Section 1
Introduction

Preamble

This section introduces the proposed amended Rocky Hill Coal Project ("the amended Project"), the Applicant and the Site and includes:

- relevant background information relating to the amended Project;
- an outline of the scope and format of the document;
- details about the Applicant, Gloucester Resources Limited;
- an overview of the related proposed modification of the Stratford Extension Project development consent;
- information about the approvals process;
- the Applicant's approach to environmental management and environmental documentation; and
- the personnel involved in the design of the amended Project, document preparation and specialist consultant investigations.

Regularly Used Terminology

The following terminology is referred to regularly throughout this document. A glossary of all other mining and environment-related terminology is presented in Section 8.

- Amended Rocky Hill Coal Project: "the amended Project" for the purposes of this *Environmental Impact Statement*.
- The 2013 Project: the Rocky Hill Coal Project described in the 2013 Environmental Impact Statement incorporating four separate and/or contiguous open cut pits, in-pit and out-of-pit overburden emplacements, an on-site Coal Handling and Preparation Plant (CHPP), overland conveyor, rail loop, rail load-out facility, administration area and two power line corridors.
- The "Site" encompasses all land on which the amended Project would occur.
- The proposed amended Project comprises three principal components.
  - The "Mine Area" incorporating three contiguous open cut pits, a run-of-mine (ROM) pad with a breaker station and sized coal bin, amenity barriers, overburden emplacements and an administration area with site offices, amenities, workshop, water treatment plant and ancillary facilities.
  - The "private haul road", i.e. a 4.4km sealed road to be used for the transportation of sized ROM coal from the Rocky Hill Mine Area to the Stratford Mining Complex for washing and despatch to the Port of Newcastle. The private haul road extends from the southern boundary of the Rocky Hill Mine Area to the northern boundary of the Stratford Mining Complex, owned by Stratford Coal Pty Ltd.
  - Two "power line corridors" incorporating a re-located 132kV power line and a new low voltage (11kV or as nominated by Essential Energy) power line external to the Rocky Hill Mine Area.
- Run-of-mine (ROM) coal – Coal as extracted from the mine prior to any sizing or processing - includes some rock contamination.
- Sized ROM coal – ROM coal that is sized to be less than approximately 120mm, and from which a component of the rock contamination has been removed.

1.1 BACKGROUND

Gloucester Resources Limited ("the Applicant" or "GRL") proposes to develop and operate a small scale open cut coal mine 3.5km to 7km southeast of the Gloucester urban area (see **Figure 1.1**) to produce approximately 21 million tonnes of run-of-mine coal which would yield a predominantly high fluidity coking coal product. This proposed mine and its associated private haul road and power line corridors are located on land owned by the Applicant[1] (Company-owned land) or Yancoal Australia Limited (Yancoal) or their related companies, or within defined reserves for formed and unformed roads.

The proposed mine described and assessed within this document is an amended version of the Rocky Hill Coal Project for which an application for development consent was lodged in August 2013, hereafter referred to as "the 2013 Project". The Applicant recognised, following the exhibition of the 2013 Project *Environmental Impact Statement* and its ongoing community consultation, that in order to enhance its opportunities to gain the required approvals to develop the important coking coal resource within its Mine Area, it was necessary to simplify its operation and scale back production to a level that reduced the adverse environmental impacts yet maintained the substantial beneficial social and economic impacts. The Applicant has placed considerable emphasis upon re-designing the project to address, to the extent practicable, the various issues raised regarding the 2013 Project.

In 2013, the Applicant was seeking approval to develop a mine comprising the following.

1. Four separate and/or contiguous open cut pits and a CHPP within the Mine Area;
2. An overland conveyor for transporting product coal to a rail load-out facility with the overland conveyor to be located within a 50m wide overland conveyor corridor;
3. A rail load-out facility (incorporating a rail loop and two coal storage bins); and
4. Two power line corridors incorporating a re-located 132kV power line and a new low voltage power line external to the Mine Area.

In June 2015, during the assessment period of the development application for the 2013 Project, GRL submitted a request that the Department of Planning and Environment (DPE) place the assessment of the 2013 Project on hold. The request was made to DPE given the Applicant was in commercial negotiations with Yancoal regarding the use of major items of infrastructure at the nearby Stratford Mining Complex rather than constructing and operating this infrastructure specifically for the Rocky Hill Coal Project. Yancoal is the parent company of the Stratford Coal Pty Ltd, the owner of the Stratford Mining Complex.

In December 2015, GRL and Yancoal formally advised the DPE that a commercial agreement had been reached between the two companies whereby sized ROM coal would be transported from the Rocky Hill Mine Area to the Stratford Mining Complex via a private haul road and processed in the Stratford CHPP before being loaded onto rail for transportation to the Port of Newcastle.

[1] Company-owned land refers to land owned or under an option to purchase by the Applicant.

