# **ASX ANNOUNCEMENT**

2 October 2023

# MRG SIGNS BINDING MOU OVER 10 MINING LICENCES AT SHAWA RARE EARTH/CARBONATITE COMPLEX, ZIMBABWE

MRG Metals Limited ("**MRG**" or "**the Company**") (**ASX: MRQ**) is pleased to announce it has entered into a binding Memorandum of Understanding (MOU) with Wickbury Investments (Pvt) Ltd ("Wickbury") for a Joint Venture ("JV") on a package of 10 mining licences held by Wickbury over the Shawa Carbonatite Complex in Zimbabwe.

# Key aspects of the MOU:

- MRG has acquired exclusive rights to exploration and development for all commodities within the 10 mining licences of Wickbury (refer Table 2) from signature of the MOU (refer Table 1).
  - $\circ~$  The Shawa Carbonatite Complex is well mineralised, with proven and mapped mineralisation of the following:

Rare Earth Elements (REEs) - Niobium, Strontium

- The trench sampling on Wickbury licences recorded peak Total Rare Earth Elements (TREE) concentration of 2186ppm
- Historical gravity survey showed significant depth extent to the Carbonatite of >500m.

**Phosphate** (Note, DLC operating Phosphate mine adjacent), **Vermiculite** (Dormant Mine operation), **Magnetite** (Mapped) and **Magnesite** (Mapped)

- Very limited exploration has been conducted on the Wickbury licences, with potential for other mineralisation often associated with carbonatites, such as Fe, Cu, barite, CaCO<sub>3</sub>, Ti, nepheline and Zr.
- Infrastructure, including offices and sheds associated with the dormant vermiculite mine is available for use.

Terms of the Agreement:

- Wickbury to receive 20 million MRQ Shares on signing of the MOU (Stage 1)
- Following a Stage 2 Due Diligence process, a Joint Venture Company (JVC) will be set up under the same terms as the MOU, with MRG having the right during Stages 3 to 5 to earn 80% equity in the JVC as follows:

Stage 3	US\$250,000 expenditure to achieve	MRG to own 30%
Stage 4	A further US\$250,000 to achieve	MRG to own 51%
Stage 5	A further US\$1,500,000 spend	MRG to own 80%

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- Upon completion of Stage 5, MRG's expenditure would total US\$2,000,000. Wickbury will then have the option to co-invest at the 20% equity level, or dilute at a rate of 1% per US\$100,000 to a floor of 10% equity.
- Wickbury will be responsible for maintaining all tenements (both existing and future), in good standing, for government reporting (including technical and environmental reporting) and ESG compliance.

# About Wickbury

Wickbury is a Zimbabwean company which was formed to identify and develop mineral deposits associated with the Shawa Carbonatite Complex.

The two founding directors and 90% shareholders of Wickbury, Mr Nathan Kalumbu and Mr Paul Chimbodza, both Zimbabwe nationals, bring significant experience to the partnership. Nathan holds a Master's Degree in Business Administration from Emory University and a Bachelor's Degree in Business Studies. He is former president of the Coca-Cola Company - East & Central Africa Business Unit. Paul is a geologist and mining executive with 30 years of industry experience. He holds BSc General and BSc Geology Honours degrees. Paul is acknowledged for bringing Prospect Lithium Zimbabwe's world-class lithium deposit to market; the deposit is now in feasibility stage. The project is managed by Prospect Resources Limited (ASX: PSC).

The remaining 10% of Wickbury is held by a local community group, which MRG regards as an ESG benefit to the partnership.

**MRG Chairman, Mr Andrew Van Der Zwan, said:** *"We are delighted to gain access to these licences and look forward to working with Wickbury on-site with known resources, but also on ground yet to be explored for new critical minerals. Our entry price is extremely low risk and provides MRG with immediate access to make substantial progress this year with minimal expenditure. MRG is excited to have secured such an incredible package that potentially offers a Company-making exploration target. Shortly, we will update the market on our initial exploration plans at Shawa, on what could be a giant multi-commodity exploration play with Rare Earth prioritisation. In Mozambique, we are also continuing to work with LANQI on progressing to Joint Venture status."* 

