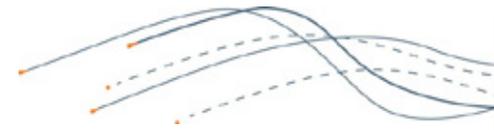


# Central Eyre Iron Project Mining Lease Proposal



## CHAPTER 1 INTRODUCTION



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# 1 Introduction..... 1-1

1.1	Iron Road Company Profile .....	1-1
1.1.1	History of the CEIP .....	1-3
1.1.2	Environmental Policy .....	1-4
1.2	Overview of the Proposed CEIP .....	1-4
1.2.1	Overview of Project Components .....	1-5
1.2.2	Overview of the Project Site and Locality .....	1-5
1.3	Statutory Approvals Process .....	1-7
1.3.1	State Approvals .....	1-7
1.3.2	Commonwealth Approvals .....	1-7
1.3.3	Objectives of the Mining Lease Proposal .....	1-7
1.3.4	Document Structure .....	1-8

## List of Figures

Figure 1-1	Comparison of Iron Ore Projects in South Australia .....	1-4
Figure 1-2	CEIP Location and Infrastructure Components .....	1-6

## List of Plates

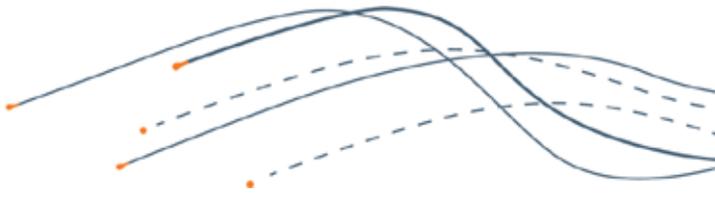
Plate 1-1	Exploration Activity at the Proposed CEIP Mine .....	1-3
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## List of Tables

Table 1-1	Company Contact Details .....	1-2
Table 1-2	Iron Road Board of Directors and Senior Management .....	1-2
Table 1-3	MLP Structure .....	1-8



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# 1 Introduction

Iron Road Limited (Iron Road) is proposing to develop a magnetite mining and minerals processing operation near Warramboo, approximately 25 km southeast of Wudinna on the Eyre Peninsula in South Australia. The proposed mine (CEIP Mine) is part of Iron Road's Central Eyre Iron Project (CEIP).

The proponent for the mining lease is IRD Mining Operations Pty Ltd (IRD Mining), a wholly owned subsidiary of Iron Road. All references to Iron Road in this Mining Lease Proposal (MLP) may be taken to refer to IRD Mining as well as Iron Road Limited.

The proposed mine is a collection of four iron occurrences (Murphy South, Rob Roy, Boo-Loo and Dolphin) within a centralised area of Iron Road's Exploration Licence 4849 (EL 4849) that covers an area of approximately 66,400 hectares. The proposed mining lease comprises an area of approximately 8,458 hectares over registered Mineral Claim (MC) 4383 and is the subject of this MLP.

Significant infrastructure is required to provide the logistics chain to enable export of the magnetite concentrate from the proposed mine to market. The required ancillary infrastructure is referred to as the CEIP Infrastructure and will be assessed separately under the *Development Act 1993* (SA) (Development Act). The CEIP Infrastructure includes:

- A deep water port facility at Cape Hardy on the east coast of the Eyre Peninsula
- A standard gauge railway line from the port site to the mine site
- A power supply transmission line
- A borefield and water pipeline
- A long-term employee village located adjacent to the town of Wudinna

This MLP is the principal supporting document for the mining lease application being submitted pursuant to the *Mining Act 1971* (SA) (Mining Act). This document presents the findings of the environmental, social, economic and cultural assessments undertaken to determine the potential impacts and benefits associated with the proposed mine from construction through to closure and site rehabilitation. The MLP has been developed in accordance with the requirements of Section 35 of the Mining Act, Regulation 30 of the *Mining Regulations 2011* (SA) and the Ministerial Determination 006 (South Australian Government Gazette 50: 3064-3077, 12 July 2012).

Iron Road commissioned Jacobs to prepare the MLP for the proposed mine with support from additional technical specialists where required. The full MLP study team is presented in Appendix A.

