Planning, Industry & Environment

DOC19/681171

# DIVISION OF RESOURCES & GEOSCIENCE ADVICE RESPONSE

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Dear Lauren

**Project: Maxwell Underground Coal Project**
**Stage: Review of Environmental Impact Statement**
**Development Application: SSD-9526**

I refer to your correspondence dated 7 August 2019 inviting the Division of Resources & Geoscience (the Division) to provide comments on the *Maxwell Underground Coal Project* (Maxwell Project or the Project). The proposal is submitted by Maxwell Ventures (Management) Pty Ltd, a wholly owned subsidiary of Malabar Coal Limited (Malabar Coal or the Proponent).

The relevant units internal to the Division have been consulted in generating this advice. Further, the Department of Planning, Industry and Environment - Planning & Assessment Division and the Proponent should be aware that matters pertaining to rehabilitation, environmental impacts of final landform design, subsidence, subsidence management, mine operator and safety are not assessed by the Division. Reference should be made to the response from the NSW Resources Regulator on these matters.

**Advice overview**

The Division has determined that the Maxwell Project will:

- establish a new mine with a current Life-of-Mine of 26 years.
- produce 144.7 million tonnes (Mt) of Run-Of-Mine (ROM) coal over 26 years, 75% of which will supply the coking coal market for steel manufacture.
- ensure an appropriate return to the state of A$955 million in royalties (current dollars).
- generate total revenue (value of coal produced) of A$14 billion (current dollars).
- generate capital investment of A$509 million to establish the project, including A$185 million in mining plant and equipment.
- provide employment for a workforce of 350 personnel.
- utilise existing infrastructure including; coal handling and preparation plant (CHPP), rail facilities, workshops, water management infrastructure and administrative buildings.

## Resource and Economic Assessment

The Maxwell Project entails an underground mining operation proposed to extract approximately 144.7 Mt ROM coal over 26 years, at a maximum of 8 million tonnes per annum of ROM coal. The Project will utilise existing infrastructure owned by Malabar Coal in Coal Lease 395 (the former Drayton mine), which includes a CHPP, rail facilities, workshops, water management infrastructure and administrative buildings. Coal will be transported via overland conveyor from the mine to the infrastructure area.

The Maxwell Project plans to extract coal from the Wittingham Coal Measures. Approximately 75% (92.4 Mt) of the product will be coking coal, with the remaining 25% (31.4 Mt) export thermal. Coal resources within the mine design will be extracted using two underground mining methods; bord and pillar and longwall. The Whynot Seam is the only seam to be extracted using the bord and pillar method. This method was selected as it is best suited to the shallow depth of cover, resource extents and geotechnical/subsidence constraints of the Whynot Seam. The mining method will also minimise the time to develop mine access and commence mining. Longwall mining of the underlying Woodlands Hill, Arrowfield and Bowfield seams will increase production rates and resource recovery after the Maxwell Project is well established. The longwall layout is currently designed with 39 panels down to about a 450-metre depth.

The Division verified that the Maxwell Project will provide 144.7 Mt of ROM coal and 123.8 Mt of product coal. The Proponent has completed coal resource and reserve estimations for the Project in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC code). The JORC Code is an industry-standard professional code of practice that sets minimum standards for public reporting of mineral exploration results, mineral resources and ore reserves. Reserves are the economically mineable portion of a resource. A JORC compliant reserves report for the Project assists in independently assessing the commercial viability of the Project and the proposed mining method.

In view of the constraints outlined in the Proponent's Environmental Impact Statement and based on the information currently available, the Division considers the Maxwell Project satisfies section 3A objects of the *Mining Act 1992* and the requirements of clause 15 of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007. The Project represents an efficient development and utilisation of coal resources which will foster significant social and economic benefits.

The Division is satisfied that, should the operational outcomes be achievable, the proposed mine design and mining method submissions adequately recover coal resources and will provide an appropriate return to the state.

The resource utilisation, recovery and economic benefits assessment undertaken by the Division is addressed in Attachment A.

## Application of section 380AA of the *Mining Act 1992* – restrictions on planning applications for coal mining and titles required to undertake mining

Section 380AA states:

> *(1) An application for development consent, or for the modification of a development consent, to mine for coal cannot be made or determined unless (at the time it is made or determined) the applicant is the holder of an authority that is in force in respect of coal and the land where mining for coal is proposed to be carried out, or the applicant has the written consent of the holder of such an authority to make the application.*
>
> *(2) For that purpose, an authority in respect of coal need not be in force in respect of the whole of the land to which the application for development consent relates but must be in force for the land where mining for coal is proposed.*

Based on current title information the Division advises that the Proponent holds the appropriate titles as required for planning applications for coal as relating to the Project and satisfies the requirements of section 380AA.

