

Initial Advice Statement Kunioon Project

April 2007



Parsons Brinckerhoff Australia Pty Limited ABN 80 078 004 798

*12th floor, IBM Centre
348 Edward Street
Brisbane QLD 4000
GPO Box 2907
Brisbane QLD 4001
Australia
Telephone +61 7 3218 2222
Facsimile +61 7 3831 4223
Email brisbane@pb.com.au*

NCSI Certified Quality System ISO 9001

© Parsons Brinckerhoff Australia Pty Limited (PB) [2007].

Copyright in the drawings, information and data recorded in this document (the information) is the property of PB. This document and the information are solely for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by PB. PB makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.

Author: Philippa Forge, Environmental Scientist

Signed:

Reviewer: Amanda O'Kane, Principal Environmental Scientist

Signed:

Approved by: Tatia Zubrinich, Executive Environment and Communications....

Signed:

Date: April 2007

Distribution:

Contents

Page Number

List of abbreviations and glossary	iii
1. Introduction	1
1.1 Purpose of this initial advice statement	1
1.2 The proponent	4
1.3 Project need	4
1.3.1 <i>Existing supply</i>	4
1.4 Environment and mining approvals	5
1.5 The environmental impact process	5
1.5.1 <i>Purpose of the environmental impact statement process</i>	5
1.6 Commonwealth approvals	6
1.7 State approvals	6
1.8 Project finance	7
1.9 Project tenure	7
1.10 Native Title and cultural heritage	7
1.11 Community and stakeholder consultation	7
2. Proposed development	10
2.1 Project description	10
2.1.1 <i>Existing supply</i>	10
2.1.2 <i>Identification of key project issues</i>	10
2.1.3 <i>Project location</i>	11
2.1.4 <i>Key project features</i>	11
2.1.5 <i>Proposed operations</i>	11
2.1.6 <i>Mining method</i>	12
2.1.7 <i>Processing</i>	12
2.1.8 <i>Product transport</i>	12
2.2 Infrastructure requirements	12
2.2.1 <i>Water supply</i>	12
2.2.2 <i>Power supply</i>	14
2.2.3 <i>Mine infrastructure</i>	14
2.2.4 <i>Haul roads</i>	14
2.2.5 <i>Local roads</i>	14
2.2.6 <i>Water management</i>	14
2.2.7 <i>Mineral waste</i>	15
2.2.8 <i>Non-mineral waste</i>	15
3. Environmental values and potential impacts	16
3.1 Land systems	16
3.1.1 <i>Land use</i>	16
3.1.2 <i>Topography</i>	17
3.1.3 <i>Visual amenity</i>	17
3.1.4 <i>Geology</i>	17
3.1.5 <i>Air quality and climate</i>	19
3.1.6 <i>Hydrological characteristics</i>	19
3.2 Biological characteristics	22
3.2.1 <i>Existing vegetation</i>	22
3.2.2 <i>Fauna</i>	24
3.3 Tarong State Forest Land Tenure Agreement	24
3.4 Noise and vibration	27
3.5 Overburden and Coal Rejects Characterisation	27
3.6 Waste	27
3.7 Socio-economic conditions	28
3.7.1 <i>Economic benefits</i>	28
4. Environmental Management	29

Contents (continued)

Page Number

List of tables

Table 1-1: Summary of key planning and environmental approvals	6
Table 3-1: Climatic data	19

List of figures

Figure 1-1: Project location	2
Figure 1-2: Site map	3
Figure 1-3: Properties within the MDL	9
Figure 2-1: Mine scheduling	13
Figure 3-1: Local geology	18
Figure 3-2: Surface water network	21
Figure 3-3: Regional ecosystems	23
Figure 3-4: Kunioon Land Agreement	26

List of abbreviations and glossary

AHD	Australian Height Datum
CHPP	Coal handling and preparation plant
dB(a)	Decibels per annum
DEH	Department Environmental and Heritage (now DEW)
DEW	Department Environment and Water (Commonwealth)
EA	Environmental Authority
EIS	Environmental Impact Statement
EM Plan	Environmental Management Plan
EMS	Environmental Management System
EP Act	<i>Environmental Protection Act 1994</i>
EPA	Environmental Protection Agency
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERE	Endangered Regional Ecosystem
IAS	Initial Advice Statement
ISO	International Standards Organisation
KV	Kilo volts
MDL	Mineral Development Licence
ML	Mining Lease
ML/a	Mega litres per annum
Mt/a	Million tonne per annum
NRW	Department of Natural Resources and Water
the Power Stations	Tarong and Tarong North Power Stations
the Project	The Kunioon project
ROM	Run of Mine
RTCA	Rio Tinto Coal Australia
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
Tarong Energy	Tarong Energy Corporation Limited
ToR	Terms of Reference
VM Act	<i>Vegetation Management Act 1999</i>

1. Introduction

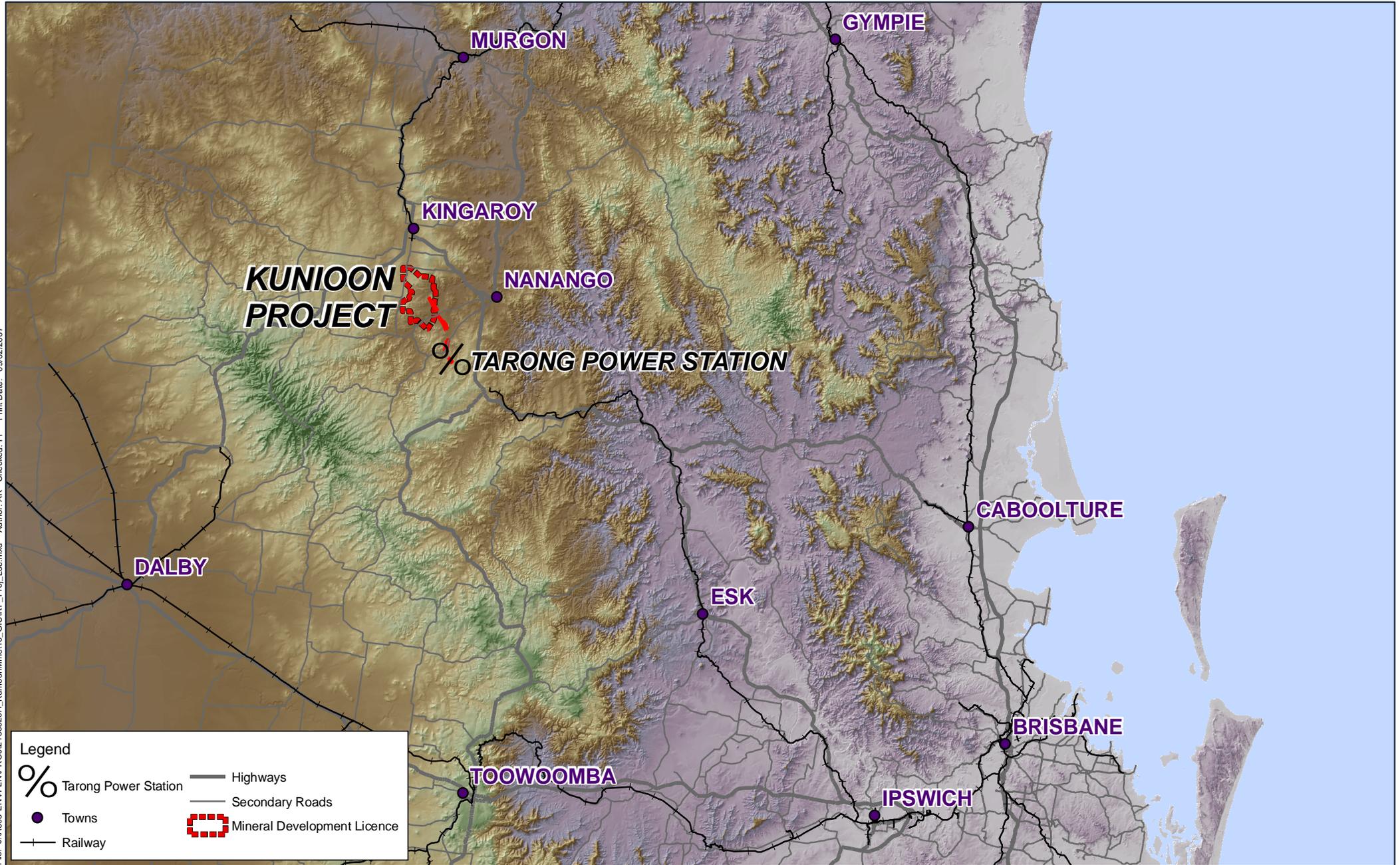
1.1 Purpose of this initial advice statement

The purpose of this initial advice statement (IAS) is to provide information to administering authorities about the Kunioon project, which is a proposed open cut coal mine near Kingaroy, Queensland. The project location is illustrated in Figure 1-1 and the site location is outlined in Figure 1-2.

