MAGNUM MINING AND EXPLORATION LIMITED

ACN 003 170 376

NOTICE OF GENERAL MEETING

Notice is given that the Meeting will be held at:

TIME: 11:00am (AEDT)

DATE: 16 January 2023

PLACE: Westin Hotel, 205 Collins St, Melbourne VIC, 3000

The business of the Meeting affects your shareholding, and your vote is important.

This Notice of Meeting should be read in its entirety. If Shareholders are in doubt as to how they should vote, they should seek advice from their professional advisers prior to voting.

The Directors have determined pursuant to Regulation 7.11.37 of the Corporations Regulations 2001 (Cth) that the persons eligible to vote at the Meeting are those who are registered Shareholders at 11:00am (AEDT) on 14 January 2023.

STEINEPREIS PAGANIN
Lawyers & Consultants

BUSINESS OF THE MEETING

AGENDA

1. RESOLUTION 1 – APPROVAL FOR THE APPALACHIAN IRON SHARE SALE AGREEMENT WITH MR NEIL GOODMAN

To consider and, if thought fit, to pass, with or without amendment, the following resolution as an **ordinary resolution**:

"That, for the purpose of ASX Listing Rule 10.1 and for all other purposes, approval is given for the Company to complete the acquisition under the Share Sale Agreement, on the terms and conditions set out in the Explanatory Statement."

Short Explanation: The Company has entered into a Share Sale Agreement with Mr Neil Goodman, in which the Company has agreed to acquire 100% of the issued capital of Appalachian Iron Inc (an entity incorporated in Delaware, USA). ASX has determined pursuant to Listing Rule 10.11.5 that, as Mr Goodman is both the Vendor to the Acquisition and chief executive officer of the Company, completion under the Share Sale Agreement must be approved by security holders of the Company in accordance with Listing Rule 10.1.

Independent Expert's Report: Shareholders should carefully consider the Independent Expert's Report included with this Notice of Meeting, prepared by the Independent Expert for the purposes of the Shareholder approval required under ASX Listing Rule 10.1. The Independent Expert's Report comments on the fairness and reasonableness of the Acquisition the subject of this Resolution to the non-associated Shareholders in the Company. The Independent Expert has determined that the Acquisition is **not fair but reasonable** to the non-associated Shareholders.

A voting exclusion and prohibition statement applies to this Resolution. Please see below.

2. RESOLUTION 2 – VARIATION OF CLASS RIGHTS – ISSUE OF A NEW CLASS OF SECURITIES (PERFORMANCE SHARES)

To consider and, if thought fit, to pass the following resolution as a **special resolution**:

"That, subject to the passing of Resolution 1, for the purpose of clause 106 of the Constitution and section 246B of the Corporations Act and for all other purposes, the Company is authorised to issue Performance Shares on the terms and conditions set out in the Explanatory Statement."

3. RESOLUTION 3 – ISSUE OF PERFORMANCE SHARES TO MR NEIL GOODMAN

To consider and, if thought fit, to pass, with or without amendment, the following resolution as an **ordinary resolution**:

"That subject to the passing of Resolution 1, for the purposes of Listing Rule 10.11 and for all other purposes, approval is given for the Company to issue 30,000,000 Performance Shares to Mr Neil Goodman (or his nominee) on the terms and conditions set out in the Explanatory Statement."

A voting exclusion statement applies to this Resolution. Please see below.

4. RESOLUTION 4 – APPROVAL FOR VARIATION OF OPTION TERMS

To consider and, if thought fit, to pass, with or without amendment, the following resolution as an **ordinary resolution**:

> *"That, for the purposes of Listing Rule 6.23.4 and for all other purposes, approval is given for the Company to vary the terms of the Varied Options on the terms and conditions set out in the Explanatory Statement."*

A voting exclusion statement applies to this Resolution. Please see below.

Dated: 12 December 2022

By order of the Board

John Dinan
Company Secretary
Magnum Mining and Exploration Limited

Voting Prohibition Statement

Resolution 1 – Approval for the Appalachian Iron Share Sale Agreement with Mr Neil Goodman	A person appointed as a proxy must not vote on the basis of that appointment, on this Resolution if: (a) the proxy is either: (i) a member of the Key Management Personnel; or (ii) a Closely Related Party of such a member; and (b) the appointment does not specify the way the proxy is to vote on this Resolution. However, the above prohibition does not apply if: (a) the proxy is the Chair; and (b) the appointment expressly authorises the Chair to exercise the proxy even though this Resolution is connected directly or indirectly with remuneration of a member of the Key Management Personnel.

Voting Exclusion Statements

In accordance with Listing Rule 14.11, the Company will disregard any votes cast in favour of the resolution set out below by or on behalf of the following persons:

Resolution 1 – Approval for the Appalachian Iron Share Sale Agreement with Mr Neil Goodman	Mr Neil Goodman (or any of his associates) or any other person who will obtain a material benefit as a result of the transaction (except a benefit solely by reason of being a holder of ordinary securities in the entity).
Resolution 3 – Issue of Performance Shares to Mr Neil Goodman	Mr Neil Goodman (or his nominee) and any other person who will obtain a material benefit as a result of the issue of the securities (except a benefit solely by reason of being a holder of ordinary securities in the Company) or an associate of that person or those persons.
Resolution 4 – Approval for Variation of Option Terms	The Company will disregard any votes cast in favour of this Resolution by or on behalf of any person who holds an Option that is the subject of the approval or any associates of those persons.

However, this does not apply to a vote cast in favour of the Resolution by:

(a) a person as a proxy or attorney for a person who is entitled to vote on the Resolution, in accordance with the directions given to the proxy or attorney to vote on the Resolution in that way; or

(b) the Chair as proxy or attorney for a person who is entitled to vote on the Resolution, in accordance with a direction given to the Chair to vote on the Resolution as the Chair decides; or

(c) a holder acting solely in a nominee, trustee, custodial or other fiduciary capacity on behalf of a beneficiary provided the following conditions are met:

   (i) the beneficiary provides written confirmation to the holder that the beneficiary is not excluded from voting, and is not an associate of a person excluded from voting, on the resolution; and

   (ii) the holder votes on the resolution in accordance with directions given by the beneficiary to the holder to vote in that way.

Voting by proxy

To vote by proxy, please complete and sign the enclosed Proxy Form and return by the time and in accordance with the instructions set out on the Proxy Form.

In accordance with section 249L of the Corporations Act, Shareholders are advised that:

- each Shareholder has a right to appoint a proxy;
- the proxy need not be a Shareholder of the Company; and

- a Shareholder who is entitled to cast two (2) or more votes may appoint two (2) proxies and may specify the proportion or number of votes each proxy is appointed to exercise. If the member appoints two (2) proxies and the appointment does not specify the proportion or number of the member's votes, then in accordance with section 249X(3) of the Corporations Act, each proxy may exercise one-half of the votes.

Shareholders and their proxies should be aware that:

- if proxy holders vote, they must cast all directed proxies as directed; and
- any directed proxies which are not voted will automatically default to the Chair, who must vote the proxies as directed.

Voting in person

To vote in person, attend the Meeting at the time, date and place set out above.

You may still attend the meeting and vote in person even if you have lodged appointed a proxy. If you have previously submitted a Proxy Form, your attendance will not revoke your proxy appointment unless you actually vote at the meeting for which the proxy is proposed to be used, in which case, the proxy's appointment is deemed to be revoked with respect to voting on that resolution.

Please bring your personalised Proxy Form with you as it will help you to register your attendance at the meeting. If you do not bring your Proxy Form with you, you can still attend the meeting but representatives from Computershare Investor Services Pty Ltd will need to verify your identity.

Should you wish to discuss the matters in this Notice of Meeting please do not hesitate to contact the Company Secretary on +61 (02) 8316 3989.

EXPLANATORY STATEMENT

This Explanatory Statement has been prepared to provide information which the Directors believe to be material to Shareholders in deciding whether or not to pass the Resolutions.

1. BACKGROUND TO THE ACQUISITION OF APPALACHAIN IRON INC

1.1 General Background

Magnum Mining and Exploration Limited (ASX:MGU) (**Company** or **MGU**) is an Australian public company which has been listed on the Official List of ASX since 23 April 1987. The Company's recent focus has been on the exploration and development of its 100% owned Buena Vista magnetite project, located in Nevada, USA (**Buena Vista Magnetite Project**).

As announced on 23 August 2021, the Company is implementing a strategic shift from concentrating on direct shipping ore to magnetite concentrate with the intention to develop a biochar green pig iron processing plant complementary to its existing operations at the Buena Vista Magnetite Project**.** This integrated strategy marks a material progression for the Company, to position itself to optimise its favourable high-quality magnetite characteristics, proximity to suppliers, infrastructure and steel makers, and to align with the global shift towards low-emission production of steel.

The Board believes this development re-direction will allow the Company to generate green pig iron as a value-add product to its Buena Vista Magnetite Project.

1.2 Acquisition Agreement

On 12 October 2022, the Company announced it had entered into a binding Share Sale Agreement with Mr Neil Goodman (**Vendor**) to acquire 100% of the issued capital of Appalachian Iron Inc (an entity incorporated in the state of Delaware) (**Appalachian**) (**Share Sale Agreement**) (**Acquisition**).

As consideration for the Acquisition, the Company will issue 30,000,000 performance shares in the capital of the Company (**Performance Shares**) (subject to Shareholder approval of Resolutions 1 to 3) to the Vendor (or his nominee).

The Performance Shares will each convert into one fully paid ordinary share in the capital of the Company (**Share**) on the achievement by the Company of the relevant performance milestones (**Milestones**).

The terms of the Performance Shares and details of the relevant Milestones are set out at Schedule 1 of this Notice.

The Acquisition is conditional upon the satisfaction of the following conditions precedent on or before 5:00pm (WST) on 10 February 2023:

(a) the Company confirming to the Vendor that it is satisfied, at its absolute discretion, with its financial, legal and technical due diligence on Appalachian;

(b) the Company obtaining all necessary shareholder approvals required to lawfully complete the Acquisition as required by the Corporations Act and its constitution;

(c) both the parties obtaining all necessary corporate, governmental and regulatory approvals, consents and waivers pursuant to the ASX Listing Rules, the Corporations Act and any other applicable law to allow the parties to lawfully complete the Acquisition; and

(d) both the parties obtaining all necessary third-party approvals, consents and waivers to allow the parties to lawfully complete the Acquisition.

1.3 Purpose of the Acquisition

Appalachian is a party to a license agreement with Molong Petroleum Machinery Company (an entity incorporated in China) (**Molong**) pursuant to which it has the right to elect to enter into a future formal process agreement to utilise all intellectual property, information and data relating to the HIsmelt iron ore process (**HIsmelt Process**).

The Company is seeking to utilise the Acquisition to integrate the HIsmelt Process into its Buena Vista Magnetite Project in order to transition towards operating an integrated mining and production facility for low emission green pig iron products for both the US domestic market and the premium Asian steelmakers.

It is proposed that the HIsmelt Process will replace the Company's previously announced strategy to utilise a rotary kiln to produce green pig iron products. As such, the use of the HIsmelt Process is not a new business strategy by the Company. Rather, it will be executing the same business strategy, with a technology process that is superior to the rotary kiln process.

The decision to replace the rotary kiln with the HIsmelt Process was recommended by an independent engineer, MinRizon Projects Pty Ltd (**MinRizon**), after the completion of a technology assessment report undertaken by MinRizon that compared the effectiveness of the rotary kiln, blast furnace and HIsmelt pig iron production technologies. The HIsmelt Process was shown to produce the highest NPV for the conversion of magnetite to pig iron.

The Company is targeting the development of its JORC 2012 premium quality magnetite resource as the key component of an integrated HIsmelt pig iron production facility. This proposed development will utilise the premium quality and low-cost Buena Vista Magnetite Project resource and the abundant local biomass to produce carbon neutral green pig iron products maximising the value addition for the Company's shareholders.

The Board considers this Acquisition to be a value add to the Company's current and future operations.

1.4 Proposed West Virginia Project

Prior to the Acquisition, Appalachian had been pursuing the development of a proposed pig iron project using the HIsmelt Process to produce green pig iron at a plant in West Virginia (**West Virginia Project**).

The West Virginia Project is still in a conceptual stage, with Appalachian only having secured non-binding agreements for land access, pig iron offtake, raw materials supplies, HIsmelt Process, and engineering for the West Virginia Project.

None of these agreements will impose any contractual obligations upon the Company post completion of the Acquisition.

The Company has previously advised its shareholders that, as part of its long-term strategy, it will seek to expand its business through acquisitions of complementary assets and to investigate value add opportunities.

The West Virginia Project is a long-term project, where the Company can use the know-how, expertise and HIsmelt Process available to Appalachian to assist in the development of the West Virginia Project and increase value for shareholders.

1.5 Capital Structure

The capital structure of the Company, on completion of the Acquisition is set out below:

	Shares	Options	Performance Rights	Convertible Notes	Performance Shares
Current issued capital	682,426,579	189,428,585[1]	25,000,000	472	Nil
Issued pursuant to the Acquisition[2]	Nil	Nil	Nil	Nil	30,000,000[2]
Total	**682,426,579**	**189,428,585**	**25,000,000**	**472**	**30,000,000**

Notes:

1. Comprising:
   (a) 9,000,000 Options exercisable at $0.25, expiring on 20 July 2024;
   (b) 6,500,000 Options exercisable at $0.03, expiring on 31 December 2023;
   (c) 500,000 Options exercisable at $0.05, expiring on 31 December 2023;
   (d) 3,000,000 Options exercisable at $0.10, expiring on 31 December 2023;
   (e) 6,000,000 Options exercisable at $0.20, expiring on 31 December 2023;
   (f) 6,000,000 Options exercisable at $0.40, expiring on 31 December 2023;
   (g) 38,000,000 Options exercisable at $0.20, expiring on 19 April 2024;
   (h) 9,000,000 Options exercisable at $0.20, expiring on 21 July 2024
   (i) 136,428,585 Options exercisable at $0.05, expiring three (3) years from the date of issue.
2. Assuming all milestones are achieved pursuant to the Acquisition.

1.6 Board Recommendation

The Company has consistently stated that it intends to investigate exploration and acquisition opportunities to build its portfolio and create and capture value within its Buena Vista Magnetite Project to further the growth of the Company and to create value for its Shareholders. The Board believes that the completion of the Acquisition is consistent with the stated objectives of the Company and the Company will continue to have the same main undertaking following settlement of the Acquisition.

Accordingly, the Directors recommend that Shareholders vote in favour of Resolutions 1 to 3 set out in this Notice of Meeting to enable completion of the Acquisition to occur.

2. RESOLUTION 1 – APPROVAL FOR THE APPALACHIAN IRON SHARE SALE AGREEMENT WITH MR NEIL GOODMAN

The Independent Expert has concluded that the Share Sale Agreement is not fair but reasonable to the non-associated Shareholders of the Company. Further details are set out in the Independent Expert's Report at Annexure A of this Notice.

2.1 General Background

As set out at Section 1.2, Company has entered into the Share Sale Agreement under which it will acquire 100% of the issued share capital in Appalachian via the issue of 30,000,000 Performance Shares.

Pursuant to the Acquisition, the Company has agreed to issue to the Vendor the Performance Shares, which will convert into Shares on the achievement of the Milestones as set out in Schedule 1.

Mr Neil Goodman is the chief executive officer of the Company and is also the Vendor of Appalachian. Accordingly, Mr Neil Goodman has been designated by ASX to be "a person whose relation to the entity or a person referred to in rules 10.1.1 to 10.1.4 is such that, in ASX's opinion the Acquisition should be approved by security holders", for the purposes of ASX Listing Rule 10.1.5.

A summary of the material terms of the Acquisition are set out in Schedule 2.

Resolution 1 seeks Shareholder approval for the purpose of Listing Rule 10.1 and all other purposes to enable the Company to complete the acquisition of Appalachian from Mr Neil Goodman pursuant to Share Sale Agreement.

2.2 Independent Expert's Report

Listing Rule 10.5.10 requires a notice of meeting containing a resolution to approve a transaction under Listing Rule 10.1 to include a report on the Acquisition from an independent expert.

The Independent Expert's Report prepared by BDO Corporate Finance (WA) Pty Ltd (**Independent Expert**) (a copy of which is attached as Annexure A to this Notice) sets out a detailed independent examination of the Share Sale Agreement to enable non-associated Shareholders to assess the merits and decide whether to approve Resolution 1. The Independent Expert has concluded that the acquisition of Appalachian pursuant to the Share Sale Agreement the subject of Resolution 1 is **not fair but reasonable** to the non-associated Shareholders.

Shareholders are urged to carefully read the Independent Expert's Report to understand the scope of the report, the methodology of the valuation and the sources of information and assumptions made.

2.3 ASX Listing Rule 10.1

ASX Listing Rule 10.1 provides that an entity (or any of its subsidiaries) must not acquire a substantial asset from:

10.1.1 a related party;

10.1.2 a person who is, or was at any time in the 6 months before the issue or agreement, a substantial (30%+) holder in the company;

10.1.3 a person who is, or was at any time in the 6 months before the issue or agreement, a substantial (10%+) holder in the company;

10.1.4 an associate of a person referred to in Listing Rules 10.11.1 to 10.11.3; or

10.1.5 a person whose relationship with the company or a person referred to in Listing Rules 10.1.1 to 10.1.4 is such that, in ASX's opinion, the issue or agreement should be approved by its shareholders,

unless it obtains the approval of its shareholders.

Mr Neil Goodman is the chief executive officer of the Company and is also the Vendor of Appalachian. Accordingly, Mr Neil Goodman has been designated by ASX to be "a person whose relation to the entity or a person referred to in rules 10.1.1 to 10.1.4 is such that, in ASX's opinion the Acquisition should be approved by security holders", for the purposes of ASX Listing Rule 10.1.5

Requirement for Shareholder Approval

ASX Listing Rule 10.5.10 requires a notice of meeting containing a resolution under ASX Listing Rule 10.1 to include a report on the Acquisition from an independent expert.

The Independent Expert has been asked to prepare a report, for the purpose of ASX Listing Rule 10.5.10, on whether the Agreement is fair and reasonable. **The Independent Expert has considered the Share Sale Agreement and has concluded that the acquisition of Appalachian, the subject of Resolution 1, is not fair but reasonable to Shareholders whose votes are not to be disregarded.**

2.4 Technical information required by ASX Listing Rule 10.5

Pursuant to and in accordance with ASX Listing Rule 10.5 the following information is provided in relation to Resolution 1:

(a) the Company is entering into the Share Sale Agreement with Mr Neil Goodman;

(b) Mr Neil Goodman is currently the chief executive officer of the Company and is also the Vendor of Appalachian. Accordingly, Mr Neil Goodman is deemed to be a "a person whose relation to the entity or a person referred to in rules 10.1.1 to 10.14 is such that, in ASX's opinion the Acquisition should be approved by security holders" of the Company for the purpose of Listing Rule 10.1.5;

(c) the purpose of the Share Sale Agreement is to allow the Company to acquire Appalachian with the intention to integrate the HIsmelt Process into its Buena Vista Magnetite Project in order to transition towards operating an integrated mining and production facility for low emission green pig iron products for both the US domestic market and the premium Asian steelmakers;

(d) the consideration payable to Mr Neil Goodman is set out in Section 1.2 above. The Company will not receive any funds as consideration under the Share Sale Agreement;

(e) a summary of the material terms of the Share Sale Agreement is set out in Schedule 2;

(f) an indicative timetable is set out at Section 2.7 below;

(g) a voting exclusion statement is included in Resolution 1 of this Notice; and

(h) the Independent Expert's Report is included at Annexure A of the Notice.