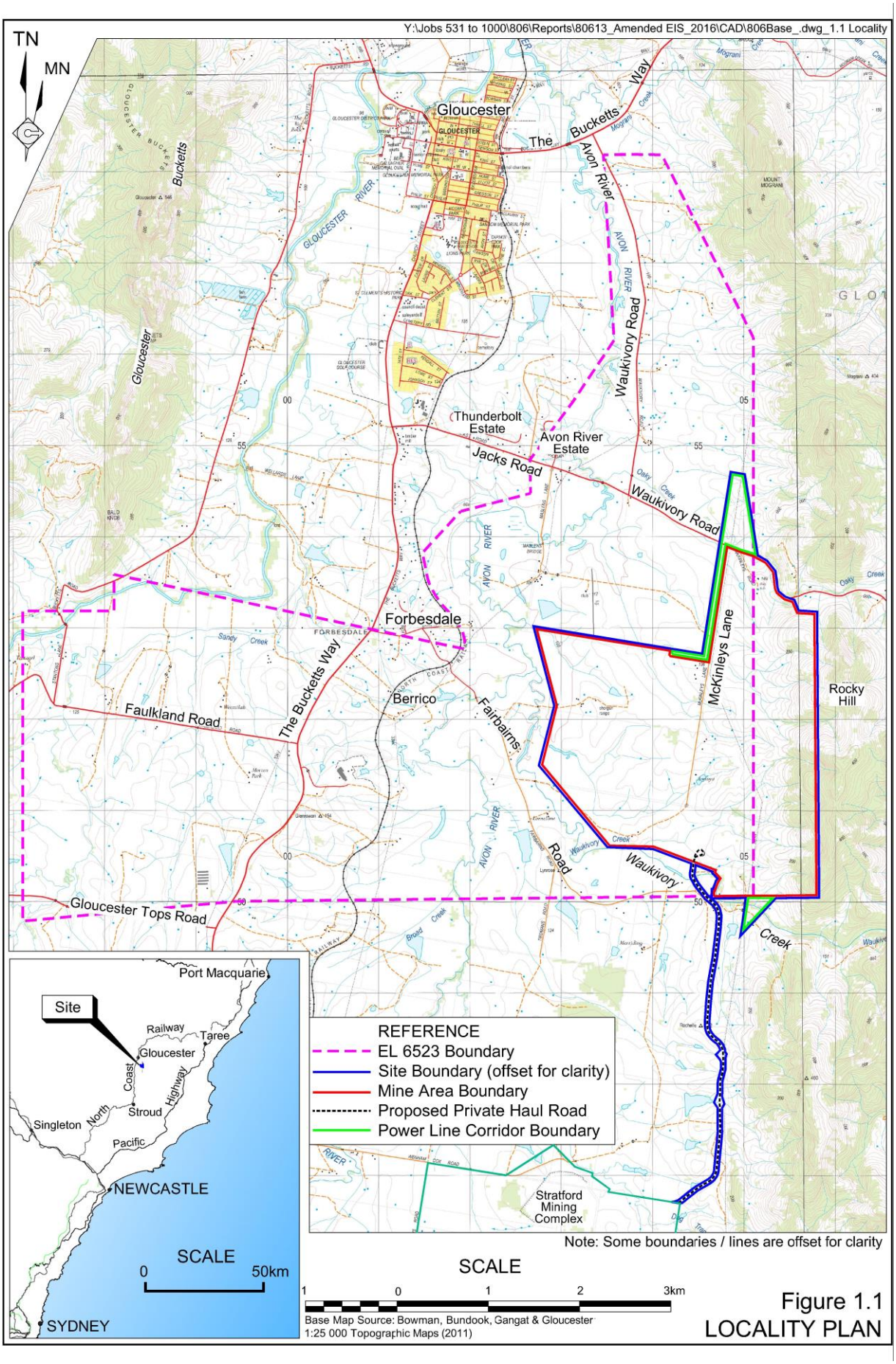

Figure 1.1
LOCALITY PLAN

As a result of this agreement, GRL proceeded to prepare an *Environmental Impact Statement* (EIS) for the amended Project to accompany an amended development application, whilst Yancoal proceeded to prepare a *Statement of Environmental Effects* to accompany an application to modify its Development Consent SSD 4966 so as to accommodate the changes that would occur within the Stratford Mining Complex arising from GRL's amended Project.

A summary comparison of the 2013 Project and the amended Project is set out in **Table 1.1**. Further discussion regarding the key amendments to the 2013 Project and the environmental improvements arising from the amended Project is set out in Section 6.1.6. **Appendix 1** provides a detailed review of key environmental differences between the two projects, drawn largely from the range of Specialist Consultant studies prepared in support of the amended Project.

1.2 SCOPE

This document covers all aspects of the planning, development, operation, rehabilitation, environmental management and monitoring of the amended Project to a level of detail consistent with industry standards, the scale of the proposed operations and the potential for environmental impacts. These aspects are presented in a manner that addresses:

- the specific requirements of the Director-General of the Department of Planning and Infrastructure (DP&I) (now Department of Planning and Environment (DPE)), i.e. the Director-General's Requirements (DGRs) issued in April 2012;
- the matters identified for consideration in correspondence submitted to the then DP&I in 2012 by other State and local government agencies and the Barrington-Gloucester-Stroud Preservation Alliance Inc. (BGSPA) and used in the compilation of, and provided with, the April 2012 DGRs;
- the additional matters identified for consideration in the EIS for the amended Project that were provided in correspondence from a number of State government agencies and one Council between December 2015 and April 2016;
- matters raised by both government agencies and community stakeholders within the submissions on the 2013 EIS; and
- the issues raised during the ongoing community consultation process.

This EIS effectively replaces the 2013 EIS as it contains all relevant information about the amended Project that has been retained from the 2013 Project and the information compiled about the amended components. The descriptive information and assessment in this document have also addressed those relevant issues covered in the Response to Submissions relating to the 2013 Project.

A copy of the correspondence requesting the DPE's consideration of GRL's application to amend the Rocky Hill Coal Project Development Application (DA) (Application No. SSD 5156) in accordance with clause 55 of the *Environmental Planning and Assessment Regulation 2000* is included in **Appendix 2**.

A copy of the DGRs is provided in **Appendix 3** whilst **Appendix 4** presents a table recording where each relevant requirement and matter raised by government agencies and the BGSPA in 2012 and 2015/2016 is addressed in this document.

Table 1.1
Summary Comparison of the 2013 Project and the Amended Project

Project Component	2013 Project	Amended Project
Approval Sought for Maximum ROM Coal Production	• 2.5 million tonnes per year	• 2.0 million tonnes per year
Product Coal Production	• 1.75 million tonnes per year	• 1.3 million tonnes per year
Mine Life	• Mining Operations = 14 years • 21 year Development Consent sought	• Mining Operations = 16 years • 21 year Development Consent sought
Open Cut Mining	• Three contiguous open cut pits and one stand-alone open cut pit	• Three contiguous open cut pits
Coal Processing	• An on-site CHPP generating product coal for rail despatch off site to export market. The Site workshop was located near the CHPP.	• An on-site rotary breaker designed to reduce the size of all ROM coal to <120mm and remove contaminating rock • Processing of sized ROM coal at the CHPP at the Stratford Mining Complex
Coal Products	• Approximately 90% high fluidity coking coal	• Approximately 95% of high fluidity coking coal
Capital Investment Value	• $164.4 million (2013 dollars)	• $90.3 million (2016 dollars)
Product Coal Transportation	• Transported using an overland conveyor from the CHPP to a rail load-out bin and a dedicated new rail loop and rail load-out facility approximately 2km west of the Mine Area	• No product coal produced on site • Product coal despatched from Stratford Mining Complex using existing rail load-out facility and rail loop within the Stratford Mining Complex
Administration Area	• Site offices, amenities and ancillary facilities	• Site offices, amenities, workshop, water treatment plant and ancillary facilities
ROM Coal Transportation	• All ROM coal delivered by haul trucks to the on-site CHPP	• All ROM coal delivered by haul trucks to the rotary breaker with sized ROM coal (90% ROM) transported via a private haul road to the Stratford Mining Complex
Processing Rejects	• Fine and coarse rejects produced in the CHPP would be mixed with overburden in the on-site overburden emplacements	• The coarse reject produced by the rotary breaker would be mixed with the on-site overburden emplacements • CHPP rejects managed at Stratford Mining Complex
Maximum Workforce	• Construction = 100 persons • Operations = 150 persons	• Construction = 60 persons • Operations = 110 persons
Proposed Operational Hours	• Mining (6 days/week): – Years 1 and 2: 7:00am to 10:00pm (i.e. day/evening) – Years 3 to 14: 7:00am to 4:00am (i.e. day/evening/night) • Coal despatch (7 days/week) – Anytime (24 hours/day)	• Mining (6 days/week): – Years 1 to 3: 7:00am to 6:00pm (i.e. day only) – Years 4 to 16: 7:00am to 10:00pm (i.e. day/evening) – No night-time operations • Coal transport to Stratford Mining Complex (6 days/week) – 7:00am to 6:00pm

The amended Project is declared as "*State significant development"* under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in accordance with the *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP). Section 89D of the EP&A Act nominates that the Minister for Planning or the Minister's delegate such as the Planning Assessment Commission is the consent authority for the amended Project. An EIS is required to be submitted to support the development application in accordance with Section 89G(1)(a) of the EP&A Act. The land on which the amended Project would occur, if approved, is referred throughout this document as "the Site".

Under the provisions of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industry) 2007 (Mining SEPP), mining is permissible with development consent in any zone where agriculture is permissible under a local environmental plan.

1.3 FORMAT OF THE ENVIRONMENTAL IMPACT STATEMENT

The EIS is structured as follows.

Section 1: introduces the amended Project, the Applicant and the Site and provides background information about the amended Project. The section reviews the high quality of the coal within the Mine Area, the coal products and their uses, and provides an overview of the approvals process. The Applicant's approach to environmental management and documentation for the amended Project is reviewed and the section concludes with information on the management of investigations for the *Environmental Impact Statement*.

