18 September 2023

Outstanding Results for Area 4 of the VHM Leases

Key Highlights:

- Area 4, situated 8km to the north of the proposed Goschen Rare Earths and Mineral Sands process plant (Figure 1)
  - Additional 11.5 million tonnes (Mt) @ 5.6% Total Heavy Mineral (THM) Probable Ore Reserve (Table 1)
- Within this area a high-grade mineable horizon of 2.6 Mt @ 9.6% THM exists at the top of the ore body (Table 2). This horizon contains:
  - 245,500 tonnes of mineable THM
  - 67,700 tonnes of zircon at an in-situ grade of 2.6% (representing 27.6% of the economic mineral assemblage of ore in this upper horizon)
  - Average in-situ grade of the upper horizon is a standout 2300ppm Total Rare Earth Oxide (TREO)
  - Significantly higher rutile and leucoxene grades than previous seen within the Goschen Project Ore Reserve
- A preliminary feasibility has begun that will examine whether Area 4 could be mined with a simplified process flowsheet in a shorter timeframe than the main deposit. This would enable faster cash generation for the overall project.

Commenting on the results, Managing Director of VHM, Mr Graham Howard said:

"These are fantastic results for VHM in combination with high-grade deposits recently announced for both Cannie and Nowie Projects. Having multiple high-grade areas defined introduces optionality for both our mining plan and downstream processing and we are following up to assess these options.

Beyond the high-grade areas of Area 4 Orion Strandline, Cannie, and Nowie, similar investigations are underway to re-analyse previously identified deposits within the regional exploration that VHM has already conducted. This investigation has already indicated that similar high-grade potential exists at the Cygnus Prospect to the east of Goschen."

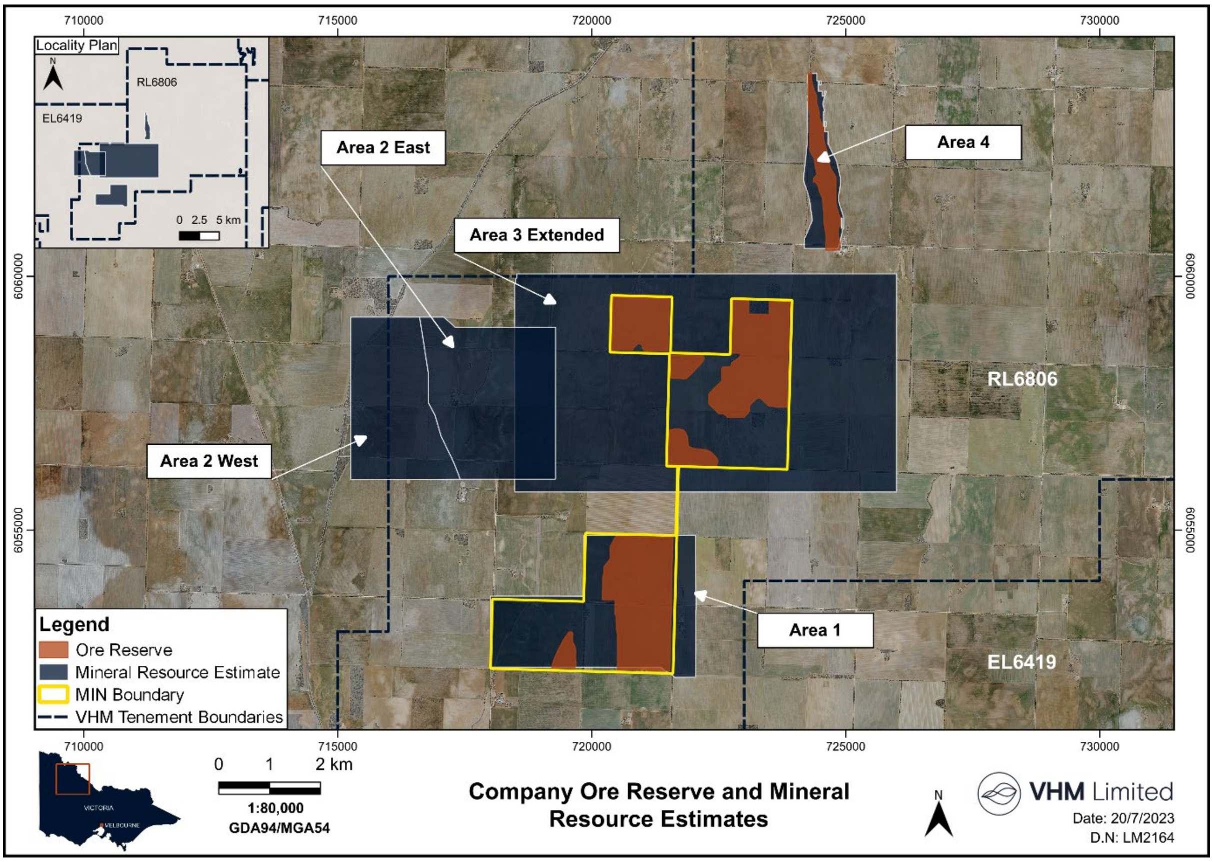


Figure 1: Goschen Rare Earths and Mineral Sands Project Ore Reserve and Mineral Resource Estimate

A high-grade strandline deposit within Area 4 was previously defined by resource definition drilling in 2018 and 2019. At this time, 1.6 tonnes of material was collected from four geological domains of interest. This material was characterized by Mineral Technologies and then treated though the Goschen Project mineral sands process flowsheet (ASX release 25 January 2023). This process confirmed the Area 4 material is amenable to processing through the flowsheet proposed for the Goschen Project. This is in addition to the previous global Company Ore Reserves of 198.7Mt. Total Company Ore Reserves now stand at 210.2 Mt @ 3.8% THM (Table 3).

Adding Area 4 (11.5Mt) to the proposed mining and processing of the Goschen Project (5Mtpa) enables the high-grade Zone 5 located at the top of the orebody (Figure 2) to be preferentially mined if determined to be optimal for the project methodology.