2.5 Chapter 2E of the Corporations Act

For a public company, or an entity that the public company controls, to give a financial benefit to a related party of the public company, the public company or entity must:

(a) obtain the approval of the public company's members in the manner set out in sections 217 to 227 of the Corporations Act; and

(b) give the benefit within 15 months following such approval,

unless the giving of the financial benefit falls within an exception set out in sections 210 to 216 of the Corporations Act.

The Directors, consider that Shareholder approval pursuant to Chapter 2E of the Corporations Act is not required in respect of the Share Sale Agreement as the Share Sale Agreement is on the same or better terms as the Company would otherwise have entered into with non-related parties and as such the giving of the financial benefit is on arm's length terms.

This conclusion has been reached, inter alia, due to the Independent Expert in its Independent Expert's Report confirming that the acquisition of Appalachian pursuant to the Share Sale Agreement is '**not fair but reasonable'** to the non-associated shareholders in the Company. Accordingly, the Company is not seeking shareholder approval under Chapter 2E of the Corporations Act.

2.6 Technical Information required by Listing Rule 14.1A

If Resolution 1 is passed, the Company will be able to proceed with the Share Sale Agreement.

If Resolution 1 is not passed, the Company will not proceed with the Share Sale Agreement and may be required to renegotiate with Mr Neil Goodman.

2.7 Indicative timetable

Event	Date
Company announces Acquisition	12 October 2022
Company despatches the Notice of Meeting	12 December 2022
MGU Shareholders approve the Acquisition	16 January 2023
Company issues Performance Shares to Vendor	16 January 2023
Completion of the Acquisition	16 January 2023

The above dates are indicative only and are subject to change at the Board's discretion in accordance with the Corporations Act and ASX Listing Rules.

2.8 Board Recommendation

After carefully considering all aspects of the Share Sale Agreement and the Independent Expert's Report, each non-conflicted Director considers that the Share Sale Agreement is in the best interests of Shareholders. Accordingly, each non-conflicted Director recommends that the Shareholders vote in favour of Resolution 1.

The Directors are not aware of any other information other than as set out in this Notice of Meeting that would be reasonably required by Shareholders to allow them to make a decision whether it is in the best interests of the Company to pass Resolution 1.

3. RESOLUTION 2 – CREATION OF A NEW CLASS OF SECURITIES – PERFORMANCE SHARES

3.1 General

Resolution 2 seeks Shareholder approval for the variation of rights attaching to Shares as a result of the issue of a new class of shares, being the Performance Shares.

A company with a single class of shares on issue which proposes to issue new shares not having the same rights as its existing shares, is taken to vary the rights of existing shareholders unless the Constitution already provides for such an issue.

Under clause 110.2 of the Company's Constitution and, subject to the Corporations Act and the Listing Rules, the Company may issue Shares on any terms and for any consideration as the Directors resolve.

The terms and conditions of the Performance Shares are set out in Schedule 1.

3.2 Background to Issue of Performance Shares

As noted in Section 1.2 above, Company has entered into the Share Sale Agreement under which it will acquire 100% of the issued share capital in Appalachian via the issue of 30,000,000 Performance Shares.

Pursuant to the Acquisition, the Company has agreed to issue to the Vendor the Performance Shares, which will convert into Shares on the achievement of the milestones as set out in Schedule 1.

Settlement of the Acquisition is conditional on the Company receiving shareholder approval for Resolutions 1 to 3 of this Notice.

3.3 Legal requirements

Section 246C(5) of the Corporations Act confirms that if a company with only one class of shares issues a new class of shares, the issue of the new class of shares is taken to vary the rights attached to shares in the existing class if:

(a) the rights attaching to the new class of shares are not the same as the rights attached to the existing class of shares; and

(b) the rights attaching to the new class of shares are not provided for in:

 (i) the company's constitution (if any); or

 (ii) a notice, document or resolution that is lodged with ASIC.

Section 246B of the Corporations Act and clause 2.4 of the Constitution provides that the rights attaching to a class of shares cannot be varied without:

(a) a special resolution passed at a meeting of the holders of the issued shares of the affected class; or

(b) the written consent of the holders of 75% of the votes of the affected class.

The Company must give written notice of the variation to the members of the affected class within 7 days after the variation is made.

3.4 Application to the Company

The Company currently has only one class of share on issue, being Shares. The terms of the Performance Shares will not be the same as the Shares and the rights attaching to the Performance Shares are not provided for in the Constitution. Accordingly, the Company seeks Shareholder approval for the variation of rights attaching to Shares as a result of the issue of a new class of shares, being the Performance Shares.

Resolution 2 is a special resolution which requires at least 75% of votes cast by Shareholders present and eligible to vote at the Meeting must be in favour of Resolution 2 for it to be passed. In the event Resolution 2 is passed by the requisite majority the Company will give written notice of the variation to the rights attaching to Shares to Shareholders within 7 days.

4. RESOLUTION 3 – ISSUE OF PERFORMANCE SHARES TO MR NEIL GOODMAN

4.1 General

As noted in Section 1.2 above, pursuant to the Share Sale Agreement the Company has the obligation to issue Mr Neil Goodman 30,000,000 Performance Shares as consideration for the acquisition of Appalachian.

Mr Neil Goodman is currently the chief executive officer of the Company and is also the Vendor of Appalachian. Accordingly, Mr Neil Goodman has been designated by ASX to be a "a person whose relation to the entity or a person referred to in rules 10.11.1 to 10.11.4 is such that, in ASX's opinion the Acquisition should be approved by security holders" of the Company for the purpose of Listing Rule 10.11.5.

Resolution 3 of this Notice seeks Shareholder approval to issue the Performance Shares to Mr Goodman pursuant to the Share Sale Agreement.

Settlement of the Acquisition is conditional on the Company receiving shareholder approval for Resolutions 1 to 3 of this Notice.

4.2 Chapter 2E of the Corporations Act

For a public company, or an entity that the public company controls, to give a financial benefit to a related party of the public company, the public company or entity must:

(a) obtain the approval of the public company's members in the manner set out in sections 217 to 227 of the Corporations Act; and

(b) give the benefit within 15 months following such approval,

unless the giving of the financial benefit falls within an exception set out in sections 210 to 216 of the Corporations Act.

The issue of the Performance Shares will result in the issue of Performance Shares which constitutes giving a financial benefit and Mr Neil Goodman, is deemed by ASX to be a related party of the Company by virtue of being both the Vendor to the Acquisition and the current chief executive officer of the Company.

The Directors consider that Shareholder approval pursuant to Chapter 2E of the Corporations Act is not required in respect of the Issue of the Performance Shares because the Performance Shares will be issued to Mr Neil Goodman (or his nominee) pursuant to the Share Sale Agreement on terms agreed upon by the Directors and as such the giving of the financial benefit is on arm's length terms.

4.3 Listing Rule 10.11

Listing Rule 10.11 provides that unless one of the exceptions in Listing Rule 10.12 applies, a listed company must not issue or agree to issue equity securities to:

10.11.1 a related party;

10.11.2 a person who is, or was at any time in the 6 months before the issue or agreement, a substantial (30%+) holder in the company;

10.11.3 a person who is, or was at any time in the 6 months before the issue or agreement, a substantial (10%+) holder in the company and who has nominated a director to the board of the company pursuant to a relevant agreement which gives them a right or expectation to do so;

10.11.4 an associate of a person referred to in Listing Rules 10.11.1 to 10.11.3; or

10.11.5 a person whose relationship with the company or a person referred to in Listing Rules 10.11.1 to 10.11.4 is such that, in ASX's opinion, the issue or agreement should be approved by its shareholders,

unless it obtains the approval of its shareholders.

The issue of the Performance Shares falls within Listing Rule 10.11.5 and does not fall within any of the exceptions in Listing Rule 10.12. It therefore requires the approval of Shareholders under Listing Rule 10.11.

Resolution 3 seeks Shareholder approval for the issue of the Performance Shares under and for the purposes of Listing Rule 10.11.

4.4 Technical information required by Listing Rule 14.1A

If Resolution 3 is passed, the Company will be able to proceed with the issue of Performance Shares within one month after the date of the Meeting (or such later date as permitted by any ASX waiver or modification of the Listing Rules). As approval pursuant to Listing Rule 7.1 is not required for the issue of the Performance Shares (because approval is being obtained under Listing Rule 10.11), the issue of the Performance Shares will not use up any of the Company's 15% annual placement capacity.

If Resolution 3 is not passed, the Company will not be able to proceed with the issue of the Performance Shares and the Company may be required to re-negotiate the terms of the Share Sale Agreement with Mr Goodman.

4.5 Technical Information required by Listing Rule 10.13

Pursuant to and in accordance with Listing Rule 10.13, the following information is provided in relation to Resolution 3:

(a) the Shares will be issued to Mr Neil Goodman (or his nominee), who has been deemed by ASX pursuant to Listing Rule 10.11.5 to be a related party of the Company by virtue of being both the Vendor to the Acquisition and the current chief executive officer of the Company;

(b) the maximum number of Performance Shares to be issued to Mr Goodman (or his nominee) is 30,000,000;

(c) the terms of the Performance Shares are set out at Schedule 1 below;

(d) each Performance Share will convert into one (1) Share in the capital of the Company on the achievement of the Milestones as set out in Schedule 1;

(e) the Performance Shares will be issued no later than 1 month after the date of the Meeting (or such later date to the extent permitted by any ASX waiver or modification of the Listing Rules) and it is anticipated the Shares will be issued on the same date;

(f) the Performance Shares will be issued as consideration pursuant to the Share Sale Agreement. The Company will not receive any consideration for the issue of the Performance Shares;

(g) the Performance Shares are being issued under the Share Sale Agreement. A summary of the material terms of the Share Sale Agreement is set out in Schedule 2; and

(h) a voting exclusion statement is included in Resolution 3 of the Notice.

5. RESOLUTION 4 – APPROVAL FOR VARIATION OF OPTION TERMS

5.1 General

On 21 October 2022, the Company received Shareholder approval to issue:

(a) 101,428,585 Options to participants pursuant to a placement as announced on 29 August 2022 (**Placement**) and to KG Capital Partners Pty Ltd (ACN 638 926 959) (or its nominees) as part consideration for lead manager services provided to the Company in respect of the Placement (**Placement Options**);

(b) 2,500,000 Options to Bert Wallace (or his nominee) in consideration for services provided to the Company's wholly owned US subsidiary Nevada Iron LLC (**BW Options**); and

(c) 30,000,000 Options to the Directors (or their nominees) (**Director Options**).

The Company also issued 2,500,000 Options to Cindi Byrns (or her nominee) in consideration for services provided to Nevada Iron LLC under its Listing Rule 7.1 capacity on 4 November 2022 (**CB Options**).

Hereafter, the BW Options, the Director Options and the CB Options will be referred to as the **Varied Options**.

Further details of the Placement Options and the Varied Options and the terms upon which they were issued are set out in the Company's notice of general meeting announced on 16 September 2022.

It was intended that the Company would apply for ASX quotation for the Placement Options and the Varied Options in the same class of options.

However, due to an administrative error, the Placement Options were issued on 31 October 2022, whilst the Varied Options were issued on 4 November 2022. As both the Placement Options and the Varied Options had an expiry date which was three (3) years from the date of issue, this resulted in the Placement Options expiring on 31 October 2025, whilst the Varied Options would expire on 4 November 2025. The Company was therefore unable to quote the Varied Options in the same class as the Placement Options due to Listing Rule 6.15.

5.2 Purpose of Resolution 4

Resolution 4 seeks the approval of Shareholders to amend the terms of the Varied Options to expire on 31 October 2025 (**Proposed Amendment**).

Apart from the Proposed Amendment, the terms of the Varied Options will remain unchanged. The amended terms of the Varied Options, should Resolution 4 be passed, are set out in Schedule 3.

5.3 ASX Listing Rule 6.23.4

Listing Rule 6.23.4 provides that a company must obtain shareholder approval to make a change to the terms of options on issue which is not prohibited under Listing Rule 6.23.3. Listing Rule 6.23.3 prohibits a change to the terms of options which has the effect of reducing the exercise price, increasing the period for exercise or increasing the number of securities on exercise. The Proposed Amendment is not prohibited under ASX Listing Rule 6.23.3.

5.4 Advantages of the Proposed Amendment

The Board considers that the Proposed Amendment will allow the Company to successfully apply for quotation of the Varied Options, in the same class together with the Placement Options which will provide the Optionholders with the ability to be able to realise the full value of their Options by allowing them to be freely tradeable on the ASX.

The full revised terms and conditions of the Varied Options are included at Schedule 3.

GLOSSARY

$ means Australian dollars.

Acquisition has the meaning given to it in Section 1.2.

Appalachian means Appalachian Iron Inc (an entity incorporated in the state of Delaware).

ASIC means the Australian Securities & Investments Commission.

ASX means ASX Limited (ACN 008 624 691) or the financial market operated by ASX Limited, as the context requires.

Board means the current board of directors of the Company.

Buena Vista Magnetite Project means the Company's 100% owned Buena Vista magnetite project, located in Nevada, USA.

Business Day means Monday to Friday inclusive, except New Year's Day, Good Friday, Easter Monday, Christmas Day, Boxing Day, and any other day that ASX declares is not a business day.

BW Options means the Options issued to Bert Wallace (or his nominee).

Chair means the chair of the Meeting.

Closely Related Party of a member of the Key Management Personnel means:

(a) a spouse or child of the member;

(b) a child of the member's spouse;

(c) a dependent of the member or the member's spouse;

(d) anyone else who is one of the member's family and may be expected to influence the member, or be influenced by the member, in the member's dealing with the entity;

(e) a company the member controls; or

(f) a person prescribed by the Corporations Regulations 2001 (Cth) for the purposes of the definition of 'closely related party' in the Corporations Act.

Company means Magnum Mining and Exploration Limited (ACN 003 170 376).

Constitution means the Company's constitution.

Corporations Act means the *Corporations Act 2001* (Cth).

Director Options means the Options issued to the Directors.

Directors means the current directors of the Company.

Explanatory Statement means the explanatory statement accompanying the Notice.

General Meeting or **Meeting** means the meeting convened by the Notice.

HIsmelt Process means the HIsmelt iron ore smelting process.

Independent Expert means BDO Corporate Finance (WA) Pty Ltd.

Independent Expert's Report means the report prepared by the Independent Expert attached as Annexure A.

Key Management Personnel has the same meaning as in the accounting standards issued by the Australian Accounting Standards Board and means those persons having authority and responsibility for planning, directing and controlling the activities of the Company, or if the Company is part of a consolidated entity, of the consolidated entity, directly or indirectly, including any director (whether executive or otherwise) of the Company, or if the Company is part of a consolidated entity, of an entity within the consolidated group.

Listing Rules means the Listing Rules of ASX.

Milestones means the Performance Share milestones set out at Schedule 1.

MinRizon means MinRizon Projects Pty Ltd.

Molong means Molong Petroleum Machinery Company (an entity incorporated in China).

Notice or **Notice of Meeting** means this notice of meeting including the Explanatory Statement and the Proxy Form.

Option means an option to acquire a Share.

Optionholder means a holder of a Placement Option and/or a Varied Option.

Performance Shares means the 30,000,000 performance shares to be issued to the Vendor on the terms set out at Schedule 1.

Placement means the placement of Shares and Options by the Company as announced on 29 August 2022.

Placement Options means the Options issued pursuant to the Placement.

Proposed Amendment has the meaning given to it in Section 5.2.

Proxy Form means the proxy form accompanying the Notice.

Resolutions means the resolutions set out in the Notice, or any one of them, as the context requires.

Section means a section of the Explanatory Statement.

Share means a fully paid ordinary share in the capital of the Company.

Shareholder means a registered holder of a Share.

Share Sale Agreement means the agreement for the Company to acquire 100% of the issued capital of Appalachian from the Vendor dated 12 October 2022.

Varied Options has the meaning given to it in Section 5.1.

Vendor means Mr Neil Goodman.

West Virginia Project has the meaning given to it in Section 1.4.

WST means Western Standard Time as observed in Perth, Western Australia.

SCHEDULE 1 - TERMS AND CONDITIONS OF THE PERFORMANCE SHARES

The terms of the Performance Shares are as follows:

(a) (**Performance Shares**): Each Performance Share is a share in the capital of the Company and will convert into fully paid ordinary shares in the capital of the Company, subject to these terms and conditions.

(b) (**General Meetings**): The Performance Shares shall confer on the holder (**Holder**) the right to receive notices of general meetings and financial reports and accounts of the Company that are circulated to the Company's shareholders. The Holder has the right to attend general meetings of the Company's shareholders.

(c) (**No Voting Rights**): The Performance Shares do not entitle the Holder to vote on any resolutions proposed at a general meeting of the Company's shareholders, subject to any voting rights under the Corporations Act or the ASX Listing Rules where such rights cannot be excluded by these terms.

(d) (**No Dividend Rights**): The Performance Shares do not entitle the Holder to any dividends.

(e) (**No Rights on Winding Up**): Upon winding up of the Company, the Performance Shares may not participate in the surplus profits or assets of the Company.

(f) (**No Rights to Return of Capital**) A Performance Share does not entitle the Holder to a return of capital, whether in a winding up, upon a reduction of capital or otherwise.

(g) (**Transfer of Performance Shares**): The Performance Shares are not transferable.

(h) (**Reorganisation of Capital**): In the event that the issued capital of the Company is reconstructed, all rights of a Holder will be changed to the extent necessary to comply with the ASX Listing Rules at the time of reorganisation provided that, subject to compliance with the ASX Listing Rules, following such reorganisation the economic and other rights of the Holder are not diminished or terminated.

(i) (**Application to ASX**): The Performance Shares will not be quoted on ASX. Upon conversion of the Performance Shares into Shares in accordance with these terms, the Company must within seven (7) days after the conversion, apply for and use its best endeavours to obtain the official quotation on ASX of the Shares arising from the conversion.

(j) (**Participation in Entitlements and Bonus Issues**): Subject always to the rights under paragraph (h), the Holder of Performance Shares will not be entitled to participate in new issues of capital offered to holders of Shares such as bonus issues and entitlement issues.

(k) (**Amendments required by ASX**): The terms of the Performance Shares may be amended as necessary by the board of directors of the Company in order to comply with the ASX Listing Rules, or any directions of ASX regarding the terms provided that, subject to compliance with the ASX Listing Rules, following such amendment, the economic and other rights of the Holder are not diminished or terminated.

(l) (**No Other Rights**): The Performance Shares give the Holder no rights other than those expressly provided by these terms and those provided at law where such rights at law cannot be excluded by these terms.