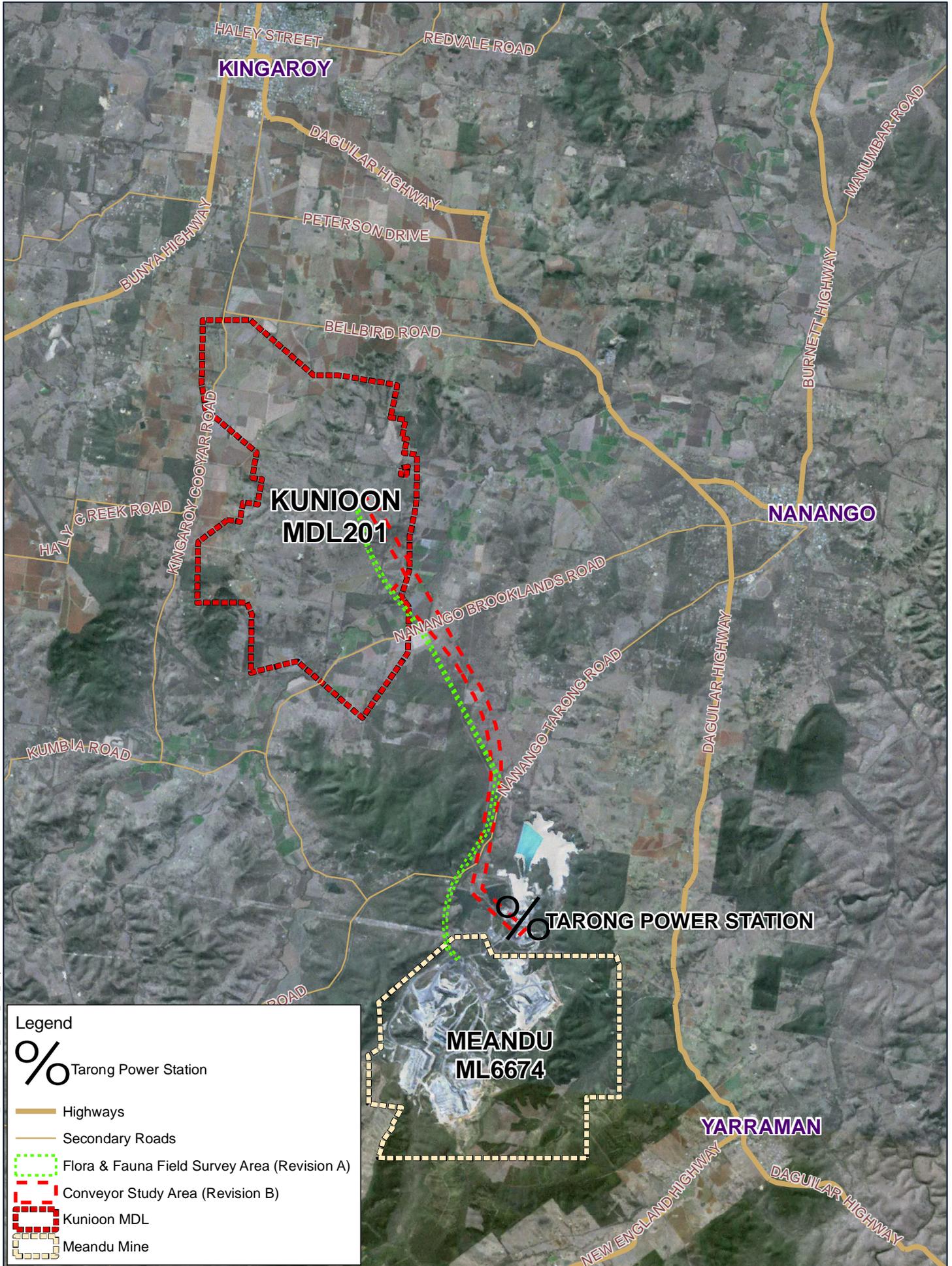
This IAS has been prepared by Parsons Brinckerhoff Australia (PB) on behalf of Rio Tinto Coal Australia (RTCA). This IAS is to provide information to:

- Assist the EPA with the preparation of a draft Terms of Reference for the project's Environmental Impact Statement (EIS).
- Provide administering authorities with a comprehensive understanding of the project, with an aim to finalise the Terms of Reference (ToR) for the EIS.

The Environmental Impact Statement (EIS) and the Environmental Management Plan (EM Plan) will provide more detailed information regarding the project and will be submitted in due course following the finalisation of the Terms of Reference (ToR).



File: J:\A603-ENV\PLN\PROJ\0136520A_Kunioon\Minra10_GIS\RP_Proj_Loc.mxd Author: AR Checked: PF Print Date: 09/02/2007



File: J:\603-ENV\PL\N\PROJ\2156520A_KunioonMine\10_GIS\RP_Site_Map.mxd Author: AR Checked: PF Print Date: 09/02/2007

Legend

- Tarong Power Station
- Highways
- Secondary Roads
- Flora & Fauna Field Survey Area (Revision A)
- Conveyor Study Area (Revision B)
- Kunioon MDL
- Meandu Mine

1.2 The proponent

Rio Tinto Coal Australia (RTCA), the proponent for the project, is one of Australia's leading mining organisations with a successful record in the development and management of open cut and underground coal operations. In Queensland, RTCA operates the Blair Athol, Tarong, Hail Creek, Kestrel and Clermont Mines. In New South Wales, RTCA manages Coal & Allied's operations at Bengalla, Mount Thorley Warkworth and Hunter Valley operation mines.

RTCA has entered into a joint collaboration agreement with Tarong Energy Corporation (TEC) to jointly explore RTCA's Kunioon coal deposit covered by MDL201. RTCA are currently the proponents for the environmental assessment with the work being managed by TEC on their behalf. PB has been commissioned by TEC to investigate the environmental assessment for the area within MDL201.

The relevant mining tenures for the project are Mineral Development Licence (MDL 201) and an Environmental Authority (Mineral Development), number M4475 (EAMD L M4475). Figures 1-1 and 1-2 present the project locality and boundaries.

Contact details for the proponent are:

Rio Tinto Coal Australia Pty Limited
Level 3,
410 Ann Street, Brisbane, 4000
Queensland
GPO Box 391, Brisbane, 4001
Queensland
Tel: +61 07 3361 4200
Email: info@rtca.riotinto.com.au

1.3 Project need

1.3.1 Existing supply

Tarong Power Station, located 180 km west of Brisbane, is one of Queensland's largest power stations. With a total generating capacity of 1400 megawatts, it supplies some 25% of Queensland's electricity. Tarong Power Station and Tarong North Power Station are currently supplied with coal from RTCA's Tarong Mine, adjacent to the Power Stations. The coal supply contract with RTCA expires in 2010 and a new reliable and competitively priced coal supply needs to be secured to replace the existing contract.

Between 6.5 Mt/a and 7.2 Mt/a of coal is currently supplied to the Tarong Power Stations by overland conveyor from the Tarong Mine, located 2 km south-west of the Power Stations. The Tarong Mine will have exhausted all of its economic coal deposits by the end of 2011 resulting in its inability to supply coal to the Power Stations beyond this time.

Tarong Energy's fuel supply strategy identifies the need to have access to reliable long term coal supplies. The Kunioon and Goodger deposits, in the Tarong Basin have been identified as one option to fulfil this need. The need to secure a new fuel supply is essential to underpin the capital investment made in both thermal power stations and to maintain Queensland's increasing electricity supply expectations.

Preliminary investigations indicate that the coal deposits that make up the Kunioon project will serve as a suitable long-term replacement.

1.4 Environment and mining approvals

The project is to be assessed under the *Environment Protection Act 1994* (EP Act) and associated legislation managed by the Queensland Environmental Protection Agency (EPA).

Given that the project scope is to develop a coal mine, then under the *EPA Guideline 4 – Deciding the Level of Impact Assessment for the Mining Industry* (2000), the project is automatically designated a non-standard mining project.

Based on the fact that the project is non-standard and that it would most likely trigger an EIS, RTCA and Tarong Energy will be submitting an application for a voluntary EIS. This process will replace the need for an assessment level decision by the EPA.

In addition to the EP Act and associated legislation managed by the Queensland EPA, there is also the possibility that the project may be assessed under Commonwealth legislation via the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.5 The environmental impact process

1.5.1 Purpose of the environmental impact statement process

The general purpose of EIS process is to ensure that all direct and indirect social, economic and environmental impacts are understood, examined and addressed.

Further detail is provided from Section 40 of the *Environmental Protection Act 1994*, the key purposes are as follows:

(a) to assess—

- the potential adverse and beneficial environmental, economic and social impacts of the project
- management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the project.

(b) to consider feasible alternative ways to carry out the project

(c) to give enough information about the matters mentioned in paragraphs (a) and (b) to the proponent, Commonwealth and State authorities and the public

(d) to prepare or propose an environmental management plan for the project

(e) to help the administering authority decide on an environmental authority application for which the EIS is required

(f) to give information to other Commonwealth and State authorities to help them make informed decisions

h) to allow the State to meet its obligations under a bilateral agreement.

