and understanding of the project<br>• Discuss potential impacts/benefits of the Project<br>• Understand government's concerns<br>• Provide government feedback to Project planners including the draft terms of reference and advertised EIS<br>• Provide feedback to government on their concerns and proposed mitigation measures | • Project meetings with DESI were held in 2022, 2023 and 2024, and included:<br>▪ Project introduction (prelodgement meetings)<br>▪ Voluntary EIS application<br>• Project meetings with DCCEEW were held in Q2 2023 and Q1 2024 and included:<br>▪ Project introduction (prelodgement meetings)<br>▪ Referral application<br>• Project meeting was held with DOR in Q1 2023 and Project updates have been incorporated |

| Affected and Interested Parties | Methods of consultation | Objectives of Consultation | Consultation Actions / Timing |
|---|---|---|---|
| | | | • into general meetings through 2023 and 2024 and included:<br>▪ Project introduction (MLA process meeting)<br>▪ General updates<br>• Face to face meetings with government will continue throughout 2024 and beyond, and will include:<br>▪ Draft terms of reference<br>▪ Final terms of reference<br>▪ EIS development and findings/proposed mitigation measures<br>▪ Mining Lease Application<br>▪ Environmental Conditioning<br>• The draft terms of reference will be sent to relevant government departments (refer Affected and Interested Persons list provided separately) for comment in approximately July 2024 and the draft EIS in H1 2025 |

| Affected and Interested Parties | Methods of consultation | Objectives of Consultation | Consultation Actions / Timing |
|---|---|---|---|
| Central Highlands Regional Council<br><br>State/Federal Members of Parliament (MP) | • Face-to-face meetings<br>• Newsletters via email<br>• Website updates and accessing documents<br>• Community consultation | • Raise awareness and understanding of the Project<br>• Discuss potential benefits/impacts of the Project<br>• Understand Council's/MP's concerns<br>• Provide Council's/MP's feedback to Project planners including the draft terms of reference and the advertised EIS<br>• Provide feedback to Council/MPs on concerns / benefits and proposed mitigation measures | • Project update meetings with the Council and government MPs have been ongoing since 2021<br>• Further Project EIS update meetings will continue throughout the EIS process<br>• The draft terms of reference will be sent for comment in approximately July 2024 and the draft EIS in H1 2025 |
| Other State Government supporting advisory bodies | • Newsletters via website<br>• Website updates and accessing documents<br>• Community consultation | • Raise awareness and understanding of the Project<br>• Discuss potential impacts/benefits of the Project<br>• Understand government's concerns<br>• Provide government feedback to Project planners including comments on the draft terms of reference and advertised EIS<br>• Provide feedback to government on their concerns and proposed mitigation measures | • Feedback will be requested from advisory bodies for:<br>▪ the draft terms of reference when advertised around July 2024<br>▪ the draft EIS when advertised in H1 2025 |

| Affected and Interested Parties | Methods of consultation | Objectives of Consultation | Consultation Actions / Timing |
|---|---|---|---|
| | | | |
| Non- Affected landowners | • Newsletters via website<br>• Website updates and accessing documents<br>• Community consultation | • Raise awareness and understanding of the Project<br>• Discuss potential impacts/benefits of the Project<br>• Understand landowners concerns<br>• Provide feedback to Project planners including comments on the draft terms of reference and advertised EIS<br>• Provide feedback to landowners on<br>• their concerns and proposed mitigation measures | • A Kestrel West information stand was in place for the 2023 Ag Grow event held in Emerald.<br>• Additional community consultation will be undertaken at selected public forums for interested parties not specifically identified in the current engagement plan<br>• The draft terms of reference will be sent to landholders for comment in approximately July 2024 and the draft EIS in H1 2025 |
| Central Highlands Development Corporation (CHDC) | • Face-to-face meetings<br>• Newsletters via email<br>• Fact sheets<br>• Website updates and accessing documents<br>• Community consultation | • Raise awareness and understanding of the Project<br>• Discuss potential business and social benefits/impacts of the Project<br>• Understand CHDC's concerns<br>• Provide CHDC's feedback to Project planners including comments on the draft terms of reference and advertised EIS | • A Project discussion session was held in 2022 and updates are provided as part of the CHDC Major Projects register. Kestrel West is included as a project on the current register.<br>• Further consultation will be undertaken with CHDC throughout the EIS process.<br>• A Project webpage will be established on Kestrel's website in June 2024 and will incorporate all |