Section 2: describes the Applicant's objectives and provides a description of the proposed open cut mining, on-site coal processing, sized coal transportation, waste management and rehabilitation activities.

Section 3: provides a description of the process used to identify and prioritise the key issues for assessment with reference to the DGRs issued in April 2012 and the range of matters raised by other government agencies' stakeholder consultation throughout the project planning stages, and a review of the relevant legislation, planning issues, policies and guidelines. The approach to the environmental risk assessment undertaken for the amended Project is introduced with respect to the specific environmental risk(s) for each environmental issue of relevance.

Section 4: presents a description of the existing environment; summarises the outcomes of the various specialist consultants' assessments; identifies proposed management and mitigation measures, and assesses the potential impacts and monitoring requirements for the issues identified in Section 3.

Section 5: provides a summary of the environmental management and monitoring measures the Applicant proposes to implement throughout the life of the amended Project.

Section 6: provides an evaluation and justification of the entire amended Project and identifies the consequences of not proceeding with the amended Project.

Section 7: lists the various source documents referred to for information and data used throughout the preparation of the EIS.

Section 8: presents a glossary of acronyms, symbols, units and technical terms used throughout the EIS.

Appendices: present the following additional information.

1. A detailed compilation of the key differences between the 2013 Project and amended Project and environmental improvements predicted as a result of the 2016 assessments.
2. A copy of the Applicant's correspondence requesting the DPE's consideration of GRL's application to amend the Rocky Hill Coal Project DA.
3. The DGRs issued in April 2012.
4. A summary of the coverage of the DGRs and matters identified for consideration in the correspondence submitted to the DP&I by other State government agencies, the former Gloucester Shire and Great Lakes Shire Councils and interested stakeholders during 2012, correspondence received in 2015/2016 and where each relevant matter is addressed in this document and/or the supporting *Specialist Consultant Studies Compendium*.
5. A SEPP 33 risk screening.
6. An assessment of environmental risk.
7. A list of all properties and their landowners referred to in this document and distances of various residences or receivers to the closest area of disturbance, the closest open cut pit and the access route to the Mine Area.

The EIS is supported by five additional volumes, the *Specialist Consultant Studies Compendium*, which incorporates fifteen stand-alone reports prepared by specialist environmental consultancies engaged by the Applicant or R.W. Corkery & Co. Pty Limited on behalf of the Applicant to assess specific aspects of the amended Project. Each of the 2013 Specialist Consultant reports has been comprehensively reviewed and updated to address the full range of environmental impacts associated with the amended Project. It is noted that the social and economic components have been compiled as individual reports compared with a single document assembled to accompany the 2013 EIS. The contents of all fifteen stand-alone reports are summarised within the appropriate section(s) of the EIS.

1.4 THE APPLICANT AND THE SITE

1.4.1 The Applicant

The Applicant, GRL, is a privately owned Australian registered company which was formed to focus on coal exploration activities within Exploration Licences (ELs) 6523, 6524 and 6563 within the Gloucester Basin and, subject to favourable results from those activities, to potentially develop the identified coal resources. The proposed amended Rocky Hill Coal Project has arisen as a result of the Applicant's exploration activities to date.

In March 2010, there was a change in the ownership and management of GRL. The current board and management team comprises personnel with extensive experience in the development and operation of open cut and underground coal mine projects, working closely with NSW communities to maximise the benefits which coal mining can bring to their towns and, in these communities, has established a solid record of community engagement, acceptance and support. The key GRL personnel are as follows.

- Brian Clifford – Chief Operating Officer/Director.
- Keith Ross – former Managing Director.
- Bob Corbett – Environment and Approvals Manager.
- Brad McAndrew – Engineering Manager.
- Anthony McDonald – Exploration Manager.

1.4.2 The Site

The Site for the amended Project comprises three principal component areas, namely:

- the Mine Area;
- the private haul road corridor; and
- two power line corridors (external to the Mine Area).

All land within the Site is either owned or under an option to purchase by the Applicant (or related companies), owned by Yancoal Australia Limited (or related companies) or located within defined reserves for formed or unformed roads.

Figure 1.2 displays the location of each component area within the Site and **Table 1.2** lists the associated land titles. The majority of the Mine Area lies within the boundary of EL6523 (**Figure 1.1**).

Table 1.2
Site Land Titles*

Mine Area	Private Haul Road Corridor	Power Line Corridors#
Lots 1 and 2 DP 868581	Lot 129 DP 979859	**Northern Corridor**
Lot 2 DP 234517	Lot 10 DP 1112778	Lots 10 & 11 DP 1191691
Lot 21 DP 1048749	Lot 911 DP 748573	Lot 891 DP 1134032
Lot 26 DP 1112877	Lots 1 & 3 DP 868581	Lot 1 DP 195431
Lot 129 DP 979859	Lot 3 DP 868501	Lot 2 DP 234517
Lot 222 DP 1061235	Lot 21 DP 1048749	Waukivory Road
Lot 251 DP 785579	Lot 293 DP 137520	
Lots 252 and 253 DP 785579	Lot 78 DP 979859	**Southern Corridor**
Lot 301 DP 864518	Fairbairns Road	Lot 20 DP1048749
Lots 302 to 304 DP 864518	Council Road Reserve	Lot 21 DP1048749
Lot 911 DP 748573		Fairbairns Road
Council Public Road and Road Reserves		