In summary the EIS process will be accompanied by an Environmental Management Plan (EM Plan) that describes acceptable impacts and established control strategies designed to

generate compliance with agreed performance criteria in the form of the Environmental Authority (EA) conditions. These conditions will be audited by the appropriate statutory authorities and will form the basis for determining the level of environmental compliance for the project once it becomes operational.

1.6 Commonwealth approvals

RTCA and PB introduced the project to the Department of Water and Environment (DEW), formerly Department Environment and Heritage (DEH) in September 2006. Subsequent to the presentation, DEW provided PB with recommended field survey methodologies for flora and fauna surveys. The initial round of flora and fauna surveys were completed with further targeted surveys undertaken later in the year. The results of the surveys have guided the mine planning process and a number of ecologically important areas have been excluded from the planned mining area. Given the findings of the field surveys and the subsequent mine planning the project was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to DEW as an 'uncontrolled action' on 5 March 2007. An assessment decision is anticipated to be made on 4 April 2007.

1.7 State approvals

The project will require a number of statutory planning and environmental approvals. Table 1-1 identifies the major State approvals that are potentially triggered by the project.

Table 1-1: Summary of key planning and environmental approvals

Key project issues	Key Legislation
Environmental Authority (mining activities)	<i>Environmental Protection Act 1994</i> , Chapter 5
Plan of Operations (describes the actions and the programs to achieve compliance with the conditions of the environmental authority (mining lease))	<i>Mineral Resources Act 1989</i>
Environmental Impact Assessment Approval	<i>Environmental Protection Act 1994</i> <i>Environment Protection and Biodiversity Conservation Act 1999</i> Environmental Protection Agency Guideline 4 – deciding the level of impact for the mining industry
Environmental Management Plan for design, construction and operational phases	<i>Mineral Resources Act 1989</i>
Native Title (Commonwealth / Queensland) – Crown and leasehold land	<i>Native Title Act 1993</i>
Exploring / surveying proposed mining lease area for the purposes of drafting an Indigenous Cultural Heritage Management Plan	<i>Aboriginal Cultural Heritage Act 2003</i>
Non-indigenous Cultural Heritage Management Plan	<i>Queensland Heritage Act 1992</i> <i>Integrated Planning Act 1997</i>
Permit to clear	<i>Vegetation Management Act 1999</i> <i>Integrated Planning Act 1997</i> <i>Land Act 1994</i>
Interference with water supply/taking of groundwater	<i>Water Act 2000</i> <i>Integrated Planning Act</i>

1.8 Project finance

Major project capital expenditure is estimated to be in the order of \$220 million with the number of construction jobs peaking at between 200 and 220 and jobs during full scale mining operations anticipated to be around 260.

The period of construction activity to bring the mine up to full production is estimated to be in the order of 12 to 18 months.

1.9 Project tenure

Lot and Plan descriptions for properties within MDL 201 are presented in Figure 1-3. The majority of the properties are freehold, exceptions include Lots 260 on FTZ37138 and 261 on FTZ37351, which are described as Reserves, and Lot 125 on FY1960 is described as State Land, as well as Lot 223 on FY1132 and Lot 245 on FY1772, described as Lands Lease.

1.10 Native Title and cultural heritage

The majority of the properties within the project area are on freehold land and therefore Native Title has been extinguished. Currently there is one registered Native Title claimant within the project area; these are the Wakka Wakka People.

Under the *Aboriginal and Cultural Heritage Act 2003* the proponent has a duty of care to take all reasonable and practical measures to avoid or minimise impacts on items of Aboriginal cultural significance. In demonstrating the duty of care, cultural heritage field surveys are being conducted with the Wakka Wakka people. In addition, a cultural heritage management plan or agreement will be prepared for the protection of items of Aboriginal cultural significance within the project area.

An old church which has been converted into a home is located in the north east of the project area. This building is not listed on either Commonwealth or Queensland registers of heritage items.

1.11 Community and stakeholder consultation

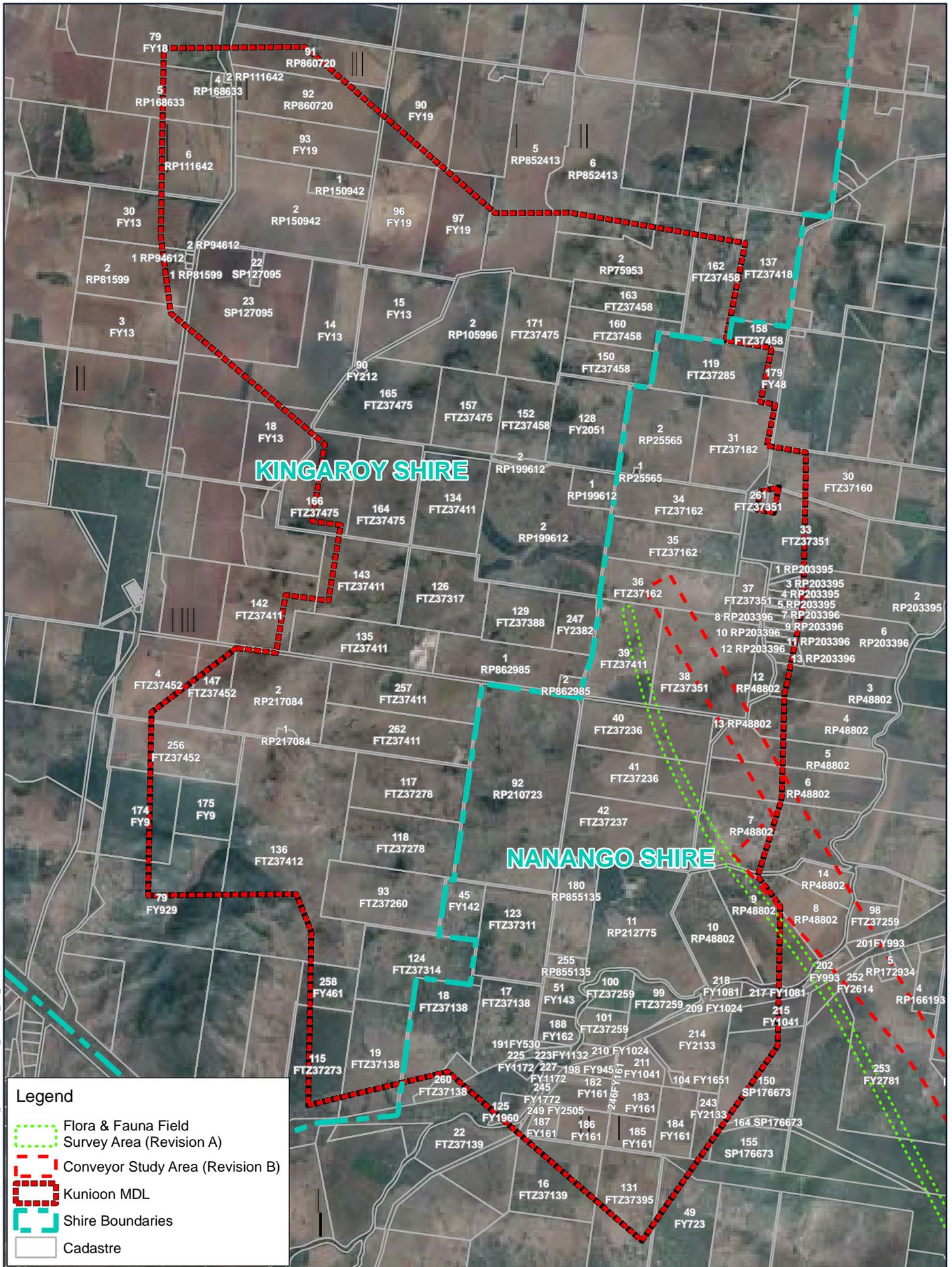
The purpose of community and stakeholder consultation during the EIS process is to ensure that all relevant bodies are aware of the project and have the opportunity to comment on the issues of relevance to them.

As part of the EIS process for a mine development it is prescribed that community consultation be conducted with relevant impacted community and stakeholders. The community consultation for the project will focus on introducing the project to the community and key stakeholders to determine any issues or concerns that the community may have with the project based on current attitudes.

The consultation process for the Kunioon project will ensure that the community is informed about the project in accordance with *EPA Guideline 7 – Issue Identification and Community Consultation*.

The Community Consultation and Communication Implementation Plan for the Kunioon Project has been developed. The aim of this plan is to:

- provide the community with information regarding the project
- ensure that community contact with the project team is optimised
- Identify any issues and concerns that the community may have with the project
- ensure feedback provided by the community can be used in other studies being completed during the EIS.



Legend

-  Flora & Fauna Field Survey Area (Revision A)
-  Conveyor Study Area (Revision B)
-  Kunioon MDL
-  Shire Boundaries
-  Cadastre

File: J:\A603-ENV\PLN\PROJ\2136520A_KunioonMine10_GIS\RP_Lot_Plan.mxd Author: AR Checked: PF Print Date: 02/02/2007

2. Proposed development

2.1 Project description

The Kunioon Project is an important long-term potential fuel source for the Power Stations; its development would be significant in maintaining the economic prosperity of the South Burnett region. The Kunioon Project provides an opportunity to maintain and strengthen Tarong Energy's position as a major supplier of power in Queensland. The Power Stations supply about 25 per cent of Queensland's power and the Kunioon Project would contribute to delivering certainty to Queensland's long-term power requirements.