**The requirement for a mining authorisation and royalty liability**

Coal is a prescribed mineral under the Act. The Proponent is required to apply for appropriate mining title(s) allowing for mineral extraction, such as a mining lease, from the Division to undertake mining.

For ancillary mining activities carried out in connection with and in the immediate vicinity of a mining lease in respect of a mineral, the proponent is required to hold a Mining Lease for ancillary mining activities or an 'off title' designated ancillary mining activity as defined by clause 7 of the Mining Regulation 2016 (the Regulation). This applies where the activities move beyond the scope of section 73 (Rights under mining lease) and/or section 81 (Surface activities in relation to subsurface leases) of the Act.

The holder of a mining lease is also liable to pay royalty for both publicly and privately-owned minerals (refer to section 282-285 of the Act).

**Application of section 65 of the *Mining Act 1992* – development consents under the *Environmental Planning and Assessment Act 1979***

A development application under the *Environmental Planning and Assessment Act 1979* must be approved before a mining lease can be granted. A mining lease will only be granted for activities specified in the development consent.

Section 65 states:

> *The Minister must not grant a mining lease over land if development consent is required for activities to be carried out under the lease unless an appropriate development consent is in force in respect of the carrying out of those activities on the land.*

**Biodiversity offset assessment**

The Division requests that the Proponent consider potential resource sterilisation should any future biodiversity offset areas be considered. The Proponent must consult with the Division and any holders of existing mining or exploration authorities that could be potentially affected by the proposed creation of any such biodiversity offsets, prior to creation occurring. This will ensure there is no consequent reduction in access to prospective land for mineral exploration or potential for the sterilisation of mineral and extractive resources.

**Summary of review**

The Division has determined that should the project be approved; efficient and optimised resource outcomes can be achieved, and any identified risks or opportunities can be effectively regulated through the conditions of mining authorities issued under the *Mining Act 1992*.

The Division requests to review the draft conditions of approval before finalisation and any granting of development consent.

For further enquiries and advice in relation to this matter, please contact Adam W. Banister, Senior Advisor Assessment Coordination – Resource Assessments on 02 4063 6534 or assessment.coordination@planning.nsw.gov.au.

Yours sincerely

Stephen Wills
**Executive Director Resource Operations**
**Division of Resources & Geoscience**
17 September 2019

Encl.
Attachment A – Maxwell Underground Coal Project - Resource & Economic Assessment (DOC19/681163)
Attachment B – Maxwell Underground Coal Project - Diagram (DOC19/765447)