Table 1: Goschen Area 4 Ore Reserve

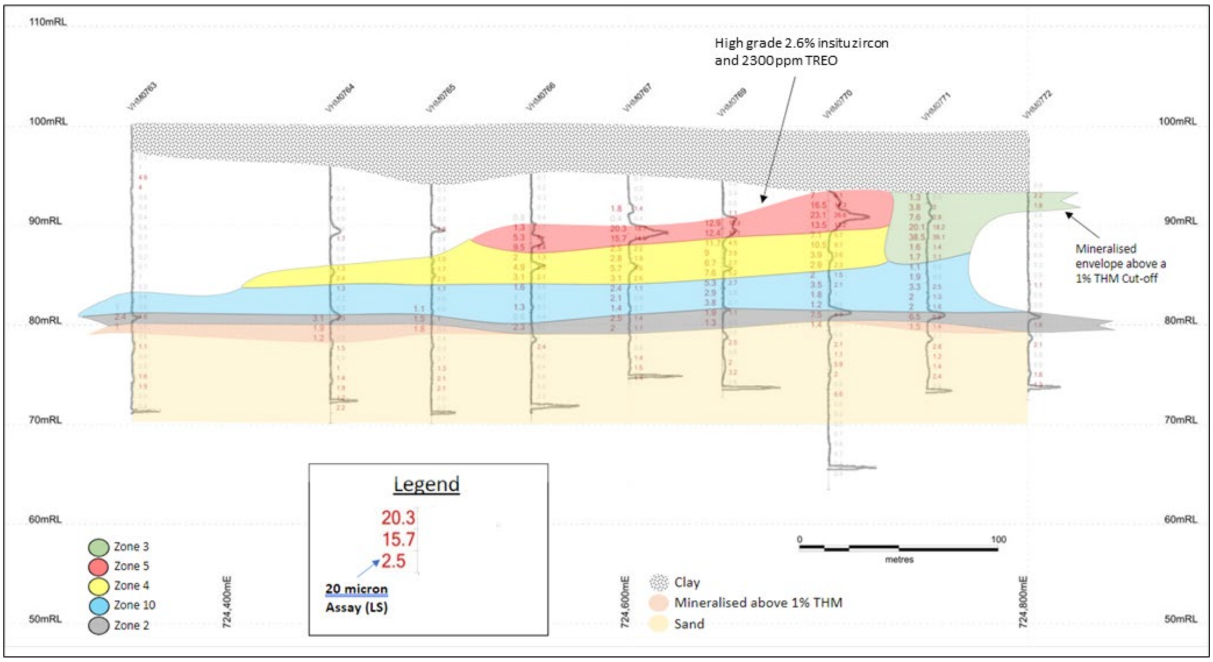
Reserve Classification	Ore[1] (Mt)	THM[1] (%)	Valuable Heavy Mineral Grade[2] (%)						TREO[3] (%)
			Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime	
Probable	11.5	5.6	19.6	12.2	10.1	24.6	3.0	0.7	1.88

Within this Probable Ore Reserve, several zones were categorised (Zones 2 – 11) and Zone 5 delivered the highest mineral sands and rare earth grades (Table 2).

Table 2: Goschen Area 4 (Zone 5 subsection) Ore Reserve

Reserve Classification	Ore[1] (Mt)	THM[1] (%)	Valuable Heavy Mineral Grade[2] (%)						TREO[3] (%)
			Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime	
Probable	2.6	9.6	27.6	14.2	11.9	29.1	3.6	1.0	2.40

Figure 2: Area 4 Cross Section illustrating the location of Zone 5 (pink) at the top of the mineralised zone



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[1] *Ore Tonnes and THM grades are reported as mined.*
[2] *Valuable Heavy Mineral (VHM) grades are reported as a percentage of THM.*
[3] *Total Rare Earth Oxides + Yttrium (TREO) reported as a percentage of THM.*

Table 3: Company Ore Reserves

					Valuable Heavy Mineral Grade					
Area	Date	Classification	Ore (Mt)	THM (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	Ilmenite (%)	Monazite (%)	Xenotime (%)
Area 1	Mar-21	Proven	24.5	5.4	29.9	10.8	9.0	24.7	4.3	0.8
Area 1	Mar 21	Probable	14.6	3.2	29.2	11.7	9.2	25.5	4.5	0.9
Area 3	Feb 21	Probable	159.6	3.5	20.3	9.4	8.1	25.8	3.4	0.6
Area 4	Jul 23	Probable	11.5	5.6	19.6	12.2	10.1	24.6	3.0	0.7
TOTAL		**Proven**	24.5	5.4	29.9	10.8	9.0	24.7	4.3	0.8
		Probable	185.7	3.6	21.0	9.8	8.3	25.7	3.5	0.6
GRAND TOTAL			210.2	3.8	22.0	9.9	8.4	25.6	3.6	0.6

Note: Valuable Heavy Mineral grades are reported as a percentage of THM.

The matters required by ASX LR 5.9.1 are set out as follows.

Material Assumptions and Outcomes

Goschen Area 4 Pit Optimisation	
Ore Reserve (LoM)	2.5 years
Average Ore Grade (THM)	5.6%
Mining costs	A$3.08/t
Average Processing Costs	A$15.16/t
Product Freight Costs	A$60.28/t
Reference Zircon Price	US$1,418/t
Reference Rutile Price	US$1,267/t
Reference Leucoxene Price	US$294/t
Reference Ilmenite Price	US$237/t
Reference REMC Price	US$17.33/kg

Adamas Intelligence (rare earths) and TZMI (zircon and titania minerals) completed independent market reviews and provided long term reference prices in real USD. The pit optimisation process used commodity prices based on 2030 reference pricing. Commodity prices used for this study made allowances for transport costs, taxes, and quality adjustments with input from both Adamas Intelligence and TZMI regarding the quality of Goschen products.

Criteria for Classification

This Ore Reserve estimate was prepared by Auralia Mining Consulting Pty Ltd, a mining engineering consultancy with appropriate technical experience suited to this project. This work was undertaken at Pre-Feasibility Study level, the Ore Reserve portion of which was carried out on supplied Mineral Resource models. This analysis used information predominately from the March 2023 DFS Refresh in combination with work based on the metallurgical results announced on 25 January 2023. Some specific metallurgical validation work for Area 4 requires completion prior to assigning DFS level confidence.

The Ore Reserve is based on the Goschen Project Area 4 Mineral Resource Estimate, September 2019 which was generated for the Company by IHC Robbins. This data was referenced in the Company Prospectus, released on 5 January 2023. The new Ore Reserve is classified as Probable, in accordance with Pre-Feasibility Study (PFS) (JORC 2012) level of detail.

The process flow sheet including the Mining Unit Plant (MUP), Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP) and Rare Earth Flotation Circuit (REFC) (Phase 1) was used as the basis for OPEX, process recovery and product sell price inputs which informed the Ore Reserve estimation process.

Any material classified as an Inferred Mineral Resource was not included in the Ore Reserve calculations. The Goschen Area 4 Mineral Resource is reported above a cut-off grade of 1% TVHM and is summarised in Table 4.

Table 4: Mineral Resource estimate - Goschen Area 4 deposit: THM assemblage

Area	Resource Category	Material (Mt)	In situ THM (Mt)	Density (g/cm^3)	THM (%)	Slimes (%)	OS (%)	Zir (%)	Rut (%)	LX (%)	Ilm (%)	Mon (%)	Xeno (%)
4	Indicated	18.0	0.8	1.74	4.60	20	5	19.0	11.0	10.0	24.0	3.0	1.0

Notes:
Mineral Resources reported at a cut-off grade of 1.0% TVHM (THM x VHM)
Mineral assemblage is reported as a percentage of in situ THM content

Mining Method Considerations

Pit optimisations were completed using Whittle software. Complete extraction of ore within pit designs is planned and ore will be trucked to an MUP ROM on the surface close to the mining face. The MUP will be relocated at as required to optimise truck haulage and slurry pumping. No drill and blast operations will be required, cross ripping of cemented sand horizons by dozers may be required.