#### Key highlights of the Shawa Carbonatite Complex

- The Shawa Carbonatite Complex is well mineralised, with proven and mapped mineralisation of the following:
  - Rare Earth Elements (REEs)
    - The trench sampling on Wickbury licences recorded peak Total Rare Earth Elements (TREE) concentration of 2186ppm
  - o Phosphate
    - Resource of 20.3 million tonnes containing 10.8% P2O5 on IDC licences
    - Results from two trenches on Wickbury licences of 42m with 23.03 P2O5% and 5m with 33.58 P2O5%

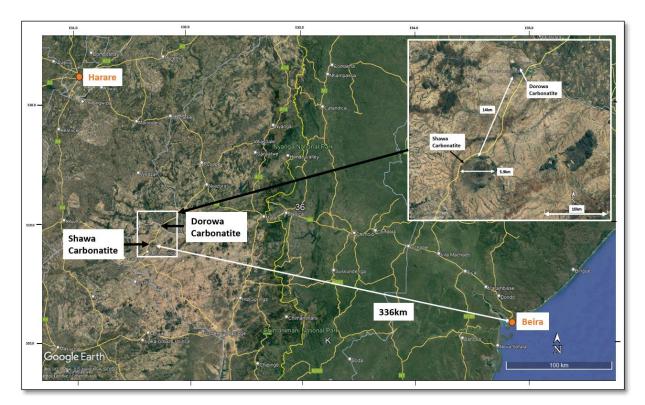


- $\circ$  Vermiculite
  - Active mining taking place on an adjacent SAMREC property
  - Inferred resources on Wickbury licences of 164,000t @ 24.1% vermiculite and 106,250t @ 27.2% from two areas
- o Niobium
  - Trench sampling on Wickbury licences recorded highest Nb grade from of 1114ppm Nb
- $\circ$  Strontium
  - Two trenches on Wickbury licences have shown appreciable SrO values of 3m with 1.13% SrO and 6m with 1.11% SrO
- Magnetite (mapped)
- Magnesite (mapped)
- Very limited exploration has been conducted on the Wickbury licences to date, with possibility for other mineralisation often associated with carbonatites
  - Historical gravity survey showed significant depth extent to the carbonatite of >500m.
  - There is infrastructure on the Wickbury licences at the dormant vermicular mine.

Stage	Stage Expenditure MRG (USD)	Cumulative Expenditure MRG (USD)	Cumulative Acquisition in JV Company MRG (%)	Estimated Work Program	Estimated Time Frame (Months)	Decision Point at End of Stage
1	20 Million MRQ Shares			Sign and Commence the MOU		
2	N/A	N/A	0	<ul> <li>Geological Mapping and sampling, Ground truthing.</li> <li>Soil Sampling – (grid Soil Sampling if IDC deal is possible).</li> <li>Commence negotiation with IDC. (Minimum Work Commitment)</li> </ul>	6	**
3	250,000	250,000	30	<ul> <li>Target Testing by Auger/Aircore etc Drilling</li> <li>Sighter metallurgy/mineralogy as required</li> </ul>	12	**
4	250,000	500,000	51	Infill/Extension drilling +/- MRE	12	**
5	1,500,000 <b>Ω</b>	2,000,000	80	MRE, Metallurgical Study +/- Scoping Study	24	***

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Tenement Name	Area Coverage (Ha)	Ownership
James 13	62.0	Wickbury Investments
James 10	77.9	Wickbury Investments
Shawa 72	150.0	Wickbury Investments
Shawa 36	79.9	Wickbury Investments
Shawa 37	111.5	Wickbury Investments
Shawa C 1	132.0	Wickbury Investments
Shawa C2	132.0	Wickbury Investments
Shawa C3	110.0	Wickbury Investments
Shawa 58	146.7	Wickbury Investments
Gono 2	40.0	Wickbury Investments
Total	1042	