| Affected and Interested Parties | Methods of consultation | Objectives of Consultation | Consultation Actions / Timing |
|---|---|---|---|
| | | • Provide feedback to CHDC on any concerns and proposed mitigation measures | newsletters and current documents for consultation (e.g. draft terms of reference, controlled action decision etc).<br>• The draft terms of reference will be sent to CHDC for comment in approximately July 2024 and the draft EIS in H1 2025 |
| Other Interested Parties | • Newsletters via website<br>• Website updates and accessing documents<br>• Community consultation | • Raise awareness and understanding of the Project<br>• Discuss potential impacts/benefits of the Project<br>• Understand community and any interest group's concerns<br>• Provide community and interest group's feedback to Project planners including comments on the draft terms of reference and advertised EIS<br>• Provide feedback to community and interest groups on their concerns and proposed mitigation measures | • A Kestrel West information stand was in place for the June 2023 Ag Grow event held in Emerald.<br>• Additional community consultation will be undertaken at selected public forums for interested parties not specifically identified in the current engagement plan<br>• A project webpage will be established on Kestrel's website in June 2024 and will incorporate all newsletters and current documents for consultation (e.g. draft terms of reference, controlled action decision etc).<br>• Community consultation will be undertaken in Emerald when:<br>▪ the draft terms of reference are advertised expected in approximately July 2024<br>▪ the draft EIS is advertised in H1 2025 |

# 6. REGULATORY APPROVALS PROCESS

## 6.1 Overview

The Project was approved by DESI on 5 March 2024 to be assessed under a voluntary Environmental Impact Study (EIS) process under the *Environmental Protection Act 1994*. The Project was also determined to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 23 May 2024 with controlling provisions being:

- World Heritage properties (Sections 12 and 15A)
- National Heritage places (Sections 15B and 15C)
- Listed threatened species and communities (Sections 18 and 18A)
- Great Barrier Reef Marine Park (Sections 24B and 24C)
- A water resource, in relation to unconventional gas development and large coal mining development (Sections 24D and 24E)

The EIS for the proposed project will be jointly assessed under the *Environmental Protection Act 1994* (EP Act) and the Commonwealth's EPBC Act using the EIS process under the EP Act in accordance with the assessment bilateral agreement between the Australian Government and the State of Queensland.

## 6.2 EIS Process and Environmental Authority

An application to prepare a voluntary EIS has been approved by DESI and the Project has been declared a Controlled Action by the Commonwealth government. The next stage of the EIS approval process is to prepare a Terms of Reference (TOR) for the EIS which will operate under a bilateral agreement between the State of Queensland and the Commonwealth. A draft TOR has been prepared and will be advertised. Submissions can be made by regulators, interested and affected parties and members of the public. Following feedback, a final TOR will be issued to the proponent by DESI to guide the preparation of the EIS for the Project.

The EIS will be prepared by specialist consultants to meet the requirements of the TOR and will assess the baseline environment, impacts and determination of the proposed mitigation and management measures.

The EIS will then be advertised and the proponent will be required to address any submissions made on the EIS. The EIS process will be completed following the issuing of an EIS Assessment report prepared by DESI which takes into account information contained in the EIS, submissions made regarding the EIS, and the proponent's responses to those submissions. The EIS Assessment report will provide recommendations about the suitability of the Project and provide recommended conditions that will form part of the EA.

Following completion of the EIS Assessment Report, the proponent will then lodge an EA amendment application and a mining lease application.

## 6.3 Key Approvals

The Project will be subject to a range of approval requirements under both Commonwealth and Queensland State legislation. The following key approvals will be required for the Project:

- Commonwealth approval under the EPBC Act;
- A mining lease approval under the *Mineral Resources Act 1989 (Qld)* (MR Act) for that part of MDL 182 that is included in the Project area. An ML application will be required to be submitted to the Department of Resources;
- An EA amendment under the EP Act; and
- A Regional Interest Development Approval under the *Regional Planning Interests Act 2014 (Qld)* (RPI Act) with the Project area being mapped as a strategic cropping area.

A high-level approvals assessment is provided in Table 6-1. Note that is not a definitive list and any further secondary approvals will be confirmed during the EIS process.