This chapter provides an introduction to Iron Road as the proponent, an overview of the CEIP, each of the project components and localities, a summary of the statutory approvals process and an outline of the MLP methodology and document structure.

## 1.1 Iron Road Company Profile

Iron Road, as the parent company of IRD Mining, is an Adelaide-based resource company which targets exploration, evaluation and development of iron ore projects in South Australia. Iron Road's vision is to become a trusted and reliable supplier of premium magnetite concentrates to the Asian marketplace, with its flagship project to achieve this vision being the CEIP. Contact details for Iron Road are provided below in Table 1-1.

**Table 1-1 Company Contact Details**

Contact Detail	Proponent Details
Applicant	IRD Mining Operations Pty Ltd
Contact Person	Andrew Stocks (Managing Director)
Address	Corporate Office: Level 6, 30 Currie Street, Adelaide 5000, SA Postal Address: GPO Box 1164, Adelaide 5001, SA
Contact Number	(08) 8214 4400
Email	admin@ironroadlimited.com.au

Iron Road listed on the Australian Securities Exchange (ASX) in June 2008 (ASX:IRD) and enjoys the strong support of its major shareholder, The Sentient Group (Sentient) which holds approximately 72.85% of Iron Road's shares on issue. Sentient is an independent private equity investment firm specialising in the global resources industry. The Chairman of Sentient, Mr Peter Cassidy, is also the Chairman of Iron Road. An overview of Iron Road's board of directors is presented in Table 1-2.

**Table 1-2 Iron Road Board of Directors and Senior Management**

Board Member	Position Held	Background
Mr Peter Cassidy	Non-executive Chairman	Co-founder and Chairman of Sentient, Chairman of Enirgi Group Corporation and a Director of Xinli Titanium. Previously established AMP Life's private equity division.
Mr Ian Hume	Non-executive Director	A founding partner of Sentient and a manager of closed end private equity funds specialising in global investments in the natural resources industries.
Mr Jerry Ellis	Non-executive Director	A former Chairman of BHP Ltd, has served on the boards of a number of listed companies and governing bodies including Newcrest Mining, Aurora Gold and Australia and New Zealand Banking Group.
Mr Leigh Hall	Non-executive Director	A highly experienced company director with a strong background in finance and investment from careers in AMP, investment oversight boards and securities industry organisations.
Mr Julian Gosse	Non-executive Director	A background in merchant banking, stockbroking and venture capital industries. Has more than 20 years' experience on the boards of various publicly listed companies.
Mr Andrew Stocks	Managing Director	Founding Director of Iron Road who has led the company from 2007, through the successful Initial Public Offer to the delivery of the \$100 million Definitive Feasibility Study.
Mr Larry Ingle	General Manager	A geologist with over 25 years' experience in the resources and engineering industry in southern Africa and Australia, encompassing underground mining, tunnelling, quarrying, mineral exploration, project development and business improvement.

### 1.1.1 History of the CEIP

Iron Road purchased EL 4849 (formerly EL 3699) from Adelaide Exploration Limited in June 2008. EL 4849 covers an area of approximately 663 km<sup>2</sup> on the central Eyre Peninsula and allows Iron Road to undertake exploration activities pursuant to the Mining Act and approved Programs for Environment Protection and Rehabilitation (PEPR).

Previous work undertaken by Adelaide Exploration included the drilling of six Reverse Circulation drill holes during 2000 and performing metallurgical test work on the samples collected.

Since acquiring the EL in 2008, Iron Road has undertaken nine staged resource drilling programmes with 511 holes drilled for a total of 161,000 m. The latest drilling programme was completed in October 2014 and included a total of 14 holes for 8,030 m. Prior to that programme commencing, the proposed mine had an estimated Mineral Resource of 3.7 billion tonnes of magnetite containing 16.0% iron, with a proven and probable reserve of 2,071 billion tonnes containing 15.5% iron.

On 27 February 2015, Iron Road announced to the market that the results of the most recent drilling programme added a further 819 million tonnes, taking the Mineral Resources up to 4.5 billion tonnes at a grade of 16% iron. In addition, the Measured and Indicated categories now make up to 3.5 billion tonnes or 77% of the overall Mineral Resource.