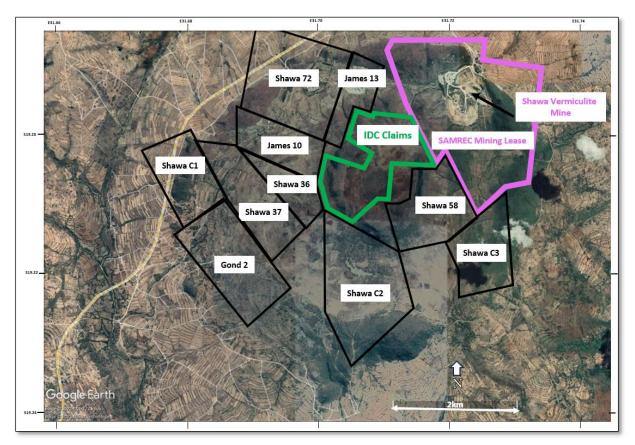


*Figure 1:* Shawa Carbonatite in relation to Harare and the Mozambican Beira Port shown on Google Earth image, yellow roads national tar roads. Insert close-up of Shawa and adjacent Dorowa carbonatites.

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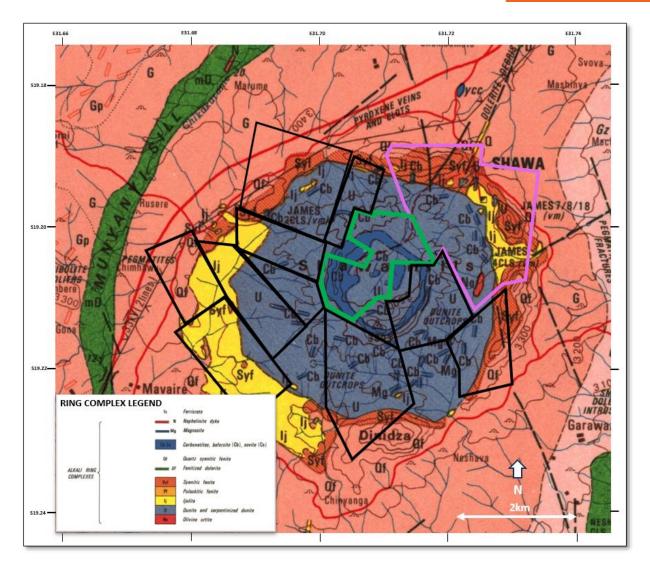
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**Figure 2:** Shawa Carbonatite licences shown on Google Earth image, Wickbury licences in Black, IDC licences in Green, SAMREC licences in magenta.

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*Figure 3:* Shawa licences shown on the geology map of the Shawa carbonatite complex from the Dorowa-Shawa 1:100,000 geology map, geology by J.N. Lauderdale, 1984-1986.

#### Economic importance of Carbonatite Complex deposits

Carbonatite and alkaline-carbonatite Complexes are multi-element deposits and host some very significant metallic and industrial mineral deposits (Figure 4). Two examples, the Palabora Carbonatite Complex and the Dorowa Carbonatite Complex (due to its proximity to the Shawa Carbonatite Complex), are briefly discussed further.

The **Palabora Carbonatite Complex** in the Limpopo Province of South Africa is recognised as one of the most important carbonatites in the world, being not only one of the world's major sources of copper, but also the host of a wide range of other valuable commodities besides. The Palabora orebody is vertical and the reserve extends to a depth of 1,800m over an area of 700m by 200m.

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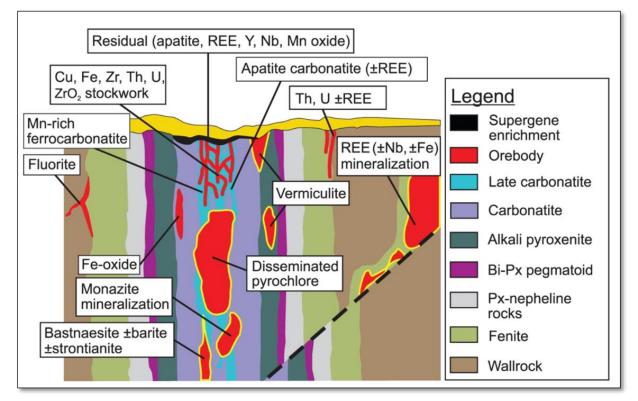
The central complex of the carbonatite measures about 7km north-south and varies between about 1.5 and 3.5km in width, with an area of 15km<sup>2</sup>. There are also numerous associated plugs and dykes of syenite and carbonate-bearing breccias. The Carbonatite Complex is mined and processed by the Palabora Copper Pty Ltd (PC) (Palabora Mining Company, or PMC). Mining started in 1965 by open cut mining methods, which transitioned to underground operations in 2003. The open-pit measures almost 2km wide and reached 800m deep at the end of the open-pit mining phase.