* See **Figure 1.2** for land title boundaries # External to the Mine Area

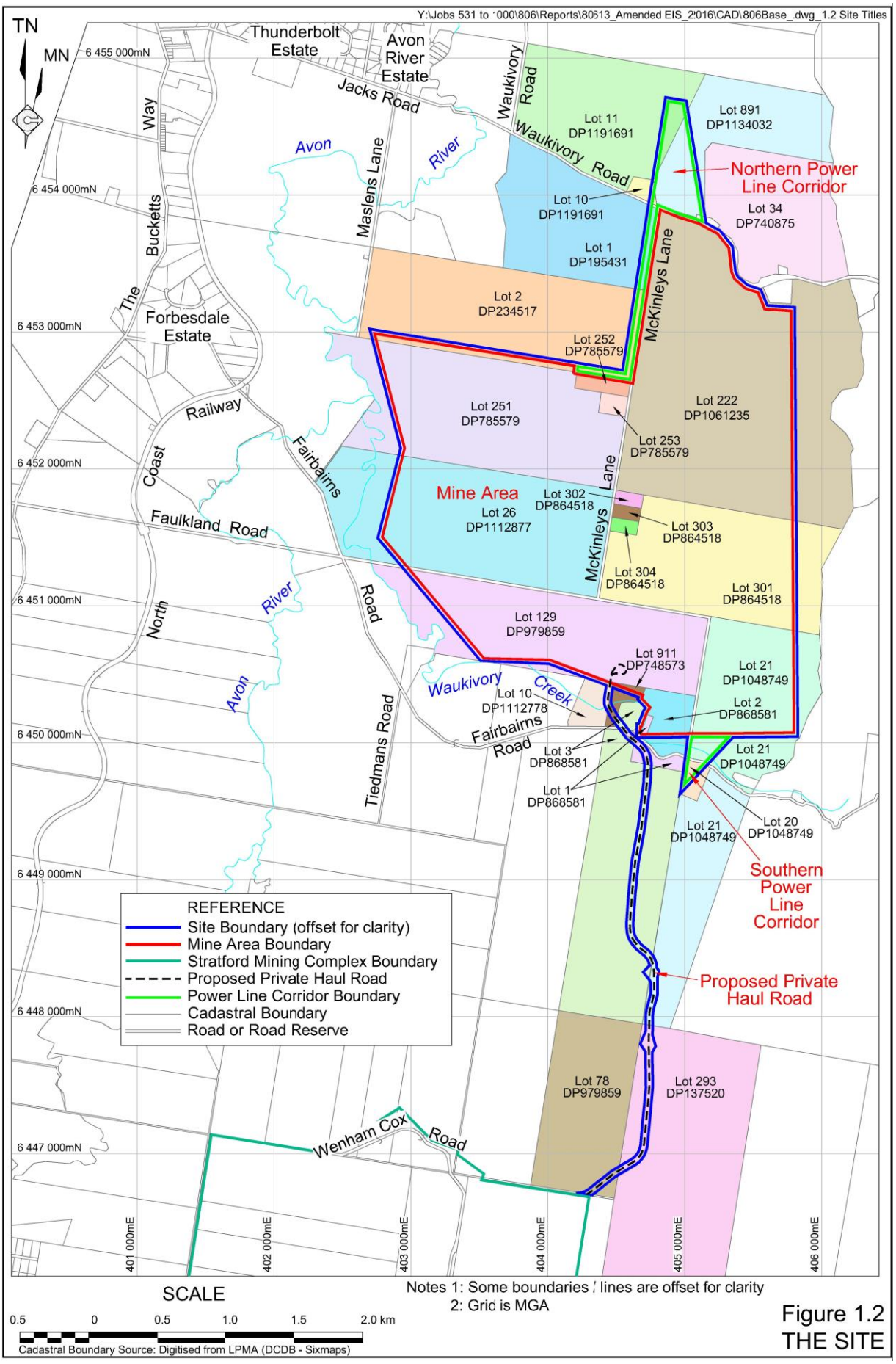

Figure 1.2
THE SITE

Figure 1.3 displays the area proposed to be included within mining leases for the amended Project. The eastern side of the Mine Area is located within Mining Lease Application (MLA) 446 (for mining purposes), in an area immediately to the east of EL6523. The key mining purposes to be carried out within the area covered by MLA 446 would include overburden placement and earthworks to divert upslope runoff around operational areas. The remainder of the Mine Area and the northern part of the private haul road corridor would be included in a separate mining lease application, all of which are located within EL6523. The southern section of the private haul road corridor is located within the existing Authorisation 315 held by Gloucester Coal Ltd (a subsidiary of Yancoal Australia Limited) (see **Figure 1.3**). All pending or future mining lease applications would comply with the provisions of the *Mining Act 1992* with respect to the requirement for underlying tenure. The Applicant holds current authorities for all areas where mining for coal (being the extraction of coal) is proposed to be carried out.

1.5 COKING COAL AND ITS PROPERTIES

Coal is a carbon-based substance formed from plant remains that have accumulated beneath layers of sediment and subjected to geological processes over the last 260 million or so years. With burial, the plant material was subjected to elevated temperatures and pressures, causing physical and chemical changes and transforming it into peat, and then coal.

The degree of change undergone by a coal as it matures from peat to lignite or brown coal, to sub-bituminous coal, to bituminous coal, to anthracite, i.e. materials with least carbon to those with most carbon, is referred to as its rank, and has an important bearing on the coal's physical and chemical properties.

In general, based on rank, coal can be classified as either "thermal" coal or "metallurgical" (or coking) coal. Thermal coal is lower in carbon content and calorific value or energy production and higher in moisture than metallurgical coal, is the world's most abundant fossil fuel and used primarily to produce energy.

Metallurgical coal is primarily used by steel mills in the production of metallurgical coke (almost pure carbon) which, in turn, provides the source of carbon needed to reduce (remove the oxygen) from iron ore in blast furnaces during the smelting iron and the subsequent production of steel and a range of other products. In steel production, there is no substitute for coking coal as a high quality source of carbon, with approximately one tonne of coal required for each tonne of steel produced.

Only certain types of metallurgical coal have the necessary characteristics required to make the required good quality coke, i.e. its ability to melt, swell, re-solidify, permit adequate air flow within the blast furnace, exhibit an ability to support the weight of the overlying raw materials in the furnace, plus low impurity levels.

Coal quality investigations have established that the amended Project would predominantly produce a medium volatile, high fluidity coal ideally suited for the manufacture of metallurgical coke, with sampling and analysis of borehole cores indicating that at least 95% of the output from the Rocky Hill Mine Area would satisfy the quality requirements of a high fluidity coking coal, i.e. with fluidity values of at least 10 000ddpm. The fluidity of the coal from the Rocky Hill Mine Area has a maximum value of more than 30 000ddpm, thereby making it one of the highest fluidity coking coals in Australia. Less than 5% of the mine production would be a thermal coal product.