Mining will be undertaken in as a strip/block-mining operation. Each block will be approximately 500m x 200m. An overall wall angle of 30° has been proposed based on completed geotechnical studies. A batter angle of 40° was applied to the uppermost bench (in the topsoil / clayey-sand material), with a 6 m wide berm created at the 92mRL (between 5 and 12m below surface). Beneath this berm, a single slope of 32° was designed to the pit floor.

Waste material (topsoil, clay, and overburden) may be stockpiled on surface from the start of mining operations until such time as there is sufficient capacity and suitable conditions in the mined void to allow direct deposition into the mined areas. Stockpiled material on the surface will ultimately be backfilled into the final mine void to remove the visual effects of mining upon closure and help return the area to its original use.

The Resource model was regularised to a 25m x 25m x 1m block size. This resulted in an approximate mining dilution factor of 8% and a mining recovery factor of 98%. No further mining dilution or recovery was applied.

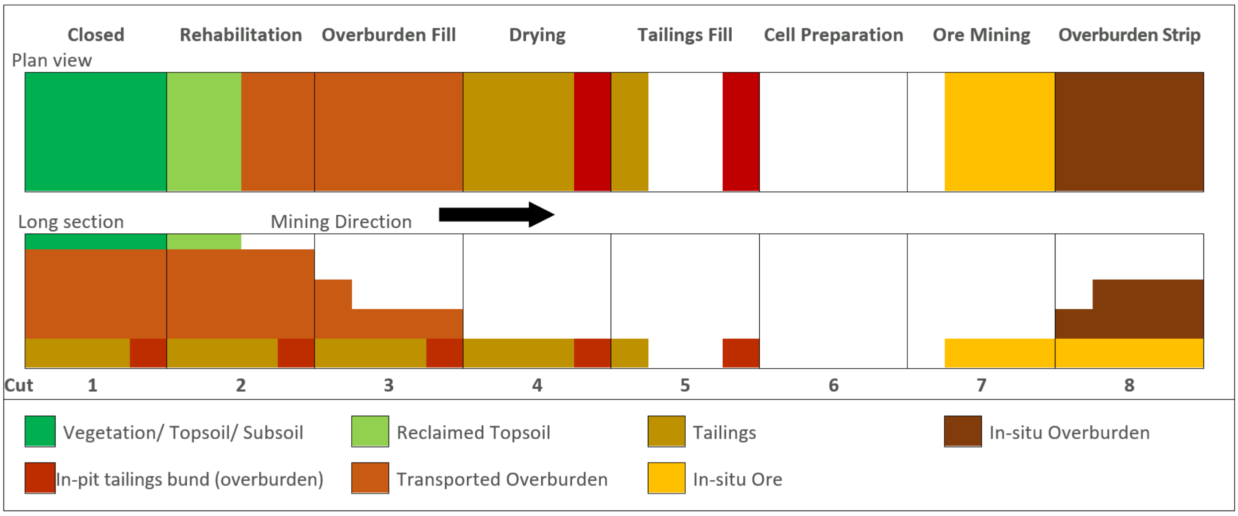


Figure 3: Schematic illustration of mining sequence including progressive backfill and rehabilitation

Excavator and truck (rigid and articulated), scraper, in-pit conveyor and dredging methods were initially assessed. Potential operational issues with in-pit conveyors (high capital costs, inflexibility in scheduling) and dredging (material properties and expected dry mining conditions) resulted in both methods being discarded. Operating costs for scraper production were found to be generally higher than for excavator and truck operations and therefore discarded as the primary production method. Ultimately, excavator and truck operation was considered the best fit for this project due to flexibility and costs.

Equipment Selection

Truck and excavator production will be the primary means of mining at the Goschen Project. The truck fleet will be used to transport the majority of overburden from its in-situ location to the waste dumps and for transporting ore to the mining unit plant (MUP). Two hundred tonne-class excavators (Caterpillar 6020, Komatsu PC2000 or similar) for waste mining, 110-tonne-class excavators (Caterpillar 6015, Komatsu PC1250 or similar) for ore mining and 130-tonne rigid-body trucks (Caterpillar 785, Komatsu HD1500 or similar) for all material are the major equipment types intended for use at the Project.

Current knowledge indicates that in-pit road conditions will provide good trafficability for large, rigid-body dump trucks. If future test work indicates that trafficability conditions are poorer than indicated, alternatives such as articulated dump trucks or a heavier reliance on track mounted equipment could be utilised.

Primary mining operations will be supported by dozers and front-end loaders (FELs). A combination of Caterpillar D9 and D10 dozers (or similar) will be used for cross-ripping, pushing up bunds for in-pit tailings cells and contouring waste dumps (both in-pit and ex-pit). Dozers may also be used to accurately remove overburden immediately above ore zones to minimise dilution. FELs and dozers may be used for feeding the MUP and help clean the pit floor to improve mining recovery. Graders and water carts will be used to maintain suitable operating conditions across the site.

Processing Method Assumed

Optimisation of Area 4 was completed under the "Phase 1" processing scenario which includes multi-step processing through the MUP, FPP, WCP and REFC at a feed rate of 5Mtpa to the MUP. Industry standard metallurgical processes and equipment are proposed for the Project.

The details related to metallurgical test work, process selection and process infrastructure that were reported in the March 2023 DFS Refresh are the most recent and deemed valid for this study. Processing recoveries used in this study were provided by Mineral Technologies, based on Area 4 Orion strandline metallurgical test work and evaluation of results of the 2018 FS recoveries and 2023 DFS recoveries. Geometallurgical test work completed by the Company confirm that Goschen Area 1 and Area 4 Orion Strandline have many similar physical characteristics, where both deposits differ is the location of a high-grade horizon in the upper portion of the Area 4 Orion Strandline.

Area 4 Orion Strandline processing flow sheet has been split into the following four distinct areas:

1. ***Mining Unit Plant* (MUP)**
   ROM ore is delivered for primary deagglomeration through scrubbing and removal of large oversize to allow long-distance pumping.

2. ***Feed Preparation Plant* (FPP)**
   The sand fraction containing the valuable minerals (nominal -0.35+0.020mm) is separated from slimes (-20μm) and oversize waste (+1.0mm and +0.35mm).

3. ***Wet Concentration Plant* (WCP)**

The valuable minerals contained in the sand fraction are recovered in a wet concentration plant (WCP) using a conventional multi-stage gravity separation circuit. Intermediate size classification is included to reject other oversize waste. The recovered valuable minerals constitute the gravity Heavy Mineral Concentrate (gravity HMC). Gangue minerals are collected together with oversize and slimes from the FPP and then co-disposed as tailings.