Conversion of the Performance Shares

(a) (**Milestones**): The respective milestones upon which Performance Shares will convert into Shares (one a one for basis) are as follows:

(i) 2,500,000 Performance Shares will vest and convert into Shares on the execution by the Company (or one of its related bodies corporate) of a binding third party off-take agreement for supply of pig iron produced by the Company (or one of its related bodies corporate) from the Buena Vista Magnetite Project (milestone to expire on that date which is 9 months from the date of issue of the Performance Shares);

(ii) 2,500,000 Performance Shares will vest and convert into Shares on the completion by the Company of a bankable feasibility study in respect of the Buena Vista Magnetite Project (milestone to expire on that date which is 18 months from the date of issue of the Performance Shares);

(iii) 2,500,000 Performance Shares will vest and convert into Shares on the achievement of a total pig iron production quota of 1,300,000tpa by the Company (or one of its related bodies corporate) from the Buena Vista Magnetite Project pursuant to a binding third party off take agreement (milestone to expire on that date which is 24 months from the date of issue of the Performance Shares);

(iv) 2,500,000 Performance Shares will vest and convert into Shares on the achievement of a total pig iron production quota of 1,300,000tpa by the Company (or one of its related bodies corporate) from the Buena Vista Magnetite Project pursuant to a binding third party pre-pay agreement (milestone to expire on that date which is 24 months from the date of issue of the Performance Shares);

(v) 5,000,000 Performance Shares will vest and convert into Shares on the achievement of a total supply quota of mill scale or other feed materials relevant to 50% of the required ore for pig iron production by the Company (or one of its related bodies corporate) from the Buena Vista Magnetite Project pursuant to a third-party supply agreement linked to any bankable feasibility study requirements for the Buena Vista Magnetite Project for at least the term of the bankable debt facilities (milestone to expire on that date which is 24 months from the date of issue of the Performance Shares);

(vi) 2,500,000 Performance Shares will vest and convert into Shares on the achievement of a total supply quota of 1,000,000tpa of biochar to service production of the Company's (or one of its related bodies corporate) from the Buena Vista Magnetite Project pursuant to a third-party supply agreement linked to any bankable feasibility study requirements for the Buena Vista Magnetite Project for at least the term of the bankable debt facilities (milestone to expire on that date which is 24 months from the date of issue of the Performance Shares);

(vii) 2,500,000 Performance Shares will vest and convert into Shares on the achievement of the first production of biochar by the Company (or one of its related bodies corporate) from the Buena Vista Magnetite Project (milestone to expire on that date which is 24 months from the date of issue of the Performance Shares);

(viii) 2,500,000 Performance Shares will vest and convert into Shares on the execution of a binding agreement by the Company (or one of its related bodies corporate) with the state of West Virginia (or other relevant regulatory body) for land access for the Company (or one of its related bodies corporate) to build a pig iron plant in West Virginia, pursuant to the proposed Appalachian West Virginia Project (milestone to expire on that date which is 24 months from the date of issue of the Performance Shares); and

(ix) 7,500,000 Performance Shares will vest and convert into Shares on the achievement of the first production of pig iron by the Company (or one of its related bodies corporate) from the Appalachian West Virginia Project (milestone to expire on that date which is 48 months from the date of issue of the Performance Shares),

(each a **Milestone**).

(b) (**Conversion of Performance Shares**): Upon the relevant Milestone being achieved and subject to paragraph (a), the applicable Performance Shares will convert into Shares on a one (1) for one (1) basis on the achievement of the Milestone.

(c) (**Expiry**): If the individual Milestones are not achieved by each relevant date set out in paragraph (a), the Performance Shares subject to that Milestone will automatically lapse on that date.

(d) (**Conversion Procedure**): The Company will issue the Holder with a new holding statement for the Shares as soon as practicable following the conversion of the Performance Shares into Shares.

(e) (**Ranking of Shares**): The Shares into which the Performance Shares will convert will rank pari passu in all respects with the Shares on issue at the date of conversion.

SCHEDULE 2 – SUMMARY OF THE APPALACHIAN SHARE SALE AGREEMENT

1.	**Parties**	Magnum Mining and Exploration Limited (**Company**) Mr Neil Goodman (**Vendor**) (together, the **Parties**)
2.	**Acquisition**	The Vendor agrees to sell the sole share in the capital of Appalachian Iron Inc (**Appalachian Share**), free from all encumbrances to the Company, and the Company agrees to acquire the Appalachian Share from the Vendor on the terms and subject to the conditions of the Share Sale Agreement.
3.	**Consideration**	Subject to the Share Sale Agreement, the Company will acquire the Appalachian Share through the issue of 30,000,000 Performance Shares in the capital of the Company on the terms set out in Schedule 1 to the Vendor. The Performance Shares will convert into Shares on the achievement of the Milestones set out in Schedule 1. If the timeline for any Milestone expires without achievement of the given milestone, the corresponding Performance Shares will expire and lapse.
4.	**Conditions**	The Acquisition is conditional upon the satisfaction of the following conditions precedent on or before 5.00 pm (WST) on the date which is four (4) months from the date of execution of the Share Sale Agreement: (a) the Company confirming to the Vendor that it is satisfied, at its absolute discretion, with its financial, legal and technical due diligence on Appalachian; (b) the Company obtaining all necessary shareholder approvals required to lawfully complete the Acquisition as required by the Corporations Act and its constitution; (c) both the Parties obtaining all necessary corporate, governmental and regulatory approvals, consents and waivers pursuant to the ASX Listing Rules, the Corporations Act and any other applicable law to allow the Parties to lawfully complete the Acquisition; and (d) both the Parties obtaining all necessary third-party approvals, consents and waivers to allow the Parties to lawfully complete the Acquisition.
5.	**Escrow**	(a) The Parties agree that the Performance Shares and any Shares issued on conversion of the Performance Shares will be subject to an escrow period of twelve (12) months from the date of issue of the Performance Shares in accordance with ASX Listing Rule 10.7 (**Escrow Period**). (b) The Vendor agrees to enter into a restriction deed on terms agreed by the Company which imposes restriction on trading of the Shares issued on conversion of the Performance Shares for the Escrow Period.

The Share Sale Agreement otherwise contains provisions considered standard for an agreement of its nature (including representations, warranties and confidentiality provisions).

SCHEDULE 3 – REVISED TERMS AND CONDITIONS OF THE VARIED OPTIONS

The revised terms and conditions of the Varied Options are set out below:

(a) **Entitlement**

Each Option entitles the holder to subscribe for one Share upon exercise of the Option.

(b) **Exercise Price**

Subject to paragraph (i), the amount payable upon exercise of each Option will be $0.05 (**Exercise Price**)

(c) **Expiry Date**

Each Option will expire at 5:00 pm (WST) on 31 October 2025 (**Expiry Date**). An Option not exercised before the Expiry Date will automatically lapse on the Expiry Date.

(d) **Exercise Period**

The Options are exercisable at any time on or prior to the Expiry Date (**Exercise Period**).

(e) **Notice of Exercise**

The Options may be exercised during the Exercise Period by notice in writing to the Company in the manner specified on the Option certificate (**Notice of Exercise**) and payment of the Exercise Price for each Option being exercised in Australian currency by electronic funds transfer or other means of payment acceptable to the Company.

(f) **Exercise Date**

A Notice of Exercise is only effective on and from the later of the date of receipt of the Notice of Exercise and the date of receipt of the payment of the Exercise Price for each Option being exercised in cleared funds (**Exercise Date**).

(g) **Timing of issue of Shares on exercise**

Within five Business Days after the Exercise Date, the Company will:

(i) issue the number of Shares required under these terms and conditions in respect of the number of Options specified in the Notice of Exercise and for which cleared funds have been received by the Company;

(ii) if required, give ASX a notice that complies with section 708A(5)(e) of the Corporations Act, or, if the Company is unable to issue such a notice, lodge with ASIC a prospectus prepared in accordance with the Corporations Act and do all such things necessary to satisfy section 708A(11) of the Corporations Act to ensure that an offer for sale of the Shares does not require disclosure to investors; and

(iii) if admitted to the official list of ASX at the time, apply for official quotation on ASX of Shares issued pursuant to the exercise of the Options.

If a notice delivered under (g)(i) for any reason is not effective to ensure that an offer for sale of the Shares does not require disclosure to investors, the Company must, no later than 20 Business Days after becoming aware of such notice being ineffective, lodge with ASIC a prospectus prepared in accordance with the Corporations Act and do all such things necessary to satisfy section 708A(11) of the Corporations Act to ensure that an offer for sale of the Shares does not require disclosure to investors.

(h) **Shares issued on exercise**

Shares issued on exercise of the Options rank equally with the then issued shares of the Company.

(i) **Reconstruction of capital**

If at any time the issued capital of the Company is reconstructed, all rights of an Optionholder are to be changed in a manner consistent with the Corporations Act and the ASX Listing Rules at the time of the reconstruction.

(j) **Participation in new issues**

There are no participation rights or entitlements inherent in the Options and holders will not be entitled to participate in new issues of capital offered to Shareholders during the currency of the Options without exercising the Options.

(k) **Change in exercise price**

An Option does not confer the right to a change in Exercise Price or a change in the number of underlying securities over which the Option can be exercised.

(l) **Transferability**

The Options are transferable subject to any restriction or escrow arrangements imposed by ASX or under applicable Australian securities laws.

MAGNUM MINING AND EXPLORATION LIMITED

Independent Expert's Report

OPINION: NOT FAIR BUT REASONABLE

25 November 2022

Financial Services Guide

25 November 2022

BDO Corporate Finance (WA) Pty Ltd ABN 27 124 031 045 ('**we**' or '**us**' or '**ours**' as appropriate) has been engaged by Magnum Mining and Exploration Limited (**'Magnum'**) to provide an independent expert's report on the proposal to acquire 100% of the issued capital of Appalachian Iron Inc., an entity that is controlled by the Chief Executive Officer of Magnum, Mr. Neil Goodman. You are being provided with a copy of our report because you are a shareholder of Magnum and this Financial Services Guide ('**FSG**') is included in the event you are also classified under the Corporations Act 2001 ('**the Act**') as a retail client.

Our report and this FSG accompanies the Notice of Meeting required to be provided to you by Magnum to assist you in deciding on whether or not to approve the proposal.

Financial Services Guide
This FSG is designed to help retail clients make a decision as to their use of our general financial product advice and to ensure that we comply with our obligations as a financial services licensee.

This FSG includes information about:

- Who we are and how we can be contacted;
- The services we are authorised to provide under our Australian Financial Services Licence No. 316158;
- Remuneration that we and/or our staff and any associates receive in connection with the general financial product advice;
- Any relevant associations or relationships we have; and
- Our internal and external complaints handling procedures and how you may access them.

Information about us
We are a member firm of the BDO network in Australia, a national association of separate entities (each of which has appointed BDO (Australia) Limited ACN 050 110 275 to represent it in BDO International). The financial product advice in our report is provided by BDO Corporate Finance (WA) Pty Ltd and not by BDO or its related entities. BDO and its related entities provide professional services primarily in the areas of audit, tax, consulting, mergers and acquisition, and financial advisory services.

We and BDO (and its related entities) might from time to time provide professional services to financial product issuers in the ordinary course of business and the directors of BDO Corporate Finance (WA) Pty Ltd may receive a share in the profits of related entities that provide these services.

Financial services we are licensed to provide
We hold an Australian Financial Services Licence that authorises us to provide general financial product advice for securities to retail and wholesale clients, and deal in securities for wholesale clients. The authorisation relevant to this report is general financial product advice.

When we provide this financial service we are engaged to provide an expert report in connection with the financial product of another person. Our reports explain who has engaged us and the nature of the report we have been engaged to provide. When we provide the authorised services we are not acting for you.

General Financial Product Advice
We only provide general financial product advice, not personal financial product advice. Our report does not take into account your personal objectives, financial situation or needs. You should consider the appropriateness of this general advice having regard to your own objectives, financial situation and needs before you act on the advice. If you have any questions, or don't fully understand our report you should seek professional financial advice.

Fees, commissions and other benefits that we may receive
We charge fees for providing reports, including this report. These fees are negotiated and agreed with the person who engages us to provide the report. Fees are agreed on an hourly basis or as a fixed amount depending on the terms of the agreement. The fee payable to BDO Corporate Finance (WA) Pty Ltd for this engagement is approximately $30,000.

Except for the fees referred to above, neither BDO, nor any of its directors, employees or related entities, receive any pecuniary benefit or other benefit, directly or indirectly, for or in connection with the provision of the report and our directors do not hold any shares in Magnum.

Remuneration or other benefits received by our employees
All our employees receive a salary. Our employees are eligible for bonuses based on overall productivity but not directly in connection with any engagement for the provision of a report. We have received a fee from Magnum for our professional services in providing this report. That fee is not linked in any way with our opinion as expressed in this report.

Referrals
We do not pay commissions or provide any other benefits to any person for referring customers to us in connection with the reports that we are licensed to provide.

Complaints resolution
Internal complaints resolution process
As the holder of an Australian Financial Services Licence, we are required to have a system for handling complaints from persons to whom we provide financial product advice. Complaints can be in writing addressed to The Complaints Officer, BDO Corporate Finance (WA) Pty Ltd, PO Box 700, West Perth WA 6872 or, by telephone or email using the contact details within the following report.

When we receive a complaint we will record the complaint, acknowledge receipt of the complaint in writing within 1 business day or, if the timeline cannot be met, then as soon as practicable and investigate the issues raised. As soon as practical, and not more than 30 days after receiving the complaint, we will advise the complainant in writing of our determination.

Referral to External Dispute Resolution Scheme
If a complaint is made and the complainant is dissatisfied with the outcome of the above process, or our determination, the complainant has the right to refer the matter to the Australian Financial Complaints Authority Limited ('**AFCA**').

AFCA is an independent company that has been established to impartially resolve disputes between consumers and participating financial services providers.

Our AFCA Membership Number is 12561. Further details about AFCA are available on its website www.afca.org.au or by contacting it directly via the details set out below.

Australian Financial Complaints Authority Limited
GPO Box 3
Melbourne VIC 3001
AFCA Free call: 1800 931 678
Website: www.afca.org.au
Email: info@afca.org.au

You may contact us using the details set out on page 1 of the accompanying report.

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Appendix 1 – Glossary and copyright notice

Appendix 2 – Valuation Methodologies

Tel: +61 8 6382 4600
Fax: +61 8 6382 4601
www.bdo.com.au

Level 9 Mia Yellagonga Tower 2
5 Spring Street
Perth, WA 6000
PO Box 700 West Perth WA 6872
Australia

25 November 2022

The Independent Directors
Magnum Mining and Exploration Limited
Level 8, 90 Collins Street
Melbourne VIC 3000

Dear Independent Directors

INDEPENDENT EXPERT'S REPORT

1. Introduction

On 12 October 2022, Magnum Mining and Exploration Limited (**'Magnum'** or **'the Company'**) announced that it had entered into a binding share purchase agreement with the Company's Chief Executive Officer (**'CEO'**), Mr. Neil Goodman (**'Mr. Goodman'**), to acquire 100% of the issued capital of Appalachian Iron Inc. (**'Appalachian Iron'**), a US entity incorporated in the state of Delaware (**'Acquisition'**). Mr. Goodman is the sole director and shareholder of Appalachian Iron.

Under the terms of the Acquisition, the consideration payable by Magnum comprises 30 million performance shares in Magnum, to be issued to the sole shareholder of Appalachian Iron, being Mr. Goodman (**'Performance Shares'** or **'Consideration'**). Each Performance Share will convert into one fully paid ordinary share in Magnum upon the achievement of certain performance milestones (**'Milestones'**), which are detailed in Section 4 of our Report.

We understand that the Australian Securities Exchange (**'ASX'**) has exercised its discretion under ASX Listing Rule 10.1.5 and determined that Mr. Goodman is a person whose relationship to the Company is such that, in the ASX's opinion, the Acquisition should be approved by security holders. Accordingly, approval from the shareholders of Magnum that are not associated with Mr. Goodman (**'Shareholders'**) is required in order for the Acquisition to proceed.

As set out in the Notice of Meeting, only Resolution 1 requires the opinion of an independent expert. However, we note that completion of the Acquisition is conditional on the Company receiving shareholder approval for the other remaining resolutions, as set out below:

- Resolution 2 – "Issue of a new class of securities – Performance Shares"; and
- Resolution 3 – "Issue of Performance Shares to Mr Neil Goodman".

Further details of the Acquisition are outlined in Section 4. All currencies are quoted in Australian Dollars unless otherwise stated.

2. Summary and Opinion

2.1 Requirement for the report

The independent directors of Magnum have requested that BDO Corporate Finance (WA) Pty Ltd ('**BDO**') prepare an independent expert's report ('**our Report**') to express an opinion as to whether or not the Acquisition is fair and reasonable to Shareholders.

Our Report is prepared pursuant to ASX Listing Rule 10.1 and Chapter 2E of the Corporations Act 2001 ('**Corporations Act**' or '**the Act**') is to be included in the Company's Notice of Meeting in order to assist Shareholders in their decision whether to approve the Acquisition.

2.2 Approach

Our Report has been prepared having regard to Australian Securities and Investments Commission ('**ASIC**') Regulatory Guide 76 'Related party transactions' (**'RG 76'**), Regulatory Guide 111 'Content of expert reports' ('**RG 111**'), Regulatory Guide 112 'Independence of experts' ('**RG 112**'), Regulatory Guide 170 'Prospective financial information' (**'RG 170'**) and Information Sheet 214: Mining and Resources: Forward-looking Statements (**'IS 214'**).

In arriving at our opinion, we have assessed the terms of the Acquisition as outlined in the body of this Report. We have considered:

- how the value of Appalachian Iron compares to the value of the Consideration;
- the alternatives available to Magnum;
- other factors which we consider to be relevant to Shareholders in their assessment of whether to approve the Acquisition; and
- the position of Shareholders should the Acquisition not proceed.

2.3 Opinion

We have considered the terms of the Acquisition as outlined in the body of this Report and have concluded that, in the absence of a superior proposal, the Acquisition is **not fair but reasonable** to Shareholders.

In our opinion, the Acquisition is not fair because we are unable to opine on either the value of Appalachian Iron or the value of the Consideration, and therefore by default we consider the Acquisition to be **not fair** for Shareholders.

However, we consider the Acquisition to be reasonable to Shareholders because the advantages of the Acquisition to Shareholders are greater than the disadvantages. In particular, obtaining access to the HIsmelt Process will enable the Company to pursue its new Integrated Strategy whilst the Consideration aligns the interests of Shareholders and the vendor of Appalachian Iron, Mr. Goodman.

Further, in order for the Consideration to have any value, it is entirely dependent on the Milestones being achieved. Therefore, Shareholders' exposure to the risks of the Acquisition are limited such that their interests will only be diluted in the event that the Milestones are achieved. Achievement of these Milestones are likely to generate value for Shareholders, noting that we do not have sufficient reasonable grounds to estimate the likelihood and timing of achieving these Milestones, nor to quantify any value accretion that may occur from achieving these Milestones.

2.4 Fairness

In Section 12, in arriving at our opinion on whether the Acquisition is fair, we have considered the value of Appalachian Iron relative to the value of the Consideration. Having regard to the guidance set out in RG 111, RG 170 and IS 214, our opinion in relation to whether the Acquisition is fair, is summarised below.

As detailed in Sections 9 and 10, we do not have reasonable grounds to perform a valuation which assesses the future cash flows that may be generated from having access to the HIsmelt Process. Therefore, we are unable to attribute any identifiable value to Appalachian Iron, which would be in accordance with ASIC's guidance under RG 111, RG 170 and IS 214. As such, we have not attributed any value to Appalachian Iron under our assessment of whether the Acquisition is fair.

As detailed in Sections 9 and 11, we do not have sufficient reasonable grounds to assess the likelihood and timing of the Milestones being achieved, nor the quantum of this value uplift (if any) should these Milestones be achieved. Therefore, we have not attributed any value to the Consideration in our assessment of whether the Acquisition is fair.

Based on the above, given that we are unable to opine on either the value of Appalachian Iron or the value of the Consideration, by default, we consider the Acquisition to be **not fair** for Shareholders.

2.5 Reasonableness

We have considered the analysis in Section 13 of our Report, in terms of both:

- advantages and disadvantages of the Acquisition; and
- other considerations, including the position of Shareholders if the Acquisition does not proceed and the consequences of not approving the Acquisition.

In our opinion, the position of Shareholders if the Acquisition is approved is more advantageous than the position if the Acquisition is not approved. Accordingly, in the absence of any other relevant information and/or an alternate proposal we believe that the Acquisition is reasonable for Shareholders.