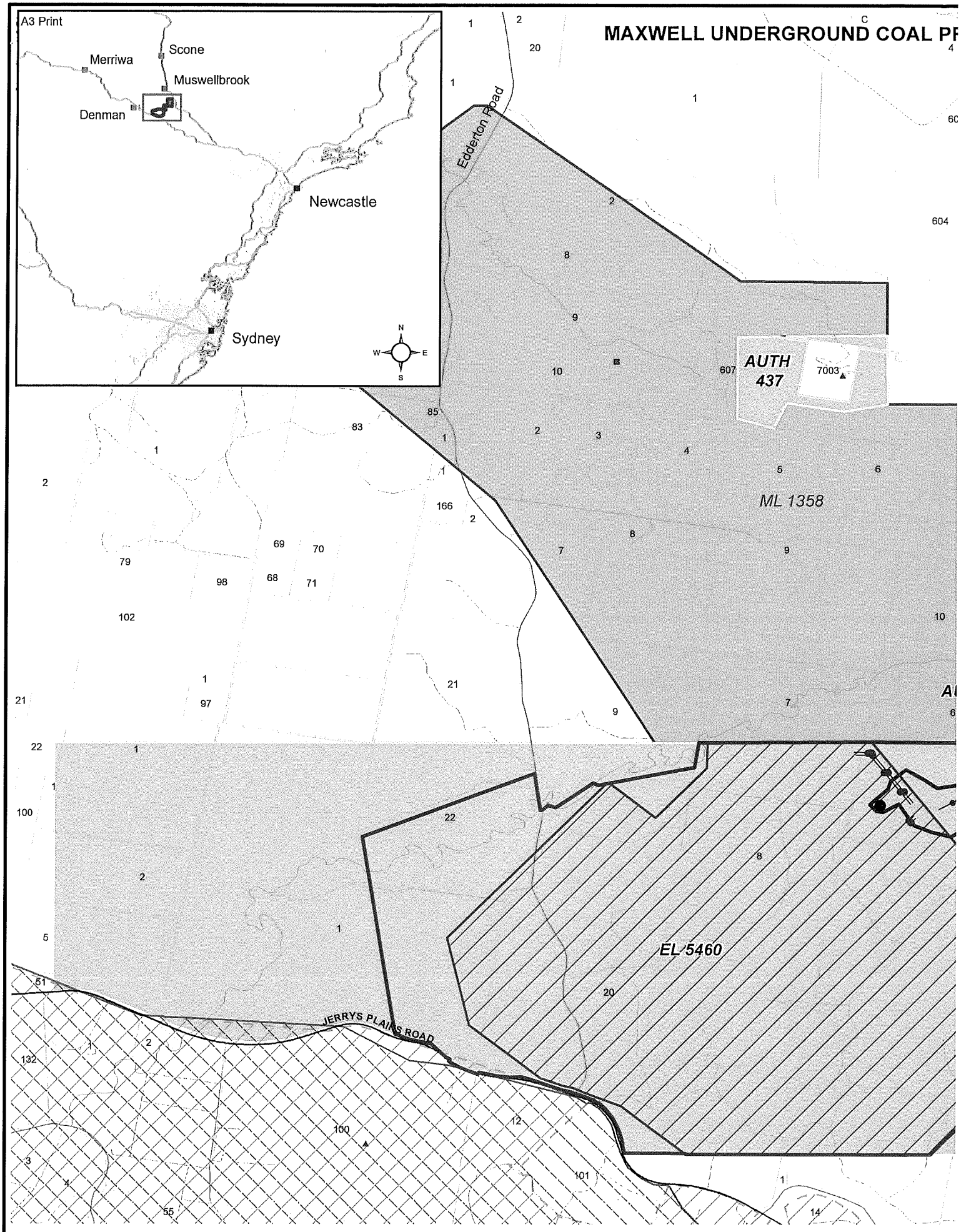



**DIAGRAM: SSD 9526-001**

- Development Application Area
- Underground Devlopment Extent
- CHPP Reject Emplacement Area
- Adjoining Titles
- Indicative Transport Services Corridor
- Mine Entry Area
- Mine Access Drifts
- Coincident Titles
- Proposed 66kV Power Supply
- Proposed 66kV Power Supply Extension
- Mine Entry Area Ventiliation Shaft
- Prod
- SRLI
- SRLI

