

ASX Release 22 December 2016

## **BLACK ROCK MINING TO EXPAND PFS TO 120,000 TPA IN TWO STAGES WITH INITIAL 60,000 TPA PRODUCTION**

### **Highlights**

- PFS being upgraded to incorporate high grade Cascades Mineral Resource of 14Mt @12.1% TGC as part of a 120,000tpa overall mine development.
- Initial production rate of 60,000 tpa graphite concentrates from first stage then expansion to 120,000 tpa. Minimises capital expenditure
- Additional Scoping Study level assessment of 100,000 tpa third phase being prepared in parallel to take final production to 220,000 tpa
- Three phase staged ramp up profile proposed to substantially increase steady state to take advantage of 15.9Mt of contained graphite and growing global market profile, whilst ensuring pre production capex remains at an industry leading low level
- Extensive metallurgical testing demonstrating the Company's ability to deliver a high purity product via simple flotation circuit processing being completed to ensure product and pricing assumptions are defensible
- Pre Feasibility Study (PFS) due for completion in Q1 2017
- Spherical graphite Scoping study underway and expected to demonstrate significant downstream processing margin opportunities
- Former Managing Director of ASX listed Highfield Resources Limited, Anthony Hall, appointed Head of Strategy under an initial twelve month consulting contract to further develop and help execute corporate strategy

Tanzanian graphite developer, Black Rock Mining Limited (ASX:BKT) ("Black Rock" or the "Company"), is pleased to provide the market with an update on its Mahenge Graphite Project.

Black Rock Managing Director, Steven Tambanis, commented:

*"The high grade Cascades portion of 14Mt @12.1% TGC is exceptional in terms of tonnage & grade and will materially enhance our Mahenge Graphite Project PFS."*

*We have taken the opportunity to substantially increase our target for steady state production from our Scoping Study to take advantage of our 15.9Mt contained graphite Mineral Resource whilst ensuring our pre production capex remains at an industry leading level. Importantly, we believe our ramp up profile will appropriately match the likely growth in demand for our product over the next decade, ensuring market penetration assumptions are defensible."*

*The Board welcomes Anthony Hall's appointment as Head of Strategy. Anthony led the team responsible for developing Highfield Resources potash projects in Spain from a concept into world class potash projects and he considers the Mahenge Graphite Project to be endowed with sector leading attributes. Anthony's appointment is the first step to our expansion of our technical and management capabilities with the intention of taking the Mahenge Graphite Project into production."*

#### **Black Rock Mining Limited.**

ACN 094 551 336

ASX: BKT

#### **Issued Capital**

314.5 million shares

9.1 million escrowed shares

77.0 million options

#### **Registered Office**

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#### **Directors**

Stephen Copulos  
Gabriel Chiappini  
Steven Tambanis

#### **Company Secretary**

Gabriel Chiappini

## **Mahenge Graphite Project PFS**

On 12 December 2016, the Company reported a substantial increase in its Cascades Prospect Mineral Resource Estimate to 53Mt @ 8.3% TGC, including a high grade portion of 14Mt @ 12.1% TGC. This high grade portion is expected to have low strip ratios and similar metallurgical characteristics as the Ulanzi Prospect, which should deliver a high purity concentrates from simple flotation circuit processing. It is expected to deliver the Mahenge Graphite Project industry leading low capital and operating costs.

Coupled with this development, the Company has also decided to plan for a much larger mine to be delivered in stages to take advantage of the sizeable 15.9Mt contained graphite at the Project and the projected growth in global demand for its product over the next decade. As a result of the above, the Company is now expecting completion of its PFS in Q1 2017.

The Cascades Mineral Resource is being integrated into base case PFS and is targeting 60,000tpa concentrate production from 550,000t feed. The key objective for the base case scenario is lowest possible capex at optimum production levels

## **Second and third stage expansions**

A review of battery grade graphite demand forecasts to 2025 indicates that spherical graphite demand could grow to in excess of 1Mtpa of flake graphite precursor from the current low base of approximately 100,000t. Should this growth eventuate, the Mahenge graphite project is ideally positioned for capacity increases. The Mahenge Mineral Resource is capable of maintaining increased production levels.

The Company is currently reviewing the base case of 60,000tpa to commence production then adding a second processing train to increase production capacity to 120,000tpa as and when demand justifies expansion. Expansions are intended to be cashflow funded. A third stage expansion of an additional 100,000 is also being evaluated at scoping study level. The staged

## **Spherical graphite Scoping study**

The company has completed a substantial first pass evaluation of spherical graphite potential for its high purity graphite concentrates. Spherical graphite has been produced in Europe, Japan and the USA. Purification tests have been successfully conducted using acid and thermal processes, demonstrating the ability to make high purity graphite that exceeds the strictest battery specifications and in the case of thermal purification, achieving up to 99.9999% purity. Coated spherical graphite was manufactured in December 2016 and is being used for the Company's first battery cell test programme.