The respective advantages and disadvantages considered are summarised below:

ADVANTAGES AND DISADVANTAGES			
Section	**Advantages**	**Section**	**Disadvantages**
13.2.1	The Consideration is structured in such a way as to align the interests of Shareholders and the vendor of Appalachian Iron (Mr. Goodman)	13.3.1	Potential dilution of Shareholders' interests
13.2.2	Access to the HIsmelt Process will enable the Company to pursue its Integrated Strategy whilst delivering several key benefits over alternative technologies		

ADVANTAGES AND DISADVANTAGES			
Section	**Advantages**	**Section**	**Disadvantages**
13.2.3	The Acquisition will improve the Company's ability to retain Mr. Goodman, who is one of the founders of the HIsmelt Process		
13.2.4	The Acquisition may improve the liquidity of the Company's shares if the Milestones are achieved		
13.2.5	Diversification of Magnum's existing portfolio which may improve the attractiveness of the Company's shares and may improve the likelihood of a potential takeover in the future		
13.2.6	There is no cash element of the consideration and the value of the Consideration is nil if the Milestones are not achieved		

Other key matters we have considered include:

Section	Description
13.4	Other considerations
13.5	Consequences of not approving the Acquisition

3. Scope of the Report

3.1 Purpose of the Report

ASX Listing Rule 10.1 requires that a listed entity must obtain shareholders' approval before it acquires or disposes of, or agrees to acquire or dispose of, a substantial asset when the consideration to be paid for the asset or the value of the asset being disposed constitutes more than 5% of the equity interest of that entity as set out in the latest accounts given to the ASX under its Listing Rules. ASX Listing Rule 10.1 applies where the vendor or acquirer of the relevant assets is a related party or person of influence of the listed entity as defined under the ASX Listing Rules.

Mr. Goodman is the current CEO of the Company and the sole director and shareholder of Appalachian Iron. In the context of the Acquisition, the ASX has exercised its discretion under ASX Listing Rule 10.1.5 and determined that Mr. Goodman is a person whose relationship to the Company is such that, in the ASX's opinion, the Acquisition should be approved by security holders.

Listing Rule 10.5.10 requires the Notice of Meeting for shareholders' approval to be accompanied by a report by an independent expert expressing their opinion as to whether the transaction is fair and reasonable to the shareholders whose votes are not to be disregarded.

Chapter 2E of the Corporations Act ('**Chapter 2E**') requires a public company to obtain shareholder approval when giving a financial benefit to any party defined as a related party. What constitutes a financial benefit and who falls under the definition of a related party is set out under Chapter 2E. Exceptions apply to this requirement, including the arm's length exception however Magnum has determined to seek shareholder approval under Chapter 2E.

If shareholder approval is sought, the company must lodge with the ASIC the material that will be put to members. RG 76 sets out the information expected to be in the explanatory statements to the resolution being put to shareholders and requires, when necessary, an independent valuation of the financial benefit, particularly if the financial benefit is an issue of securities or involves the sale or purchase of an asset.

Accordingly, an independent experts' report is required for the Acquisition. Under RG 111, the report should provide an opinion by the expert stating whether or not the terms and conditions in relation thereto are fair and reasonable to Shareholders.

3.2 Regulatory guidance

Neither the Listing Rules nor the Corporations Act defines the meaning of 'fair and reasonable'. In determining whether the Acquisition is fair and reasonable, we have had regard to the views expressed by ASIC in RG 111 which provides guidance as to what matters an independent expert should consider to assist security holders to make informed decisions about transactions.

This regulatory guide suggests that, where an expert assesses whether a related party transaction is 'fair and reasonable' for the purposes of ASX Listing Rule 10.1 and Chapter 2E, this should not be applied as a composite test—that is, there should be a separate assessment of whether the transaction is 'fair' and 'reasonable', as in a control transaction. An expert should not assess whether the transaction is 'fair and reasonable' based simply on a consideration of the advantages and disadvantages of the proposal.

We do not consider the Acquisition to be a control transaction. As such, we have used RG 111 as a guide for our analysis but have considered the Acquisition as if it were not a control transaction.

3.3 Adopted basis of evaluation

RG 111 states that a transaction is fair if the value of the offer price or consideration is equal to or greater than the value of the securities subject of the offer. In the case of the Acquisition, the entire issued capital of Appalachian Iron is the subject of the transaction. This comparison should be made assuming a knowledgeable and willing, but not anxious, buyer and a knowledgeable and willing, but not anxious, seller acting at arm's length. RG 111 states that when considering the value of the securities subject of the offer in a control transaction the expert should consider this value inclusive of a control premium. However, as stated in Section 3.2 we do not consider that the Acquisition is a control transaction. As such, we have not included a premium for control when assessing the value of the Consideration.

RG 111 states that a comparison should be made between the value of the securities being offered (allowing for a minority discount) and the value of the target entity's securities, assuming 100% of the securities are available for sale.

Further to this, RG 111 states that a transaction is reasonable if it is fair. It might also be reasonable if despite being 'not fair' the expert believes that there are sufficient reasons for security holders to accept the offer in the absence of any alternate options.

Having regard to the above, BDO has completed this comparison in two parts:

- a comparison between the value of Appalachian Iron and the value of the Consideration to be paid by Magnum (fairness – see Section 12 'Is the Acquisition Fair?'); and
- an investigation into other significant factors to which Shareholders might give consideration, prior to approving the resolution, after reference to the value derived above (reasonableness – see Section 13 'Is the Acquisition Reasonable?').

This assignment is a Valuation Engagement as defined by Accounting Professional & Ethical Standards Board professional standard APES 225 'Valuation Services' ('**APES 225**').

A Valuation Engagement is defined by APES 225 as follows:

'an Engagement or Assignment to perform a Valuation and provide a Valuation Report where the Valuer is free to employ the Valuation Approaches, Valuation Methods, and Valuation Procedures that a reasonable and informed third party would perform taking into consideration all the specific facts and circumstances of the Engagement or Assignment available to the Valuer at that time.'

This Valuation Engagement has been undertaken in accordance with the requirements set out in APES 225.

4. Outline of the Acquisition

On 12 October 2022, Magnum announced that it had entered into a binding share purchase agreement with Mr. Goodman to acquire 100% of the issued capital of Appalachian Iron.

Under the terms of the Acquisition, the Consideration comprises 30 million Performance Shares, to be issued to the sole shareholder of Appalachian Iron, being Mr. Goodman. Each Performance Share will convert into one fully paid ordinary share in Magnum upon the achievement of certain Milestones. A summary of the terms of the Performance Shares is set out below.

Tranche	Number of Performance Shares	Milestone	Expiry date
i	2,500,000	Each Performance Share will vest on the execution by Magnum (or one of its related bodies corporate) of a binding third party off-take agreement for supply of pig iron produced by Magnum (or one of its related bodies corporate) from the Buena Vista Magnetite Project.	9 months from the date of issue
ii	2,500,000	Each Performance Share will vest on the completion by Magnum of a bankable feasibility study in respect of the Buena Vista Magnetite Project.	18 months from the date of issue
iii	2,500,000	Each Performance Share will vest on the achievement of a total pig iron production quota of 1.3 million tonnes per annum (‘**Mtpa**’) by Magnum (or one of its related bodies corporate) from the Buena Vista Magnetite Project pursuant to a binding third party off take agreement.	24 months from the date of issue
iv	2,500,000	Each Performance Share will vest on the achievement of a total pig iron production quota of 1.3 Mtpa by Magnum (or one of its related bodies corporate) from the Buena Vista Magnetite Project pursuant to a binding third party pre-pay agreement.	24 months from the date of issue
v	5,000,000	Each Performance Share will vest on the achievement of a total supply quota of mill scale or other feed materials relevant to 50% of the required ore for pig iron production by Magnum (or one of its related bodies corporate) from the Buena Vista Magnetite Project pursuant to a third-party supply agreement linked to any bankable feasibility study requirements for the Buena Vista Magnetite Project for at least the term of the bankable debt facilities.	24 months from the date of issue
vi	2,500,000	Each Performance Share will vest on the achievement of a total supply quota of 1 Mtpa of biochar to service production of Magnum’s (or one of its related bodies corporate) from the Buena Vista Magnetite Project pursuant to a third-party supply agreement linked to any bankable feasibility study requirements for the Buena Vista Magnetite Project for at least the term of the bankable debt facilities.	24 months from the date of issue
vii	2,500,000	Each Performance Share will vest on the achievement of the first production of biochar by Magnum (or one of its related bodies corporate) from the Buena Vista Magnetite Project.	24 months from the date of issue
viii	2,500,000	Each Performance Share will vest on the execution of a binding agreement by Magnum (or one of its related bodies corporate) with the state of West Virginia (or other relevant regulatory body) for land access for Magnum (or one of its related bodies corporate) to build a pig iron plant in West Virginia, pursuant to the proposed West Virginia Project.	24 months from the date of issue
ix	7,500,000	Each Performance Share will vest on the achievement of the first production of pig iron by Magnum (or one of its related bodies corporate) from the West Virginia Project.	48 months from the date of issue

Source: Magnum Notice of Meeting

If the individual Milestones are not achieved by the respective expiry dates, the Performance Shares under each respective tranche will automatically lapse and will not convert into ordinary shares in the Company.

Conditions Precedent

The Acquisition is conditional upon the receipt of the required relevant Shareholder approvals and all other necessary corporate, government and regulatory approvals, consents and waivers pursuant to the ASX Listing Rules and the Corporations Act and any other applicable laws and regulations to allow the Company and Mr. Goodman to lawfully complete the Acquisition.

Capital Structure following the Acquisition

Following the Acquisition, the Company will issue 30 million Performance Shares to Mr. Goodman, which will vest and convert to a maximum of 30 million ordinary shares in Magnum in the event that all Milestones are achieved by the respective expiry dates.

The table below sets out the impact of the potential vesting of the Performance Shares, on the percentage of issued capital held by existing Shareholders and parties related to Mr. Goodman. Dilution to existing Shareholders' interests arises in the event that the Performance Shares, as well as the performance rights currently on issue (**'Existing Performance Rights'**), vest and convert into ordinary shares, resulting in a minimum possible holding for existing Shareholders of 93%. We note that as at the date of our Report, existing Shareholders have a 100% holding in Magnum.

Description	Existing Shareholders	Mr. Goodman	Total
Shares on issue as at 15 November 2022	682,426,579	-	682,426,579
% holdings prior to the Acquisition	***100%***	***-***	***100%***
Shares issued upon vesting of all the Performance Shares	-	30,000,000	30,000,000
Shares issued upon vesting of the Existing Performance Rights	-	25,000,000	25,000,000
Number of shares on issue following the Acquisition and vesting of the Performance Shares and Existing Performance Rights	**682,426,579**	**55,000,000**	**737,426,579**
% holdings following the Acquisition and vesting of the Performance Shares and Existing Performance Rights	***93%***	***7%***	***100%***

Source: Magnum Notice of Meeting and BDO analysis

We note that as at the date of our Report, the Company has 25 million unvested Existing Performance Rights held by Mr. Goodman with various expiry dates. We note that the nature of the vesting conditions attached to the Existing Performance Rights are such that in the event that the Milestones attached to the Consideration Performance Shares are achieved, the vesting conditions attached to the Existing Performance Rights will also be achieved. Therefore, we have assumed that the Existing Performance Rights will also vest upon the achievement of the Milestones.

For further details of the Existing Performance Rights and the Company's capital structure, please refer to Section 5.6 of our Report.

5. Profile of Magnum

5.1 History

Magnum is an ASX-listed exploration and development company with its current aim being to produce green pig iron from its projects located in the United States of America (‘**USA**’). The Company’s flagship asset is its wholly owned Buena Vista Magnetite Project (‘**Buena Vista Project**’), located in Nevada, USA.

The current directors and key personnel of Magnum are:

- Mr. Anoosh Manzoori – Non-Executive Chairman;
- Mr. Neil Goodman – CEO;
- Mr. Matt Latimore – Non-Executive Director;
- Mr. Athan Lekkas – Non-Executive Director; and
- Mr. John Dinan – Company Secretary.

5.2 Buena Vista Project

Overview

The Buena Vista Project is situated approximately 160 kilometres (‘**km**’) east-north-east of Reno in Nevada, USA and comprises three magnetite iron ore deposits, namely Section 5, West and East. The Buena Vista Project is located approximately 50km from the Union Pacific railway and highway which connects the project area to several major export ports, including Stockton, West Sacramento, Oakland, San Francisco and Richmond.

Magnum acquired its interest in the Buena Vista Project on 9 February 2021, through the acquisition of Nevada Iron Holdings Pty Ltd, a holding company for the Buena Vista Project. The consideration paid by Magnum to the vendors, being Lilaid Pty Ltd and New Nevada Resources LLC, was a combination of cash and shares totalling approximately $7.0 million, with $5.5 million contingent on the achievement of certain project milestones.

Prior to Magnum’s acquisition, the Buena Vista Project was intended to be a direct shipping ore (‘**DSO**’) operation. However, following a review of the DSO business model and its significant logistical costs, together with an increasingly volatile iron ore market, the Company announced in August 2021 that it would shift its focus from the DSO business model to magnetite concentrate, with the aim to develop a green pig iron processing plant (‘**Integrated Strategy**’).

Under the Integrated Strategy, the Company intends to develop an integrated mining and production facility to produce and supply low emission green pig iron products using biochar/biomass to steel plants in the US and overseas. The Buena Vista Project’s Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 Edition) **(‘JORC Code’**) compliant Mineral Resource and local biomass are the proposed key components to production. Magnum also intends to generate carbon credits through its operations to offset pig iron plant emissions, with the aim to produce ‘net zero’ carbon pig iron.

History

The Buena Vista Project was first discovered in the late 1890s and between the late 1950s and early 1960s, approximately 900,000 tonnes of magnetite ore with an estimated grade of 58% iron was mined. In the 1960s, US Steel Corporation acquired the Buena Vista Project and carried out an extensive exploration program including 230 diamond drill holes and considerable metallurgical test work.

In 2009, Nevada Iron Limited (formerly known as Richmond Mining Limited) (**'Nevada Iron'**), acquired the Buena Vista Project and commenced a detailed exploration program which culminated in a definitive feasibility study (**'DFS'**) which was subsequently completed in 2011. The DFS was conducted based on the development of an open pit mine and highlighted a production rate of 6 Mtpa of ore.

Following the DFS, Nevada Iron carried out an extensive drilling program designed to provide infill drilling for an expanded resource estimate, extend the boundaries of the known mineralised areas and provide additional core for metallurgical test work. This resulted in the preparation of a National Instrument 43-101 (**'NI 43-101'**) Technical Report (**'Technical Report'**) in 2013. The Technical Report was completed to a prefeasibility study (**'PFS'**) level of accuracy, with some aspects of the capital cost and tailings disposal requiring additional engineering and costing for the entire study to be elevated to a DFS level of accuracy.

The Technical Report highlighted an expanded production rate from the initial DFS, with an estimated production rate of 9Mtpa of ore and considered the negotiation of in-principal agreements with existing rail and port operators and the securing of all major mining permits. However, a decline in iron ore prices caused the proposed development to be deferred.

On 23 March 2021, the Company announced that it had evaluated and reviewed the previously reported mineral resource in 2013 and as a result, the Buena Vista Project's Mineral Resource was updated in accordance with the JORC code, as set out below:

	MRE @ 10% Fe cutoff			
Deposit	**Resource Category**	**Mt**	**Fe%**	**DTR%**
Section 5	Indicated	34	17.4	21
	Inferred	8	16	18
	Total	**42**	**17**	**29**
West	Indicated	117	19.5	23.9
	Inferred	40	17	21
	Total	**157**	**19**	**23**
East	Indicated	-	-	-
	Inferred	33	19	23
	Total	**33**	**19**	**23**
Total	**Indicated**	**151**	**19**	**23.2**
	Inferred	**81**	**18**	**22.2**
	Total	**232**	**18.6**	**22.6**

Source: Magnum's Quarterly Activities Report for 30 September 2022

In April 2021, Magnum signed a green hydrogen supply agreement with AVF Energy Inc. (**'AVF'**) which was to provide Magnum with green hydrogen at a discount to market rates for the manufacture of hot briquette iron (**'HBI'**) and high purity iron products for supply to the US steel market. In addition, AVF has agreed to fund and construct a commercial scale green hydrogen plant at the Buena Vista Project site.

In 2022, MinRizon Projects Pty Ltd (‘**MinRizon**’) conducted an independent technology assessment study to determine the optimal technology for the production of green pig iron at the Buena Vista Project. The study provided assessments of three proven technologies that can produce pig iron with biochar, including mini blast furnaces, rotary hearth furnaces with electric melters and the HIsmelt process (‘**HIsmelt Process**’). The study concluded that of the three technologies, the HIsmelt Process yielded the highest net present value and internal rate of return. As such, Magnum is pursuing the development of an integrated mining and production facility using the HIsmelt Process to produce a low emission green pig iron product.

5.3 Recent Corporate Events

On 22 January 2021, Magnum announced the completion of a placement to raise $2 million (before costs) from sophisticated and institutional investors to fund the Buena Vista Project’s feasibility study and for general working capital purposes. The placement was undertaken through the issue of 50,000,000 shares at $0.04 per share with free attaching 1:2 listed options with an exercise price at $0.05 on or before 30 September 2022.

On 7 May 2021, Magnum announced the completion of a placsement to raise $6 million (before costs) from sophisticated and institutional investors to develop the Buena Vista Project and to explore growth opportunities through the production of HBI and pig iron in the US. The placement consisted of the issue of 40,000,000 shares at $0.15 per share.

On 2 May 2022, the Company announced that it had entered into a funding agreement with IRIS (Company number 753 471 853) (‘**IRIS**’) for up to $20 million in the form of convertible notes (with an initial $1.3 million to be invested) to fund the development of the Buena Vista Project and the completion of a bankable feasibility study (‘**BFS**’) for the production of green pig iron. The convertible notes have a face value of $2,500 per note and have a maturity date of 24 months from the date of issue. The convertible notes will convert to fully paid ordinary shares in Mangum at a conversion price of 95% of the five lowest daily volume-weighted average prices of the Company’s shares of the 20 most recent trading days prior to the date of a conversion notice.

On 5 August 2022, the Company announced the appointment of Mr. Goodman as CEO of the Company and as Director of Magnum’s wholly owned subsidiary Nevada Iron LLC.

On 21 October 2022, the Company announced the completion of a placement to raise $5 million (before costs) from sophisticated and institutional investors to further fund the development of the Buena Vista Project and the completion of a BFS. The share placement was undertaken through the issue of 142,857,142 shares at $0.035 per share. As part of the placement, the Company offered one free attaching option with an exercise price at $0.05 expiring in three years from the date of issue.

5.4 Historical Statement of Financial Position

Statement of Financial Position	Reviewed as at 30-Jun-22 $	Audited as at 31-Dec-21 $	Audited as at 31-Dec-20 $
CURRENT ASSETS			
Cash and cash equivalents	2,555,176	4,422,716	205,502
Trade and other receivables	72,877	79,202	64,846
Assets held for sale	116,822	186,012	-
Other financial assets	-	-	162,500
TOTAL CURRENT ASSETS	**2,744,875**	**4,687,930**	**432,848**
NON-CURRENT ASSETS			
Property, plant and equipment	950,553	894,290	115,662
Deferred exploration and evaluation expenditure	6,060,150	4,794,499	2,060,834
Rehabilitation guarantee	-	-	36,902
TOTAL NON-CURRENT ASSETS	**7,010,703**	**5,688,789**	**2,213,398**
TOTAL ASSETS	**9,755,578**	**10,376,719**	**2,646,246**
CURRENT LIABILITIES			
Trade and other payables	304,614	396,296	200,606
Borrowings	1,214,754	-	163,186
Derivative liability	29,593	-	-
TOTAL CURRENT LIABILITIES	**1,548,961**	**396,296**	**363,792**
NON-CURRENT LIABILITIES			
Other payables	100,000	200,000	-
TOTAL NON-CURRENT LIABILITIES	**100,000**	**200,000**	**-**
TOTAL LIABILITIES	**1,648,961**	**596,296**	**363,792**
NET ASSETS	**8,106,617**	**9,780,423**	**2,282,454**
EQUITY			
Issued capital	34,841,359	34,223,100	24,813,146
Reserves	10,550,850	7,150,638	729,936
Accumulated losses	(37,285,591)	(31,112,143)	(22,869,983)
EQUITY ATTRIBUTABLE TO OWNERS OF THE PARENT	**8,106,617**	**10,261,595**	**2,673,099**
Non-controlling interests	-	(481,172)	(390,645)
TOTAL EQUITY	**8,106,617**	**9,780,423**	**2,282,454**

Source: Magnum's audited financial statements for the years ended 31 December 2020 and 31 December 2021, and reviewed financial statements for the half-year ended 30 June 2022.