**Table 6-1 Approvals Summary**

| Act | Administering Authority | Approval | Approval Trigger | Relevance |
|---|---|---|---|---|
| **Commonwealth Legislation** | | | | |
| EPBC Act | DCCEEW | EPBC Act Referral | The Project has been declared a 'controlled action' requiring approval under the EPBC Act. | Approval from DCCEEW will be required under a Bilateral Agreement between the Commonwealth and the State of Queensland under section 45 of the EPBC Act relating to Environmental Assessment. |
| NT Act | National Native Title Tribunal | Right to Negotiate | Acts or dealings in relation to land and waters that affect native title need to comply with the NT Act to be validly done.<br>A registered native title claim gives a native title party certain procedural rights with applicants regarding the grant of mining authorities for the areas covered by the claim. | A Section 31 Ancillary Agreement and a CHIMA with the Western Kangoulu People are in place, several surveys have been undertaken on as needs basis. |
| **State Legislation** | | | | |
| EP Act | DESI | EA Amendment Application | To authorise the proposed mining activities within the Project area. An amended EA is required to conduct ERAs identified within the Environmental Protection Regulation 2019. | An application under the EP Act will be required to obtain an amended EA for the Project.<br>The application to amend the existing EA will be assessed as a 'major amendment' |
| | | Standard Criteria | Required to be addressed as part of the EIS approval process | EIS will these criteria in Chapter 3 - Approvals |
| *Aboriginal Cultural Heritage Act 2003* | Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts | CHMP | Part 7 of the ACH Act requires a CHMP be entered into if an EIS is required. | A CHIMA between the Western Kangoulu Parties and the Kestrel Owners was finalised on 16 July 2018. It has been agreed between the parties to the CHIMA that the CHIMA constitutes a voluntary (but approved) CHMP. The CHIMA was approved by the Chief Executive as a CHMP on 16 July 2018 (CLH018013). |
| MR Act | Department of Resources | Mining Lease | Granting of a new ML is required under the MR Act. | Coal mining and production and associated activities including processing and |

| Act | Administering Authority | Approval | Approval Trigger | Relevance |
|---|---|---|---|---|
| | | | | rehabilitation must be conducted within a ML. Accordingly, to mine in the Project area of MDL 182, a ML must be obtained. |
| RPI Act | Department of State Development, Infrastructure, Local Government and Planning | Regional Interests Development Approval | This approval is required when a resource or regulated activity is proposed in an area of regional interest. | The Project area is mapped within strategic cropping areas (SCA). If the resource activity is to occur within an area of regional interest, and an exemption does not apply, a Regional Interests Development Approval will be required. |
| NC Act | DESI | Species Management Program | Clearing of species breeding habitat. | A Species Management Program may be required. This will be confirmed during the EIS process. If needed this will be prepared in accordance with section 335 of the Nature Conservation (Animals) Regulation 2000 for approval by the DES prior to tampering with an animal breeding place. |
| NC Act | DESI | Vegetation Clearing Permits | Protected plant clearing permit' is required if:<br>• the area is within a 'high risk area'; or<br>• the proponent is aware of any EVNT species within the area to be cleared.<br>If an area to be cleared is not identified on a flora survey trigger map as a high-risk area, a flora survey is not required. | The Project may be required to obtain a clearing permit to authorise the clearing of EVNT species under the NC Act. This will be confirmed during the EIS process. |
| *Water Act 2000* | Department of Resources | Water allocation or water licence – use and take of surface water or groundwater | Under Section 334ZP of the MR Act the holder of a ML may take or interfere with underground water in the area of the ML if the taking or interference happens during the course of, or results from, the carrying out of an authorised activity for the ML (associated water). | If associated water is taken under the general authorisation under section 334ZP of the MR Act, Kestrel is required to measure and report on the volume of associated water taken (including by evaporation if relevant) using the Queensland Digital Exploration Reports System within 21 days of the reporting period. |
| | Department of Resources | Riverine Protection Permit | A 'Riverine protection 'permit' may be required for activities that involve excavation or | Exemption to this requirement applies where excavation or |

| Act | Administering Authority | Approval | Approval Trigger | Relevance |
|---|---|---|---|---|
| | | | placing filling a watercourse, lake or spring. | placing fill in watercourse, lake or spring is authorised under Environmental Authority. |

# 7. REFERENCES AND DATA SOURCES

Bureau of Meteorology (BoM) 2024a, Climate Statistics for Emerald Airport (035264), Climate Data Online. Accessed 12 January 2024 at http://www.bom.gov.au/climate/averages/tables/cw_035264.shtml

BoM 2024b, Daily Rainfall Statistics for Lucknow (035221), Climate Data Online. Access 18 January 2024 at http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=136&p_display_type=dailyDataFile&p_startYear=&p_c=&p_stn_num=035221

Department of Environment and Science (DES) 2022, Land—EIS information guideline, ESR/2020/5303, Queensland Government, Brisbane.