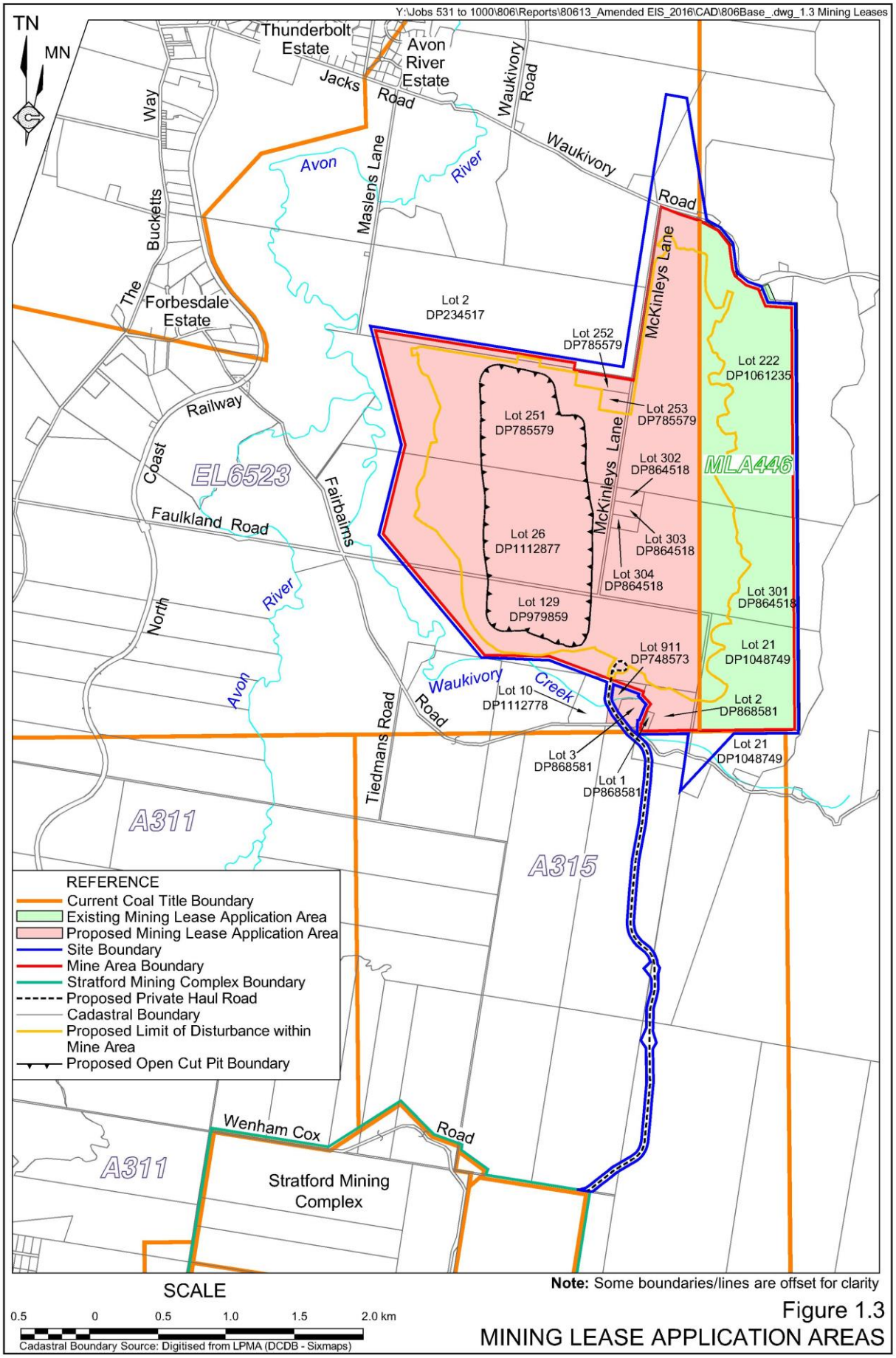

Figure 1.3
MINING LEASE APPLICATION AREAS

High grade metallurgical coal is in relatively short supply in the Asian region and this scarcity is predicted to increase in the coming years and its price increase accordingly.

For Australia, high fluidity coal is produced predominantly in Queensland. In New South Wales, the Greta seam in the Cessnock area has been a source of coking coal, although it is high in sulphur and only one mine, Austar, remains operational today.

Since the mid 1990s, the Gloucester Basin has been a significant source of high fluidity coal from New South Wales. Apart from direct sales to Asian steel mills, it has also been used for blending with low fluidity but low ash coal from the Hunter Valley and Gunnedah Basin to enhance their coking properties and enable coals which would otherwise be classified as PCI and semi-soft coals to qualify for sale into the coking coal market, with significant attendant economic benefit to NSW and Australia. The development of the amended Project would increase the availability of this high fluidity coking coal which is increasingly in demand by the Asian steel mills, with this demand only expected to increase in the future.

The use of coking coal is, however, not limited to the production of steel, with the refined carbon from coking coal coke also used in the production of silicon which is used in computers, mobile phones and solar energy panels, with the chemical by-products generated from the coal during the coke production process used for the manufacture of products including plastics, paints, medicines, light oils and solvents, insecticides, some fertilisers, nylon and acids.

1.6 COAL EXPLORATION AND MINING HISTORY

1.6.1 Previous Coal Exploration

Coal was first discovered in the Gloucester Basin in 1855, although it was not until the early 1970s when comprehensive exploration programs commenced and provided the basis for understanding the geology of the basin and the occurrence of the numerous coal seams.

The first recorded coal mine in the Gloucester area was a shaft at Coal Creek sunk in 1908. A shaft was subsequently sunk in the area now within King George V Memorial Park in 1910. The Avon River Mine located south of The Bucketts Way, adjacent to Avon Valley Road (now Waukivory Road) commenced in 1943, principally to supply coal to trains during World War 2. It is understood that mine operated for only a few years and closed due to water ingress.

Previous coal exploration in the Gloucester Basin was undertaken by Noranda Australia Limited, Blue Metal Industries Pty Ltd, Esso Exploration and Production Australia Inc., Excel Mining Pty Ltd and CIM Resources Ltd (subsequently called Gloucester Coal Ltd (GCL)). In June 2012, GCL merged with Yancoal Australia Limited.

In 2006, GRL was granted three exploration licences in the Gloucester area, namely EL6523, EL6524 and EL6563, covering an overall area of approximately 112km^2. The majority of the area covered by these exploration licences traversed the western side of the Gloucester Basin with a small section on the eastern side of the basin southeast of Gloucester. Following the grant of the three exploration licences, the then company management initiated a program of land acquisition and/or negotiated agreements with landowners to allow more detailed coal exploration to proceed, and commenced limited exploration activities. The exploration licences were renewed in 2009 for a period of 3 years.

In March 2012 and May 2012, GRL made applications to the Minister of Resources and Energy for the further renewal of EL6523 and EL6524, and EL6563 respectively, with the area sought for renewal within EL6523 being reduced by approximately 36% to 19.7km^2. This reduced area effectively created a wider buffer around the township of Gloucester to protect the scenic amenity of the Gloucester Bucketts[2] and associated flatlands and river systems. Approximately 6.4km^2 was also relinquished under the EL6563 renewal application. The renewal applications were approved in February and June 2013 respectively. The current tenement boundaries are shown on **Figure 1.4**. Further renewals of these exploration licences were submitted in 2015 and remain pending.

1.6.2 Recent Coal Exploration

In early 2010, the management and ownership of GRL changed and the new management adapted and accelerated the exploration program, initially concentrating in the area southeast of Gloucester within EL6523 and subsequently, in the Woods Road and South West exploration areas within EL6524 and EL6563 (see **Figure 1.4**). The exploration activities defined a recoverable high quality coking resource coal within the southeastern corner of EL6523 sufficient to allow the Applicant to develop plans for a proposed coal mine, i.e. in the Rocky Hill area. The outcomes of the coal resource investigations within the Mine Area to date are summarised in Sections 2.2.2 and 2.2.3.

1.6.3 Stratford Coal Pty Ltd[3] – Stratford Mining Complex

The exploration undertaken in the 1990s by the predecessors to Stratford Coal Pty Ltd (including CIM Resources Ltd and Excel Mining Pty Ltd) defined sufficient coal to allow coal mining to commence in the Stratford area. Gloucester Coal Limited (GCL) commenced coal production from the Main Pit at Stratford in 1995, the Duralie Mine in 2002, the Bowens Road North Pit in 2003 and the Roseville West Pit at Stratford in 2009. The Bowens Road North and Roseville West deposits are located 1.5km north and 1km northwest of the Main deposit respectively (see **Figure 1.5**).

In September 2012, Stratford Coal Pty Ltd lodged an application for development consent for an extension of its existing Stratford operations known as the Stratford Extension Project (Stratford Coal, 2012). The EIS for the Stratford Extension Project was placed on public exhibition in November 2012 and development consent SSD 4966 was granted by the Planning Assessment Commission on 29 May 2015. Mining ceased within the Stratford Mining Complex in mid-2014 although receipt and washing of ROM coal from the Duralie Coal Mine and reprocessing of materials from the co-disposal dam has continued, with product coal despatched by rail to the Port of Newcastle.

[2] The Gloucester Bucketts are a prominent topographic feature immediately west of the Gloucester township – see **Figure 1.1.**

[3] Stratford Coal Pty Ltd is one of two companies within the Yancoal Australia Group operating coal mines in the Gloucester Basin. A second company, Duralie Coal Pty Ltd operates the Duralie Coal Mine, approximately 20km south of Stratford.