The PMC underground copper mine employs a block caving mining method for the extraction of ore beneath the old open cut void. Production has been sourced from Lift I of the block cave from 500m below the floor of the open cut void. In 2011, PMC developed a plan to extend the life of the underground mine up to 2033 through the construction of a Lift II block cave 450m beneath the current Lift I, thus nearly 1,800m deep. The Lift II Feasibility Study has been completed.

There are three large opencast mines on the Phalaborwa complex producing copper, apatite and vermiculite, together with a range of other valuable by-products, particularly from the copper mine. It provides copper ore to the company's copper processing plant, smelting and refinery plants on site to produce copper rod and copper cathode sheet. Vermiculite ore is mined from a series of shallow open cuts (up to 50m deep) and is upgraded through a processing plant to produce saleable vermiculite products. Magnetite is recovered from old tailings dumps and pumped to a magnetic separator for production of a magnetite concentrate. Apatite is mined from an open pit on pyroxenite at the northwestern margin of the complex. Apatite is absent from the central part of the northern pyroxenite, but an average of  $6.7\% P_2O_5$  is found in an outer 500m-wide zone. FOSKOR, which holds the rights to exploitation of phosphate at Phalaborwa, also receives large tonnages of phosphate-bearing tailings from the Palabora Mining Company mine together with phoscorite, from which FOSKOR recover copper, baddeleyite and magnetite in addition to apatite.

By-products of the copper exploitation are linked to impurities in different phases of the processing phase and results in the following by-products: nickel sulphate hexahydrate crystals, Silver (Ag), Arsenic (As), Gold (Au), Bismuth (Bi), Lead (Pb), Antimony (Sb), Selenium (Se) and Tellurium (Te). Sulphuric acid is also a major product.

The **Dorowa Carbonatite Complex** adjacent to the Shawa Carbonatite (14km northeast, Figure 2) has two principal apatite phosphate orebodies with resources in the weathered zone of the southern body amounting to 40 million tonnes and in the northern body with 33 million tonnes. The phosphate produced at Dorowa is used in the production of phosphate fertiliser blends. The mine also produces magnetite, which is exported to Mozambique. Ore from the pit is at 6.5% P<sub>2</sub>O<sub>5</sub> and the concentrates being dried and sent to Zimbabwe Phosphate Industries (ZimPhos) are at 37% P<sub>2</sub>O<sub>5</sub>. The dried concentrates are sent to the railhead at Nyazura along the Mutare highway, some 65km away, by road and 190km to Zimbabwe Phosphate Industries, in Harare by rail.



*Figure 4*: Vertical section of a hypothetical carbonatite mineralising system displaying the relationship between metallic and industrial mineral deposits relative to lithological units and geological contacts, not to scale (image sourced from Carbonatites: related ore deposits, resources, footprint, and exploration methods; George J. Simandl & Suzanne Paradis).

- Large REE resources (e.g. Bayan Obo, China; Maoniuping, China; Mountain Pass, USA and Mount Weld, Australia), mostly strongly enriched in Light Rare Earth Elements (LREE), however, they also contain significant resources of heavy rare earth elements (HREE).
- Alkaline carbonatite complex related deposits are also the main source of Nb (e.g. Catalão, Brazil; Lueshe, Democratic Republic of Congo; and St. Honoré, Oka, and Aley, Canada).
- Vermiculite and phlogopite deposits are predominantly hosted by mafic or ultramafic rocks of the alkaline-carbonatite complex (e.g. Northern pyroxenite at Palabora, South Africa); near the contacts of carbonatites with these rocks, or within mafic country rocks (e.g. Upper Fir carbonatite, Canada).
- Apatite (phosphate mineral) deposits currently in production are mostly enriched by weathering, such as Tapira, Brazil; Ipanema, Brazil; Catalão I, Brazil; Matongo, Burundi and Dorowa, Zimbabwe; with examples of the exceptions the Siilinjärvi mine, Finland, and Cajati mine, Jacupiranaga Complex, Brazil.
- Cu, U, Th, and baddeleyite (natural zirconia) were produced for decades from the Palabora carbonatite-phoscorite complex in South Africa, but baddeleyite is currently produced only from the Kovdor deposit in Russia (Dickson Citation 2015).