Commentary on the Historical Statement of Financial Position

- Cash and cash equivalents decreased from $4.42 million as at 31 December 2021 to $2.56 million as at 30 June 2022. The decrease in cash held was primarily the result of exploration and evaluation expenditure in relation to the Buena Vista Project.
- Assets held for sale relates to the expected proceeds from the sale of the Company's 74% interest in the Gravelotte Project in South Africa to URA Holdings PLC ('**URA**').
- Non-controlling interests as at 31 December 2021 and 31 December 2020 relate to the Company's previously held 74% interest in Gem Venus Holdings Pty Ltd, the holding company of the Gravelotte Project which as at 30 June 2022 had been fully divested.

- Borrowings of $1.21 million and the derivative liability of $0.03 million as at 30 June 2022 relate to the initial draw down of the convertible note funding provided by IRIS.

5.5 Historical Statement of Profit or Loss and Other Comprehensive Income

Statement of Profit or Loss and Other Comprehensive Income	Reviewed for the half year ended 30-Jun-22 $	Audited for the year ended 31-Dec-21 $	Audited for the year ended 31-Dec-20* $
Other income	27,626	29	2,149
Accountancy fees	(99,514)	(83,566)	-
Auditors' remuneration	(31,004)	(36,640)	(42,681)
Communication expenses	-	(15,000)	-
Corporate advisory expenses	(73,751)	(1,051,148)	(115,000)
Depreciation	(6,805)	-	(589)
Employee benefits expensed	-	(26,226)	-
Exchange differences on translation of foreign operations	-	8,438	-
Exploration expensed as incurred	(18,757)	-	(81,621)
Finance costs	(890,128)	(6,368)	-
IT and communication expenses	-	(23,441)	-
Marketing expenses	-	(2,127,606)	-
Share based payments	(3,227,936)	-	-
Office expenses	(60,987)	(50,494)	-
Consultancy fees	(383,323)	(1,139,375)	-
Professional and technical advisor fees	-	(738,559)	(47,890)
Salary, wages and staff on-costs	(309,330)	-	-
Share registry and exchange fees	(34,924)	(122,434)	-
Insurance	(113,288)	-	-
Loss on investment	(69,189)	-	-
Travel and accommodation expenses	(279,319)	(253,564)	-
Other expenses	(121,646)	(116,128)	(261,413)
Loss before income tax	**(5,692,276)**	**(5,782,082)**	**(451,265)**
Income tax expense	-	-	-
Loss after tax from continuing operations	**(5,692,276)**	**(5,782,082)**	**(451,265)**
Loss after tax from discontinued operations	**-**	**(2,550,604)**	**(361,259)**
Loss for the year	**(5,692,276)**	**(8,332,686)**	**(812,524)**
Other comprehensive income/ (loss)			
Items that will not be reclassified to profit or loss:			
Changes in fair value of equity investments designated at FVOCI	-	(1,629)	112,500
Items that may be reclassified to profit or loss:			
Exchange differences on translation of foreign operations	172,275	201,185	(19,331)
Other comprehensive loss for the year	**172,275**	**199,556**	**93,169**
Total comprehensive loss for the year, net of tax	**(5,520,001)**	**(8,133,130)**	**(719,355)**

*As presented in the audited financial statements

Source: Magnum's audited financial statements for the years ended 31 December 2020 and 31 December 2021, and reviewed financial statements for the half-year ended 30 June 2022.

Commentary on the Historical Statement of Profit or Loss and Other Comprehensive Income

- Finance costs of $0.89 million for the half year ended 30 June 2022 relate to the interest payments in connection with the convertible notes issued to IRIS.
- We note that share based payments for the year ended 31 December 2021 were included within corporate advisory expenses ($0.85 million), marketing expenses ($2.05 million) and accounted for the entire balance of consultancy fees.

5.6 Capital Structure

The share structure of Magnum as at 15 November 2022 is outlined below:

	Number
Total ordinary shares on issue	682,426,579
Top 20 shareholders	278,758,891
Top 20 shareholders - % of shares on issue	40.85%

Source: Magnum's share registry information

The range of shares held in Magnum as at 15 November 2022 is as follows:

Range of Shares Held	No. of Ordinary Shareholders	No. of Ordinary Shares	Percentage of Issued Shares (%)
1 - 1,000	154	80,107	0.01%
1,001 - 5,000	610	1,982,243	0.29%
5,001 - 10,000	486	3,644,661	0.53%
10,001 - 100,000	1,325	49,366,677	7.23%
100,001 - and over	643	627,352,891	91.93%
Total	**3,218**	**682,426,579**	**100.00%**

Source: Magnum's share registry information

The ordinary shares held by the most significant shareholders as at 15 November 2022 are detailed below:

Name	No. of Ordinary Shares	Percentage of Issued Shares (%)
HSBC Custody Nominees (Australia) Ltd	51,162,987	7.50%
Citi Corp Nominees Pty Ltd	48,733,651	7.14%
David Nasir Yusoff - Juneday Pty Ltd and Sunshore Holdings Pty Ltd	38,273,318	5.61%
Subtotal	**138,169,956**	**20.25%**
Others	544,256,623	79.75%
Total ordinary shares on Issue	**682,426,579**	**100.00%**

Source: Magnum's share registry information

The unlisted options and performance rights on issue as at 15 November 2022 are outlined below:

Current options and performance rights on issue	Number	Exercise price ($)	Expiry Date
Options exercisable at $0.25, expiring on 20 July 2024	9,000,000	0.25	20-Jul-24
Options exercisable at $0.03, expiring on 31 December 2023	6,500,000	0.03	31-Dec-23
Options exercisable at $0.05, expiring on 31 December 2023	500,000	0.05	31-Dec-23
Options exercisable at $0.10, expiring on 31 December 2023	3,000,000	0.10	31-Dec-23
Options exercisable at $0.20, expiring on 31 December 2023	6,000,000	0.20	31-Dec-23
Options exercisable at $0.40, expiring on 31 December 2023	6,000,000	0.40	31-Dec-23
Options exercisable at $0.20, expiring on 19 April 2024	38,000,000	0.20	19-Apr-24
Options exercisable at $0.20, expiring on 21 July 2024	9,000,000	0.20	27-Jul-24
Options exercisable at $0.05, expiring in November 2025	136,428,585	0.05	Nov-25
Existing Performance Rights	25,000,000	Nil	Various
Total number of options and performance rights on issue	**214,428,585**		
Cash raised if options are exercised	**$22,591,429**		

Source: Magnum's share registry information

Terms of the Existing Performance Rights

A summary of the terms of the Existing Performance Rights is set out below.

Tranche	No. of Performance Rights	Milestone	Expiry date
a	2,500,000	Each Performance Right will vest on the execution by Magnum of a third party off-take agreement for supply of pig iron produced by Magnum (or one of its related bodies corporate).	9 months from the date of issue
b	2,500,000	Each Performance Right will vest on the completion by Magnum of a bankable feasibility study.	18 months from the date of issue
c	2,500,000	Each Performance Right will vest on the achievement of a total pig iron production quota of 1Mtpa by Magnum (or one of its related bodies corporate) pursuant to a binding third party off take agreement.	24 months from the date of issue
d	2,500,000	Each Performance Right will vest on the achievement of a total pig iron production quota of 1Mtpa by Magnum (or one of its related bodies corporate) pursuant to a binding third party pre-pay agreement.	24 months from the date of issue
e	2,500,000	Each Performance Right will vest on the achievement of a total supply quota of mill scale or other feed materials relevant to 50% of the required ore for pig iron production by Magnum (or one of its related bodies corporate) pursuant to a third-party supply agreement linked to any bankable feasibility study requirements for at least the term of the bankable debt facilities.	24 months from the date of issue
f	3,750,000	Each Performance Right will vest on the achievement of a total supply quota of 1 Mtpa of biochar to service production of Magnum's (or one of its related bodies corporate) pig iron plant pursuant to a third-party supply agreement linked to any bankable feasibility study requirements for at least the term of the bankable debt facilities.	24 months from the date of issue
g	3,750,000	Each Performance Right will vest on the achievement of the first production of biochar by Magnum.	24 months from the date of issue
h	5,000,000	Each Performance Right will vest on the achievement of the first production of pig iron.	24 months from the date of issue

Source: Magnum ASX announcement on 5 August 2022

As outlined in Section 4, we note that the vesting conditions attached to the Existing Performance Rights are such that in the event that the Milestones attached to the Consideration Performance Shares are achieved, the vesting conditions attached to the Existing Performance Rights will also be achieved.

6. Profile of Appalachian Iron

6.1 History

Appalachian Iron is an entity incorporated in Delaware, USA that is pursuing the development of a proposed pig iron project in West Virginia using the HIsmelt Process ('**West Virginia Project**'). Appalachian Iron intends to produce and supply green pig iron to steel plants located in the eastern half of the US. The sole director and shareholder of Appalachian Iron is Mr. Goodman, who is also the current CEO of Magnum.

Appalachian Iron holds a licence agreement with Shandong Molong Petroleum Machinery Company Limited ('**Molong**'), pursuant to which it has the right to elect to enter into a future formal process agreement to utilise all intellectual property, information and data relating to the HIsmelt Process over a period of five years ('**Licence Agreement**'). In addition, Molong will also provide technical services and key equipment to Appalachian Iron at a negotiable price, in order to facilitate the production of green pig iron in the US.

The West Virginia Project is still in the conceptual stage, with Appalachian Iron only having secured non-binding agreements for land access, pig iron offtake, raw materials supplies and engineering.

6.2 HIsmelt Process

Overview

The HIsmelt Process represents an alternative to the traditional blast furnace method to produce pig iron. The HIsmelt Process uses a smelt reduction vessel ('**SRV**') in which ferrous materials (iron ore fines, concentrate and steel plant waste) and reductants (non-coking coal and biochar) are injected into a molten iron bath. The excess gas produced from the process provides energy for sustaining reduction reactions and the direct smelting of iron ore.

The HIsmelt Process provides the opportunity to realise the following benefits over traditional blast furnace methods:

- **Raw material flexibility:** Ability to use lower grade raw materials which are not suitable for blast furnace operations, including high phosphorous, high alumina, high titanium iron ores, C-fines (slag fines), mill-scale, steel works slags, dusts, sludges, non-coking coals and biomass. In addition, the raw materials are injected as powders and do not require agglomerating into pellets.
- **Lower operating costs:** Lower operating costs due to the elimination of front-end processes required for a blast furnace operation (i.e. no coke ovens and sinter plants) and direct reduced iron shaft furnaces (i.e. no pellet plants) as well as the ability to use a wide variety of cheap raw materials.
- **Lower capital costs:** Lower capital costs due to the elimination of coke events and sinter/pellet plants. The construction of a HIsmelt plant is less costly than a blast furnace operation as the HIsmelt technology uses many of the traditional ironmaking core plant ancillary facilities.
- **Premium quality final product:** When compared to traditional blast furnace methods, pig iron produced using the HIsmelt process has lower silicon, manganese and phosphorous content. These

lower levels of impurities provide yield and fluxing benefits in the downstream steelmaking process.

- **Environmental benefits:** Reduced CO_2 emissions compared to traditional blast furnace operations which use sinter plants and coke ovens.

History

The underlying technology of the HIsmelt Process was developed by Rio Tinto Limited (**'Rio Tinto'**) over the period from 1982 to 2017, with the aim to smelt high phosphorous hematite iron ore fines using non-coking coals as the reductant. Over this period, the cost to develop the HIsmelt Process was approximately $600 million. Mr. Goodman, the current CEO of Magnum, was the General Manager of Rio Tinto's HIsmelt Corporation for more than 10 years and was responsible for the design and operation of the first commercial scale HIsmelt plants located in Western Australia (**'WA'**) and China.

The first small scale pilot plant incorporating the HIsmelt Process operated in Germany from 1982 to 1986, in partnership with Klöckner Werke AG. The plant produced around 10,000 tonnes of hot metal per year. In 1990, Rio Tinto partnered with Kobe Steel Limited and Midrex Technologies, Inc. to build and operate the HIsmelt Research and Development Furnace (**'HRDF'**) located in Kwinana, WA. The HRDF was designed to produce approximately 100 tonnes of hot metal per hour. Although the process operated efficiently, the refractory wear rate was very high and both Kobe Steel and Midrex decided to exit the technology.

Subsequently in 2001, Rio Tinto entered into a joint venture with Nucor Corporation, Mitsubishi Corporation and Shougang Corporation to build a commercial scale HIsmelt plant in Kwinana to produce approximately 800,000 of pig iron per year (**'HKJV'**). The plant was constructed from 2003 to 2005, operated from 2005 to 2008 and produced approximately 400,000 tonnes of pig iron which was delivered to electric arc furnaces (**'EAF'**) across the USA and Asia. However, due to the global financial crisis in 2008, the HKJV plant was placed into care and maintenance.

In 2012, the Chinese Ministry of Industry and Information Technology (**'CMIIT'**) issued a regulation that banned the construction of new small blast furnaces with capacities less than 1Mtpa and ordered the gradual closure of all small blast furnaces for environmental reasons. However, the CMIIT specified that two technologies met the revised environmental standards and could be used to replace small blast furnaces, being the HIsmelt Process and the Finex process.

After reviewing both technologies, private Chinese steel company, Molong, decided to adopt the HIsmelt Process and signed an agreement with Rio Tinto to ship a portion of the HKJV plant equipment to China. The agreement also provided support to Molong during the engineering and construction of the new HIsmelt plant. The Molong HIsmelt plant in Yangkou, Shandong Province, commenced construction in 2013 and began operating in 2016 for a total capital cost of $250 million. Since then, the Molong HIsmelt plant has produced over 1 million tonnes (**'Mt'**) of hot metal at a lower cost to the small blast furnaces previously used by Molong.

Subsequently in 2017, Molong acquired the intellectual property rights of the HIsmelt Process from Rio Tinto, whereby Molong can licence the HIsmelt technology to other users. Acadia Iron Inc. has the rights to licence the HIsmelt technology world-wide, outside China. Molong remains the current owner of the HIsmelt technology.

Since then, another HIsmelt plant has been constructed in China and is now in full commercial operation. To date, the two HIsmelt plants currently operating in China have produced 3Mt of pig iron, with orders placed for eight more HIsmelt plants across Asia.

6.3 Historical Statement of Financial Position

We understand that Appalachian Iron does not hold any assets (other than the Licence Agreement) or liabilities. Magnum has conducted its own due diligence on the financial position of Appalachian and has represented to us that there are no liabilities that are being acquired. We note that as part of our work performed, nothing has come to our attention to suggest that there are any material liabilities that are being acquired as part of the Acquisition.

7. Economic analysis

Magnum is exposed to the risks and opportunities of both the Australian market and the US market, due to the geographic location of its operations and its listing on the ASX. Accordingly, we have presented an economic analysis of both the USA and Australia.

7.1 United States of America

Overview

In the US, real gross domestic product ('**GDP**') growth is projected to weaken to 2.5% in 2022 and 1.2% in 2023. The normalisation of monetary policy, fiscal consolidation, ongoing supply disruptions and volatile oil prices are expected to weigh on growth. However, the reorientation of domestic demand back towards the service sector should alleviate some of the supply shortages. Wage growth is expected to remain strong, as the labour market is forecast to remain tight despite increased participation as COVID-19 associated health risks recede and workers return to the labour force. Annual headline inflation is expected to have peaked at 9.1% in June 2022 and despite gradually declining to 7.7% in October 2022, inflation is expected to remain above the Federal Reserve's 2% target for the foreseeable future. This is largely due to higher food and energy prices and broader price pressures.

The US Federal Reserve borrowing rate is currently in the range of 3.00% to 3.25%, the highest borrowing rate since 2008. A further 75 basis point increase is expected during its November 2022 meeting.

Additionally, disruptions to the trade flows of key inputs for semiconductors and transport equipment produced in Ukraine and Russia combined with ongoing lockdowns in China, could create further supply disruptions that impact the US.

Inflation

Consumer price inflation, as measured by the 12-month change in the price index for personal consumption expenditures, rose from 5.8% in December 2021 to 7.0% in June 2022, its highest level since the 1980s. The increase was driven by an acceleration of retail food and energy prices.

Oil prices remain elevated and volatile. However, the direct trade implications on the US of the war in Ukraine and sanctions on Russia are limited, with just 3% of crude oil imports and 1% of total crude oil processed by US refineries being sourced from Russia. Furthermore, the US is a net exporter of natural gas and the second-largest wheat exporter in the world. Nonetheless, the recent embargo declared on Russian oil imports by the European Union is expected to push oil prices higher in 2023. Consequently, in October 2022 the Biden Administration authorised the release of 15 million barrels of oil to complete their plan to release 180 million barrels into the market to relieve domestic price pressures.

The Federal Open Market Committee ('**FOMC**') has begun monetary policy normalisation in response to significant ongoing inflationary pressures and a tightening labour market. In its March 2022 meeting, the FOMC raised the target range for the federal funds rate off the effective lower bound to a range of 0.25%

to 0.50%. Subsequently, the FOMC increased the target range again in its May, June, July and September 2022 meetings, bringing the targeted range to 3.00% to 3.25%. The FOMC indicated that further increases are likely to be forthcoming.

Unemployment

Demand for labour continues to outstrip available supply across various areas of the economy, and nominal wages have continued to increase. While labour demand has remained strong, labour supply has only increased modestly. From January 2022 to September 2022, unemployment fell from 4.0% to 3.5%, returning to its July 2022 level, which is just above the bottom of its range over the past 50 years. Employment and earnings of nearly all major demographic groups are near or above their levels before the pandemic.

Outlook

Despite experiencing a series of adverse shocks, the financial system in the US has remained resilient. Financial conditions have tightened this year as the expected path of the federal funds rate over the next few years has shifted significantly. As a result, yields on nominal Treasury securities across maturities have risen considerably since late February, as have yields on other long-term debt across various credit categories such as corporate bonds and mortgage-backed securities.

The war in Ukraine could have a more significant negative impact on GDP growth and could further exacerbate inflationary pressures. Additionally, with fiscal and monetary support now being rewound, signs of financial distress may become more pronounced on companies' balance sheets in sectors that continue to be impacted by pandemic or supply chain issues. Conversely, there is potential for healthy household balance sheets to fuel a stronger rebound in consumption, alongside potential for a larger than expected rebound in labour supply.

Source: www.federalreserve.gov *Monetary Policy Report dated 17 June 2022 and prior periods,* oecd.org *Economic Forecast Summary (June 2022),* worldbank.org *Global Economic Prospects dated June 2022 and the U.S. Department of Labor.*

7.2 Australia

Overview

In its November 2022 statement of Monetary Policy, the Reserve Bank of Australia ('**RBA**') noted that it expects Australia's GDP to grow 3% over 2022 before slowing to 1.5% over 2023 and 2024. However, the RBA also expressed concern over global inflation indicators, with domestic headline consumer price index ('**CPI**') inflation projected to reach approximately 8% by the end of 2022 before normalising to 3.25% by the end of 2024.