4. ***Rare Earth Floatation Circuit*** **(REFC)**
The gravity HMC is subjected to mechanical attrition and conditioned with specific reagents in readiness for processing by froth flotation and further gravity concentration. Products are a Rare Earth Mineral Concentrate (REMC) and a titania/zirconia concentrate (TiZr HMC) low in naturally occurring uranium and thorium (NORM Unat +Thnat)

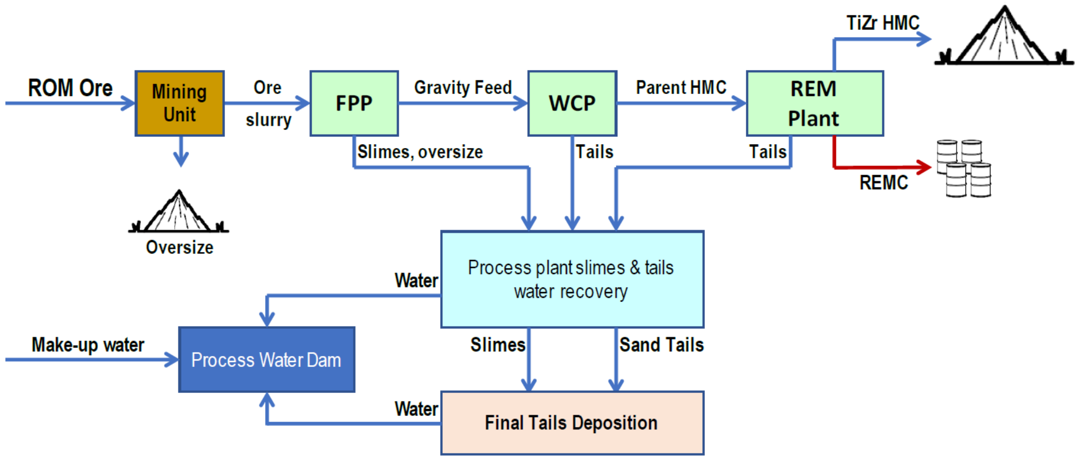


Figure 4: Schematic illustration of mining sequence including progressive backfill and rehabilitation

The commercial value of the final mineral concentrate is dependent on purity which may be defined by mineralogy, chemical composition and / or particle size specification. The target specifications also have a significant effect on the potential for recovery of each mineral product.

The recovery estimates based on Area 4 Orion test work have been based upon producing final mineral concentrate with assay outcomes like those achieved from processing Goschen Area 1 ore sample.

Metallurgical Test work on Area 4 Orion Strandline ore has demonstrated product specifications comparable to Area 1 study was achieved (Table 5). Improved recovery parameters and higher purity mineral concentrates are also considered to be achievable, however will require further metallurgical variability test work to completed.

Table 5: Process recoveries

Mineral	Final Product	Area 1 2023 DFS	Area 4 Orion PFS
Zircon	Ti/Zr Concentrate	90.5%	89.6%
Rutile	Ti/Zr Concentrate	87.5%	82.9%
Leucoxene	Ti/Zr Concentrate	65.3%	61.7%
Ilmenite	Ti/Zr Concentrate	87.1%	77.9%
Monazite	REMC	87.9%	88.7%
Xenotime	REMC	80.3%	80.3%

Cut-off Parameters

A single cut-off grade (using THM or TVHM) was found to not accurately reflect the optimisation results, as such a calculation was undertaken to classify each block as ore or waste. The ore/waste classification was performed in three steps: calculating the revenue of each block, calculating the processing cost of each block and ultimately the cashflow of each block. If the block revenue was greater than the processing cost, the block was treated as ore, otherwise the block was treated as waste.

Inferred material was treated as waste during optimisations, designs, and scheduling.

Estimation Methodology

Capital costs for processing infrastructure was completed by Mineral Technologies Pty Ltd (MTPL) based on test work undertaken by them for the Company. Non-process infrastructure capital costs were provided by TZMI and MTPL inhouse data and using Company DFS level data. Processing operating costs were estimated by MTPL based on test work. Mining operating costs were sourced from mining contractors by way of a Request For Quotation.

A long-term exchange rate of US$0.70: A$1 was selected and provided by the Company, all capital and operating costs were estimated in A$. The Company undertook a study to estimate freight and logistics costs for both land and sea transport.

A state royalty of 2.75% of product revenue was applied to the Project.

Material Modifying Factors

The material from Area 4 is not currently included in the Goschen Project mining plan but is currently under investigation to be included as a source of future feedstock.

The Project is in an agricultural area of northern Victoria and is well serviced by road, rail, power, and water, with nearby communities able to provide labour and accommodation. Substantial consultation with the community and regulatory agencies in relation to the

Goschen Project has commenced, involving consultation activities with identified key stakeholders.

Preliminary discussions with customers have indicated that up to 100% of products from Goschen will be subject to off take agreements.

ENDS

This announcement has been approved by the Board of VHM.

For Further Information Contact:

Carly O'Regan
Executive General Manager
M: +61 (0)431 068 814
E: carly.oregan@vhmltd.com.au

Ian Hobson
Company Secretary
M: +61 (0)407 421 185
E: ian.hobson@vhmltd.com.au

Media
James Strong
Citadel-MAGNUS
M: +61 448 881 174
E: jstrong@citadelmagnus.com

About VHM Limited (ASX: VHM)

https://www.vhmltd.com.au/

VHM Limited holds a premium position in an emerging rare earth province located in North West Victoria that includes the Goschen Rare Earth and Mineral Sands Project and the nearby Cannie and Nowie Projects.

VHM's assets include rare earth elements Neodymium, Praesidium, Dysprosium, and Terbium which are essential components of permanent magnets used in products such as electric vehicles and wind turbines as well as mineral sands containing zircon and titania-rutile.

Detailed engineering design is underway and pilot scale hydrometallurgical test work has demonstrated exceptional recoveries and production of a high quality Mixed Rare Earth Carbonate product.

Areas 1 & 3 of the Goschen DFS demonstrated a pre-tax NPV of A$1.5B with pre-tax IRR of 44% and Life of Mine over 20 years (see ASX release dated 28 March 2023[4]).

Competent Persons Statement

Mr. Anthony Keers, a full-time employee of Auralia Mining Consulting Pty Ltd, completed the Ore Reserve estimate for Areas 1, 3 and 4. Mr Anthony Keers is a Member and Chartered Professional (Mining) of the Australasian Institute of Mining and Metallurgy and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify him as a Competent Person as defined in accordance with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Keers consents to the inclusion in the document of the information in the form and context in which it appears.

5

[4] The information in this announcement regarding the Areas 1 & 3 Production Target, and forecast financial information derived from that Production Target, was set out in the ASX release dated 28 March 2023. The Company confirms that all material assumptions underpinning the Production Target and the forecast financial information derived from that Production Target continue to apply and have not materially changed.

5

Appendix 1: Geology

This study was based on a resource generated for the Company by IHC Robbins in the *Goschen Area 4 Mineral Resource Estimate* (2019).

The Goschen Area 4 Mineral Resource is reported above a cut-off grade of 1% TVHM and is summarised in Table 1.1.

Additional Mineral Resources have been estimated for the Goschen Project, these have been reported separately and are not included in this analysis.