 Other materials produced from carbonatites or related rocks are: iron (e.g. Kovdor, Russia; Bayan Obo, China; and Palabora, South Africa); fluorite (e.g. Mato Preto, Brazil; Okorusu, Namibia; and Amba Dongar, India); carbonates for lime and cement production (e.g. Tororo, Uganda and Xiluvo, Mozambique; and Jacupiranga, Brazil; Alves Citation2008); and sodalite for use as dimension, ornamental, and semi-precious stone (e.g. Swartboosdrift, Namibia; and Cerro Sapo, Bolivia).

# About Shawa Carbonatite Complex

#### Introduction

The Shawa Carbonatite is approximately 165km SE of Harare (Figure 1), accessible via tar road, with good access on the 10 Wickbury mining licences (Table 2) on the carbonatite. The Nyazura rail head is approximately 80km via tar road northeast of the Shawa Carbonatite Complex. The carbonatite is c 5.9km in diameter, or c 34.8km<sup>2</sup> (Figures 1, 2 and 3).

Limited exploration has been undertaken over the Wickbury licences on the Shawa Carbonatite Complex, with mainly historical exploration focused on phosphate and vermicular mineralisation, and more recently exploration for mainly REEs. The Shawa carbonatite complex has already demonstrated endowment for the following minerals:

- REE mineralisation;
- Phosphate mineralisation;
- Vermiculite mineralisation;
- Magnetite mineralisation (probably associated with V<sub>2</sub>O<sub>5</sub>);
- Magnesite mineralisation;
- Niobium; and
- Strontium.

The current mining licences over the Shawa Carbonatite are shown in Figure 2, with the Wickbury mining licences in black (10 licences covering 1042ha, Table 2), the IDC mining licences in green and SAMREC Zimbabwe (Pvt) Ltd (SAMREC) mining licences in magenta. The Wickbury licences cover a large portion, approximately 60% of the carbonatite (Figures 2 and 3), including a portion of the central carbonatite plug / intrusion (Figure 3). Active vermiculite mining is taking place at the Shawa Vermiculite Mine (Figure 2) within the SAMREC licence. The SAMREC vermiculite deposit is reportedly (by the SAMREC company) one of the larger vermiculite deposits in the world.

The dormant Wickbury Dinhidza Vermiculite Mine lies in the northwest of the Shawa Carbonatite on the Wickbury James 10 and 13 mining licences (Figure 2). There is infrastructure on the mine that will be used during exploration (plant area, loading shed, administration block and laboratory, Technical Services Office, Mine Stores, Mine guest House camp and mine workers' compound).

#### Previous exploration on the Shawa Carbonatite Complex

#### i. Hawkmoth Mining and Exploration

Exploration by Hawkmoth Mining and Exploration (Hawkmoth) took place on Wickbury licences in 2022 under an option agreement, the option was not exercised. The work included soil sampling, followed by outcrop rock chip sampling, then a limited amount of trenching.

#### a. Soil sampling

During the soil sampling program soil samples were collected at 20m intervals along 7 lines, the 7 lines were oriented radially to cover the oval shape of the carbonatite complex targeting the zone between the inner carbonatite ring and the circular inner ring. The first 30 soil samples were sent to Geolabs South Africa for XRD and 700 samples to SGS South Africa for multi-element ICP. The soil Geochem REEs results showed a relative enrichment of LREEs (La+Ce+Pr+Nd) in comparison to HREEs (Tb+Dy+Er+Tm+Yb+Lu+Lu+Y) and MREEs (Sm+Eu+Gd), with an average ratio HREE\_ppm: MREE\_ppm: LREE\_ppm of 1:0.56:4.56. The assays for LREEs i.e., Ce, La, Nd and Pr in order (from highest concentration) have contributed bulk of TREE content additionally with Y (HREEs), as all have peaks >100ppm. Soil Geochem line 7, outlined a REE and Nb target zone with TREE values ranging 1000ppm – 1508ppm and Nb 236ppm – 1075ppm, which aligned with eastern inner contact zone of the main carbonatite with the serpentinite. From the results an P anomaly was picked up by line 2 and 4 on the western part of the main carbonatite ring and specifically towards the outer and inner contacts. P is more enriched on the outer contacts of ring carbonatite where peaks for P were up to 10.9%.