The likelihood of a significant slowdown in the global economy has increased over the past three months, primarily due to high inflation, rising interest rates, a European energy crisis, and various headwinds impacting China's economic recovery. Nonetheless, economic growth in Australia is forecast to remain robust over the latter half of 2022, and despite weather and maintenance issues hampering resource production in the September quarter, resource exports are anticipated to recover by early 2023. In addition, rural exports, as well as travel and education exports are also expected to keep economic growth buoyant in 2023.

The ASX 200 index has experienced a rally similar to its mid-August peak on a total-return basis, outperforming the US and other advanced economy markets over recent months. However, equity prices contracted in September, mirroring investor concerns around rising interest rates, global growth and the outlook for corporate profits. In contrast, equity prices in the energy sector have soared as the future of Europe's energy crisis remains uncertain.

In recent months, government bond yields have increased significantly, reflecting expectations of tightening economic conditions. There are similar concerns in corporate bond markets, where yields have increased substantially, and corporate bond issuance has decreased since the beginning of the year.

The RBA has executed consecutive monthly cash rate rises since May 2022, to currently sit at 2.85% following a 0.25% raise in November 2022. Moreover, the RBA anticipates that future policy rate raises will be forthcoming as it attempts to return inflation to target levels by facilitating a sustainable balance of supply and demand in the economy.

Economic indicators

In almost all major advanced economies, inflation remains elevated, and although supply chain disruptions and rising commodity prices have somewhat subsided, core inflation remains a primary cause for concern. Similarly, in Australia, inflation remains high, evidenced by a CPI index increase of 1.8% in the September quarter of 2022 and 7.3% over the year, representing the highest year ended CPI inflation since 1988. Further, inflation remains underpinned by strong demand and the ongoing pass-through of upstream cost pressures. However, medium-term inflation remains well anchored, and the RBA anticipates inflation will recede to just above the inflation target by 2024 as commodity prices and demand retreat.

The labour market remains notably tight, with the unemployment rate sitting around 3.5% - proximate to the lowest level in nearly 50 years. Similarly, broader measures of labour underutilisation are also near historical lows as strong labour demand over the past year has been met. The level of job vacancies has plateaued in recent months, however, there remains roughly as many vacancies as there are unemployed people, with many firms continuing to report significant activity constraints due to labour shortages.

On a similar note, wages growth has accelerated in recent months, reflecting the tight labour market, inflationary conditions and the material impact of the Fair Work Commission's decision on minimum and award wages in June 2022. As a result, the wage price index is expected to rise from 2.6% from the year ended 30 June 2022 to 3.75% by mid-2023. Moreover, broader measures of wage growth are expected to grow faster as firms use bonus payments and other non-base remuneration to attract and retain staff.

There remains significant uncertainty surrounding the future impact of household spending on domestic economic growth. Household incomes have been bolstered by solid labour demand and wages growth which have nourished household balance sheets, however, household consumption is expected to be dampened by the wealth effects of housing and asset price declines, and an overall pessimistic outlook on global growth.

The Australian dollar has appreciated as of late, largely mitigating the depreciation seen throughout the middle of 2022. These developments largely reflect a recovery in the prices of riskier assets and several price shocks to key commodity markets following Russia's invasion of Ukraine. However, it is expected that the Australian dollar will retrace the depreciation seen over recent months amid concerns surrounding global growth, the outlook for the Chinese economy and the broad strength of the US dollar.

Outlook

The economic climate has tightened notably, and is now significantly less accommodative than it was at the beginning of the year with volatility having increased across a number of markets. Additionally, the trajectory of inflation remains uncertain due to the ongoing evolution of supply-side shocks. Despite the reversal of some factors driving inflationary increases, the RBA anticipates that it will take some time before these reversals are recognised downstream. The Australian economy is expected to grow robustly over the next few years, however, the RBA asserts that if current downside risks in the global economy materialise, the weak outlook for global growth will weigh on these forecasts.

Source: www.rba.gov.au *Statement by Phillip Lowe, Governor: Monetary Policy Decision dated 1 November 2022 and prior periods*, www.rba.gov.au *Statement on Monetary Policy November 2022 and prior periods,* and imf.org *World Economic Outlook dated 11 October 2022 and BDO analysis.*

8. Industry analyses

Magnum's key operational focus is the production of green pig iron products at its Buena Vista Project. The demand for pig iron is intrinsically linked to the demand for iron ore, and on this basis we consider it relevant to include an overview of the iron ore industry as a means of providing a greater context behind the determinants of the pig iron market. Accordingly, we have presented an update on the pig iron and iron ore industry.

8.1 Steel and Pig Iron

Pig iron, also known as crude iron, is an intermediate product in the production of steel. Under traditional methods, pig iron is obtained by smelting iron ore in a blast furnace. Under the HIsmelt Process, pig iron is obtained by injecting ferrous materials and reductants into a molten iron bath using a SRV.

Pig iron varies in composition; a typical grade containing about 4% of carbon, 2% of silicon, with smaller amounts of sulphur, manganese and phosphorous, in addition to iron. The high carbon content makes pig iron very brittle and as such, impractical for most direct material uses. Consequently, pig iron is commonly used as a major ingredient in EAF steelmaking.

The steelmaking process starts with the processing of iron ore. The rock containing iron ore is ground and the ore is extracted using magnetic rollers. Fine-grained iron ore is processed into coarse-grained clumps for use in the blast furnace. Coal is cleaned of impurities in a coke furnace, yielding an almost pure form of carbon. A mixture of iron ore and coal is then heated in a blast furnace to produce molten iron, or pig iron, from which steel is made.

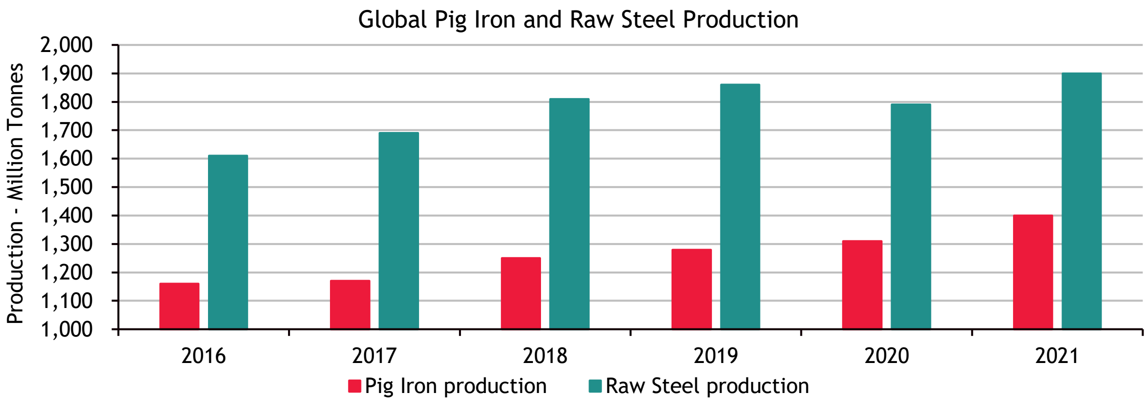
Steel and Pig Iron Production

Over 2021, global steel production grew 3.7%, with a global production of 1.90 billion tonnes ('**Bt**'). This was largely driven by a strong recovery for the US, recording steel production growth of 18% year on year for 2021, but still approximately 2% below production levels in 2019. In 2021, the US was the largest importer of pig iron, with 5.6Mt imported in the calendar year. However, the strong growth in 2021 was not replicated in all major producing countries, with China recording a 3.0% year on year decline for 2021, caused by emission related steel production curbs and a weakening in domestic steel demand. However, excluding China, steel production for other steel producing countries increased 13% year on year for 2021.

Over the twelve months to September 2022, conditions within the global steel market have deteriorated as the global economic environment suffered from rising inflation, supply chain disruptions and rising interest rates. Despite an easing of supply chain issues, these factors are expected to continue to affect steel reliant sectors such as construction, machinery, and consumer durables.

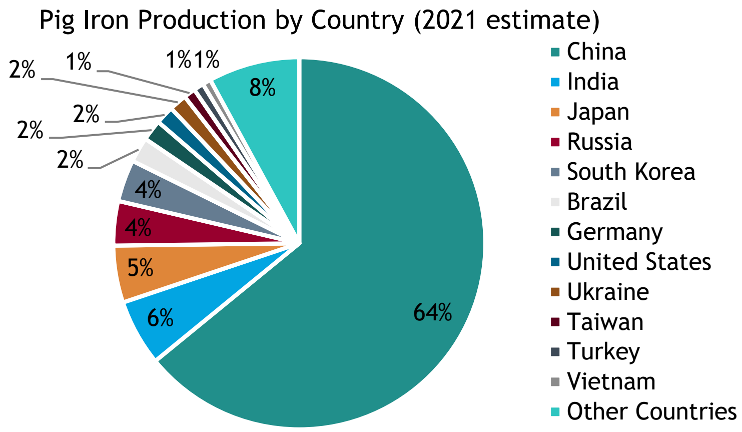
Global demand for steel is forecast to grow 1.2% annually, from 1.96Bt in 2021 to approximately 2.11Bt in 2027, supported by construction and infrastructure demand. In November 2021, Joe Biden signed the US$1.2 trillion Bipartisan Infrastructure Framework, which is set to rebuild key infrastructure such as power infrastructure, bridges, airports and railways. This is staged to improve US steel consumption, with the Iron and Steel Association estimating that up to 5Mt of steel will be required for every US$100 billion in investment. Steel production in the US is forecast to maintain growth of approximately 3.2% to 2027. With an increase in the demand for steel, there has been a corresponding increase in the demand for steelmaking intermediate products such as pig iron. Russia and Ukraine accounted for approximately 62% of US pig iron imports in 2021. Upon Russia's invasion of Ukraine, pig iron supply was disrupted, which forced US steelmakers to seek alternative suppliers, such as Brazil. As a result, Brazilian pig iron prices nearly doubled from January to mid-March 2022, topping US$950/t in early April 2022.

The pig iron and raw steel production over the period from 2016 to 2021, as sourced from the US Geological Survey ('**USGS**') is illustrated below.



Source: USGS

The chart below shows that China is the leading producer of pig iron, accounting for approximately 64% of global production, with the second largest producer being India, accounting for only 6%.



Source: USGS

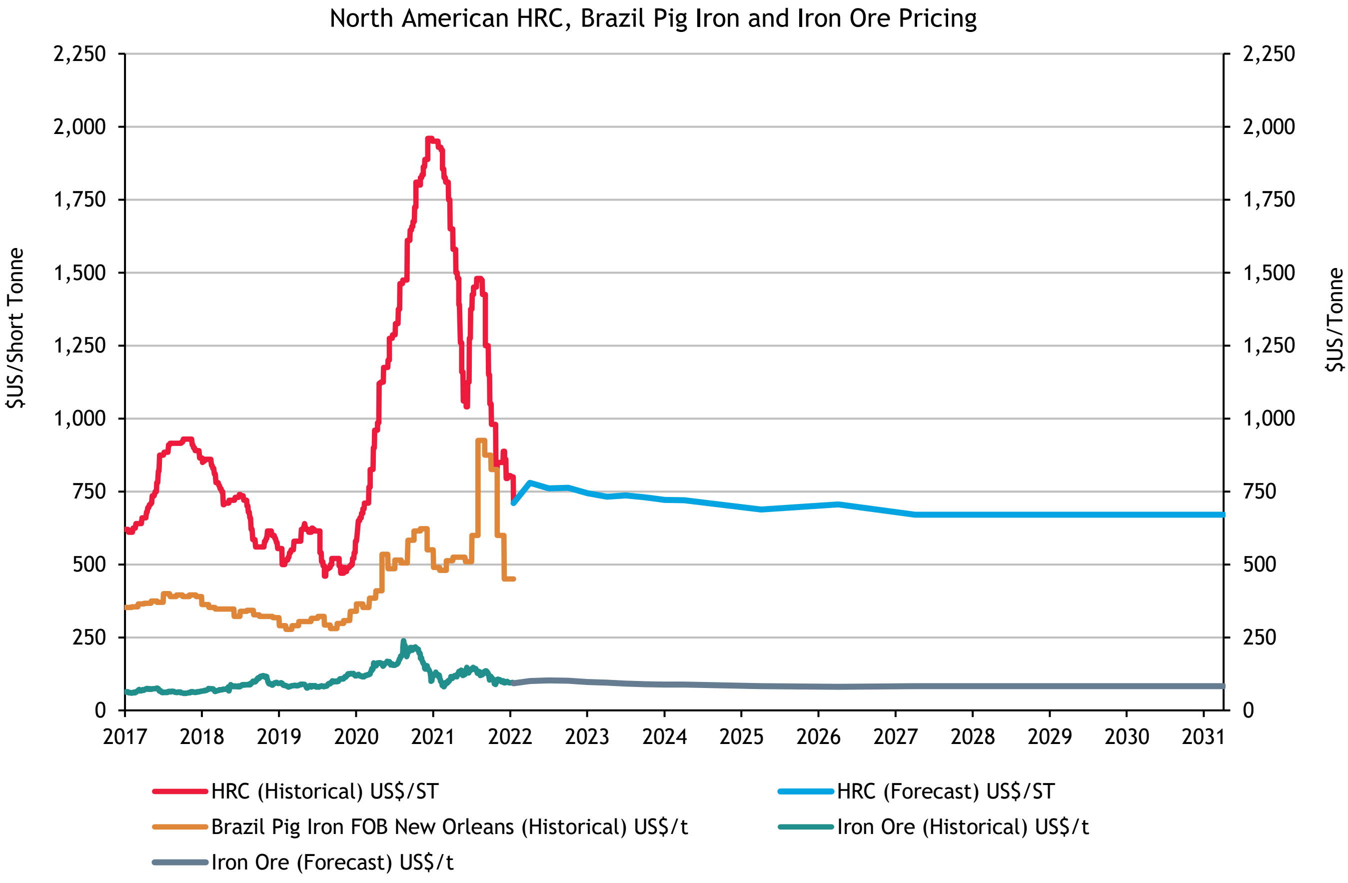
Steel and Pig Iron Pricing

Due to the recovery in the demand for steel from 2016, the price of North American hot rolled coil ('**HRC**') increased from below US$500/short tonne ('**ST**') in 2016 to above US$750/ST in early 2018. The North American Steel price was boosted in 2018 to peak at US$930/ST in July due to Donald Trump's announcement of imported steel tariffs. Prices then fell in the second half of 2018 as demand slowed, citing concerns of a slowing economy. The price continued to decrease over 2019 and to a low of US$460/ST in the first half of 2020 as a result of the US-China trade war, COVID-19 and monsoons among other factors.

As the COVID-19 pandemic initiated global shutdowns, steel manufacturers in the US halted production in anticipation of a deep global recession. However, the pandemic created significant demand for steel, as lockdowns increased the sale of steel products such as new vehicles and appliances. The decrease in production, associated supply chain disruptions and increase in demand created a market imbalance. This imbalance led to a spike in steel prices, increasing to US$1,960/ST in September 2021. However, prices proceeded to ease through to February 2022 as a result of underperformance of China's steel demand, coupled with an energy crisis raising the risk of recession in Europe.

The Russia-Ukraine conflict and corresponding supply constraints briefly caused the prices of steelmaking raw materials, like pig iron to increase through to June 2022, however this was soon met by weaker global economic growth which has overtaken supply constraints and has placed greater downward pressure on prices to date.

Market demand for pig iron, iron ore and steel are all intrinsically linked as pig iron and iron ore are used as composite materials to create steel. As such, the demand for steel is a key factor impacting the price of iron ore and in turn, pig iron. Therefore, as the demand for steel increases, this will also translate to an increase in demand for both iron ore and pig iron. The graph below illustrates the interrelationship between steel, iron ore and pig iron.



Source: Bloomberg and Consensus Economics

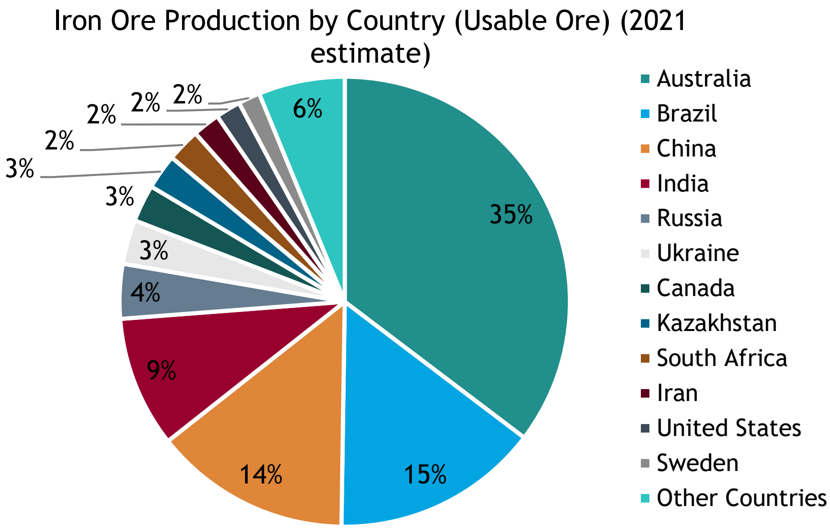
8.2 Iron Ore

Iron is the fourth most abundant mineral in the earth's crust and is the world's most used metal. It can be economically extracted from rocks known as iron ores, most commonly as the minerals hematite (Fe_2O_3) and magnetite (Fe_3O_4), and combined with a small amount of carbon or other elements to be made into steel. Approximately 98% of world iron ore production is used to make steel, which is due to its relatively low cost and desirable properties and is the global primary metal in structural engineering, automobiles and other general industrial applications.

Magnetite is an iron oxide mineral containing 72.4% Fe in its pure form. Magnetite iron ores typically occur in sedimentary rocks, including banded iron formations as detrital grains. While the iron ore content of pure magnetite is higher than hematite and goethite, the presence of impurities and gangue material results in a lower ore grade, making it more costly to produce the concentrates. Magnetite requires a more intensive crushing and screening process compared to hematite and goethite. Unlike hematite ores, which are easily processed into saleable iron products, magnetite requires an additional round of processing to produce iron concentrates.