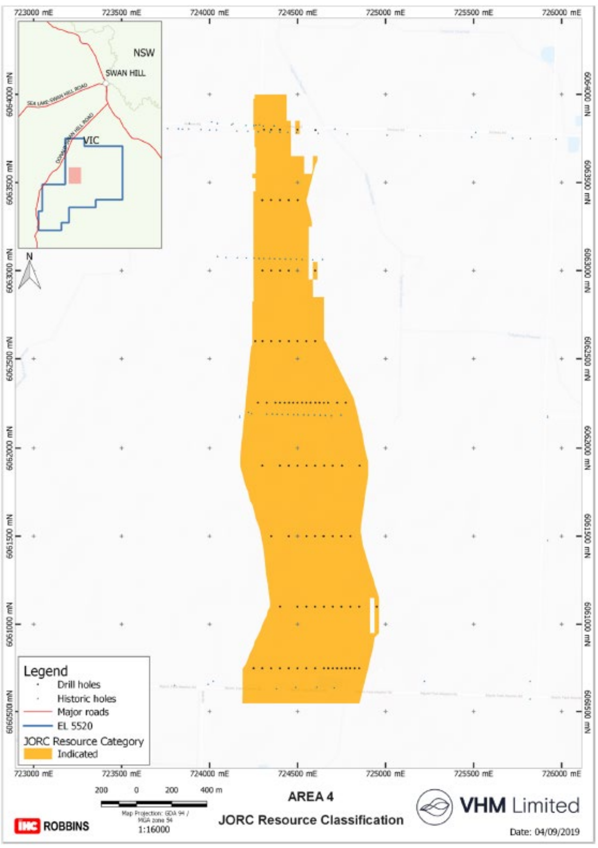
The Mineral Resource outline for the Goschen Area 4 deposit and the JORC classification outlines are presented in Figure 1.1.

Table 1.1: Mineral Resource estimate - Goschen Area 4 deposit: THM assemblage

Area	Resource Category	Material (Mt)	In situ THM (Mt)	Density (g/cm^3)	THM (%)	Slimes (%)	OS (%)	Zir (%)	Rut (%)	LX (%)	Ilm (%)	Mon (%)	Xeno (%)
4	Indicated	18.0	0.8	1.74	4.60	20	5	19.0	11.0	10.0	24.0	3.0	1.0

Notes:
Mineral Resources reported at a cut-off grade of 1.0% TVHM (THM x VHM)
Mineral assemblage is reported as a percentage of in situ THM content

Figure 1.1: JORC Mineral Resource classification for Goschen Area 4 (>1% TVHM)



Appendix 2: Processing

The processing stream for the Goschen Area 4 Ore Reserve Estimate assumed a multi-step flow sheet, with ore progressing sequentially through a Mining Unit Plant (MUP), Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP) and Rare Earth Flotation circuit.

Processing recoveries used in this study were determined by Mineral Technologies following a substantial metallurgical test work programme using a 1.6 tonne bulk sample.

Four samples of material representing four separate geological zones in Area 4 were subjected to a conventional mineral sands processing as follows:

- Processing though the feed preparation stage (FPP) involving screening and desliming.
- Processing through the wet concentration stage (WCP) using shaking tables and targeting a final HM grade of 90% HM.
- Rare earth flotation to isolate the rare earth minerals.
- Isolation of final mineral sands products via conventional mineral separation plant processing (MSP) techniques including attritioning, flotation, magnetic, electrostatic and gravity separation techniques.

Material from each zone was individually processed through the feed preparation stage comprising a scrubber / trommel, coarse / fine screening and desliming stages. The test work demonstrated that material from Area 4 could successfully be processed through the Goschen process flowsheet.

These processing recoveries are summarised in Table 2.1 and represent the cumulative recoveries across multiple processing steps to final products of Ti/Zr concentrate and REMC.

Table 2.1: Process recoveries

Mineral	Final Product	Recovery
Zircon	Ti/Zr Concentrate	89.6%
Rutile	Ti/Zr Concentrate	82.9%
Leucoxene	Ti/Zr Concentrate	61.7%
Ilmenite	Ti/Zr Concentrate	77.9%
Monazite	REMC	88.7%
Xenotime	REMC	80.3%

Appendix 3: Mining

Complete extraction of ore is planned; waste material will be used to create in-pit bunds to contain tailings. Minor additional earthworks may be required in each ‘tailings cell’ to assist in water recovery and drying/consolidation time.

Mining will be undertaken by a contract miner as a surface mining operation. Each cut will be approximately 500m along-strike and vary in width to suit the deposit. Waste material (overburden and tailings) will be deposited into previously mined areas and/or stockpiled on-surface at the commencement of mining operations until such time as there is sufficient capacity and suitable conditions in the mined void to allow direct deposition into the Area 4 mined areas.

Truck and excavator production will be the primary means of mining at the Goschen Project. This fleet will be used to transport the majority of overburden and for transporting ore to the MUP.

Slope angles used in the pit design were for an overall wall angle of 30 degrees. Detailed soil strata information and associated slope angles for each stratum will be determined during planned trial mining.

Appendix 4: JORC, 2012 Edition Table 1 for Area 4 Ore Reserve July 2023

Section 1: Sampling Techniques and Data

Criteria	JORC Code explanation	Comment
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	Aircore (AC) drilling was used to obtain samples at 1 m intervals for 2019 drilling. The following information covers the sampling process: • Each 1 m sample was homogenised within the bag by manually rotating the sample bag. • A sample of sand, approximately 20 g, is scooped from the sample bag for visual total heavy minerals (THM) % and SLIMES % estimation and logging. The same sample mass is used for every pan sample for visual THM % and SLIMES % estimation. • The standard sized sample is to ensure calibration is maintained for consistency in visual estimation. • A sample ledger is kept at the drill rig for recording sample intervals. • The large 1 m AC drill samples were split down to approximately ~1,000 g to ~2,500 g by rotating cone splitter for export to the primary processing laboratory. • The laboratory sample was oven dried at 105°C for a minimum of 2 hours (and then redried for up to 12 hours if required), and split down to 100 g subsamples via a rotating splitter fed by a vibrating screen. A laboratory repeat was taken at ~1:25 samples. • All drillhole subsamples were screened using vibrating screens with a top screen of 1 mm and a bottom screen of 38 µm. Oversize (+1 mm fraction) was removed and -38 µm fraction (SLIMES) discarded. The sand fraction (1 mm to +38 µm) was then submitted for heavy liquid separation (HLS) using TBE to determine THM content. • 711 samples selected from Zones 1, 2, 3, 4, 5, 10 and 11 were re-assayed by ALS laboratory using a top screen of 1 mm and a bottom screen of 20 µm. Oversize (+1 mm fraction) was removed and -20 µm fraction (SLIMES) discarded. The sand fraction (1 mm to +20 µm) was then submitted to centrifugal HLS to determine THM content. • Duplicates were taken at the drill rig from side-by-side sample locations at a rate of ~1:20. • Duplicates were taken within mineralisation zones as the waste material was excluded from sampling. • Commercially obtained standards were inserted by the laboratory (Diamantina) at a rate of ~1:40.
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	Wallis Drilling was the contractor used for the drilling program that supported the Goschen Area 4 Mineral Resource estimate (MRE). AC drilling with inner tubes for sample return was used. AC is considered a standard industry technique for heavy mineral sands mineralisation. AC drilling is a form of reverse circulation drilling where the sample is collected at the face and returned inside the inner tube. AC drill rods used were 3 m long. NQ diameter (76 mm) drill bits and rods were used. All drillholes were vertical.