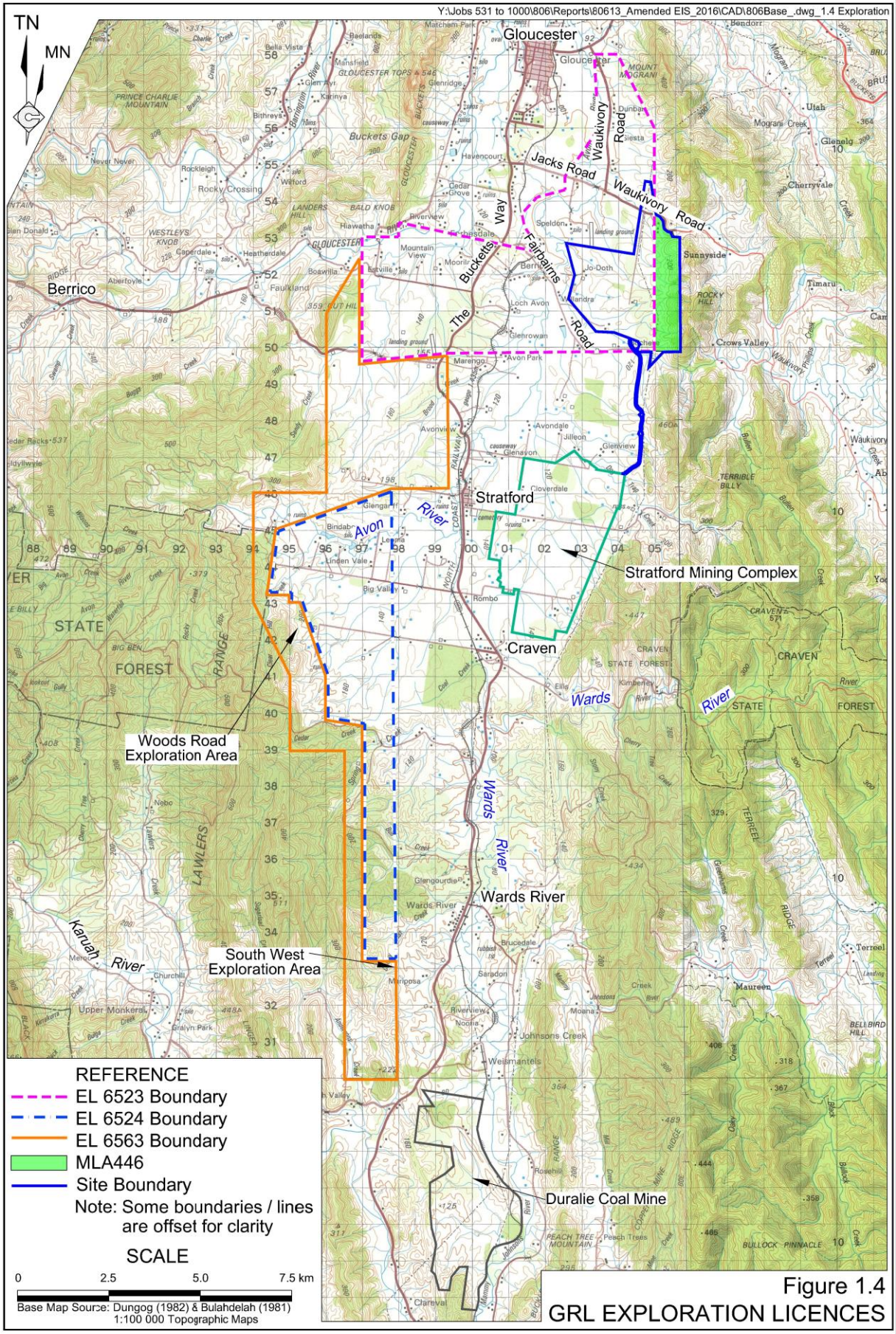

Figure 1.4
GRL EXPLORATION LICENCES

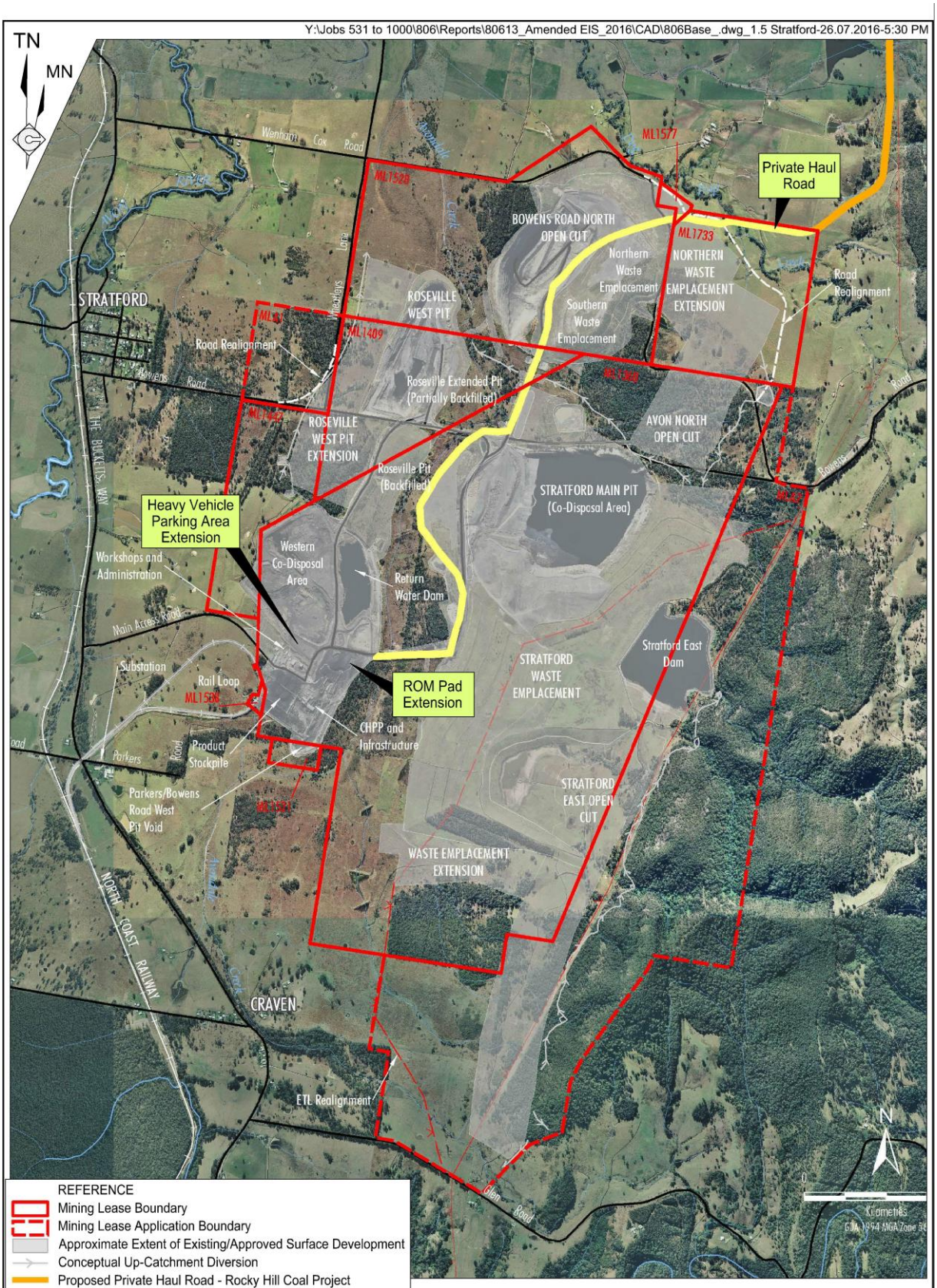

Figure 1.5
STRATFORD EXTENSION PROJECT - PROJECT GENERAL ARRANGEMENT

The approved Stratford Extension Project involves an extension of the existing Roseville West Pit, the development of two new open cut mining areas (the Stratford East and Avon North open cuts – see **Figure 1.5**) and the extension of two existing overburden emplacements over an 11 year project life, i.e. from when mining resumes. The duration and hours of operation of mining in new open cut pits would be as follows.