Planning, Industry & Environment

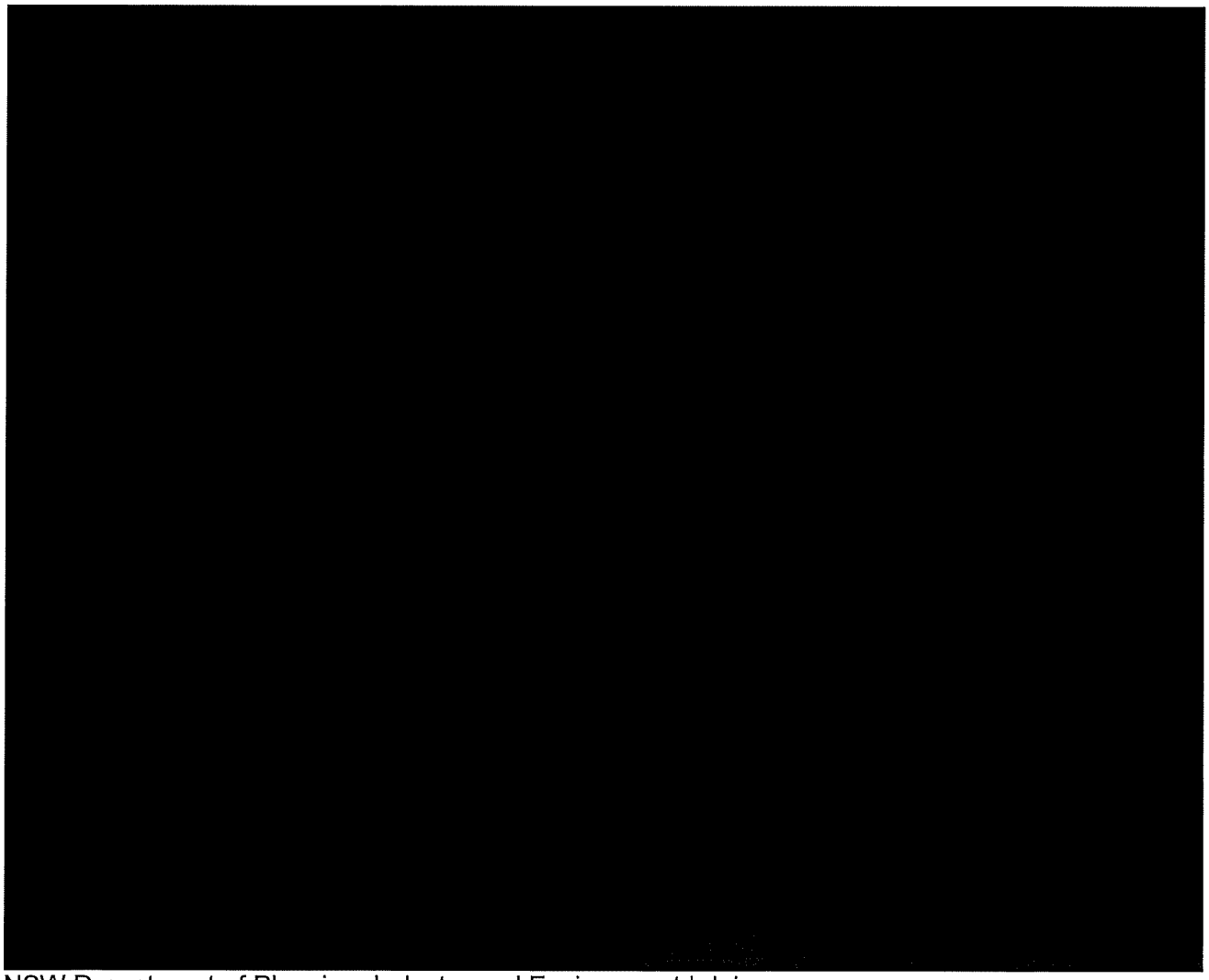
DOC19/681163

# Maxwell Underground Coal Mine Project (SSD-18-9526)

## Resource & Economic Assessment

Division of Resources & Geoscience

September 2019



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**More information**

Assessment Coordination Unit, Resource Assessments – Division of Resources & Geoscience

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# Contents

# Executive summary

## Determination

The Division of Resources and Geoscience (the Division) assessed the Maxwell Underground Coal Mine Project (the Maxwell Project or the Project) Environmental Impact Statement (EIS) and supporting material.

The Division determined the Project will:

- establish a new mine in the Hunter Valley.
- produce 144.7 million tonnes (Mt) of Run-Of-Mine (ROM) coal over 26 years.
- ensure an appropriate return to the NSW Government including;
    - A$955 million royalties (undiscounted)
    - A$14 billion total revenue (undiscounted)
- provide employment for 350 people.
- be an efficient use of resources.

## The project

The Maxwell Project entails an underground mining operation proposed to extract approximately 144.7 Mt ROM coal over 26 years, at a maximum of 8 million tonnes per annum (Mtpa) ROM coal. The Project will utilise existing infrastructure owned by the proponent in nearby Coal Lease 395 (Act 1973) (CL 395), which includes a coal handling and preparation plant (CHPP), rail facilities, workshops, water management infrastructure and administrative buildings. ROM Coal will be transported via overland conveyor from the mine to the infrastructure area for beneficiation and export.

# Introduction

State significant development is regulated under the *Environmental Planning and Assessment Act 1979*, which requires a proponent to apply to the Department of Planning, Industry and Environment for development consent, supported by an EIS.

This Resource & Economic Assessment (REA) conducted for the Maxwell Project by the Division assessed:

- the social and economic benefits to NSW including royalties, capital investment, revenues and jobs.
- the resource/reserve estimates stated in the proponent's EIS.
- if the Project is an efficient development of the resource, that resource recovery is optimised and waste minimised.
- if the Project provides an appropriate return to the state of NSW.

The objects of the *Mining Act 1992* are to encourage and facilitate the discovery and efficient development of mineral resources in NSW.

Of particular relevance to this REA are section 3A Objects:

- to recognise and foster the significant social and economic benefits to NSW that result from the efficient development of mineral resources.
- to ensure an appropriate return to the State from mineral resources.