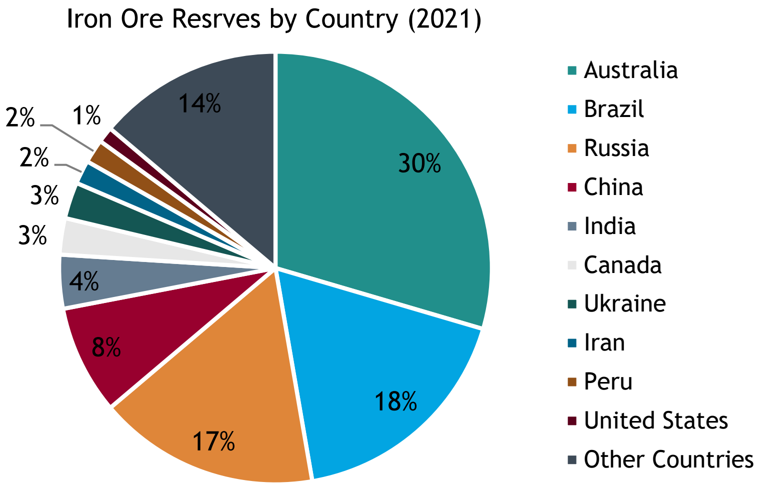
Iron Ore Production and Reserves

In 2021, an estimated 2.55Bt of usable ore was mined. Australia was the world's largest iron ore producer, accounting for 35% of global estimated production, followed by Brazil, China and India and is shown in the graph below:



Source: U.S. Geological Survey

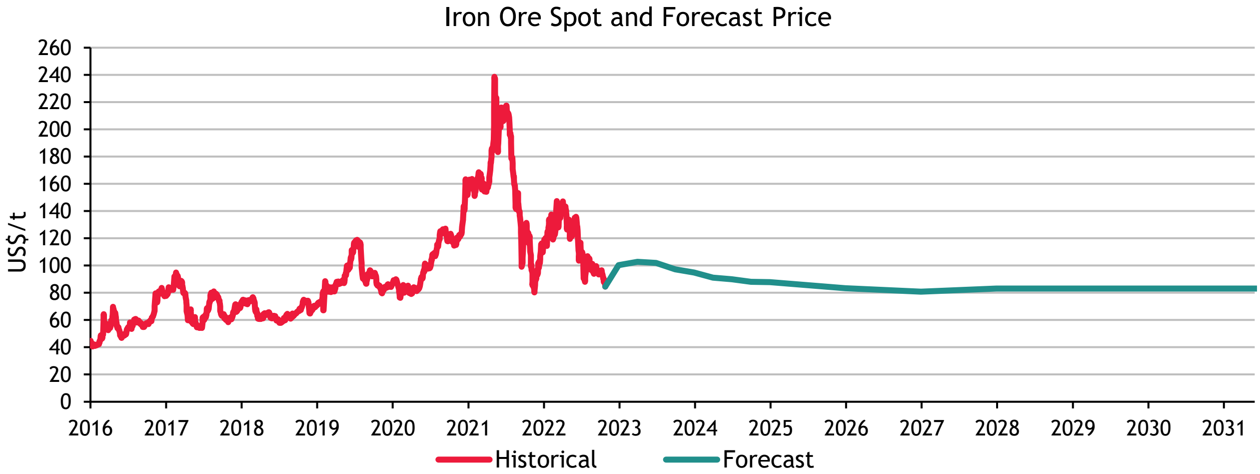
According to the USGS, Australia also holds 30% of global iron ore reserves, followed by Brazil and Russia holding 18% and 17% of global reserves respectively. The chart opposite illustrates global iron ore reserves by country in 2021:



Source: U.S. Geological Survey

Iron Ore Pricing

A summary of the nominal iron ore spot price, based on the 62% Fe import dry metric tonne (**'DMT'**), fine ore Cost and Freight Qingdao Index, from 2016 through to October 2022 and Consensus Economics' long-term forecast for iron ore (fine) – China CFR DMT to December 2031 is set out below:



Source: Bloomberg and Consensus Economics

9. Valuation approach adopted

There are a number of methodologies which can be used to value a business or the shares in a company. The principal methodologies which can be used are as follows:

- capitalisation of future maintainable earnings (‘**FME**’);
- discounted cash flow (‘**DCF**’);
- quoted market price basis (‘**QMP**’);
- net asset value (‘**NAV**’); and
- market based assessment.

A summary of each of these methodologies is outlined in Appendix 2.

Different methodologies are appropriate in valuing particular companies, based on the individual circumstances of that company and available information.

In assessing whether the Acquisition is fair for the purposes of ASX Listing Rule 10.1, we have considered the value of Appalachian Iron compared to the value of the Consideration to be paid by Magnum. We have also considered the guidance contained in RG 111, RG 170 and IS 214 in relation to reasonable grounds for forward looking information, with the relevant sections discussed below.

As set out in RG 111.107 an expert’s opinion should be based on reasonable grounds, with the grounds being set out in the report. Similarly, RG 111.112 states that an expert should not include prospective financial information (including forecasts and projections) or any other statements or assumptions about future matters, unless there are reasonable grounds for the forward looking information.

We note that RG 170 ordinarily relates to prospective financial information, however RG 111.114 states that RG 170 provides useful guidance for inclusion of forward-looking information that does not fall within the definition of ‘prospective financial information’. RG 170.17 states that the making of a forward looking statement must have reasonable grounds or it will be taken to be misleading. This is further supported by IS 214 which applies the principles of RG 170 to forward looking information in the mining and resources sector. Specifically, it does not require that funding is secured, but it does require reasonable grounds for any assumptions made about funding sources. The assumptions underpinning a forward-looking valuation, to which we do not have sufficient reasonable grounds are detailed in the following sections.

9.1 Valuation of Appalachian Iron

As outlined in Section 6.3, Appalachian does not hold any assets (other than the Licence Agreement) or liabilities. Therefore, upon completion, the Acquisition will have no effect on the consolidated balance sheet of Magnum.

Accordingly, the entire value of Appalachian Iron lies in its Licence Agreement with Molong, pursuant to which it has the right to elect to enter into a future formal process agreement to utilise all intellectual property, information and data relating to the HIsmelt Process. In addition, Molong will also provide technical services and equipment to Appalachian Iron in order to produce green pig iron products in the US.

An assessment of the value of Appalachian Iron’s access to the underlying technology of the HIsmelt Process would ordinarily involve an income approach, which would be based on the estimated future cash flows associated with obtaining access to the HIsmelt Process. However, given the early stage nature of the Buena Vista Project under the Company's new Integrated Strategy, neither BDO nor an independent technical specialist would have sufficient reasonable grounds in accordance with RG 170 to estimate the future cash flows associated with gaining access to the HIsmelt Process.

In addition, we note that significant funding relative the Company's market capitalisation would be required to implement the HIsmelt Process technology into Magnum's Buena Vista operations. In accordance with RG 111.15, given the early stages of the Buena Vista Project and the application of the HIsmelt process, there are insufficient reasonable grounds on which to make assumptions around the quantum, structure and timing of funding requirements.

We note that Appalachian Iron has also entered into various non-binding agreements for existing land access in the US, pig iron offtake and raw material supplies to further the development of an iron ore project in West Virginia. However, we are unable to ascribe any value to these as we do not have reasonable grounds to assess the likelihood of these agreements becoming legally binding. Further, if these did become legally binding, there is considerable uncertainty around the timing and quantum of any cash flows that may be generated from the technology.

We also note that pursuant to the Acquisition, Magnum proposes to acquire Appalachian Iron, which holds a licence agreement with Molong. As such, Magnum is not directly acquiring the technology, therefore the methodologies that are typically used in intangible asset valuations would not be appropriate.

Therefore, in accordance with RG 111 and RG 170, we do not have reasonable grounds as at the date of our Report to ascribe a value to Appalachian Iron.

9.2 Valuation of the Consideration

If the individual Milestones are not achieved by the respective expiry dates, the Performance Shares under each respective tranche will automatically lapse and will not convert into ordinary shares in the Company in which case the Consideration will have no value. In order to value the Consideration, an assessment would need to be made as to the likelihood and timing of the Milestones being achieved and the resulting value uplift (if any). As outlined in Section 5, both the Buena Vista Project and the West Virginia Project are early stage in nature, with the West Virginia Project still in the conceptual phase. Therefore, in assessing the value of the Consideration and in turn, the likelihood and timing of the Milestones being achieved and the resulting value uplift, we have considered the guidance contained in RG 111, RG 170 and IS 214 in relation to reasonable grounds for forward looking information.

The funding referred to in RG 111.15 would be required to fund the development and construction of an integrated mining and production facility which utilises the HIsmelt Process to produce green pig iron products. Furthermore, in order to proceed to commercial production, the Company would be required to fund the initial periods whilst the Buena Vista Project ramps up to full capacity. In order to determine the amount of funding required for the project, an assessment of the following would be required:

- timing and cost of commissioning a BFS;
- timing and cost of implementing the HIsmelt Process into the facility;
- forecast production profile and timing of construction expenditure to determine the extent of funding required to fund the construction and ramp up period;
- forecast pricing of pig iron; and
- estimated operating costs likely to be incurred in producing pig iron.

The above is not an exhaustive list, however it does demonstrate the level of uncertainty associated with estimating the required funding for a project in the future. In addition, we note that as at the last reporting period, the Company had cash and cash equivalents of approximately $2.56 million, which is insignificant in comparison to the funding required for the construction of the mine and the development and construction of the proposed HIsmelt facility.

In addition, once the amount of the capital raise is determined, in order to assess the impact on the value of Magnum on a per share basis, we would need to assess the following:

- the structure of the funding, being the proportion of equity, debt or alternate means such as a streaming/prepayment facility or offtake arrangement; and
- the terms of the above funding, including debt, streaming or offtake terms as well as the future share price and possible discount at which the Company may be able to raise capital through an equity raising.

We also note that the achievement of the Milestones is likely dependent on the Company's ability to successfully implement the HIsmelt Process into the Buena Vista Project, which raises further complexities around making assumptions around the likelihood and the resulting value uplift from the achievement of the Milestones, should they materialise.

As detailed in Section 5 of our Report, a DFS and an NI 43-101 Technical Report was completed in 2011 and 2013 respectively. However, the Company has recently shifted its business model in line with the Integrated Strategy, whereby the Company will shift its business model from DSO towards magnetite concentrate and production of low emission green pig iron products. Therefore, in light of the new Integrated Strategy, we do not consider these previous studies to be relevant, given they were prepared on the basis of a DSO business model.

Based on the above, given the early stage nature of the Buena Vista Project and West Virginia Project in which the Milestones relate to, we have concluded that there are insufficient reasonable grounds on which to make assumptions around the quantum, structure and timing of funding requirements.

Therefore, in accordance with RG 111, RG 170 and IS 214, we do not have reasonable grounds as at the date of our Report to assess the likelihood or timing of the Milestones being achieved and in turn, the quantum of this value uplift (if any). Accordingly, we have not attributed any value to the Consideration.

10. Valuation of Appalachian Iron

As outlined in Section 6.3, Appalachian Iron does not hold any assets (other than the Licence Agreement) or liabilities. Therefore, upon completion, the Acquisition will have no effect on Magnum's balance sheet.

The entire value of Appalachian Iron lies in its Licence Agreement with Molong, pursuant to which it has the right to elect to enter into a future formal process agreement to utilise all intellectual property, information and data relating to the HIsmelt Process.

As detailed in Section 9.1 of our Report, in accordance with RG 111 and RG 170, we do not have reasonable grounds to forecast the future cash flows associated with Appalachian Iron's access to the HIsmelt Process.

Accordingly, we have not attributed any identifiable value to Appalachian Iron. Instead, we have considered the potential benefits arising from the access to the HIsmelt Process in our assessment of reasonableness in Section 13.1.1.

11. Valuation of the Consideration

As detailed in Section 4, Magnum intends to issue 30 million Performance Shares to Mr. Goodman as consideration for the Acquisition. The vesting conditions attached to the Performance Shares relate to the achievement of various Milestones linked to the Buena Vista Project and the West Virginia Project. A summary of the Milestones attached to each respective tranche and the project in which they relate to, is set out below.

Tranche	Number	Project	Milestone
i	2,500,000	Buena Vista	Execution of a binding third party off-take agreement for supply of pig iron
ii	2,500,000	Buena Vista	Completion of a bankable feasibility study
iii	2,500,000	Buena Vista	Achievement of total pig iron production quota of 1.3 Mtpa pursuant to a binding third party off-take agreement
iv	2,500,000	Buena Vista	Achievement of total pig iron production quota of 1.3 Mtpa pursuant to a binding third party pre-pay agreement
v	5,000,000	Buena Vista	Achievement of total supply quota of mill scale or other feed materials relevant to 50% of the required ore for pig iron production pursuant to a third party supply agreement
vi	2,500,000	Buena Vista	Achievement of total supply quota of 1.0 Mtpa of biochar to service production, pursuant to a third party supply agreement
vii	2,500,000	Buena Vista	Achievement of first production of biochar
viii	2,500,000	West Virginia	Execution of a binding agreement with the state of West Virginia for land access to build a pig iron plant in West Virginia
ix	7,500,000	West Virginia	Achievement of first production of pig iron

Please refer to Section 4 of our Report for the complete description of the Milestones.

Although the achievement of any Milestone may be value accretive, as detailed in Section 9.2 of our Report, in accordance with RG 111, RG 170 and IS 214, we do not have reasonable grounds to assess the likelihood and expected timing of the Milestones being achieved and in turn, the quantum of this value uplift (if any).

We also note that any value uplift referred to above does not consider the corresponding dilution associated with the vesting and conversion of the Performance Shares into ordinary shares in Magnum. Therefore, we are unable to determine whether the value uplift (if any) outweighs the impact of the dilution to existing Shareholders' interests.

In the event that the Milestones are not achieved, the value of the Consideration is nil.

For information purposes, we have presented the maximum value of the Consideration assuming that no hurdles were required to be met, based on the closing share price of Magnum shares prior to the announcement of the Acquisition, as an other consideration in Section 13.4 of our Report.

Given that there are insufficient reasonable grounds on which to assess the likelihood, timing and any value accretion that may arise from achievement of the Milestones, we have not attributed any value to the Consideration. Instead, we have considered the potential advantages of acquiring Appalachian Iron and the disadvantages of issuing the Performance Shares qualitatively in our assessment of reasonableness in Section 13.1.1.

12. Is the Acquisition fair?

In arriving at our opinion on whether the Acquisition is fair, we have considered the value of Appalachian Iron relative to the value of the Consideration. Having regard to the guidance set out in RG 111, RG 170 and IS 214, our opinion in relation to whether the Acquisition is fair is set out below.

As outlined in Sections 9.1 and 10, we established that we do not have reasonable grounds to perform a valuation which assesses the future cash flows that may be generated from having access to the HIsmelt Process, through Appalachian Iron. Therefore, we are unable to attribute any identifiable value to Appalachian Iron, which would be in accordance with ASIC's guidance under RG 111, RG 170 and IS 214. As such, we have not attributed any value to Appalachian Iron under our assessment of whether the Acquisition is fair.

As outlined in Sections 9.2 and 11, we also established that although the achievement of the Milestones may be value accretive to Shareholders, we do not have sufficient reasonable grounds to assess the likelihood and timing of the Milestones being achieved, nor the quantum of this value uplift should these Milestones be achieved (if any). Therefore, we have not attributed any value to the Consideration in our assessment of whether the Acquisition is fair.

Based on the above, given that we are unable to opine on either the value of Appalachian Iron or the value of the Consideration, by default, we consider the Acquisition to be **not fair** for Shareholders.

13. Is the Acquisition reasonable?

13.1 Alternative Proposal

We are unaware of any alternative proposal that might offer Shareholders a premium over the value resulting from the Acquisition.

13.2 Advantages of Approving the Acquisition

We have considered the following advantages to Shareholders when assessing whether the Acquisition is reasonable.

13.2.1. The Consideration is structured in such a way as to align the interests of Shareholders and the vendor of Appalachian Iron (Mr. Goodman)

The structure of the Consideration ensures that the interests of Shareholders and the vendor of Appalachian Iron, Mr. Goodman, are aligned. The Performance Shares are contingent in nature and will only vest and convert into ordinary shares in Magnum following the achievement of the Milestones, the satisfaction of which are likely to be value accretive to Shareholders. However, as detailed throughout our Report, based on the guidance contained in RG 111, RG 170 and IS 214, we do not have reasonable grounds to assess the likelihood and timing of the Milestones being achieved and in turn, the quantum of this value uplift (if any).

However, for illustrative purposes, we have calculated the amount of value uplift resulting from the achievement of the Milestones that would be required, in order to outweigh the impact of the dilution resulting from the vesting and conversion of the Performance Shares and Existing Performance Rights into ordinary shares of Magnum. The table below shows the quantum of value uplift required in order for the achievement of the Milestones to be value accretive to Shareholders on a post-dilution basis.

Description	
Number of ordinary shares prior to the Acquisition	
Shares on issue as at 15 November 2022	682,426,579
Total number of ordinary shares prior to the Acquisition (a)	**682,426,579**
Value per Magnum share (closing price as at last trading day prior to announcement of Acquisition) (b)	0.036
Market value of Magnum prior to the Acquisition (a x b) = (c)	**24,567,357**
Number of ordinary shares following the achievement of the Milestones	
Shares on issue at the date of our Report	682,426,579
Shares issued upon vesting of all the Performance Shares	30,000,000
Shares issued upon vesting of all the Existing Performance Rights	25,000,000
Total number of ordinary shares following the achievement of the Milestones (d)	**737,426,579**
Market value of Magnum required to maintain the same value per Magnum share prior to the Acquisition (e) = (b x d)	**26,547,357**
Minimum value uplift required in order for achievement of Milestones to be value accretive (e - c)	**1,980,000**

Source: BDO analysis and Bloomberg

We note that the nature of the vesting conditions attached to the Existing Performance Rights are such that in the event that the Milestones attached to the Consideration Performance Shares are achieved, the vesting conditions attached to the Existing Performance Rights will also be achieved. Therefore, for the purpose of our analysis above, we have assumed that all Existing Performance Rights will also vest upon the achievement of the Milestones.

Based on the above, in order for the achievement of the Milestones to be value accretive to Shareholders on a per share basis (post-dilution), the quantum of the value uplift would need to be greater than $1.98 million. We note however that in order for the Milestones to be met, the Company will need to raise significant funds to construct the mine and the HIsmelt plant. Therefore, this minimum value uplift required is a simplistic measure that is presented in order to provide an indication of the low level of dilution resulting from vesting of the Performance Shares and the Existing Performance Rights (should vesting occur).

In the event that the Acquisition is approved, Mr. Goodman will have a vested interest in achieving these Milestones in his capacity as both the Company's CEO and the holder of 30 million Performance Shares, which in turn will be an advantage to Shareholders. Notwithstanding, as outlined in Section 4, in the event that all Milestones are achieved, Shareholders' interests will be diluted from holding 100% of the issued capital of Magnum, to holding approximately 93% following the Acquisition and vesting and conversion of the Performance Shares and the Existing Performance Rights.

As set out in Section 6 of our Report, Mr. Goodman was the General Manager of Rio Tinto's HIsmelt Corporation for more than 10 years and was responsible for the design and operation of the first commercial scale HIsmelt plants in WA and China. As such, Mr. Goodman has extensive experience and know-how with integrating the HIsmelt Process into a commercial scale plant. Therefore, we consider that the further alignment of Mr. Goodman and Shareholders' interests is likely to be an advantage to Shareholders.

13.2.2. Access to the HIsmelt Process will enable the Company to pursue its Integrated Strategy whilst delivering several key benefits over alternative technologies

As outlined in Section 5.3 of our Report, the MinRizon report concluded that the HIsmelt Process was the optimal technology for the production of green pig iron at the Buena Vista Project. In the event that the Acquisition is approved, the Company will gain access to the HIsmelt Process through Appalachian Iron's Licence Agreement with Molong, which cost Rio Tinto approximately $600 million to develop. This will enable the Company to pursue its Integrated Strategy through the development of a HIsmelt integrated mining and production facility to produce and supply green pig iron at the Buena Vista Project and potentially the West Virginia Project, should it materialise.

Furthermore, the HIsmelt Process provides the opportunity to realise the following key benefits over alternative technologies:

- Raw material flexibility;
- Lower operating costs;
- Lower capital costs;
- Premium quality final product; and
- Environmental benefits.

For further information on the HIsmelt Process and its associated benefits, please refer to Section 6.2 of our Report.

13.2.3. The Acquisition will improve the Company's ability to retain Mr. Goodman, who is one of the founders of the HIsmelt Process

In the event that the Acquisition is approved and Mr. Goodman is issued 30 million Performance Shares, Mr. Goodman will be incentivised to unlock value for both Shareholders and himself through the achievement of the Milestones. Therefore, the issuing of the Performance Shares are likely to aid in the retention of Mr. Goodman.

In addition, we note that Mr. Goodman was the General Manager of Rio Tinto's HIsmelt Corporation for more than 10 years and was responsible for the design and operation of the first commercial scale HIsmelt plants in WA and China. As such, Mr. Goodman has extensive experience and know-how in relation to integrating the HIsmelt Process into a commercial scale plant. Therefore, Mr. Goodman's expertise will likely reduce the risks associated with the successful implementation of the HIsmelt Process into the Company's operations.

13.2.4. The Acquisition may improve the liquidity of the Company's shares if the Milestones are achieved

Following the Acquisition, and in the event that the Milestones are met, Magnum will be one of the first green pig iron producers in the USA.