Criteria	JORC Code explanation	Comment
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.* *Measures taken to maximise sample recovery and ensure representative nature of the samples.* *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	Drill sample recovery is monitored by recording sample condition from "dry good" to "wet poor". While initially collaring the hole, limited sample recovery can occur in the initial 0–1 m sample interval owing to sample and air loss into the surrounding loose soil. The initial 0–1 m sample interval is drilled very slowly in order to achieve optimum sample recovery. The entire 1 m sample is collected at the drill rig in large numbered plastic bags for dispatch to the initial split preparation facility. At the end of each drill rod, the drill string is cleaned by blowing down with air to remove any clay and silt potentially built up in the sample tubes. The twin-tube AC drilling technique is known to provide high-quality samples from the face of the drillhole (in ideal conditions).
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* *The total length and percentage of the relevant intersections logged.*	The 1 m AC samples were each qualitatively logged via digital entry into a Microsoft Excel spreadsheet, and later uploaded to the AcQuire database. The AC samples were logged for lithology, colour, grain size, sorting, hardness, sample condition, washability, estimated THM %, estimated SLIMES % and any relevant comments such as slope, vegetation, or cultural activity. Every drillhole was logged in full. Logging is undertaken with reference to a Drilling Guideline with codes prescribed and guidance on description to ensure consistent and systematic data collection.
Subsampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.* *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* *Quality control procedures adopted for all subsampling stages to maximise representivity of samples.* *Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.* *Whether sample sizes are appropriate to the grain size of the material being sampled.*	The 1 m sample interval is rotary split at the drill rig, collected and dispatched to Diamantina Laboratories. The water table depth was noted in all geological logs if intersected whereby sample condition was specified as "wet poor". A total of ~1.2 kg to ~2.5 kg of each sample was placed into calico sample bags and exported to Diamantina Laboratory for THM analysis. Almost all the samples are silty sand, sand, sandy clay, clayey sand, sandy clay or clay and this sample preparation method is considered appropriate. The sample sizes were deemed suitable to reliably capture THM, slime, and oversize characteristics, based on industry experience of the geologists involved and consultation with laboratory staff. Field duplicates of the samples were completed at a frequency of 1:20 primary samples.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*	The wet panning at the drill site provides an estimate of the THM % which is sufficient for the purpose of determining approximate concentrations of THM in the first instance. AC sample: • The individual 1 m AC subsamples were assayed by Diamantina Laboratories in Perth, Western Australia, which is considered the Primary laboratory.

Criteria	JORC Code explanation	Comment
	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• The AC samples were initially oven dried at 105°C for 2 hours (and then up to 12 hours for very wet samples) then reduced on a rotary splitter by 15%. Samples were then riffle split to 100 g sub-splits (weighed and captured) and then left to soak overnight. • All samples were then wet washed and sieved on vibrating screens using a top screen of +1 mm to remove the very coarse sand, pebbles, or grits. The bottom screen used 38 µm mesh for removal and determination of the -38 µm fraction (SLIMES). The remaining sand fraction (-1 mm +38 µm) was then submitted to HLS. • 711 samples of 1 mm- 38 µm selected from Zones 1, 2, 3, 4, 5, 10 and 11 were re-assayed by ALS laboratory using a top screen of 1 mm and a bottom screen of 20 µm. Oversize (+1 mm fraction) was removed and -20 µm fraction (SLIMES) discarded. The sand fraction (1 mm to +20 µm) was then submitted to centrifugal HLS to determine THM content. • The laboratory used TBE as the heavy liquid medium – with density range between 2.92 g/ml and 2.96 g/ml. • This is an industry standard technique. • Field duplicates of the samples were collected and submitted at a frequency of 1:20 primary samples. • Diamantina Laboratories completed its own internal quality assurance and quality control (QAQC) checks that included laboratory standards every 40th sample and a Laboratory repeat every 25th sample prior to the results being released. • ALS Laboratories completed its own internal QAQC checks that included a Laboratory repeat every 25th sample prior to the results being released. • Analysis of QAQC samples show the laboratory data to be of acceptable accuracy and precision. • The density of the heavy liquid was checked every day. • The adopted QAQC protocols are acceptable for this stage of testwork.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* *Discuss any adjustment to assay data.*	All results are checked by the Company's Geology Manager. The Company's Geology Manager and independent Resource geologist (Greg Jones) have made periodic visits to Diamantina Laboratories to observe sample processing and procedure. A process of laboratory data validation using mass balance is undertaken to identify entry errors or questionable data. Field and laboratory duplicate data pairs (THM/OS/SLIME) of each batch are plotted to identify potential quality control issues. Standard Reference Material sample results are checked from each sample batch to ensure they are within tolerance (<3SD) and that there is no bias. The field and laboratory data was exported from the VHM AcQuire database and imported into Datamine by IHC Robbins which is appropriate for this stage in the program. Data validation criteria are included to check for overlapping sample intervals, end of hole match between "Lithology", "Sample", "Survey" files and other common errors.

Criteria	JORC Code explanation	Comment
		15 samples from the 2019 program were included on sample submission sheet but were not received by Diamantina. The assay values for these samples were assigned a value of 0.005 which is well below the detection limit. One sample received from ALS with an error in the SLIMES value was excluded from the dataset.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* *Specification of the grid system used.* *Quality and adequacy of topographic control.*	Downhole geophysical surveys were conducted to utilise gamma signatures for ascertaining mineralisation zones within the lithological sequence. Drillhole collars were surveyed by an independent survey company using industry standard equipment. Three permanent survey marks in the area assisted with the collar pickups, allowing for consistent survey readings across the Project. The datum used is GDA 94 and coordinates are projected as MGA Zone 54. Topographic surface generated by VHML using the light detection and ranging (LiDAR) survey contours was deemed sufficient for use in Mineral Resource estimation. Drill collar pickups provided by the independent survey company were then checked against the LiDAR surface. Any discrepancies in collar position were projected to the local LiDAR topography. The accuracy of the locations is sufficient for this stage of exploration.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.* *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* *Whether sample compositing has been applied.*	A regular rectangular ~400 m x ~50 m grid spacing is dominant at the Goschen Area 4 Project with two of the nine drilling lines on a ~400 m x~ 25 m spacing. A drilling program of 116 drillholes was conducted in February 2019 to determine the mineralisation extent of the deposit. The 400 m x 50 m spaced AC holes and regular grid are sufficient to provide a good degree of confidence in geological models and grade continuity within the holes at this stage. The 25 m spacing on the two lines further confirms the continuity across strike. Each AC drill sample is a single 1 m sample of sand intersected down the hole. No downhole compositing has been applied to models for values of THM, slime and oversize. Compositing of samples was undertaken on THM concentrates for mineral assemblage determination. Composite samples were determined by geological domains.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	The AC drilling was oriented perpendicular to the strike of mineralisation defined by previous drill data information. The strike of the mineralisation is northwest-southeast. All drillholes were vertical and the orientation of the mineralisation is relatively horizontal. The orientation of the drilling is considered appropriate for testing the lateral and vertical extent of mineralisation without any bias.
Sample security	*The measures taken to ensure sample security.*	AC samples were stored on site (in the paddock on pallets). The samples were then dispatched to Perth using Swan Hill Freight agents and delivered directly to the Diamantina laboratory.