DES and DNRME 2020, Queensland Land Resource Assessment Guidelines – Volume 2: Field tests. Version 1.0,October 2020, Department of Environment and Science and Department of Natural Resources, Mines and Energy, Brisbane, Queensland.

DES 2019a, Climate change in the Central Queensland Region, version 1, Queensland Government, Brisbane, https://www.qld.gov.au/__data/assets/pdf_file/0020/68141/central-qld-climate-change-impact-summary.pdf.

DES 2019b, Land use mapping – 1999 to Current – Queensland, http://www.qld.gov.au/environment/land/vegetation/mapping/qlump/

Department of Resources 2023, 'Matters of state environmental significance - Regulated vegetation map – version 6.13', accessed from <https://qldspatial.information.qld.gov.au/catalogue/>.

Department of Resources 2024, 'Vegetation management regulated vegetation management map - version 7.01', accessed from <https://qldspatial.information.qld.gov.au/catalogue/>.

Matrix+ 2006, Hydrogeology assessment – Kestrel Mine extension, report prepared for Rio Tinto Coal Australia Pty Limited.

Sattler, P & Williams, R 1999, The Conservation Status of Queensland's Bioregional Ecosystems, R Sattler, P., Williams (ed), Environmental Protection Agency, Queensland Government, Brisbane.

State of Queensland 2013, Regional Land Suitability Frameworks for Queensland, Chapter 10– Suitability Framework for the Inland Fitzroy and Southern Burdekin area, Department of Science, Information Technology and Innovation and Department of Natural Resources and Mines, Queensland Government Brisbane

# APPENDIX A KESTREL COAL RESOURCE POLICIES

KESTREL COAL RESOURCES

# SAFETY, HEALTH and WELLNESS POLICY

**Kestrel is committed to transparent and ethical management for effective safety. We invite anyone with concerns to speak up and speak out.**

**At Kestrel we believe in our people and care about their potential. We believe everybody needs to be well at work, and go home well every day.**

**Kestrel is committed to providing a work environment where everyone engages and participates in achieving our vision.**

## To achieve this we will:

- Support health, safety and wellness of our people in providing safe and healthy working conditions, and maintain an open reporting culture focussed on safety outcomes without fear of reprisal.
- Undertake our roles with diligence under legislation and as colleagues to prevent injury and ill-health, to demonstrate duty of care for ourselves and each other.
- Ensure clear communication, consultation and reporting lines across all levels of Kestrel and stakeholders.
- Build proactive, strong and supportive culture through engagement and visible leadership at all levels.
- Provide training to maintain competency for our people in safe operations, hazard identification and awareness, risk assessment and management, communication and situation response.
- Minimise potential for harm through our safety and health management system: with proactive elimination of hazards, reduction of risk, planning of work, integration of compliance processes and statutory obligations.
- Engage through practical, effective management and assurance systems, using tools to ensure fit for purpose standards, training and work practices.
- Seek out and implement continuous improvement through investigation learnings and reviews, industry benchmarking, leading practice and consultation to reduce work-related injury and illness.

Shane Hansen
Chief Executive Officer
Kestrel Coal Resources
8 June 2020

KESTREL COAL RESOURCES

# SUSTAINABILITY and CLIMATE CHANGE POLICY

**Kestrel is committed to creating enduring value for our stakeholders through responsibility, transparency, respect, diversity, material risk management and awareness.**

At Kestrel we recognise sustainability is critical to maintain resilience and in the creation of enduring value for all our stakeholders:

1) Stewardship of our workforce, environment, community, supply chain labour and people we interact with.
2) How we utilise resources and energy to create value.
3) What we plan and do today to be ready for the future.