The increased size of the Company along with its goal to produce low emission or 'net zero' green pig iron products may result in increased analyst coverage which may lead to improved liquidity of the Company's shares. This would improve Shareholders' ability to realise their investment on market at less of a discount to the most recently traded price, should they choose to exit their position. Further, increased analyst coverage and improved liquidity may increase the attractiveness of the Company's shares and may lead to an improvement in its ability to raise capital in the future.

13.2.5. Diversification of Magnum's existing portfolio which may improve the attractiveness of the Company's shares and may improve the likelihood of a potential takeover in the future

If the Acquisition is approved, Shareholders will have the opportunity to participate in the upside of the Company's Integrated Strategy as well as the development of the West Virginia Project, should it materialise.

Following the Acquisition, Magnum will hold a more comprehensive portfolio of pig iron assets in the USA, bolstering its presence as a prospective US based pig iron producer. In addition, the West Virginia Project will broaden Magnum's pig iron exposure into the eastern half of the US, whereas the Buena Vista Project is better situated to serve the western half of the US and Asia.

As a result, this may make the Company's shares more attractive to potential investors and may increase the likelihood of the Company receiving a takeover offer in the future.

13.2.6. There is no cash element of the consideration and the value of the Consideration is nil if the Milestones are not achieved

The Acquisition will not deplete the cash funds of Magnum, as the consideration payable by the Company is solely in the form of Performance Shares. Therefore, the Company's existing cash reserves will be preserved and can be utilised to progress the Buena Vista Project and West Virginia Project. Further, in the event that the Milestones are not achieved prior to the expiry date, the Performance Shares will lapse and the Consideration paid will have had no value. Therefore, the Company limits the downside in that existing Shareholders' interests are only diluted if the Milestones are achieved. Depending on the quantum of any value uplift as a result of achieving the Milestones, the value of existing Shareholders' interests following the effect of dilution, may or may not increase.

13.3 Disadvantages of Approving the Acquisition

We have considered the following disadvantages to Shareholders when assessing whether the Acquisition is reasonable.

13.3.1. Potential dilution of Shareholders' interests

If the Acquisition is approved, the Company will issue 30 million Performance Shares to Mr. Goodman as consideration. As set out in Section 4 of our Report, in the event that all Milestones are achieved before the respective expiry dates, existing Shareholders' interests will be diluted from holding 100% of the Company's issued capital, to approximately 93% upon the conversion of the Performance Shares and Existing Performance Rights (assuming that no additional capital raisings are conducted).

Therefore, Shareholders' ability to participate in the potential upside of the Buena Vista Project and the West Virginia Project, should it materialise, will be reduced in the event that the Milestones are achieved and the Performance Shares and Existing Performance Rights vest and convert into ordinary shares in Magnum.

We also note in the scenario where only select Milestones are achieved, it is possible for existing Shareholders' interests to be diluted without any corresponding value accretion. For example, it is possible for the Tranche i Milestone to be achieved (execution of a binding third party off-take agreement), even if the Company is unable to receive necessary funding to progress the Buena Vista Project to commercial production. In this scenario, the Tranche i Performance Shares will vest and convert into ordinary shares of Magnum, despite the project not proceeding to production and therefore the off-take agreement alone would not provide Shareholders any benefit.

13.4 Other considerations

For information purposes, we have presented the maximum value of the Consideration. For the purposes of this analysis, we have assumed that no performance hurdles are required to be satisfied and as such, the Consideration under this analysis effectively comprises 30 million ordinary shares in Magnum.

Description	$
Number of Magnum shares to be issued (a)	30,000,000
Value per Magnum share (closing price as at last trading day prior to announcement of Acquisition) (b)	0.036
Market value of 30 million ordinary shares in Magnum prior to the Acquisition (a x b)	**1,080,000**

Source: BDO analysis

Based on the above, the maximum value of the Consideration is $1.08 million.

13.5 Consequences of not approving the Acquisition

The Company may need to source alternative means of obtaining access to the HIsmelt Process, or consider using an alternative technology

In the event that Shareholders do not approve the Acquisition, the Company will not obtain access to the HIsmelt Process. Therefore, the Company may need to source alternative means of obtaining access to the HIsmelt Process or consider using an alternative technology in pursuing its Integrated Strategy. However, as outlined in Section 6.2 of our Report, the HIsmelt Process was determined as being the optimal technology for the Company.

Shareholders will forego the opportunity to participate in the upside of the West Virginia Project

In the event that Shareholders do not approve the Acquisition, Shareholders will forego the opportunity to participate in the potential upside of the West Virginia Project, should it materialise. As detailed in Section 13.2 above, the Acquisition provides Shareholders with diversification and exposure to the eastern half of the USA.

Existing Shareholders will retain 100% ownership of Magnum and will not be subject to potential dilution resulting from the Performance Shares to be issued under the Acquisition

In the event that Shareholders do not approve the Acquisition, the Performance Shares will not be issued to Mr. Goodman, the vendor of Appalachian Iron. Accordingly, Shareholders will not be subject to the potential dilution resulting from the ordinary shares issued on vesting of the Performance Shares.

14. Conclusion

We have considered the terms of the Acquisition as outlined in the body of this Report and have concluded that, in the absence of a superior proposal, the Acquisition is **not fair but reasonable** to Shareholders.

In our opinion, the Acquisition is not fair because we are unable to opine on either the value of Appalachian Iron or the value of the Consideration, and therefore by default we consider the Acquisition to be **not fair** for Shareholders.

However, we consider the Acquisition to be reasonable to Shareholders because the advantages of the Acquisition to Shareholders are greater than the disadvantages. In particular, obtaining access to the HIsmelt Process will enable the Company to pursue its new Integrated Strategy whilst the Consideration aligns the interests of Shareholders and the vendor of Appalachian Iron, Mr. Goodman.

Further, in order for the Consideration to have any value, it is entirely dependent on the Milestones being achieved. Therefore, Shareholders' exposure to the risks of the Acquisition are limited such that their interests will only be diluted in the event that the Milestones are achieved. Achievement of these Milestones are likely to generate value for Shareholders, noting that we do not have sufficient reasonable grounds to estimate the likelihood and timing of achieving these Milestones, nor to quantify any value accretion that may occur from achieving these Milestones.

15. Sources of information

This report has been based on the following information:

- Draft Notice of General Meeting and Explanatory Statement on or about the date of this report;
- Share Sale Agreement;
- Audited financial statements of Magnum for the years ended 31 December 2021, 31 December 2020, 31 December 2019, 31 December 2018 and 31 December 2017 and reviewed financial statements of Magnum for the half-year ended 30 June 2022;
- Independent Technology Assessment Report by MinRizon Projects Pty Ltd;
- Bloomberg;
- Federal Reserve;
- Consensus Economics;
- Reserve Bank of Australia;
- Announcements made by Magnum available through the ASX
- Share registry information of Magnum;
- Information in the public domain; and
- Discussions with Independent Directors and Management of Magnum.

16. Independence

BDO Corporate Finance (WA) Pty Ltd is entitled to receive a fee of $30,000 (excluding GST and reimbursement of out of pocket expenses). The fee is not contingent on the conclusion, content or future use of this Report. Except for this fee, BDO Corporate Finance (WA) Pty Ltd has not received and will not receive any pecuniary or other benefit whether direct or indirect in connection with the preparation of this report.

BDO Corporate Finance (WA) Pty Ltd has been indemnified by Magnum in respect of any claim arising from BDO Corporate Finance (WA) Pty Ltd's reliance on information provided by Magnum, including the non-provision of material information, in relation to the preparation of this report.

Prior to accepting this engagement BDO Corporate Finance (WA) Pty Ltd has considered its independence with respect to Magnum, Appalachian Iron and any of their respective associates with reference to ASIC Regulatory Guide 112 'Independence of Experts'. In BDO Corporate Finance (WA) Pty Ltd's opinion it is independent of Magnum, Appalachian Iron and their respective associates.

Neither the two signatories to this report nor BDO Corporate Finance (WA) Pty Ltd, have had within the past two years any professional relationship with Magnum, or their associates, other than in connection with the preparation of this report.

A draft of this report was provided to Magnum and its advisors for confirmation of the factual accuracy of its contents. No significant changes were made to this report as a result of this review.

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17. Qualifications

BDO Corporate Finance (WA) Pty Ltd has extensive experience in the provision of corporate finance advice, particularly in respect of takeovers, mergers and acquisitions.

BDO Corporate Finance (WA) Pty Ltd holds an Australian Financial Services Licence issued by the Australian Securities and Investments Commission for giving expert reports pursuant to the Listing rules of the ASX and the Corporations Act.

The persons specifically involved in preparing and reviewing this report were Sherif Andrawes, Adam Myers and Ashton Lombardo of BDO Corporate Finance (WA) Pty Ltd. They have significant experience in the preparation of independent expert reports, valuations and mergers and acquisitions advice across a wide range of industries in Australia and were supported by other BDO staff.

Sherif Andrawes is a Fellow of the Institute of Chartered Accountants in England & Wales and a Fellow of Chartered Accountants Australia & New Zealand. He has over 35 years' experience working in the audit and corporate finance fields with BDO and its predecessor firms in London and Perth. He has been responsible for over 500 public company independent expert's reports under the Corporations Act or ASX Listing Rules and is a CA BV Specialist. These experts' reports cover a wide range of industries in Australia with a focus on companies in the natural resources sector. Sherif Andrawes is the Corporate Finance Practice Group Leader of BDO in Western Australia, the Global Head of Natural Resources for BDO and a former Chairman of BDO in Western Australia.

Adam Myers is a member of Chartered Accountants Australia & New Zealand and the Joint Ore Reserves Committee. Adam's career spans over 25 years in the audit and corporate finance areas. Adam is a CA BV Specialist and has considerable experience in the preparation of independent expert reports and valuations in general for companies in a wide number of industry sectors.

Ashton Lombardo is a member of the Australian Institute of Chartered Accountants and is a CA BV Specialist. Ashton has over ten years of experience in Corporate Finance and has facilitated the preparation of numerous independent expert's reports and valuations. Ashton has a Bachelor of Economics and a Bachelor of Commerce from the University of Western Australia and has completed a Graduate Diploma of Applied Corporate Governance with the Governance Institute of Australia.

18. Disclaimers and consents

This report has been prepared at the request of the Independent Directors of Magnum for inclusion in the Notice of Meeting which will be sent to all Magnum Shareholders. The Independent Directors of Magnum engaged BDO Corporate Finance (WA) Pty Ltd to prepare an independent expert's report to consider the proposed acquisition of 100% of the issued capital of Appalachian Iron Inc., an entity that is controlled by the Chief Executive Officer of Magnum, Mr. Neil Goodman, for consideration of 30 million performance shares.

BDO Corporate Finance (WA) Pty Ltd hereby consents to this report accompanying the above Notice of Meeting. Apart from such use, neither the whole nor any part of this report, nor any reference thereto may be included in or with, or attached to any document, circular resolution, statement or letter without the prior written consent of BDO Corporate Finance (WA) Pty Ltd.

BDO Corporate Finance (WA) Pty Ltd takes no responsibility for the contents of the Notice of Meeting other than this report.

We have no reason to believe that any of the information or explanations supplied to us are false or that material information has been withheld. It is not the role of BDO Corporate Finance (WA) Pty Ltd acting as an independent expert to perform any due diligence procedures on behalf of the Company. The Directors of the Company are responsible for conducting appropriate due diligence in relation to Appalachian Iron. BDO Corporate Finance (WA) Pty Ltd provides no warranty as to the adequacy, effectiveness or completeness of the due diligence process.

The opinion of BDO Corporate Finance (WA) Pty Ltd is based on the market, economic and other conditions prevailing at the date of this report. Such conditions can change significantly over short periods of time.

With respect to taxation implications it is recommended that individual Shareholders obtain their own taxation advice, in respect of the Acquisition, tailored to their own particular circumstances. Furthermore, the advice provided in this report does not constitute legal or taxation advice to the Shareholders of Magnum, or any other party.

The statements and opinions included in this report are given in good faith and in the belief that they are not false, misleading or incomplete.

The terms of this engagement are such that BDO Corporate Finance (WA) Pty Ltd is required to provide a supplementary report if we become aware of a significant change affecting the information in this report arising between the date of this report and prior to the date of the meeting.

Yours faithfully

BDO CORPORATE FINANCE (WA) PTY LTD

Sherif Andrawes	**Adam Myers**
Partner	Partner

Appendix 1 – Glossary of Terms

Reference	Definition
Acquisition	The binding share purchase agreement with Mr. Neil Goodman to acquire 100% of the issued capital of Appalachian Iron Inc.
The Act	The Corporations Act 2001 Cth
AFCA	Australian Financial Complaints Authority
APES 225	Accounting Professional & Ethical Standards Board professional standard APES 225 'Valuation Services'
Appalachian Iron	Appalachian Iron Inc.
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
AVF	AVF Energy Inc.
BDO	BDO Corporate Finance (WA) Pty Ltd
BFS	Bankable feasibility study
Bt	Billion tonnes
Buena Vista Project	Buena Vista Magnetite Project
CEO	Chief Executive Officer
CMIIT	Chinese Ministry of Industry and Information Technology
The Company	Magnum Mining and Exploration Limited
Consideration	30 million performance shares to be issued to Mr. Neil Goodman
DCF	Discounted Future Cash Flows
DFS	Definitive feasibility study
DMT	Dry metric tonne
DSO	Direct shipping ore

Reference	Definition
EAF	Electric arc furnace
Existing Performance Rights	The 25 million unvested performance rights held by Mr. Goodman with various expiry dates
Fe	Iron
FME	Future Maintainable Earnings
FOMC	Federal Open Market Committee
FSG	Financial Services Guide
GDP	Gross Domestic Product
HBI	Hot briquette iron
HIsmelt Process	The HIsmelt process
HKJV	The joint venture between Rio Tinto, Nucor Corporation, Mitsubishi Corporation and Shougang Corporation to build a commercial scale HIsmelt plant in Kwinana
HRC	Hot rolled coil
HRDF	HIsmelt Research and Development Furnace
Integrated Strategy	The Company's new strategy to focus on magnetite concentrate, with the aim to develop a green pig iron processing plant
IRIS	IRIS (Company number 753 471 853)
IS 214	Information Sheet 214: Mining and Resources: Forward-looking Statements
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 Edition)
Km	Kilometres
Licence Agreement	The license agreement between Appalachian Iron and Molong, pursuant to which Appalachian Iron has the right to elect to enter into a future formal process agreement to utilise all intellectual property, information and data relating to the HIsmelt Process over a period of five years
Magnum	Magnum Mining and Exploration Limited

Reference	Definition
Milestones	The performance milestones that must be achieved in order for the Performance Shares to vest
MinRizon	MinRizon Projects Pty Ltd
Molong	Shandong Molong Petroleum Machinery Company Limited
Mr. Goodman	Mr. Neil Goodman
Mt	Million tonnes
Mtpa	Million tonnes per annum
NAV	Net Asset Value
Nevada Iron	Nevada Iron Limited
NI 43-101	National Instrument 43-101
OBM	Ore-based metallics
Our Report	This Independent Expert's Report prepared by BDO
Performance Shares	30 million Magnum performance shares to be issued to Mr. Neil Goodman
PFS	Prefeasibility study
QMP	Quoted market price
RBA	The Reserve Bank of Australia
RG 111	Content of expert reports (March 2011)
RG 112	Independence of experts (March 2011)
RG 170	Prospective financial information
RG 76	Related party transactions
Shareholders	Shareholders of Magnum not associated with Mr. Neil Goodman
SRV	Smelt reduction vessel
ST	Short tonne

Reference	Definition
Technical Report	The National Instrument 43-101 Technical Report completed in 2013 for the Buena Vista Project
URA	URA Holdings PLC
USA	United States of America
USGS	US Geological Survey
WA	Western Australia
West Virginia Project	Appalachian Iron's proposed pig iron project in West Virginia using the HIsmelt Process

The Directors
BDO Corporate Finance (WA) Pty Ltd
Level 9, Mia Yellagonga Tower 2
5 Spring Street
Perth, WA 6000
Australia

Appendix 2 – Valuation Methodologies

Methodologies commonly used for valuing assets and businesses are as follows:

1 *Net asset value ('NAV')*

Asset based methods estimate the market value of an entity's securities based on the realisable value of its identifiable net assets. Asset based methods include:

- Orderly realisation of assets method
- Liquidation of assets method
- Net assets on a going concern method

The orderly realisation of assets method estimates fair market value by determining the amount that would be distributed to entity holders, after payment of all liabilities including realisation costs and taxation charges that arise, assuming the entity is wound up in an orderly manner.

The liquidation method is similar to the orderly realisation of assets method except the liquidation method assumes the assets are sold in a shorter time frame. Since wind up or liquidation of the entity may not be contemplated, these methods in their strictest form may not be appropriate. The net assets on a going concern method estimates the market values of the net assets of an entity but does not take into account any realisation costs.

Net assets on a going concern basis are usually appropriate where the majority of assets consist of cash, passive investments or projects with a limited life. All assets and liabilities of the entity are valued at market value under this alternative and this combined market value forms the basis for the entity's valuation.

Often the FME and DCF methodologies are used in valuing assets forming part of the overall Net assets on a going concern basis. This is particularly so for exploration and mining companies where investments are in finite life producing assets or prospective exploration areas.

These asset based methods ignore the possibility that the entity's value could exceed the realisable value of its assets as they do not recognise the value of intangible assets such as management, intellectual property and goodwill. Asset based methods are appropriate when an entity is not making an adequate return on its assets, a significant proportion of the entity's assets are liquid or for asset holding companies.

2 *Quoted Market Price Basis ('QMP')*

A valuation approach that can be used in conjunction with (or as a replacement for) other valuation methods is the quoted market price of listed securities. Where there is a ready market for securities such as the ASX, through which shares are traded, recent prices at which shares are bought and sold can be taken as the market value per share. Such market value includes all factors and influences that impact upon the ASX. The use of ASX pricing is more relevant where a security displays regular high volume trading, creating a liquid and active market in that security.

3 *Capitalisation of future maintainable earnings ('FME')*

This method places a value on the business by estimating the likely FME, capitalised at an appropriate rate which reflects business outlook, business risk, investor expectations, future growth prospects and other entity specific factors. This approach relies on the availability and analysis of comparable market data.

The FME approach is the most commonly applied valuation technique and is particularly applicable to profitable businesses with relatively steady growth histories and forecasts, regular capital expenditure requirements and non-finite lives.

The FME used in the valuation can be based on net profit after tax or alternatives to this such as earnings before interest and tax or earnings before interest, tax, depreciation and amortisation. The capitalisation rate or 'earnings multiple' is adjusted to reflect which base is being used for FME.

4 *Discounted future cash flows ('DCF')*

The DCF methodology is based on the generally accepted theory that the value of an asset or business depends on its future net cash flows, discounted to their present value at an appropriate discount rate (often called the weighted average cost of capital). This discount rate represents an opportunity cost of capital reflecting the expected rate of return which investors can obtain from investments having equivalent risks.

Considerable judgement is required to estimate the future cash flows which must be able to be reliably estimated for a sufficiently long period to make this valuation methodology appropriate.

A terminal value for the asset or business is calculated at the end of the future cash flow period and this is also discounted to its present value using the appropriate discount rate.

DCF valuations are particularly applicable to businesses with limited lives, experiencing growth, that are in a start-up phase, or experience irregular cash flows.

5 *Market Based Assessment*

The market based approach seeks to arrive at a value for a business by reference to comparable transactions involving the sale of similar businesses. This is based on the premise that companies with similar characteristics, such as operating in similar industries, command similar values. In performing this analysis it is important to acknowledge the differences between the comparable companies being analysed and the company that is being valued and then to reflect these differences in the valuation.

PROXY FORM

[Insert Proxy Form]