Criteria	JORC Code explanation	Comment
		The laboratory inspected the packages and did not report tampering of the samples.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	Internal reviews were undertaken during the geological interpretation and throughout the modelling process.

Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Comment
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	The exploration work was completed on tenements that are 100% owned by VHM Exploration in Victoria, Australia. The drill samples for this MRE were taken from tenement EL5520. The Exploration Licence original date of grant was 10 October 2014 with an expiry date of 9 October 2019. An application for a Retention Licence has been lodged with Earth Resources, which is the responsible statutory body and part of Victorian Department of Jobs, Precincts and Regions.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Historical exploration work was completed by previous exploration companies including Austiex (1977–1978), CRA Exploration (1981–1987), Renison Goldfields Consolidated (1980–1991), WJ Holdings (1998), RZM Group (1999), Basin Minerals (2001), Providence Gold and Minerals (2004–2005), and Iluka (2009). The Company has obtained the hardcopy reports and maps in relation to this information as part of its historical review in preparation for their current work program. The historical data comprises surface sampling, limited AC drilling and mapping. The historical results are not reportable under JORC 2012.
Geology	*Deposit type, geological setting and style of mineralisation.*	The heavy mineral sands at the Goschen Project is a fine-grained deposit hosted within the offshore depositional paleo-environment of the Loxton Parilla Sands. The relatively strong presence of Leucoxene could indicate a reworking process for the deposit or weathering overprint. The Loxton Parilla Sand is prevalent within the Murray Basin for hosting mineral sand deposits. The Shepparton Formation clays are positioned above the Loxton Sands and the Bookpurnong Formation consisting of shallow marine clays and marls is positioned below within the lithological sequence.
Drillhole information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* • *easting and northing of the drillhole collar* • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar* • *dip and azimuth of the hole* • *downhole length and interception depth*	All relevant drillhole data is reported regarding the February 2019 drilling programs. A relevant drillhole data is reported associated with the model build.

Criteria	JORC Code explanation	Comment
	• *hole length.* *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	No data aggregation methods were utilised, no top cuts were employed, and all cut-off grades have been reported. Valuable heavy mineral (VHM >1%) was used to provide cut-off grade.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'downhole length, true width not known').*	The nature of the mineralisation is broadly horizontal, thus vertical AC holes are thought to represent close to true thicknesses of the mineralisation. Downhole widths are reported.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.*	Refer to Appendices 2 and 3 the main body of the report *Goschen Project Area 4 Mineral Resource Estimate, 1722-G-REP-0000-8002 Rev D* available from the Company – please note that this ITAR is an assessment and summary of a significant body of work
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Exploration Target results have been reported at total VHM>1% to indicate a range of potential tonnes and grade Table 3.1. *in Goschen Project Area 4 Mineral Resource Estimate, 1722-G-REP-0000-8002 Rev D* available from the Company – please note that this ITAR is an assessment and summary of a significant body of work
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Detailed mineral assemblage work was undertaken on composite samples for the Project by ALS Metallurgy Services, Perth. ALS applied an integrated mineralogical approach using both x-ray fluorescence (XRF) analysis and Quantitative Evaluation of Minerals by Scanning Electron Microscopy (QEMSCAN). This was to gain a quantitative understanding of the elemental composition and mineralogical assemblage (refer to Section 3, Tables 3.1, 3.2, and 3.3 and Appendix 4 and 5 in the report *Goschen Project Area 4 Mineral Resource Estimate, 1722-G-REP-0000-8002 Rev D* available from the Company – please note that this ITAR is an assessment and summary of a significant body of work).

Criteria	JORC Code explanation	Comment
		The XRF technique provides measurements of relative elemental abundances (down to limits of a few parts per million) which allows for a quantifiable basis for determination of mineralogy, provenance, depositional environment, and diagenetic history. The XRF analysis was utilised to apply assay data to the geological model for grade interpretation. The QEMSCAN method of analysis required the samples to be screened into +150 µm and -150 µm screen fraction prior to sample preparation and QEMSCAN analysis. Sample preparation required each subsample was mixed with size-graded, high purity graphite to ensure particle separation and discourage density segregation. These sample-graphite mixtures were then set into moulds using a two-part epoxy resin, producing a representative subsample of randomly orientated particles. Once cured, the resin blocks were then cut to expose a fresh surface which is then gradually ground and polished. Once QAQC checks are completed the sections are then carbon coated for electron beam conductivity and presented to QEMSCAN for analysis. The samples were analysed using QEMSCAN technology in Field Scan mode and Particle Mineralogical Analysis mode. Detailed sachet scanning of heavy mineral sinks from the drill assay process was carried out to determine regions of gross mineralogy as well as an overall consideration of VHM content. Other considerations undertaken during this sachet logging were the presence of iron oxide coatings on THM, and any gross composition of trash HM. Sachet logging then had partial input into the geological/ mineralogical/THM grade interpretation which then assisted with domain control for modelling, as well as providing guidance for the allocation of mineral assemblage composites where it was not possible to get gamma data due to hole collapse. Various individual domains were identified for the Area 4 deposits for the purpose of guiding the allocation of composites. A total of 22 mineral assemblage composites were used to characterise the mineralogy and chemistry for the deposit. All the mineral assemblage composites were completed by the VHM and supplied to IHC Robbins in the data package. Individual drillhole samples were selected based on whether they fell within a particular domain and were then proportioned against contained THM grade in order to specify the weight of THM that each sample would contribute to the entire composite. Once all the sample compositing was completed, the sample identification and mineral assemblage composite number was submitted to Dorrit deNooy at ALS in Perth, Australia for sample collation and processing. Preparing the mineral assemblage composites in this manner allows for composite results to be applied to the resource block model and for those results to then be reported and weighted on THM in the final MRE.