The relevant section of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 is Part 3, Clause 15: Resource Recovery requires that resource recovery is efficient, optimised and minimises waste.

# Project overview

The Maxwell Project is located about 30 kilometres northwest of Singleton in the Hunter Valley of NSW. The Project is operated by Maxwell Ventures (Management) Pty Ltd, a wholly owned subsidiary of Malabar Coal Limited (Malabar Coal or the Proponent).

The Project entails an underground mining operation proposed to extract approximately 144.7 Mt ROM coal over 26 years, at a maximum of 8 Mtpa ROM coal. The Project will utilise existing infrastructure owned by Malabar Coal in CL 395 (the former Drayton mine), which includes a CHPP, rail facilities, workshops, water management infrastructure and administrative buildings. Coal will be transported via overland conveyor from the mine to the infrastructure area.

The Project plans to extract coal from the Wittingham Coal Measures. Approximately 75% (92.4 Mt) of the product will be coking coal, with the remaining 25% (31.4 Mt) export thermal. Coal will be extracted by bord and pillar methods in the Whynot Seam, and by longwall methods in the Woodlands Hill, Arrowfield and Bowfield Seams. The Project layout anticipates 39 longwalls down to about a 450-metre depth.

The Division notes that this REA has been undertaken in accordance with commercial-in-confidence resource and mine schedule data supplied by the Proponent in relation to the Project. The Proponent indicates a Life-Of-Mine (LOM) of 26 years and ROM coal recovery of 144.7 Mt. This is different to the EIS where the total ROM coal is 150 Mt. The Division has confirmed the 5.3 Mt ROM coal included in the EIS was preliminary and did not reflect a recent mine design revision.

# Size and quality of the resource

The Maxwell Project is located within the Hunter Coalfield of the Sydney Basin. Coal seams from the Jerrys Plains Subgroup of the Wittingham Coal Measures will be extracted. Coal resources lie within the central area of Exploration Licence 5460 (Act 1992) and the total resource is estimated at 772 Mt. Strata plunges gently to the south with dips between 3 and 5 degrees.

The Division verified that the Project will provide 144.7 Mt of ROM coal and 123.8 Mt of product coal. The Proponent completed coal resource and reserve estimations for the Project in accordance with the Australasian Code for Reporting Exploration results, Mineral Resources and Ore Reserves (the JORC Code). The JORC Code is an industry-standard professional code of practice that sets minimum standards for public reporting of minerals exploration results, mineral resources and ore reserves.

The Proponent plans to sell coal from the Project to export coking and thermal coal customers, with some scope to meet domestic coking and thermal coal demand. About 75% of coal product will be semi-soft coking coal and the remaining 25% thermal coal.

Raw ash levels necessitate the washing of ROM coal to meet export market specifications and maximise product value. All coal will be processed at the existing CHPP then railed to Newcastle for export. Domestic thermal coal sales (if any) would be transported via conveyor to Bayswater and/or Liddell power stations. A review of coal quality data suggests the proposed product quality, target export market split, and yield are achievable.

# Resource recovery

Malabar assessed several mine designs and determined that the Project mine design is most appropriate. Many factors constrain the mine plan and extraction methodology and therefore the resource recovery. These constraints include geological features, environmental constraints, and commercial viability.

Ten coal seams with underground resource potential were identified during the scoping study for the Project. The Whynot, Woodlands Hill, Arrowfield and Bowfield Seams were determined to be the most commercially viable targets for the Project. Other coal seams were not commercially viable to extract or could form part of a future project beyond current mine plan, such as the Warkworth Seam.

The Whynot Seam is the uppermost seam to be extracted in the Project area. The seam will be extracted using bord and pillar mining, with secondary extraction of pillars where the seam exceeds a 50-metre depth of cover. The working section ranges between 1.3 metres to 2.3 metres

thick with a raw ash content of about 10%. The coal can be washed to a produce 5% to 8% ash content product, making this seam suitable for a low ash export thermal coal markets.

The Woodlands Hill Seam working section ranges from 1.7 metres to 3.5 metres thick with raw ash ranging between 10% and 30%. The coal can be washed to produce a 9% to 14% ash content product, suitable for both semi-soft coking and export thermal markets.

The Arrowfield Seam is located approximately 40 metres below the Woodlands Hill Seam. The seam ranges from 2.1 metres to 3.7 metres thick (increasing in thickness from west to east) with a raw ash content about 10%. The coal can be washed to produce a 4% to 6.5% ash content semi-soft coking coal product. The seam is intruded in the northeast of the Project area and will not be extracted in this region.