Tarong Energy's fuel supply strategy identifies the need to have access to reliable long-term coal supplies. The Kunioon Project, in the Tarong Basin, is identified as one option to fulfil this need. The current coal supply contract expires at the end of 2010. The need to secure a new fuel supply is essential to underpin the capital investment made in the Power Stations and to maintain Queensland's increasing supply expectations.

2.1.1 Existing supply

In 2000, Tarong Energy signed a coal supply agreement with Pacific Coal Pty Ltd (now Rio Tinto Coal Australia Pty Ltd) for the supply of coal to the Tarong Power Station. This agreement extended the existing coal supply agreement until the end of 2010. Between 6.5 Mt/a and 7.2 Mt/a of coal is supplied to the Power Stations by overland conveyor from the Tarong Mine, located 2 km south-west of the Power Stations. Preliminary investigations indicate that coal from the Kunioon Project is a suitable replacement supply source.

2.1.2 Identification of key project issues

An initial assessment of key project issues has been conducted as part of the planning stage of the Kunioon Project. The list of issues presented below is not exhaustive in relation all project issues. All project issues will be investigated as part of the EIS and consultation process.

Detailed consultation with both the community and assessing agencies will be undertaken. As a minimum the following will be carried out as part of the environmental impact assessment process:

- detailed hydrological modelling to ensure that the impacts of the proposed mining activities on surface and ground water are managed and, mitigated where necessary
- a detailed ecological assessment to ensure that the conservation value of the existing environment is maintained to the greatest extent possible
- detailed assessment of air quality and noise impact due to proposed mining operations
- close consultation with governing agencies to ensure the methodology and proposed mitigation measures are acceptable.

Detailed assessment methodology will be captured in the Kunioon Project's Terms of Reference.

2.1.3 Project location

The Kunioon deposit is located in the South Burnett district, approximately 12 km from the town of Kingaroy, 17 km west of Nanango, and approximately 150 km north-west of Brisbane within a mixed farming community. The land use in the project area is predominantly grazing with limited cultivation on small areas of alluvial flats (refer to Figure 1-2).

2.1.4 Key project features

The project is designed to exploit the Kunioon coal deposits of the Tarong basin. Figure 2-1 shows a concept plan of the areas likely to be mined and the location of waste dumps.

Key features of the project include:

- 7.5 Million Tonnes per annum product coal
- life of mine is planned for 25 years
- a Run of Mine (ROM) coal stockpile area with 500,000 tonne capacity
- a coal preparation plant incorporating dense medium separation
- tailings treatment plant that incorporates paste thickening technology to conserve water and allow de-watered tailings to be disposed of within the mine waste
- product coal stockpile of 100,000 tonnes capacity
- a 15 km product coal conveyor to the Power Stations with an annual capacity matching the mine production
- basic support facilities, such as offices, workshops and ablutions
- A water management strategy based on onsite harvesting and water recycling that provides a reliable industrial water supply while offering sediment control and suitable treatment of any discharges. The supply of water will be from collected runoff from the stockpiles and mine area with supplementation by a dedicated 3,000 ML/a capacity pipeline from Tarong Power Station to ensure 100% reliability.
- flood control levees and diversion channels around the pit boundaries to prevent ingress of overland flow waters.

2.1.5 Proposed operations

It is envisaged that the project will commence in 2008 with first coal mined in 2010. The output from the mine would be 9.1 Mt/a ROM or 7.5 Mt/a product coal annual capacity by January 2011. The coal is intended to be used domestically as outlined in Section 1.3. When compared to the Tarong Mine coal (current source of coal for the Power Stations), the coal from the Kunioon deposits offer:

- a known source of economic coal for at least 25 years
- maintains proximity of fuel supply to power station.

2.1.6 Mining method

The mining method for the project will be a conventional truck and shovel operation working in two pits, Main Kunioon and Goodger. Coal will be extracted in approximately equal ratios from the Kunioon, Goodger and Swain seams. Drilling and blasting will be required in the overburden removal and coal extraction phases of the mining. Coal will be hauled by mine truck to a ROM coal stockpile facility prior to being conveyed to the CHPP. Mine pit layout is presented in Figure 2-1. It should be noted, this figure is draft only at this stage.

2.1.7 Processing

The project will be used to supply coal to the Power Stations. An initial assessment of the coal resource has indicated that the raw coal ash levels average around 41%. Accordingly the coal will require washing to produce an acceptable quality coal at 23% ash. A conventional coal processing strategy will be used. Rejects will be collected in an above ground hopper and then transported by mine truck to be disposed "in pit". Tailings treatment and dewatering can be successfully achieved using paste thickening technology (deep cone thickener). Samples taken from the latest drilling program will be utilised to enable the generation of a representative paste tailings material for geotechnical evaluation. The thickened paste will be pumped to disposal, initially into a dedicated tailings dam and later when volume is available to in-pit cells.

Paste tailings disposal in a combination of surface and in-pit cells provides the lowest environmental risk option for the Kunioon Project and offers the ability to recycle a large percentage of process water.

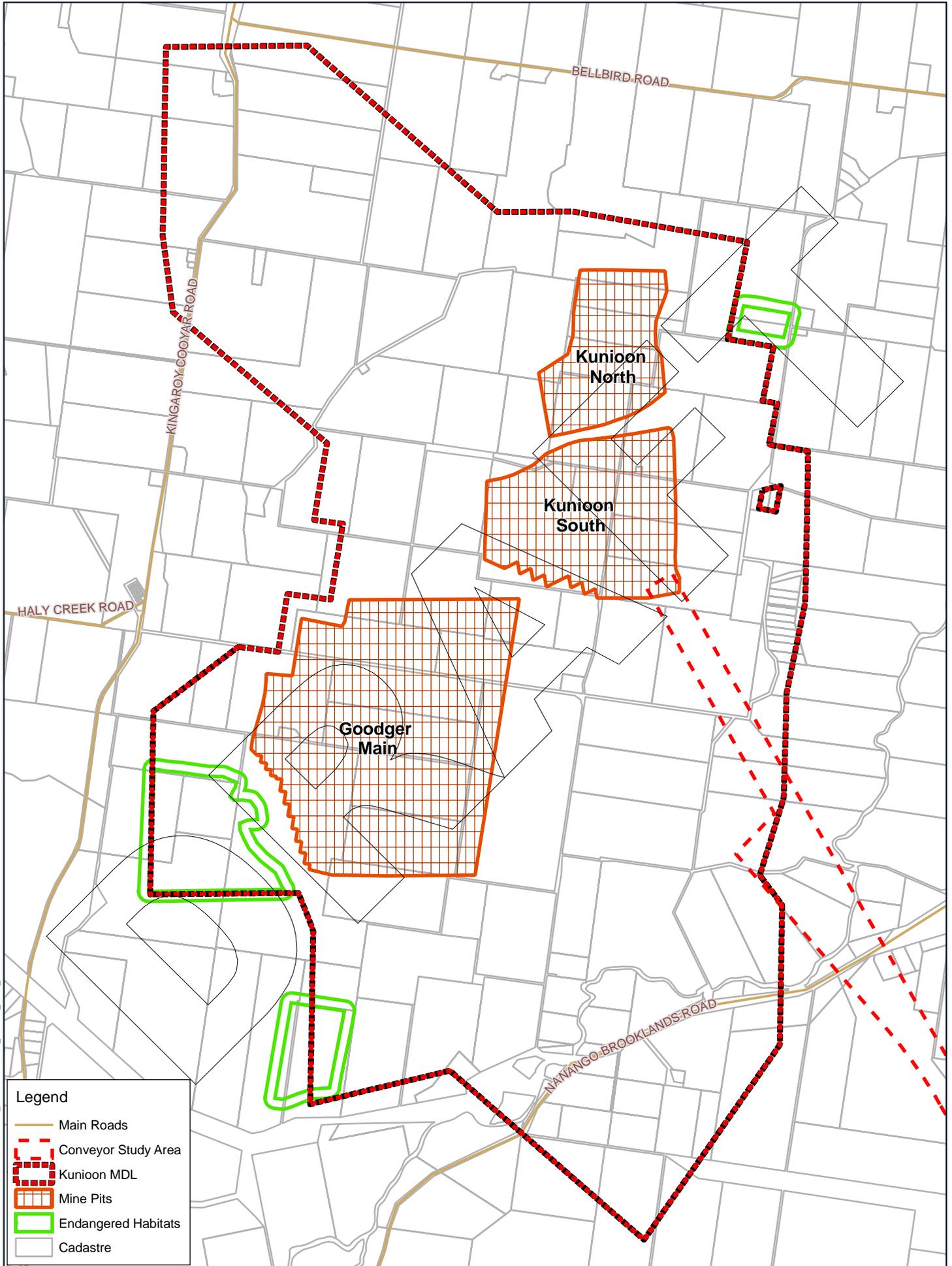
2.1.8 Product transport

It is proposed that the product will be transported to the Power Stations via a dedicated overland conveyor to the existing stockpile facilities. This will require the construction of 15 km of conveyor as well as associated infrastructure including power supply, water pipeline and access/maintenance road. The conveyor study area is shown in Figure 2-1.