### b. Rock Chip Sampling

Follow up of random 205 rock chip sampling was done on the main ring carbonatite outcrops along and/or in proximity with the anomalous soil Geochem lines 2, 6 & 7. The peak REE assay results for the rock chips recorded TREE 355.8 ppm with the LREEs bulk Ce (peak @ 133ppm), Nd (peak @ 123ppm) and La (max @ 67ppm), where they are spatially associated with "Line 7 eastern anomaly" inner contact of the main carbonatite ring and oxidised serpentinite. LREEs are more enriched as compared to HREE and MREEs in this Eastern target anomaly with average ratio HREE: LREE as 1.4; 1; 7. The "Eastern target contact" is also well associated with Nb enrichment with peak (max) @ 428ppm, which shows a positive linear correlation of R2= 0.47 with TREE concentration and as well Sr values with peak 6851ppm. Phosphate recorded values range from 0.6% - 2.4% from the rock samples.

#### c. Trenching

The trenching exercise was conducted as follow up of the TREE and Nb and P anomalies identified on soil Geochem. A total of 7 trenches with a cumulative length of 1419m were excavated and sited radially inside the inner circular ridge only, exposing the contact between the main ring carbonatite and serpentinite. The trench rock chip samples recorded a relatively higher peak TREE concentration with 2186ppm and a few peaks above 1500ppm

as compared to the regolith soil profile samples. Ce records the highest peak in rock chip samples with 863ppm, whilst in trench soil profiles Y (HREE) has the highest of 614ppm. In both sets of samples, it is important to note that LREE concentration is relatively higher than MREE and HREEs. Trench ATSHTR004, out of the 7 trenches has the 3 most interesting REEs target with 2 zones showing peak TREE grades @ 1620ppm (@182m - 188m over 6m) and 1793ppm (@ 234m – 236m over 2m), which are associated with a carbonatised serpentinites. Also, a major contribution of MREEs to TREE has been identified on trench ATSHTR007 @ 59m – 69m, with weighted average grades of TREE 891ppm, MREE 419ppm and LREEs 391ppm. Peak phosphate grades were identified on the trenches ATSHTR006 @ 68m – 110m over 42m (widest) with 23.03 P2O5% and ATSHTR007 @ 82m - 87m over 5m with 33.58 P2O5%. The trenches ATSHTR003 and ATSHTR004 have shown appreciable SrO values @ 150m – 153m over 3m (ATSHTR003) with 1.13% and @ 182m – 188m over 6m with 1.11%. Outstanding Nb targets from trench rock chips were sporadically distributed along trench ATSHTR004 @ 75m – 120m over 45m with weighted average grade Nb 401ppm, and with peak grade Nb 1007ppm @ 116m – 117m. This zone is arguably passively continuous towards trench ATSHTR005 @ 101.5m - 142.5m with Nb in soils ranging 335 ppm - 894 ppm and Nb in rocks ranging 56ppm – 861ppm, which can be as well influenced by multiple crystalline carbonatite intrusions. However, the highest Nb grade from trench rock chips is isolated @ 200m – 201m in trench ATSHTR004 with Nb 1114ppm.

#### ii. Steffen, Robertson and Kirsten (SRK)

SRK conducted exploration on the vermiculite deposit on licences now belonging to Wickbury in 2001 (work done for Dinidza Vermiculite Mining Private Limited), culminating in a resource potential report in August 2001.

SRK conducted a trenching program (trenches planned to 2m depth), mainly focused on the then named James 13 and James 14 licences (now James 10 and James 13) where the Watts, Griffis and McQuat resources mentioned below were situated. SRK could not replicate the resource results of Watts, Griffis and McQuat, reporting an Inferred resource of 164,000t @ 24.1% vermiculite from one area within the licences; and an Inferred resource of 106,250t @ 27.2% vermiculite from another area.

#### iii. Watts, Griffis and McQuat

Watts, Griffis and McQuat (2000) reported 43-101 resources and reserves on then James 13 and James 14 licences (now James 10 and James 13) of Indicated 426,530t @ 50% vermiculite and Inferred 4,590,000t at 49% vermiculite.