The results of the Definitive Feasibility Study (DFS) for the CEIP were released to the ASX in February 2014 and confirmed the feasibility of a simple process of magnetic separation producing 21.5 million tonnes per annum (Mtpa) of premium, high quality 67% iron concentrate for export from the mine site, based on an overall 25 year mine life.



Plate 1-1 Exploration Activity at the Proposed CEIP Mine

### 1.1.2 Environmental Policy

Iron Road is committed to managing the environmental and social components of the CEIP and the health and safety of their employees in an industry-leading manner. Iron Road’s Environmental Policy, which was revised in 2015 to align to the developing stages of the CEIP, outlines its commitment to providing a net benefit for the environment and communities within which Iron Road operates.

Iron Road’s Environmental Policy can be viewed at [www.ironroadlimited.com.au](http://www.ironroadlimited.com.au).

## 1.2 Overview of the Proposed CEIP

The proposed CEIP Mine will be South Australia’s largest iron ore project and the second largest resources project in the State’s history. A comparison of the CEIP Mine to other iron ore projects proposed within South Australia is presented in Figure 1-1. The concentrate to be produced is a magnetite concentrate, unlike the majority of iron ore projects which produce hematite. After upgrading, magnetite has a number of advantages over hematite, including high iron content, a low level of impurities and lower carbon emissions during the production of iron. As a result, the CEIP Mine will produce a premium and highly desirable product.

Benefits from the proposed mine (and associated infrastructure) will include positive impacts to the local, regional and state economy, providing an increase in employment opportunities during both the construction and operation phases and economic diversification in the Eyre Peninsula region. Improvements to regional infrastructure are also proposed and will potentially provide a catalyst for additional development on the Eyre Peninsula, resulting in further increased economic opportunities for the region.