2.2 Infrastructure requirements

2.2.1 Water supply

A water management strategy will be developed based on onsite harvesting and water recycling that provides a reliable industrial water supply while offering sediment control and suitable treatment of any discharges. The supply of water will be from collected runoff from the stockpiles and mine area with supplementation by a dedicated 3,000 ML/a capacity pipeline from Tarong Power Station to ensure 100% reliability.



File: J:\A603-ENV\PLN\PROJ\2136520A_KunioonMine10_GIS\RP_Mine_Pits.mxd Author: AR Checked: AOK Print Date: 26/03/2007

Legend

- Main Roads
- Conveyor Study Area
- Mine Pits
- Endangered Habitats
- Cadastre



2.2.2 Power supply

A dedicated 22 kV power supply will be constructed from the Power Stations to the mine along the conveyor study area.

2.2.3 Mine infrastructure

Infrastructure necessary to support the mining and processing operations will be constructed in the south eastern area of the ML. Infrastructure requirements:

- recycled water pipeline along the corridor
- access road
- heavy vehicle maintenance workshops
- ablutions, warehouse and administration buildings
- coal handling and preparation plant
- heavy vehicle parking areas/hardstands
- bulk earthworks for levees, drains and dams
- ROM and product coal pads
- fuel farm.

The construction workforce will be determined during the development of the construction contracts. It is not anticipated that accommodation facilities will be available on site, but serviced from existing centres (e.g. Nanango and Kingaroy).

2.2.4 Haul roads

Haul roads will be constructed within the mined areas to provide access to dump trucks hauling overburden and coal from the mine pit to the waste dumps and ROM respectively.

2.2.5 Local roads

A number of local roads and unformed road easements pass through the MDL, as shown in Figure 1-3. It is expected that some of these may need to be closed during the project. No assessment of potential road impacts has been made regarding the conveyor study area, this will be done once the alignment is further refined.

2.2.6 Water management

The mine operation has the potential to impact on downstream water quality as well as the groundwater resource. Accordingly, a water management system will comprise a network of water management infrastructure that will allow for flexibility in transport and storage of water around the site. The key water management goal for the project will be to minimise downstream impacts from the proposed mining operation. Mine water will be designated as surface runoff, and groundwater inflow captured in the open cut pits. Mine water will be diverted for storage and subsequent reuse when required.

The key element of the mine water management strategy will be to individually manage the five sources of water generation for the Project. These sources and their corresponding control strategies are as follows:

- runoff from undisturbed catchments both upstream of, and within the proposed mining lease, will be diverted around the active mining area via defined drainage corridors
- runoff from catchments disturbed by mining activities will be directed to sediment basins for removal of coarse sediment. The captured water will be either reused on site, or where quality allows, will be discharged from the lease to maintain downstream flows
- runoff from the industrial area will be directed through sediment basins with base flows being utilised for dust suppression
- water from the Coal Handling and Process Plant (CHPP) will be recycled in a closed loop system
- mine water will be managed in a series of dedicated storage facilities.

Additional studies are required to input into the development of the water management system. Note that the recent trend in water resource management is to regulate the capture of overland flow. The Department of Natural Resources and Water (NRW) is implementing this through the water resources and resource operations plans. While this is not yet happening in the Burnett Basin, in the Fitzroy Basin this process is well advanced.

2.2.7 Mineral waste

Reject and tailings management will be required since the ROM coal will require washing on-site. Plant water consumption and water availability are the major considerations in the selection of the most appropriate method of tailings disposal. The likely method of disposal will be paste within the area of the in pit overburden dumps.

2.2.8 Non-mineral waste

General and regulated wastes will be generated during the construction and operations stages of the project. A waste identification and management strategy will be developed as part of the feasibility study and the EIS stage of the project.

Water treatment facilities will be established to treat waste water generated from the mine infrastructure area such as sewage and wash down water. The facilities will be designed in accordance with the local and statutory requirements and will be finalised as part of the mine planning process.

3. Environmental values and potential impacts

3.1 Land systems

3.1.1 Land use

Land use in the project area is predominantly agricultural. The land to the north west of the project area produces peanuts and corn while to the south east the irrigated land along Barkers Creek is used to produce fodder crops and cereals. The remaining land in between, which is where the proposed mining will take place, is used mainly for cattle grazing.

The low population density of the project area reflects the rural nature of the region, and there are a number of homesteads and farm buildings throughout the area. The native vegetation in the area is highly fragmented due to 200 years of agricultural activities and the remaining pockets are very degraded and still actively grazed and cropped.

The proposed mining of ROM coal using truck and shovel operations will result in a number of out-of-pit spoil dumps. The spoil will be reshaped, topsoiled using previously stockpiled material and seeded. Factors which can impact on the long term stability of these spoil dumps, reducing their ability to meet or maintain the proposed land use capability; include climatic factors, geotechnical factors, chemical factors, and geomorphological factors such as erosion rates. These factors will be investigated to assist in determining the associated rehabilitation design parameters and the most appropriate post mine land use. Much of this information will be determined during the EIS and EM Plan process while the remainder will be obtained from studies undertaken during the rehabilitation program. Proposed monitoring of rehabilitated areas will also be outlined in the EIS and EM Plan.

Dam structures constructed for pit-dewatering purposes and collection of surface water runoff may be utilised after the coal operation is finished as farm dams.

As the mine develops, progressive rehabilitation of dump and mining areas will occur in order to minimise the total land area disturbed by mining at any time.

Land use capability impacts will be limited to areas directly affected by mining activities. The degree to which the land use capability is impacted upon by the proposed operation will be documented in the EIS. This will include plans for project rehabilitation and decommissioning.

The new conveyor study area will be located along property boundaries and existing easements wherever possible in order to minimise the dissection of exiting properties.

3.1.2 Topography

The topography within the project area comprises of undulating land traversed by the Stuart Range in the north, a network of ephemeral creeks located centrally within the MDL and the dominant drainage feature of Barkers Creek in the south. Landfall on the eastern side of the Stuart Range is from the west to the east towards Barkers Creek. It should also be noted that the highest elevations (539 m AHD and 530 m AHD) occur in Stuart Range, elevation then falls to approximately 365 m AHD near Barkers Creek.