- Roseville West Pit Extension
  Years 1 to 11 (7:00am to 6:00pm, 7 days per week)
- Stratford East Open Cut
  Years 1 to 5 (24hrs/day, 7 days per week with overburden removal 7:00am to 6:00pm)
  Years 6 to 11 (24hrs/day, 7 days per week)
- Avon North Open Cut
  Years 1 to 5 (24hrs/day, 7 days per week)

Other related activities include road re-alignments, continued backfilling of completed open cut pits and an annual ROM coal production rate of up to 2.6Mtpa. The CHPP would continue to operate 24 hours per day, 7 days per week.

ROM coal would continue to be transported by shuttle train from the Duralie Coal Mine for processing at the Stratford Mining Complex until its projected closure in 2017. Despatch of product coal would continue by rail to the Port of Newcastle at an average of 2.5 and up to a maximum of six trains per day.

Stratford Coal Pty Ltd is lodging an application to modify Development Consent SSD 4966 (i.e. Modification 1) to accommodate the various activities within the Stratford Mining Complex arising from the agreement with GRL. The main changes to the operations of the Stratford Mining Complex would be as follows.

- Construction and sealing of a 1.4km section of private haul road from the end of the existing unsealed haul road adjacent to the Bowens Road North Open Cut (within ML 1577) to the northeastern boundary of ML 1733 to join the private haul road proposed for construction by GRL from the Rocky Hill Mine Area.
- Construction of an at-grade level crossing (and associated controls) at the intersection of Wenham Cox Road and the private haul road.
- Extension of on-site unsealed haul roads to accommodate Rocky Hill Coal Project haul trucks within the Stratford Mining Complex.
- Extension of the Stratford Mining Complex heavy vehicle parking area.
- Extension of the Stratford Mining Complex ROM pad to accommodate Rocky Hill Coal Project sized ROM coal.
- Transportation of sized ROM coal from the Rocky Hill Mine Area to the Stratford Mining Complex during daytime hours only (7:00am – 6:00pm).

- Processing of coal from the Rocky Hill Coal Project at the Stratford Mining Complex and on-site disposal of CHPP rejects generated from the processing of the Rocky Hill sized ROM coal.
- Transportation of the resulting product coal from the Stratford Mining Complex to the Port of Newcastle.

The locations of these activities are displayed on **Figure 1.5**.

Further details on the Stratford Coal modification can be found within the Stratford Extension Project Modification 1 documentation.

1.6.4 Other Surrounding Projects

Apart from the operations within the Stratford Mining Complex, there are no other existing or approved operations in the vicinity of the Site which need to be assessed in a cumulative manner with the Applicant's amended Project.

On 4 February 2016, AGL Upstream Investments Pty Ltd (AGL) publicly announced that it was not proceeding with the approved Gloucester Gas Project and that it will relinquish its Petroleum Exploration Licence for the Gloucester region (PEL 285) to the NSW Government. On the basis of this announcement, and the NSW Government's moratorium on the grant of future petroleum exploration licences, GRL has excluded any consideration of the Gloucester Gas Project in this document.

1.7 THE APPROVALS PROCESS

Table 1.3 presents the component activities within the approvals process for the amended Rocky Hill Coal Project, i.e. a "*State significant development"*.

1.8 ENVIRONMENTAL MANAGEMENT AND DOCUMENTATION

1.8.1 Environmental Management

Environmental management of the amended Project would be undertaken as an integral component of the overall management of the Site. The Applicant would employ a suitably experienced person whose principal function would be to coordinate the on-site environmental requirements, including compliance with commitments and procedures. The environmental professional would report directly to the senior management position on the Site and pro-actively promote the consideration of environmental issues in all tasks undertaken.

The workforce, including the Applicant's staff and the staff of all contractors, would be required to undertake induction (and re-induction) training courses and specific environmental training to ensure all operational conditional requirements and commitments are satisfied throughout the life of the amended Project.

Table 1.3
Approvals Process for the amended Rocky Hill Coal Project

Stage	Activity	Status
1	An application for DGRs is prepared and submitted to the, then, DP&I accompanied by a document entitled "Documentation Supporting an Application for Director-General's Requirements for the Rocky Hill Coal Project".	Submitted in January 2012
2	A Planning Focus Meeting is convened for all relevant government agencies to attend a briefing about the proposed Project and a site inspection.	Completed – held on 14 March 2012
3	The, then, DP&I receives the written requirements of the government agencies consulted and issues the DGRs for the proposed Project.	Received 24 April 2012
4	The Applicant commences consultation with the local and wider community – which continues throughout the entire process.	Ongoing since March 2010
5	An *Environmental Impact Statement* was provided to the, then, DP&I for the 2013 Project for consideration and assessment of adequacy by DP&I and relevant government agencies (prior to it being placed on public exhibition).	December 2012
6	An EIS was provided to the, then DP&I for the 2013 Project incorporating a range of modified text and figures addressing matters raised during the assessment of adequacy.	April 2013
7	DP&I placed all documents on public exhibition and notified neighbours and other stakeholders about the 2013 Project and the exhibition period.	28 August 2013 to 28 October 2014
8	Approximately 1700 submissions were received from 18 government agencies, community groups and individuals.	September 2014 to March 2015
9	The Applicant provided a response to the issues raised in government and public submissions.	14 April 2014
10	The Applicant requested DPE place the determination of the 2013 Project on hold until December 2015 pending the results of commercial negotiations with Yancoal.	June 2015
11	Following agreement with Yancoal to utilise the processing and rail load-out facilities at the Stratford Mining Complex, DPE acknowledged GRL's intentions to amend the 2013 Project with the key objective to present a project with a reduced level of environmental impact compared with the 2013 Project. Additional government agency EIS requirements were sought for the amended Project.	December 2015 to February 2016
12	The design of the 2013 Project and all environmental studies were reviewed and updated and an *Environmental Impact Statement* for the amended Project provided to DPE for review and consideration prior to it being placed on public exhibition.	June 2016
13	An EIS for the amended Project is provided to DPE incorporating modified text and figures addressing those matters identified during the review.	August 2016
14	DPE place all documents for the amended Project on public exhibition and notify all stakeholders about the amended Project and the exhibition period.	*
15	Review of the EIS for the amended Project by government agencies and the community during the exhibition period.	*
16	DPE requests the Applicant to respond to issues raised in the submissions from government agencies and the community.	*
17	The Applicant provides a response to the issues raised in submissions and, if necessary, a revised set of environmental management and monitoring measures.	*
18	DPE prepares its assessment report based on all documentation submitted by the Applicant, government agencies and the community. The Minister will refer the application to a Planning Assessment Commission with a direction of whether a hearing should be held.	*
19	The Planning Assessment Commission releases its report presenting the results of its review of the amended Project.	*
20	DPE prepares its final assessment report reflecting the content of the Planning Assessment Commission's report.	*
21	Determination by the Minister for Planning or his/her delegate, i.e. either approval or refusal of the amended Project.	*

Note: * Timing beyond the control of Applicant.