The Bowfield Seam working section is located approximately 40 metres below the Arrowfield Seam. The seam ranges from 2.2 metres to 3.3 metres thick with a raw ash content about 10%. The coal can be washed to produce a 5% to 8% ash content semi-soft coking coal product. The seam is intruded in the northeast of the Project area and will not be extracted in this region.

The Whynot, Arrowfield and Bowfield Seams will be extracted in full. A floor of about 0.3 metres coal is necessary to maintain floor stability when extracting the Woodlands Hill Seam.

Coal resources within the mine design will be extracted using two underground mining methods; bord and pillar and longwall. The Whynot Seam is the only seam to be extracted using the bord and pillar method. This method was selected as it is best suited to the shallow depth of cover, resource extents and geotechnical/subsidence constraints of the Whynot Seam. The mining method will also minimise the time to develop mine access and commence mining. Longwall mining of the remaining Woodlands Hill, Arrowfield and Bowfield Seams will increase production rates and resource recovery after Maxwell mine is well established.

Given the constraints outlined in the Proponent's EIS, the Division considers the Project an efficient development of coal resources that provides an appropriate return to the NSW Government.

# Economic benefits of the resource

Coal is the State's largest export in value terms, and as such is an important driver of the economy. The Proponent's production schedule envisages total product coal of 123.8 Mt over the life of the Project, with 75% of this expected to be semi-soft coking coal and the remaining 25% thermal coal. Although there is potential for some of the coal produced to supply the domestic market, it is assumed that all of the product will be exported.

As of August 2019, the market consensus (as tracked by Consensus Economics' monthly surveys of key forecasters) was for a long-term price of around US$140 per tonne for coking coal, in real terms. The consensus price forecast for thermal coal was around US$70 per tonne in real terms. With adjustments to the consensus price forecasts to reflect the particular coal products expected to be produced by the Project, the Division projects total revenue during the course of the Project would be in the region of A$14 billion in real, undiscounted terms. This would amount to A$5.2 billion in net present value (NPV) terms, applying a discount rate of 7% real as recommended by NSW Government guidelines.

The Proponent anticipates that the Project would create direct employment for around 350 workers, with an additional requirement for up to 250 construction workers during the construction phase. The Proponent estimates that A$509 million in capital investment would be required to establish the Project, including A$185 million in mining plant and equipment.

# Coal royalty calculation

An ad valorem royalty rate of 7.2% of the value of production (total revenue less allowable deductions) is payable for underground coal mines where the extracted coal is less than 400 metres deep, which is the case for nearly all the coal at the Project.

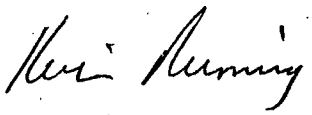
The main allowable deduction is for coal beneficiation. The Proponent's production schedule envisages that the majority of the coal would be subject to a full washing cycle, for which deductions of A$3.50 per tonne are applicable. The remainder of the coal would be crushed only, for which a deduction of A$0.50 per tonne applies. A further deduction for allowable levies of no more than A$1.00 per tonne would also apply to all the coal extracted.

Subtracting these deductions from the total estimated revenue over the lifetime of the Project, and applying a royalty rate of 7.2%, delivers a total royalty figure for the Project of A$955 million in real, undiscounted terms. In NPV terms, this equates to a total royalty figure of A$350 million.

# Departmental Assessment

| Assessed by | Unit | Branch |
|---|---|---|
| Assessing Officer: Erin Holmes<br>Senior Geologist | Coal Resource Assessment – Strategic Resource Assessment & Advice | Geological Survey of NSW |
| Assessing Officer: Ann Louise Hagger<br>Senior Resources Analyst | Resource Economics | Resources Policy, Planning & Programs |
| Assessing Officer: Adam W. Banister<br>Senior Advisor | Assessment Coordination Unit – Resource Assessments | Resource Operations |

# Approvals

| Approved by | Signature | Date |
|---|---|---|
| Approving Officer: Dr Kevin Ruming<br>Director Strategic Resource Assessment & Advice |  | 9/09/2019 |
| Approving Officer: Tamsin Martin<br>Director Resources Planning & Programs |  | 9/9/2019 |
| Endorsing Officer: Stephen Wills<br>Executive Director Resource Operations |  | 17/09/19 |
| | | |