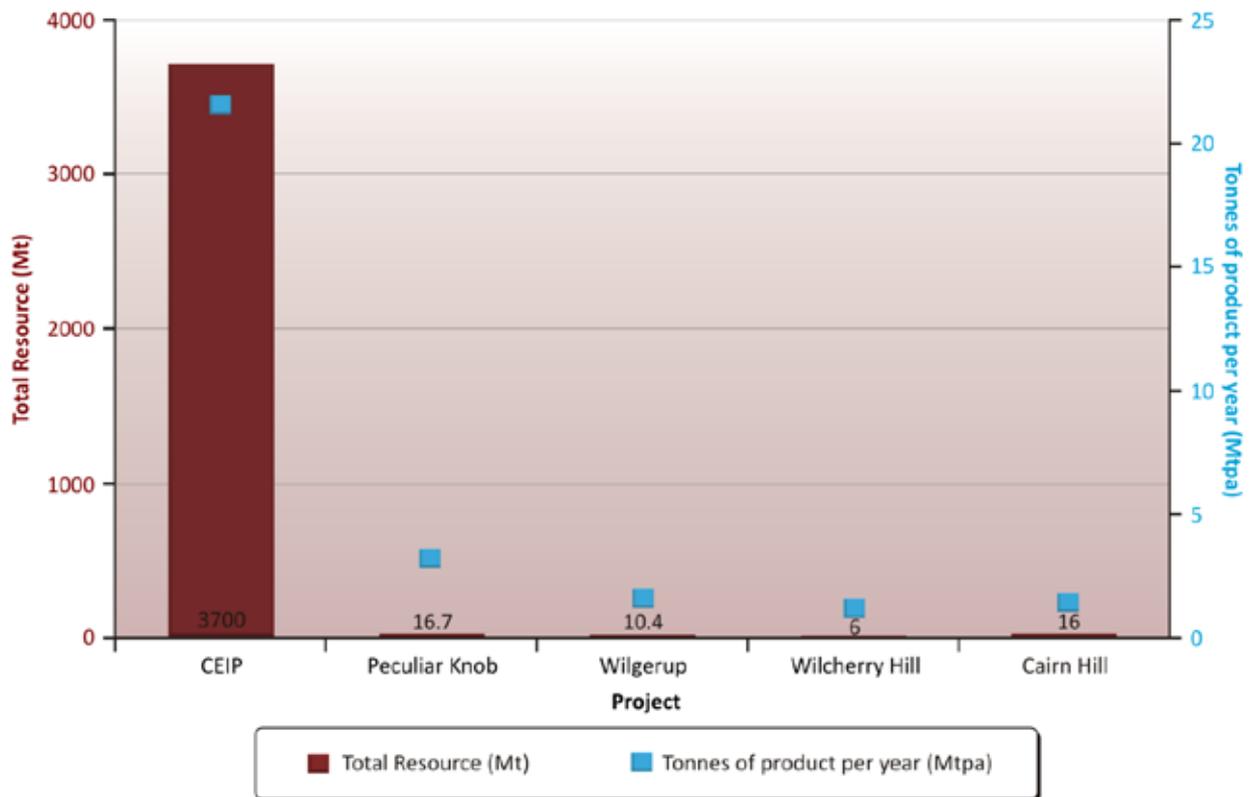


Figure 1-1 Comparison of Iron Ore Projects in South Australia

### 1.2.1 Overview of Project Components

A summary of each component of the CEIP Mine and CEIP Infrastructure is provided below. A detailed description of the proposed mining operations is provided in Chapter 3.

- **Mine:** The proposed mine will include an open pit excavation with an on-site processing plant and waste rock handling facility. The processing plant will comprise metallurgical facilities, crushing, grinding and milling facilities and tailings handling and retention. Waste rock and tailings will be combined into an integrated waste landform structure to be developed at the site. Magnetite concentrate will be loaded at the site via a rail loop and loading facility into covered, bottom-dumping wagons for transport to the port export facility at Cape Hardy. Additional onsite infrastructure at the proposed mine will include a small desalination plant for potable water supply, temporary and permanent camps for accommodation, workshops, warehouses and security and emergency services. Iron Road is seeking to develop two pits, being Murphy South and Boo-Loo.
- **CEIP Infrastructure:**
  - **Long-Term Employee Village:** Long-term accommodation for the mine site workforce is proposed to be located northeast of Wudinna within an area of approximately 5 ha.
  - **Infrastructure Corridor:** The proposed infrastructure corridor will connect the mine to the port at Cape Hardy. A railway line will span the entire length to transport magnetite concentrate from the mine to the port. The railway line will accommodate six return train movements per day. The northern part of the infrastructure corridor will also include a water borefield, water pipeline and power transmission line (which will run from the Yadnarie substation and join the corridor north of the Birdseye Highway) providing water and power to the mine.
  - **Port:** The port is proposed at a greenfield site approximately 7 km south of Port Neill in an area known as Cape Hardy. The site provides a natural deep water location with no dredging required. The shiploader will have a capacity of 70 Mtpa leaving substantial capacity available for third party users. The port is designed to support Panamax and Capesize vessels, with a 1.3 km jetty and wharf structure that incorporates a tug harbour and module off-loading facility.

### 1.2.2 Overview of the Project Site and Locality

The Eyre Peninsula is bounded by the Spencer Gulf to the east, the Great Australian Bight to the west and the Gawler Ranges to the north. The region has a Mediterranean climate, with warm, dry summers and cool, wet winters. The geographical relief of the Eyre Peninsula is undulating and low, with most areas less than 150 m above sea level, peaking in the Gawler Ranges north of Wudinna at approximately 500 m. A large proportion of land on the Eyre Peninsula has been cleared of native vegetation for agricultural purposes, predominately broad-acre cropping and grazing. Significant areas of native vegetation which remain intact are generally restricted to conservation reserves.

The large regional centres of Whyalla, Port Lincoln and Ceduna are located at each corner of the triangular Eyre Peninsula. Whyalla is the second largest regional town in South Australia, with a population in excess of 22,000 people, built on resource processing and manufacturing. Port Lincoln is the second largest town on the Eyre Peninsula with a population of approximately 14,000, based on the fishing and aquaculture industries and as an export hub for agriculture. Within the central Eyre Peninsula, Cummins, Cleve, Kimba, Lock and Wudinna are primarily agricultural service centres, with Wudinna also providing a gateway to the Gawler Ranges tourism region (RDA Whyalla and Eyre Peninsula 2012).

As depicted in Figure 1-2, the proposed CEIP Mine is located near Warrambo, approximately 25 km southeast of Wudinna and approximately 315 km northwest of Adelaide.