Bulk and pilot scale testing of graphite ore is taking place in January 2017 to confirm a final flotation processing flowsheet and to provide bulk quantities of high purity graphite for commercial scale spheronising tests. Quotes are being received to provide detailed capital and operating costs of spherical graphite production and purification with the objective of delivering a spherical graphite Scoping Study by end of Q1 2017.

## **Appointment of Head of Strategy**

Mr Anthony Hall, the former Managing Director of the ASX listed Highfield Resources Limited, has been appointed Head of Strategy under an initial twelve month consulting contract. Mr Hall has been recruited to further develop and help execute the Company's strategy.

Mr Hall is a qualified lawyer and company secretary with 20 years' commercial experience in venture capital, risk management, strategy and business development. He was Managing Director and CEO of the ASX listed Highfield Resources Ltd between October 2011 and September 2016. During his tenure the company's market capitalisation grew from \$10m to over \$500m and was successful in raising over \$140m to progress five potash projects in Spain. Mr Hall holds a Bachelor of Laws (Honours), Bachelor of Business and a Graduate Diploma in Applied Finance and Investment.

Mr Hall will solely receive a success based consulting fee in out of the money share options.

### Summary

- The recently announced Cascades Mineral Resource of 53Mt @8.3% TGC contains a higher grade core of 14Mt@ 12.1% TGC that is expected to deliver lower operating costs. This is being integrated into the PFS
- The PFS is being expanded to 120,000 tpa graphite concentrate production in two stages with the first stage at 60,000 tpa production
- The objective of the Mahenge Project PFS is to demonstrate that it can be developed utilising industry leading low capital costs and low operating costs
- Spherical graphite Scoping study underway and expected to demonstrate significant downstream processing margin opportunities
- Former Managing Director of ASX listed Highfield Resources Limited, Anthony Hall, appointed Head of Strategy under an initial twelve month consulting contract to further develop and help execute corporate strategy

### Further Information

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## About Black Rock Mining

Black Rock Mining Limited is an Australian based company listed on the Australian Securities Exchange. The Company owns graphite tenure in the Mahenge region of Tanzania.

In December 2016, the Company announced a JORC compliant Mineral Resource Estimate of 203m tonnes at 7.8% TGC for 15.9m tonnes of contained Graphite, making this one of the largest JORC compliant flake graphite Mineral Resource Estimates globally. 50% of the Mineral Resource is in the Measured and Indicated categories

The Company is currently completing a Pre Feasibility Study likely to target the high grade portion of the Cascade Mineral Resource Estimate that contains 14.0m tonnes at 12.1% TGC. This Study is expected to demonstrate industry leading operational cash costs and a multi generational mine for a project that can deliver a high purity product from conventional flotation circuit processing.

For further information on the company's development pathway, please refer to the company's website at the following link: <http://www.blackrockmining.com.au> and the corporate video presentation at <http://www.blackrockmining.com.au/#video>



Figure 1: Location of Black Rock's Mahenge Graphite Project within Tanzania

**Appendix 1. Mahenge Graphite Project JORC Mineral Resource, December 2016**

Category	Tonnes (Millions)	TGC (%)	Contained TGC (Millions tonnes)
Measured	21.2	8.6	1.8
Indicated	81.1	7.8	6.4
Inferred	100.7	7.7	7.7
<b>TOTAL</b>	<b>203.0</b>	<b>7.8</b>	<b>15.9</b>

Prospect	Category	Tonnes (Millions)	TGC (%)	Contained TGC (Millions tonnes)
<b>Ulanzi</b>	Measured	13.3	8.9	1.2
	Indicated	48.0	8.2	3.9
	Inferred	50.5	8.0	4.0
	<b>Sub-total</b>	<b>111.8</b>	<b>8.2</b>	<b>9.2</b>
<b>Epanko</b>	Measured			
	Indicated	17.6	6.4	1.1
	Inferred	20.8	5.9	1.2
	<b>Sub-total</b>	<b>38.4</b>	<b>6.1</b>	<b>2.3</b>
<b>Cascades</b>	Measured	7.8	8.0	0.6
	Indicated	15.5	8.4	1.3
	Inferred	29.4	8.4	2.5
	<b>Sub-total</b>	<b>52.8</b>	<b>8.3</b>	<b>4.4</b>
<b>COMBINED</b>	<b>MEASURED</b>	<b>21.2</b>	<b>8.6</b>	<b>1.8</b>
	<b>INDICATED</b>	<b>81.1</b>	<b>7.8</b>	<b>6.4</b>
	<b>INFERRED</b>	<b>100.7</b>	<b>7.7</b>	<b>7.7</b>
	<b>TOTAL</b>	<b>203.0</b>	<b>7.8</b>	<b>15.9</b>