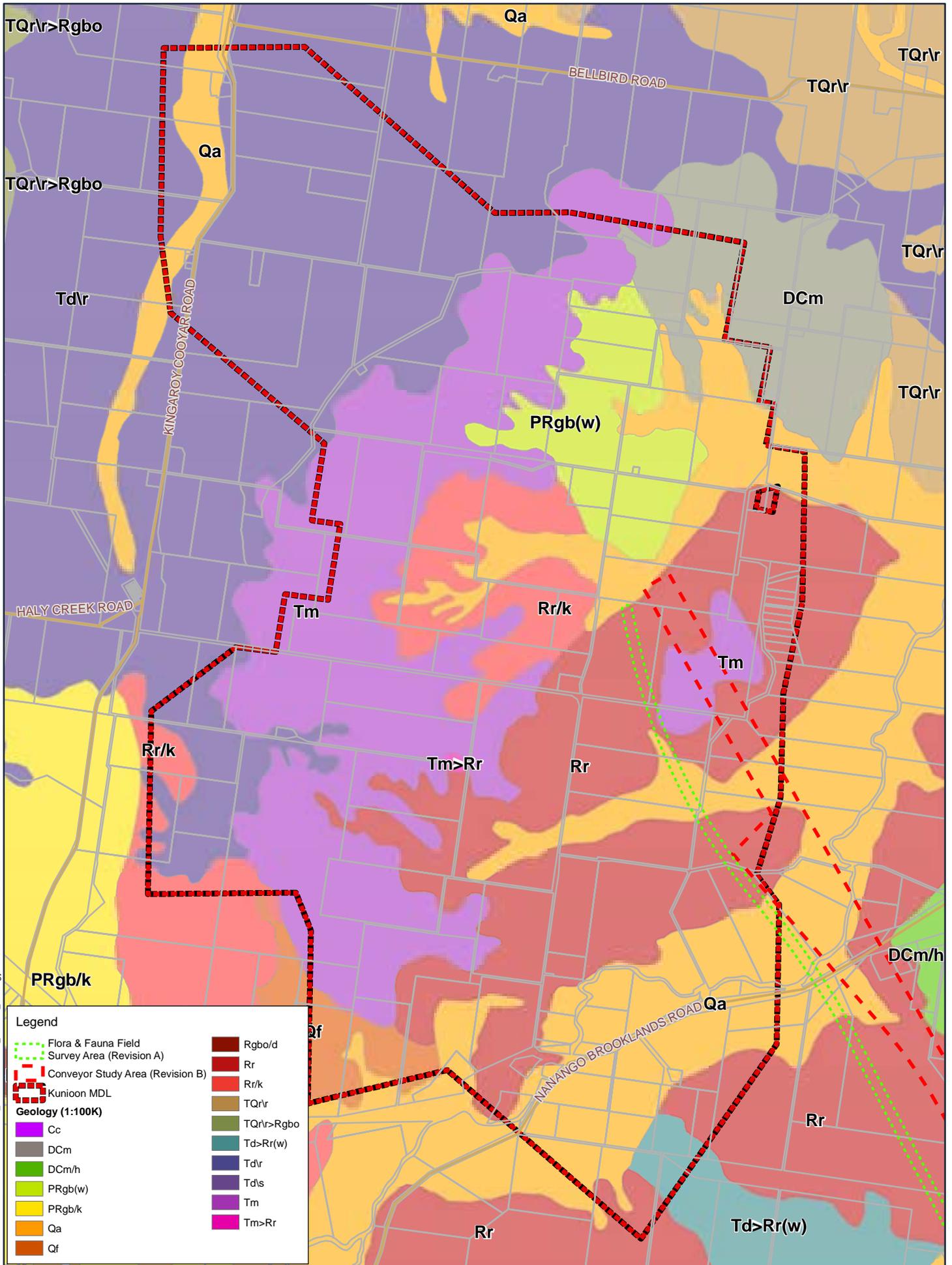
3.1.3 Visual amenity

A number of residential properties are located on the ridgeline surrounding the project area. The operation of the mine therefore has then potential to change the character of the viewshed at some of these properties. The EIS will investigate impacts to visual amenity generated by the proposed Project. Visual impacts produced by the operation will be minimised by progressive rehabilitation of spoil areas and rehabilitation of dam walls.

In addition, there may be some visual impacts depending on the final location of the coal conveyor.

3.1.4 Geology

A number of geological and geotechnical investigations have been undertaken within the MDL since 1980 (see Section 6, References). In summary the geology of the study area consists of outcropping coal measures. The coal measures consist of a variable sequence of sandstone, siltstone and mudstone. To the west the coal measures are covered by a tertiary unit consisting of basalt, and basaltic clays and sediments including kaolin, clayey sands and gravel. To the east the coal measures are covered by substantial amounts of quaternary alluvium fringing drainage paths that drain towards Barkers Creek. This quaternary alluvium consists of stiff silty and sandy clays with lesser sand and gravel and commonly has a thickness of approximately 10 m. Local geology is presented in Figure 3-1.



File: J:\A603-ENV\PLN\PROJ\2136520A_Kunioon\Map10_GIS\RP_Geology.mxd Author: AR Checked: PF Print Date: 09/02/2007

3.1.5 Air quality and climate

Located on top of the Great Dividing Range, Kingaroy has a cooler, drier climate than adjacent coastal areas with very little humidity. Most rainfall in the area occurs during the summer months (October – March), and temperatures range from warm to hot in summer to frosty nights followed by warm, sunny days in winter. Mean daily maximum temperatures range from 18.5°C in winter to 29.6°C in summer.

The Bureau of Meteorology's weather station in Prince Street, Kingaroy commenced monitoring in 1905, a summary of the climatic data collected is presented in Table 3-1 below.

Table 3-1: Climatic data

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Daily Max Temp (deg °C)												
29.6	28.8	27.5	25.1	21.6	18.9	18.5	20.1	23.3	26.0	28.1	29.6	24.7
Mean Daily Min Temp (deg C)												
17.4	17.5	15.8	12.1	8.6	5.4	4.0	4.8	7.9	11.7	14.4	16.5	11.3
Mean Rainfall (mm)												
114.3	96.0	77.9	46.8	41.3	42.6	40.8	28.6	37.7	64.7	78.4	110.7	779.9
Mean Daily Evaporation (mm)												
6.4	5.7	4.9	3.8	2.7	2.1	2.2	3.0	4.3	5.5	6.2	6.7	4.4
Mean 3pm Wind Speed (km/hr)												
13.3	13.9	13.9	13.7	13.0	13.0	14.0	14.5	15.0	13.7	14.1	13.6	13.8

Air quality monitoring undertaken by the Tarong Power Stations shows that local air quality is good with no exceedences of air quality criteria within the local airshed.

The proposed operation will be required to meet dust standards for occupational health and safety, and the *Environmental Protection Act 1994*. Detailed air quality studies will be completed as part of the EIS process which will include the proposed conveyor study area to the Power Station. This will ensure that sensitive receptors are not adversely affected by dust generated by the Project.

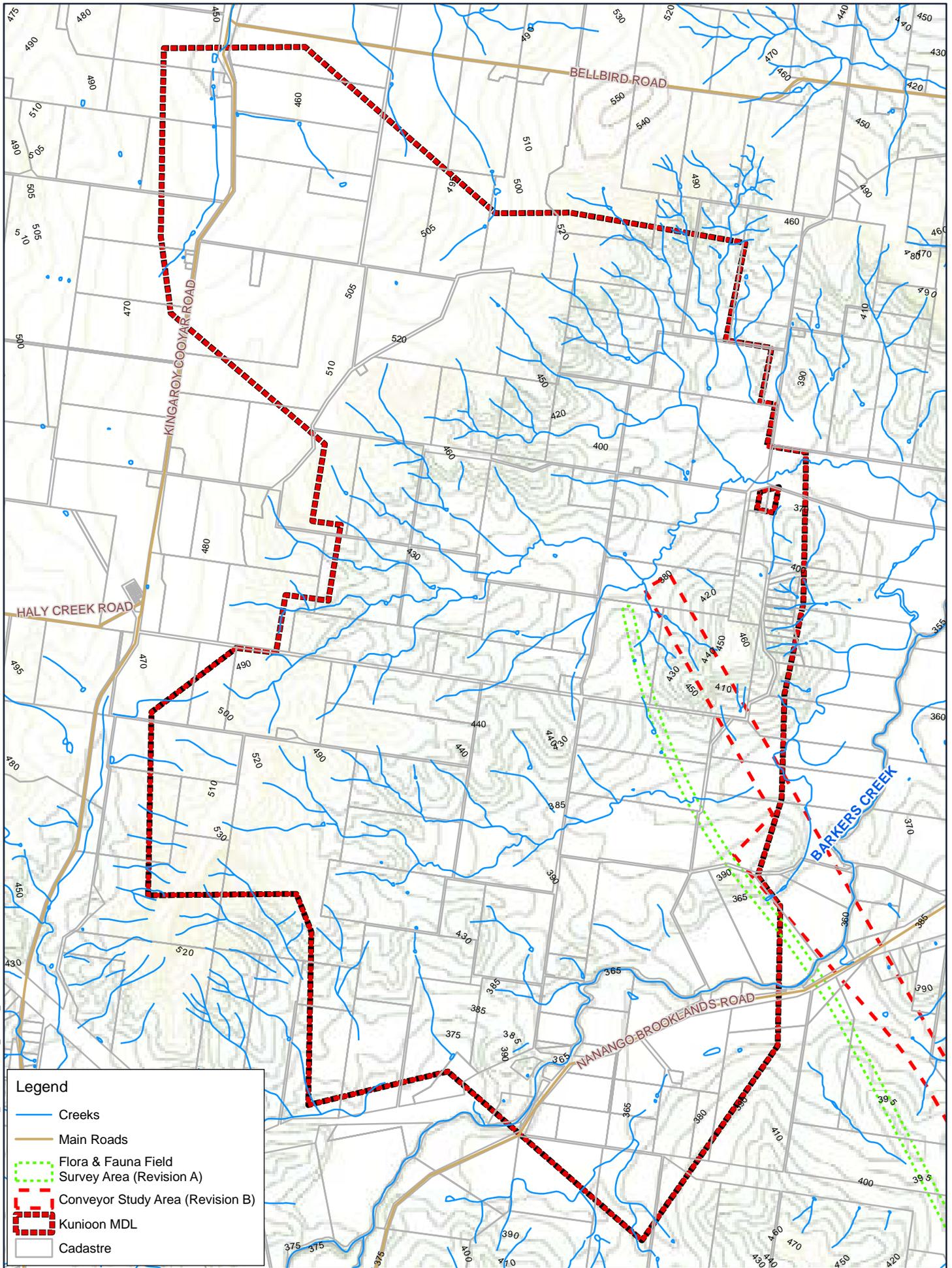
A review of the potential greenhouse gas emissions and air quality impacts will be undertaken during the EIS process.

3.1.6 Hydrological characteristics

Surface water

A network of ephemeral creeks is located centrally within the project area, with the dominant drainage feature of Barkers Creek in the south. The creek and drains do not contain permanent waterholes within the project area. The natural gradient of the project area is from the west to the east towards Barkers Creek, with elevation falling to approximately 365 m AHD at the south eastern corner. Section 2.2.7 of this document describes the proposed measures to manage surface water run off from the mine site.

The Queensland Environmental Policy (Water) 1997 sets environmental values which help maintain or attain the suitability of water for social and economic water uses (e.g. swimming, agriculture), protect the health of aquatic ecosystems and support cultural values. The water quality assessment to be carried out for the EIS will utilise the guidelines and ensure that the potential impacts associated with the project are assessed accordingly. The surface water network is presented in Figure 3-2.