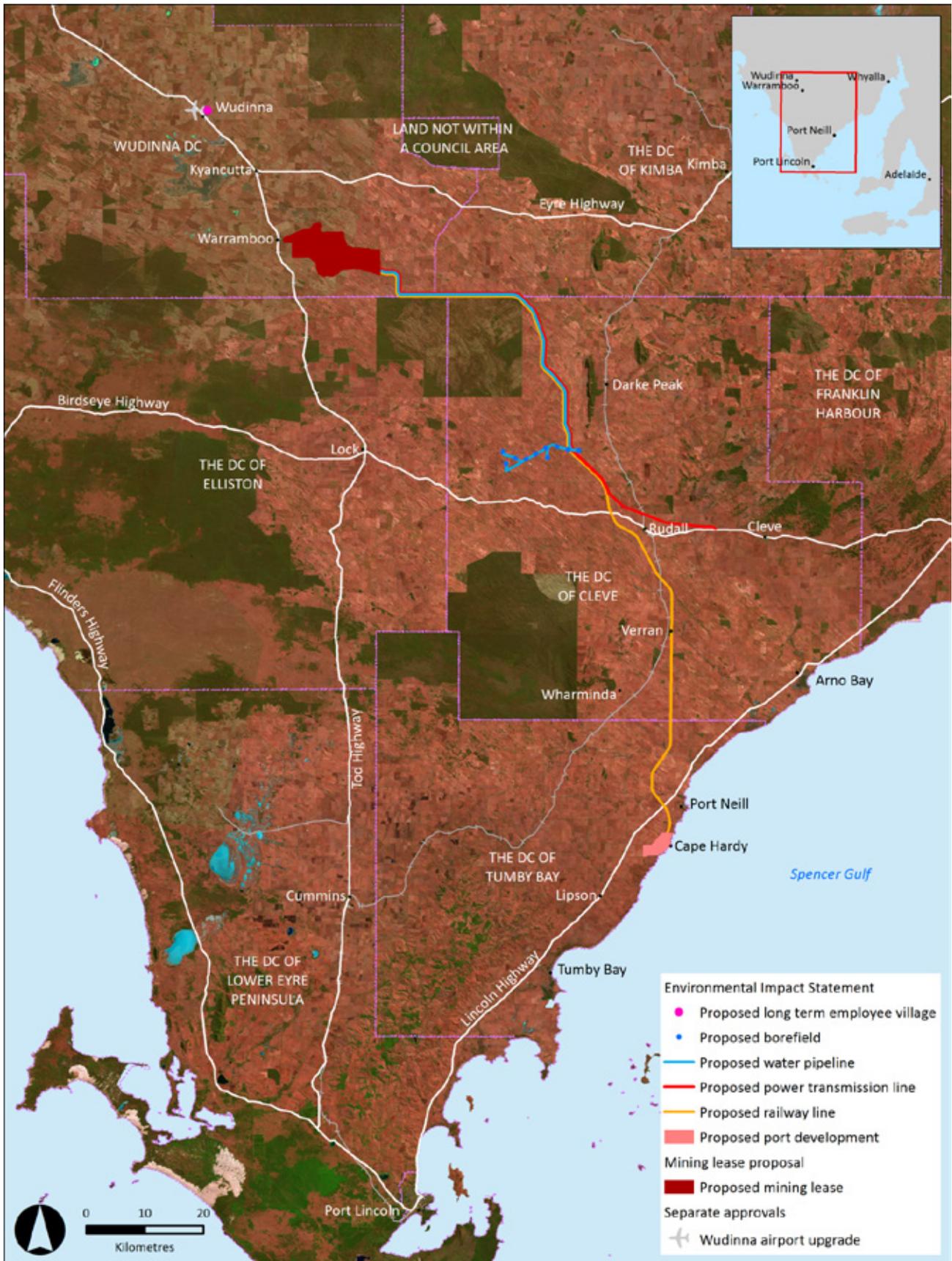


Figure 1-2 CEIP Location and Infrastructure Components

## 1.3 Statutory Approvals Process

The application for the CEIP Mine will be subject to a range of Commonwealth and South Australian government regulatory approval processes which are discussed in detail in Chapter 4. A brief overview of the primary mining and environmental approvals is set out below.

### 1.3.1 State Approvals

MC 4383 was registered to IRD Mining on 27 May 2015 over an area of approximately 8,458 ha and the application for a mining lease relates to that entire area.