### iv. Dodd (1971)

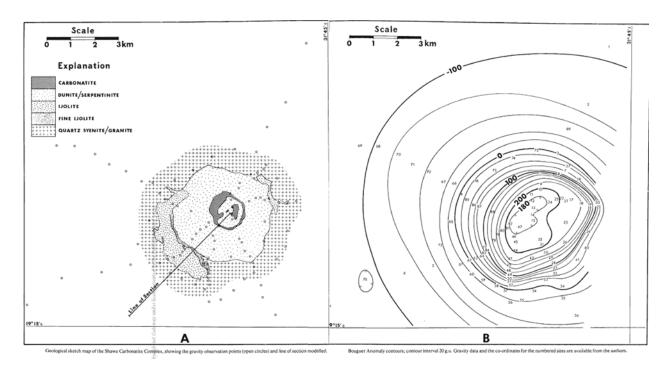
Dodd supplied resource estimation figures in 1971 for the phosphate mineralisation in weathered ijolite, with the majority of this resource situated within the IDC mining licences. The resource from Dodd is 20.3 million tonnes containing 10.8% P2O<sub>5</sub>, 31.4% Fe2O<sub>3</sub> and 1.3% CO<sub>2</sub>.

Dodd calculated a lower CO<sub>2</sub> resource with CO<sub>2</sub> at 0.8% then with 16.3 million tonnes at 10.4% P<sub>2</sub>O<sub>5</sub> and 32.5% Fe<sub>2</sub>O<sub>3</sub>.

v. Gravity survey

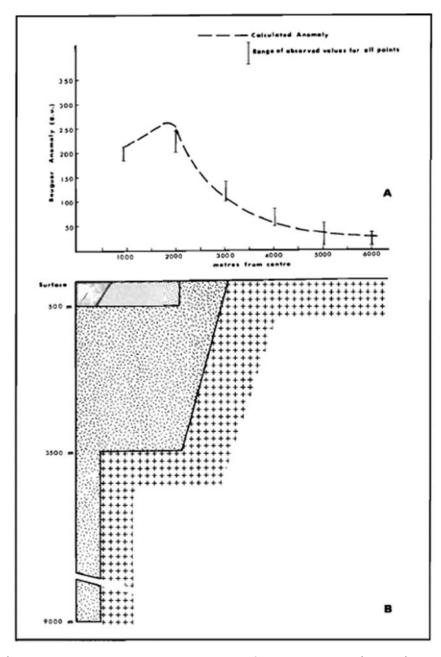
A gravity survey was conducted on the Shawa Carbonatite Complex to establish the subsurface of both the dunite and the Complex as a whole. Figure 5A shows the distribution of the gravity observation points. The essentially circular symmetry observed in outcrop is very strongly reflected in the gravity anomaly, allowing the observed Bouguer anomalies for all points to be projected to a radial line as shown in Figure 5B.

The gravity model illustrated is thus of a narrow ijolite feeder to a mass of ijolite which represents the chamber on the floor of which the dunite layer was accumulated by crystal settling of olivine and magnetite. The original thickness of the dunite and the original depth of the magma chamber are not known because of erosion. The gravity model establishes that the present ultrabasic mass is about 500 m thick (Figures 6A and 6B).



*Figure 5A (left):* Geological sketch map of the Shawa Complex showing the gravity observation points (open circles) and line of section modelled. *Figure 5B (right):* Bouger anomaly contours.

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*Figure 6A (top):* Calculated Bouger anomaly along the line of section. *Figure 6B (bottom):* Geological model of the Shawa Carbonatite Complex used in calculating the anomaly shown in Figure 5A.

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#### **Competent Persons' Statement**

The information in this report, as it relates to Mozambique Exploration Results is based on information compiled and/or reviewed by Mr JN Badenhorst, who is a member of the South African Council for Natural Scientific Professions (SACNASP) and the Geological Society of South Africa (GSSA). Mr Badenhorst is a consultant of the Company and has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Badenhorst consents to the inclusion in this report of the matters based on the information in the form and context in which they appear.

This release is authorized by the Board of MRG Metals Ltd.

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