File: J:\A603-ENV\PLN\PROJ\2136520A_Kunioon\Map10_GIS\RP_SurfaceWater.mxd Author: AR Checked: PF Print Date: 09/02/2007

Legend

- Creeks
- Main Roads
- Flora & Fauna Field Survey Area (Revision A)
- Conveyer Study Area (Revision B)
- Kunioon MDL
- Cadastre

Groundwater

The Kunioon project is not located within a declared sub-artesian area of Queensland, and therefore groundwater resources within this area are not regulated under the *Water Act 2000*. This means that registration of groundwater bores is not a requirement of the Department of Natural Resources and Water (NRW). However, drilling logs are supplied to NRW by drilling companies 30 days after conducting drilling programs. This information provides data regarding the location and amount of groundwater use in the area.

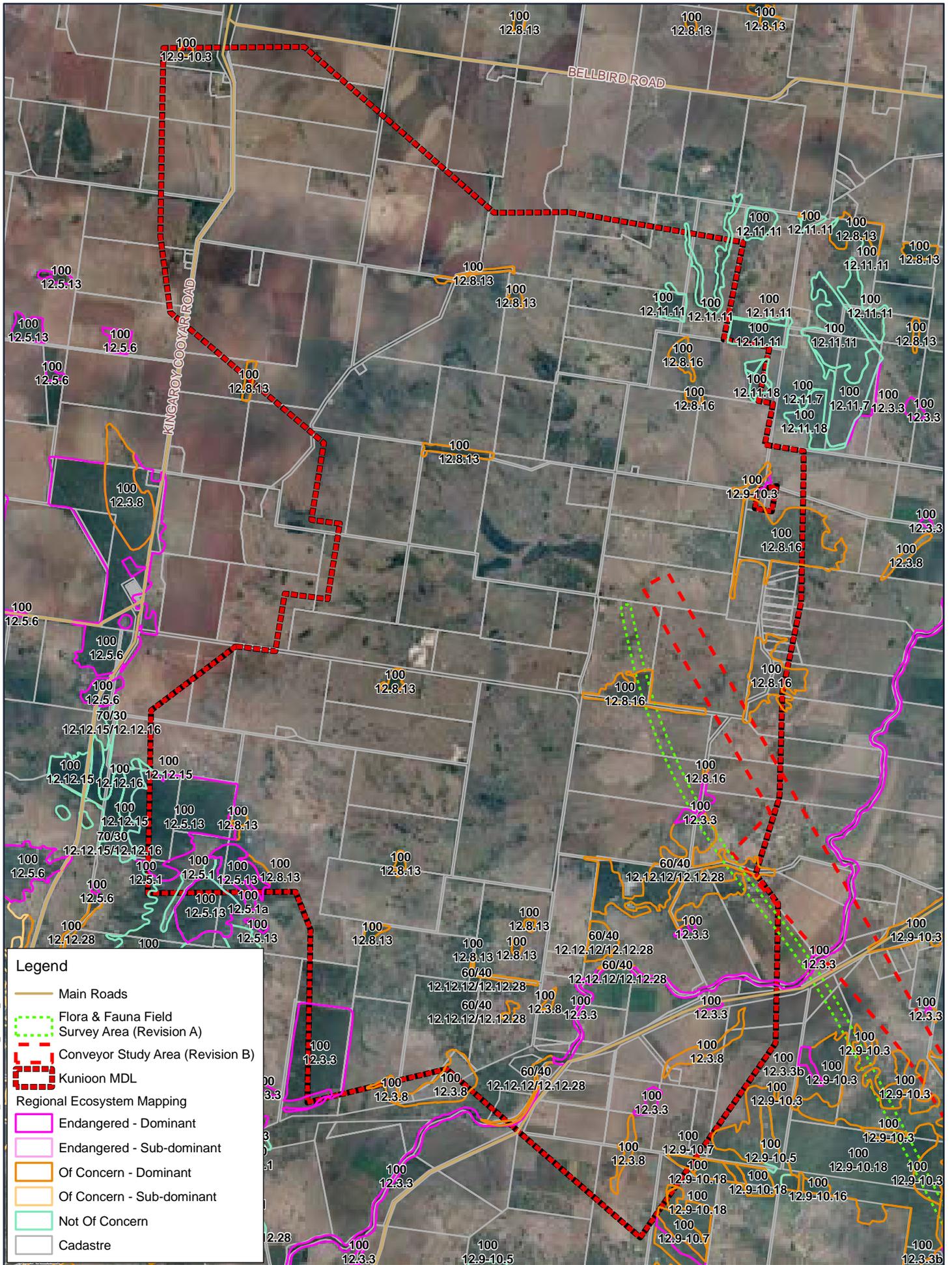
Search results from the NRW database of registered groundwater bores reported groundwater bores within the immediate surrounds of the Kunioon project area. The results from the database have been confirmed with inspections within the project area. The inspections have shown that approximately 98 stock and domestic bores exist within the area.

Based on the interpretation of previous exploration drilling in the area, groundwater may occur in the quaternary alluvium, the tertiary basalt and sediments and the coal measures. In order to develop a detailed understanding of the groundwater conditions within the project area and the possible impacts of the mine a detailed groundwater assessment will be undertaken as part of the EIS.

3.2 Biological characteristics

3.2.1 Existing vegetation

Much of the proposed MDL has been extensively cleared of vegetation and remnant vegetation has been grazed by cattle for many years. Surveys of the MDL for endangered regional ecosystems (EREs) were carried out in 2006 (Matrix Consulting, 2006). The surveys were undertaken to verify if ground conditions matched the mapped data of the Queensland EPA's regional ecosystem mapping database. Twelve EREs were identified from the database as present within the MDL and field assessments verified that seven of these are correct. However it should be noted that two of these areas are heavily degraded from cattle access and lantana infestations. Mapped regional ecosystems for the project area are presented in Figure 3-3.



File: J:\A603-ENV\PL\N\PROJ\12136520A_KunioonMine\10_GIS\RP_REV\5.mxd Author: AR Checked: PF Print Date: 09/02/2007

Legend

- Main Roads
- Flora & Fauna Field Survey Area (Revision A)
- Conveyor Study Area (Revision B)
- Kunioon MDL

Regional Ecosystem Mapping

- Endangered - Dominant
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- Not Of Concern
- Cadastre

Source: DCDB, DNRM, Queensland (2005);
 Regional Ecosystem (1:100K), EPA, Queensland (2006);
 Mineral Development Licence, DNRM, Queensland (09/2006);
 Roads, Queensland State Digital Road Network (2004);



3.2.2 Fauna

A search of the Queensland Museum database returned records for two threatened species, *Furina dunmalli* (Dunmall's snake), listed as Vulnerable under both the *Queensland Nature Conservation (Wildlife) Regulation 1994* and the Commonwealth EPBC Act, and *Hoplocephalus stephensii* (Stephens' banded snake), listed as Rare under the *Nature Conservation (Wildlife) Regulation 1994*.

A search of the DEW Protected Matters on-line database search tool identified thirteen threatened fauna species as potentially occurring within the search area. These species comprised seven birds, five mammals and one reptile species. An additional 10 migratory bird species were identified as likely to occur or breed in the study area, and 15 bird species were also listed as overfly marine and identified as likely to occur or breed in the study area.

Clearing of regrowth and sparse remnant native vegetation will be necessary for the mine, associated infrastructure, and the conveyor study area. At the end of mine life there will be an increased number of permanent water bodies on the mining lease. Rehabilitated mine spoil areas and final voids will possibly be fenced to exclude cattle.