1.8.2 Environmental Documentation

The Applicant would prepare the documentation required by the NSW Government through both the DPE and the Division of Resources and Energy (DRE) within the Department of Industry following the granting of development consent and mining leases. An overview of the proposed range of environmental documentation to be prepared is as follows.

Management and Monitoring Plans

If development consent is granted for the amended Project, the Applicant would prepare a range of management and monitoring plans/strategies including the following.

- Environmental Management Strategy
- Mining Operations Plan
- Air Quality Management and Greenhouse Gas Management Plan incorporating an Air Quality Monitoring Plan
- Construction Noise Management Plan
- Operational Noise Management Plan
- Blast Management Plan incorporating a Blast Monitoring Plan and Blast Fume Management Strategy
- Visual Impacts Management Plan incorporating a Lighting Management Plan
- Construction Water Management Plan incorporating a Surface Water Monitoring Plan
- Operational Water Management Plan incorporating Groundwater and Surface Water Monitoring and Contingency Plans
- Construction Transport Management Plan
- Operational Transport Management Plan
- Aboriginal Cultural Heritage Management Plan
- Aquatic Flora and Fauna Management Plan
- Waste Management Plan
- Biodiversity Management Plan incorporating a range of protocols - see Measure 14.2 in Section 5

Each of the above documents would be prepared in consultation with the relevant government agencies for the approval of the Secretary of the DPE or as otherwise nominated.

The above management and monitoring plans/strategies would be reviewed either annually or biennially throughout the life of the mining operation and updated, where appropriate, to reflect any outcomes arising from operational modifications, the results of monitoring and/or external or internal audits.

Mining Operations Plan

The Mining Operations Plan (MOP), which would be prepared in accordance with the Guidelines published by DRE, would provide a mechanism for the Applicant to present a greater level of detail regarding the range of operations necessary for compliance with the conditions imposed upon the mine under the terms of its mining leases.

The MOP would outline details of the various activities to be undertaken within the mining leases and focus upon the progressive rehabilitation and ultimate mine closure. The MOP would be prepared prior to the commencement of activities within the Mine Area and would be updated whenever required, but at intervals not greater than every 7 years. The MOP would also form the basis for calculating the security deposit imposed through the mining leases.

A number of the management and monitoring plans referred to above would be included as appendices to the MOP.

Annual Documentation

An Annual Review would be prepared in satisfaction of the development consent and mining lease conditions. The document would be designed to consolidate the Government reporting requirements relating to environmental management and rehabilitation of the disturbed areas within the Site. The Annual Review would cover all matters documented in the "Annual Review Guideline" issued by DPE in 2015 (or subsequent revisions).

Each Annual Review would be prepared generally in accordance with the Annual Review Guideline to:

- record the activities, including mining operations and rehabilitation undertaken on site during the previous 12 month period and review the effectiveness of all adopted environmental controls;
- outline the planned activities during the following 12 month period and any additional environmental controls required in light of the performance during the previous year;
- present monitoring results and an evaluation of the Applicant's environmental performance;
- present details of any incidents or non-compliances during the previous 12 month period.
- record the results of any independent audits;
- outline the results of the community engagement undertaken;
- review the implementation of actions required from the previous Annual Review; and
- provide any other information nominated in the development consent.

The Applicant would also submit Annual Returns to the EPA in accordance with the requirements of its environment protection licence.

Complaint Management and Monitoring Reporting

The Applicant would implement a documented system to comprehensively record any complaints and the resultant investigations, responses and communications with the complainant(s) and would respond to all complaints in a timely manner.

The Applicant would place all validated monitoring data on its website, generally on a monthly basis, together with any relevant comments on the monitoring data and incorporate a provision for on-line input/response by members of the community. The Applicant would ensure the requirements of the "Web-based Reporting Guidelines" issued by DPE in 2015 (or subsequent revisions) are satisfied throughout the life of the amended Project. Monitoring results would also be discussed at each Community Consultative Committee meeting.

1.9 MANAGEMENT OF INVESTIGATIONS

The preparation of this document has been coordinated by Mr Rob Corkery, M.Appl.Sc., B.Sc (Hons), Principal of R.W. Corkery & Co Pty. Limited (RWC) with the assistance of Mr Scott Hollamby B.EnvSc (Hons), Senior Environmental Consultant and Mr Nicholas Warren B.Sc., M.Bus (Marketing), M.Env.Sc. Environmental Consultant, both with RWC.

Details of the amended Project have been provided by the former GRL Managing Director Mr Keith Ross, Mr Brian Clifford (GRL's Chief Operating Officer), other Directors of GRL, Mr Bob Corbett (GRL's Environment and Approvals Manager) and other members of the GRL's management team. Assistance was also provided by Mr Brian Francis (mine design and planning), Mr Ken Byatt (coal processing), and Mr Aaron Donelan and Mr Ken Wilson (coal quality).

A range of environmental investigations have been undertaken by specialist consultancies, initially to identify the environmental constraints that needed to be taken into account by the Applicant during the design of the 2013 Project and/or amended Project and subsequently, to assess the impacts of the amended Project and make recommendations as to any design and operational safeguards or mitigation measures. The fields of study and the principal specialist consultants and associated consultancies are as follows.

- Noise and Vibration – Mr Glenn Thomas and Mr Yang Liu – SLR Consulting Australia Pty Ltd.
- Air Quality – Ms Judith Cox and Ms Francine Manansala – Pacific Environment Limited.
- Health Risk – Ms Claris Obura – Pacific Environment Limited
- Visual Impacts – Dr Richard Lamb – Richard Lamb & Associates and Mr Derek Mascarenhas – Cambium Group.
- Groundwater – Mr Daniel Barclay – Australasian Groundwater & Environmental Consultants Pty Ltd.
- Surface Water – Mr Michael Batchelor and Mr Carl Wallis – WRM Water & Environment Pty Ltd.

- Overburden and Reject Characterisation – Dr Alan Robertson – RGS Environmental Pty Ltd.
- Terrestrial Biodiversity – Mr Brian Wilson and Mr Stefan Rose – Biosis Pty Ltd.
- Aquatic Ecology – Dr Marcus Lincoln-Smith – Cardno Ecology Lab.
- Traffic and Transport – Mr Ben Rossiter – Constructive Solutions Pty Ltd.
- Soils and Land Capability – Mr Geoff Cunningham – Geoff Cunningham Natural Resource Consultants Pty Ltd and Dr David McKenzie – Soil Management Designs.
- Aboriginal Cultural Heritage – Mr John Appleton – Archaeological Surveys and Reports Pty Ltd.
- Historic Heritage – Dr Richard Lamb – Richard Lamb & Associates.
- Social Aspects – Mrs Ellen Davis-Meehan – Key Insights Pty Ltd.
- Economic Aspects – Mr Eamon McGinn and Ms Katarina Nossal – Deloitte Access Economics Pty Limited.

Mr Geoff Marshall of Essential Solutions assisted in the preparation of the Agricultural Impact Assessment.

The Applicant also commissioned:

- GSS Environmental Pty Ltd to investigate and map the location of the alluvial sediments within and adjacent to the Mine Area as part of the 2013 Project;
- Dr Frans Kalf of Kalf and Associates Pty Ltd, hydrogeological numerical modelling specialists, to peer review the hydrogeological and groundwater modelling assessment for the amended Project; and
- Associate Professor David McKenzie to peer review the medical-related components of the air quality and health risk assessment and the social impact and noise assessments for the amended Project.

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