***To achieve this we will:***

- Engage with our stakeholders at all levels through consultation, shared goals, mutually beneficial partnerships, meeting our agreements and providing robust, ethical reporting.
- Be a trusted partner with our community, and play our part in regional and Indigenous support and development.
- Establish and verify goals and practices to encourage and achieve a diverse, inclusive, healthy and safe workplace and eliminate any form of discrimination or bullying.
- Respect and support human rights, and ensure that Kestrel does not participate or be associated with any activity which violates human rights, including freedom for open collective bargaining, abolition of forced or compulsory labour including child labour.
- Fight against all forms of corruption or unethical advantage, extortion and bribery.
- Ensure transparency for corporate governance and compliance to applicable laws and regulations, and maintain high standards of financial and ethical behaviour.
- Continuously evaluate and manage risk and opportunity to identify areas of materiality to minimise potential of harm or loss, or opportunities to drive change and business improvement.
- Be responsible, proactive and responsive as a leader in environment performance.
- Apply foresight and planning in decision making: including forecasts and analysis, scenario planning and scanning to identify shifting trends and signals of change.
- Mobilise governance of climate change and energy risk into strategic planning: including projection of carbon emissions and reduction targets, integration of renewables and innovative technologies, and continual waste and resources efficiency programs.

Shane Hansen
Chief Executive Officer, Kestrel Coal Resources
15 October 2020

KESTREL COAL RESOURCES

# ENVIRONMENT and LAND POLICY

**Kestrel is committed to excellence and continual improvement in environment and land performance, being a good neighbour and minimise impacts for people and planet.**

Kestrel recognises our responsibility in the shared values of land, water, habitats, ecosystems, people and resources we interact with.

We operate in an ancient and shared landscape, and we will respect heritage, connection to land, agriculture, biodiversity, livelihoods and environment values in everything we do.

Kestrel will be a good steward of resources entrusted to us, and our operation will create a constructive and sustainable legacy.

Kestrel will be an active, honest and valued partner in supporting the local way of life, cultures and regional community outcomes.

***To achieve this we will:***

- Proactively engage key stakeholders on plans, developments and opportunities in an open and transparent manner, and effectively report progress and performance.
- Implement effective risk management processes and systems based on sound science to address risk, including emergency, nuisance and legacy.
- Ensure managed design, disturbance and progressive rehabilitation to respect land values and flora/fauna to minimise impacts throughout mine life for effective mine closure in land use and productivity, heritage, landforms, environment health and water quality.
- Implement water stewardship practice to bring robust and transparent water governance, safe, efficient water use, recycling/reuse and sustainable water management.
- Effectively manage tailings to the Global Industry Standard on Tailings Management (GISTM), and ensure quality of management in construction, operation and closure.
- Contain and minimise potential contamination and pollution sources to prevent or manage any releases or waste to minimise potential for harm.
- Conserve biodiversity, heritage, groundwater, riparian and land use values.
- Continuously improve energy efficiency and waste management, and adapting technology and innovations where possible. We will practice responsible product design, use, re-use, recycling and disposal.
- Lead industry practice with robust environment management systems at all stages of mine life, including exploration, operation, rehabilitation and closure.

Shane Hansen
Chief Executive Officer, Kestrel Coal Resources
08 October 2020

KESTREL COAL RESOURCES

# INDIGENOUS PEOPLES and HERITAGE POLICY

**Kestrel acknowledges Indigenous peoples as First Australians, and recognises their unique and long standing connection with the Country on which we operate.**

**Kestrels' relationship with Indigenous Peoples is centred on shared values of equality, respect, responsibility and honesty.**

**Kestrel is committed to partnering with Western Kangoulu (as Traditional Owners) and Indigenous peoples to achieve meaningful, sustainable outcomes in heritage, land management and social-economic prosperity.**

***To achieve this we will:***

- Recognise and respect the connection of Traditional Owners to Country.
- Value Traditional Knowledge and the significance of Indigenous cultural heritage in our nation's past, present and future.
- Expect awareness, understanding and respect of Indigenous people rights, cultures, values and heritage to be embedded across our workforce and activities.
- Promote constructive engagement and consultative processes to hear Indigenous voices. We will respect Indigenous protocols, values and governance, and consider Indigenous interests in our planning and decision making.
- Actively work with Traditional Owners and Indigenous communities to grow long-term, sustainable independent capacity through partnership, education, training, employment, business and supply chain opportunities.
- Implement and maintain formal agreements and management systems to support our legal and good faith obligations to protect significant Aboriginal cultural heritage.
- Seek to attract and retain employment of Indigenous peoples at all levels of our organisation, and value the contribution of Indigenous peoples in our workforce.
- Implement opportunities for meaningful and outcome-focussed social investment.

Shane Hansen
Chief Executive Officer, Kestrel Coal Resources
22 September 2020