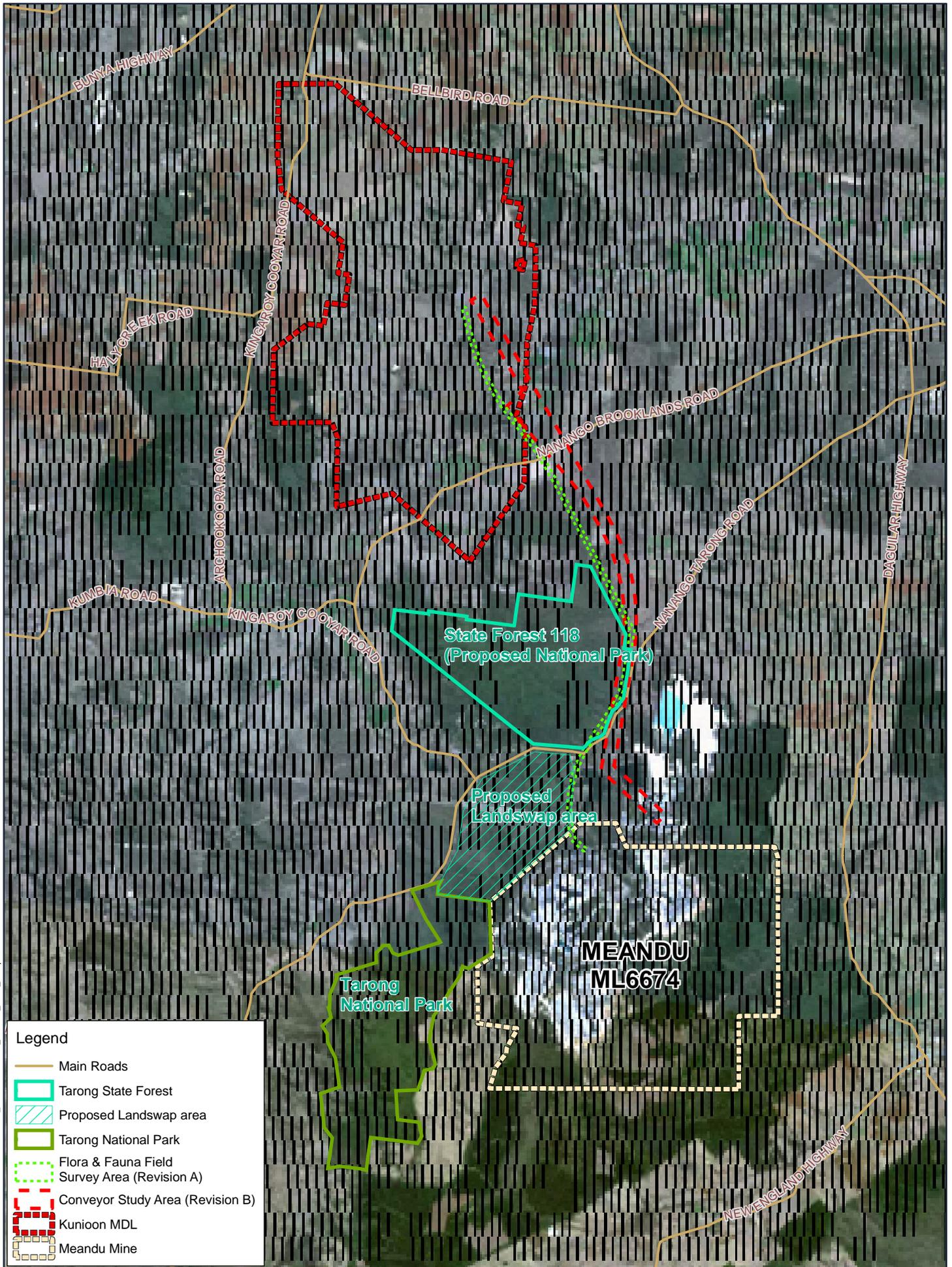
The flora and fauna assessment that will be undertaken as part of the EIS will include detailed site surveys to determine the ecological values of the study the area, to identify habitat types for native plants and animals that may occur and to list plant and animal species identified during the surveys. The results of the surveys will be utilised during the mine design process to avoid or minimise impacts on areas of high ecological value. The first phase of the surveys have been completed with further rounds planned later in the year to ensure that surveys are undertaken during at least two seasons. In addition further targeted surveys are planned.

3.3 Tarong State Forest Land Tenure Agreement

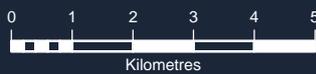
It is intended to transport coal from the Kunioon mine to the Power Stations by conveyor. A study area for the conveyor was developed by RTCA in 1998; this study area skirts the edge of State Forest 118 to the south of the MDL. In recognition of the ecological values of State Forest 118, RTCA have negotiated a biodiversity offset package that provides compensation for the area of land required for the conveyor by providing an area of land that functions as an important wildlife corridor between State Forest 118 and the Tarong National Park. Key features of this agreement are listed below (refer Figure 3-4):

- This agreement is a tri-party agreement between RTCA, EPA and NRW.
- This land swap is valuable to the government departments as it will provide a connection corridor between the Tarong National Park in the south and the State Forest 118 in the north.
- All parties have signed off on the agreement which is now with NRW for final processing.
- The agreement involves the State Forest 118 to the south of the project being subdivided into two sections, one of which will remain as State Forest which will allow the grant of a mining lease for the conveyor corridor.

- State Forest 118 was to be subject to the South East Queensland Regional Forest Agreements which meant the State Forest was to be converted to National Park (or similar), which would not allow mining leases to be granted in the area.
- As part of the agreement, a portion of the State's land, held by RTCA as Special Lease (i.e. the "Proposed Landswap Area" in Figure 3-4) will revert to unallocated State land.



File: J:\A603-ENV\PLN\PROJ\2136520A_KunioonMine10_GIS\RP_Land_Swap.mxd Author: AR Checked: PF Print Date: 09/02/2007



3.4 Noise and vibration

Background noise levels in the existing environment would be typical of most rural areas. These would vary from 30–40 dB (A) at night to 50–60 dB (A) during the day depending on the extent of traffic, machinery operations and general activity in the area.

Additional studies would be required to address the proposed Project development and to develop mitigation strategies.

The proposed operation will be required to meet noise standards for occupational health and safety, and the *Environmental Protection Act 1994*. This will ensure that sensitive receptors are not adversely affected by noise and vibration generated by the Project.

Detailed noise and vibration studies will be completed as part of the EIS process which will include the proposed conveyor study area to the Power Station.

3.5 Overburden and Coal Rejects Characterisation

The initial draft mine plans propose that overburden removed during the early years of the mine will be disposed of to spoil dumps as shown on Figure 2-1. After this period the spoil will be used to backfilled into the void space. The spoil disposal locations and volumes will be further refined during the detailed mine planning.

3.6 Waste

General and industrial waste management strategies will be developed in the EIS. Likely wastes to be developed during the construction stage includes green waste, concrete materials, metals, waste hydrocarbons, timber, tyres, sealant/resin and paint materials, sewage, effluent wash down and exhaust emissions. Wastes that would be produced during the operations phase include green waste, batteries, general waste (e.g. paper, cans cardboard), scrap metal, tyres, water treatment plant waste, and, tailings and reject waste. As discussed in Section 3.7, reject and tailings management will be generated from the washing of ROM coal. Plant water consumption and water availability will determine the most appropriate method of tailings disposal; current planning suggests that paste disposal will be the adopted method. The method of disposal will be confirmed in conjunction with the water resource study as part of the EIS process. Reject material will be returned to the mine pits or spoil dumps for burial using mine trucks.

3.7 Socio-economic conditions

The project is split between two local government areas, Kingaroy and Nanango. The Nanango Shire and Kingaroy Shire each represent 0.1% of the State's area (1,735 km² and 2,422 km² respectively). Nanango Shire's three principal settlements are Nanango township, Blackbutt-Benarkin and Maidenwell. The Shire's principal primary industries are the production of avocados, beef, beans, pigs, dairying, grain crops, macadamias, peanuts, forestry, small crops and fruit and grapes. Major industries in the Shire include the Tarong Power Station, Tarong North Power Station, and Tarong Coal Mine. Secondary industries include timber milling, avocado oil, silica cenospheres, diatomite, cheese making and wine production. In 2006, the estimated population of the Nanango Shire was 8,814 persons.

The border between the Kingaroy and Nanango shires crosses the north western portion of the project area. Kingaroy shire covers an area of some 2,422 km². The principal town of the shire is Kingaroy which is some 10 km north of the project area. The population of the shire was estimated at 12,885 persons in 2006. Employment in the shire consists of retail trade, agriculture, forestry and fishing, health and community services, manufacturing and education.

The EIS will contain an assessment of the impacts of the project on the local and regional socio-economic conditions.

3.7.1 Economic benefits

The development of the Kunioon coal mine is seen as having benefits for the economy of the local area. It is estimated that while the mine will employ local people, major flow-on effects will be produced. Due to the specialised nature of mine construction, workforces would largely be recruited from outside the area and would only be present for a limited time. Local services that could support the construction of the mine may benefit during this time producing some flow-on effects for other local services.

Skilled local people will be employed in the operation of the mine where possible. Increases in incomes and expenditure rates resulting from employment at the mine should bring about economic benefits for the area.

4. Environmental Management

RTCA strives to be at the forefront of environmental management in the coal industry and operates in accordance with relevant State and Federal environmental legislation, as well as site specific environmental licences, permits and statutory authorisations. As part of the Rio Tinto group, the company is also required to meet our own internal standards for environmental management, which commonly exceed the statutory requirements.

The key platform, by which all of RTCA's operations manage environmental performance, is through an Environmental Management System (EMS) that is prepared in accordance with the international standard ISO 14001. RTCA's performance against this standard is regularly audited by independent auditors to ensure certification to the ISO 14001 standard is maintained. The key goal of the EMS is to ensure continuous improvement in environmental performance and management over time. RTCA produces an annual Sustainable Development report that sets out in detail the environmental management efforts made by the company during each year.

RTCA's Health, Safety and Environmental Policy clearly establishes the commitment of the company to supply coal to markets in an efficient, safe and environmentally responsible manner. To this end, the Policy states RTCA's goal as continuing to improve its performance as it strives to achieve zero injuries and zero environmental incidents.

In the area of environmental stewardship, RTCA aims to achieve best practise by minimising its footprint, planning for closure and recognising biodiversity and community values of the environments in which we operate.