MC 4383 is primarily located within the boundary of Iron Road's EL 4849, though a portion in the south-west corner is located within EL 4815 held by Lincoln Minerals Limited. To enable the pegging of the MC, IRD Mining entered into written agreements with those companies pursuant to Section 80 of the Mining Act, whereby they both provided consent to IRD Mining to the pegging, lodging and registration of the MC and the application for and granting of, a mining lease over that MC.

Approval for the proposed mine is being sought under the Mining Act which is regulated by the South Australian Department of State Development (DSD) on behalf of the Minister for Mineral Resources and Energy (the Minister). Under the Mining Act, the proponent (IRD Mining) must be granted a mining lease and ensure that a PEPR is in force before it can commence any mining operations. To be granted a mining lease, IRD Mining must submit an application accompanied by a MLP (this document), setting out the mining operations that are proposed to be carried out, the environmental impacts of those proposed mining operations, the environmental outcomes that are expected to occur and the results of any consultation undertaken in connection with the mining operations. Once a mining lease has been granted, IRD Mining must only conduct the mining operations in accordance with the terms and conditions of the lease and in accordance with an approved PEPR. An appropriate environmental/rehabilitation bond will also need to be assessed and in place before any operations can commence.

This MLP provides comprehensive information to support the mining lease application (DSD Form 10), including a detailed description of the existing cultural, social, economic and natural environment and the proposed mining operations. This level of information is designed to assist stakeholders (including DSD and other Government agencies) to make an informed assessment about the risks and benefits associated with the proposed mine.

Approvals for the ancillary infrastructure required to support the CEIP Mine (such as railway line, power transmission line, borefield and port) are being sought pursuant to Section 46 of the Development Act.

### 1.3.2 Commonwealth Approvals

Iron Road submitted a referral to the Commonwealth Department of the Environment (DotE) pursuant to the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* on 29 September 2014 in relation to the proposed CEIP Mine. On 28 October 2014, DotE determined that the proposed mine was not a controlled action, therefore no approvals are required under the EPBC Act are required by Iron Road in respect to the CEIP Mine.

### 1.3.3 Objectives of the Mining Lease Proposal

This MLP has been prepared in accordance with Section 35 of the Mining Act and Regulation 30 of the *Mining Regulations 2011 (SA)* and identifies and assesses the potential environmental, social and economic impacts and benefits of the proposed CEIP Mine. Mitigation and management strategies have been proposed where possible to minimise and avoid adverse impacts. The objective of the MLP is to:

- Demonstrate a net public benefit for the proposal and provide a clear identification of any associated risks and to develop a proposed set of environmental, social and economic outcomes for the construction, operation and rehabilitation phases of the mine.
- Provide a source of information to interested stakeholders to gain an understanding of the project, the need for the project, project alternatives investigated, the effects on the environment, the impacts that may occur and the measures to be taken to minimise these impacts.
- Provide a forum for public consultation and informed comment.
- Provide a framework for State Government assessors to consider the proposed mine in line with environmental, social, economic and technical factors and to establish appropriate lease conditions relating to construction, operation, closure and rehabilitation.

The structure of the MLP has been developed in response to the minimum information requirements outlined by the Ministerial Determination 006 (South Australian Government Gazette 50: 3064-3077, 12 July 2012). For each environmental and social aspect, the relevant section of this MLP provides the following information:

- A summary of relevant legislative criteria
- The purpose and scope of the study undertaken
- Methodology of the assessment
- The existing environmental values that may be affected by the CEIP
- Modifications to the design incorporated to protect environmental values
- Assessment of the impacts of the CEIP to existing environmental values
- Management practices to be implemented to address unacceptable project impacts

### 1.3.4 Document Structure

The MLP has been developed in accordance with the requirements outlined in both Section 35 of the Mining Act and the Ministerial Determination 006. The content and structure of the MLP is detailed in Table 1-3.

Table 1-3 MLP Structure

Chapter	Description
	Declaration of Accuracy
	Executive Summary
1	Introduction to Iron Road, CEIP and legislative context
2	Summary of existing environment
3	Detail of proposed mining operations
4	Statutory Framework
5	Detail of consultation process
6	Outline of assessment methodology
7-23	Assessment of relevant environmental, social and economic benefits and risks
	References
	Glossary