Criteria	JORC Code explanation	Comment
		Details of summary drillhole composites are presented in Appendix 16, mineral assemblage composite IDs and associated results are presented in Appendix 8 and 9 in the report *Goschen Project Area 4 Mineral Resource Estimate, 1722-G-REP-0000-8002 Rev D* available from the Company – please note that this ITAR is an assessment and summary of a significant body of work
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	Additional AC drilling is planned to further grow the resource on strike. Continued downhole geophysical logging, detailed sachet logging and further AC drilling. More sample analysis for Zone 1 to provide more geological information to delineate the domain boundary and for future mining purposes. Additional work is required to provide further detailed information on the mineral assemblage of the THM.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Comment
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* *Data validation procedures used.*	Exploration data provided by the company to IHC Robbins in the form CSV and Microsoft Excel files exported from an AcQuire database. The Company provided CSV file for the downhole geophysical data for the 2019 drill program. Checks of data by visually inspecting on screen (to identify translation of samples), duplicate and twin drilling was visually examined to check the reproducibility of assays. Database assay values have been subjected to random reconciliation with laboratory certified value is to ensure agreement. Visual and statistical comparison was undertaken to check the validity of results.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* *If no site visits have been undertaken indicate why this is the case.*	An extended site visit during the H1 2018 resource drilling phase in EL5520 was undertaken by Competent Person, Greg Jones, to observe the drilling data collection, and sampling activities. Area 4 is located within EL5520.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* *Nature of the data used and of any assumptions made.* *The effect, if any, of alternative interpretations on Mineral Resource.* *The use of geology in guiding and controlling Mineral Resource estimation.* *The factors affecting continuity both of grade and geology.*	The geological interpretation was undertaken by IHC Robbins in collaboration with the Company's Geology Manager and then validated using all logging and sampling data and observations. Current data spacing and quality is sufficient to indicate grade continuity. Interpretation of modelling domains was restricted to the main mineralised envelopes utilising THM, oversize, slimes, trash mineralogy and geology logging. The interpretation of domains was also aided by the utilisation of down hole gamma signatures produced by the geophysical logging which assisted with distinguishing domain boundaries.

Criteria	JORC Code explanation	Comment
		Sachet logging was also undertaken by the company in relation to specific areas within the Project to provide greater understanding of mineralogical domains (e.g. where it was not possible to obtain gamma signatures below the water table due to hole collapse). The MRE was controlled by the geological surfaces, and basement surfaces. There are three main sheet-like horizons of mineralisation within the Project area which are predominantly zircon-rutile enriched. These zones; 2, 4 and 5 are geologically continuous across the Project. Zone 3 is geologically continuous but low in zircon-rutile and high in tourmaline-kaolinite. All the mineralisation in the upper zones terminates on the eastern contact with the fault. Zones 2, 11 and the basement do not appear to be affected by the fault.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The Mineral Resource field for the Project is approximately 3.5 km in length (at the longest point) and 400 m wide (at the widest point).
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* *The assumptions made regarding recovery of by-products.* *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).* *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* *Any assumptions behind modelling of selective mining units.* *Any assumptions about correlation between variables.* *Description of how the geological interpretation was used to control the resource estimates.* *Discussion of basis for using or not using grade cutting or capping.* *The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.*	The MRE was conducted using CAE mining software (also known as Datamine Studio). Inverse distance weighting techniques were used to interpolate assay grades from drillhole samples into the block model and nearest neighbour techniques were used to interpolate index values and nonnumeric sample identification into the block model. The mostly regular dimensions of the drill grid and the anisotropy of the drilling and sampling grid allowed for the use of inverse distance methodologies as no de-clustering of samples was required. Appropriate and industry standard search ellipses were used to search for data for the interpolation and suitable limitations on the number of samples and the impact of those samples was maintained. An inverse distance weighting power of 3 was used so as not to over smooth the grade interpolations. Hard domain boundaries were used, and these were defined by the geological wireframes that were interpreted. No assumptions were made during the resource estimation as to the recovery of by-products. Slimes and oversize contents are estimated at the same time as estimating the THM grade. Further detailed geochemistry is required to ascertain deleterious elements that may affect the marketability of the heavy mineral products. The average parent cell size used for the interpolation was approximately half the standard drillhole width and quarter the standard drillhole section line spacing. No assumptions were made regarding the modelling of selective mining units, however, it is assumed that a form of dry mining will be undertaken and the cell size and the sub-cell splitting will allow for an appropriate dry mining preliminary reserve to be prepared. Any other mining methodology will be more than adequately catered for with the parent cell size that was selected for the modelling exercise. No assumptions were made about correlation between variables.

Criteria	JORC Code explanation	Comment
		The MRE were controlled to an extent by the geological/ mineralisation and basement surfaces. Grade cutting or capping was not used during the interpolation because of the regular nature of sample spacing and the fact that samples were not clustered nor wide spaced to an extent where elevated samples could have a deleterious impact on the resource estimation. Sample distributions were reviewed, and no extreme outliers were identified either high or low that necessitated any grade cutting or capping. The sample length of 1 m does result in a degree of grade smoothing also negating the requirement for grade cutting or capping. Validation of grade interpolations were done visually in CAE Studio (Datamine) software by loading model and drillhole files and annotating and colouring and using filtering to check for the appropriateness of interpolations. Statistical distributions were prepared for model zones from drillhole and model files to compare the effectiveness of the interpolation. Along strike distributions of section line averages (swath plots) for drillholes and models were also prepared for comparison purposes.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages were estimated an assumed dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Cut-off grades for THM were used to prepare the reported resource estimates. These cut-off grades were defined by the Competent Person by utilising multiplying THM by VHM to get an in-ground VHM grade (TVHM). This was used to report the block model on material >1% TVHM. Consideration was taken into account for a modest stripping ratio to ensure that deeply buried material with a very low likelihood of eventual economic extraction was not selected for reporting in the MRE. IHC Robbins utilised a value per tonne algorithm as an internal process to validate the TVHM cut-off grade for repeatability. This validation provided a close reconciliation to the 1% TVHM cut-off grade.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	No specific mining method is assumed other than potentially the use of dry mining methods.

Criteria	JORC Code explanation	Comment
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Metallurgical assumptions were used based on mineral assemblage composites which at this stage only allow for preliminary commentary with no final products being defined from the reported mineral species. Some chemistry in the form of oxides from XRF analysis was available for commentary however may not bear exact reconciliation with eventual final products.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	No assumptions have been made regarding possible waste and process residue, however, disposal of by products such as SLIMES, sand and oversize are normally part of capture and disposal back into the mining void for eventual rehabilitation. This also applies to mineral products recovered and waste products recovered from metallurgical processing of heavy mineral.
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	A bulk density algorithm was prepared using first principles techniques coupled with industry experience that is exclusive to IHC Robbins. We believe the bulk density formula to be conservative and fit for purpose at this level of confidence for the MREs and based on our experience and we would also recommend that bulk density test work be undertaken going forward. A bulk density was applied to the model using a standard linear formula originally described by Baxter (1977). This approach was refined in a practical application by this author using the following first principles calculations to develop a regression formula. This regression formula was then used to calculate the conversion of tonnes from each cell volume and from there the calculation of material, THM and SLIMES tonnes. The bulk density formula is described as: Bulk Density = (0.009 * HM) + 1.698.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.* *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*	The resource classification for the Area 4 Goschen deposits was based on the following criteria: drillhole spacing, geological and grade continuity, variography of primary assay grades and the distribution of bulk samples. The classification of the Indicated Mineral Resources was supported by all the supporting criteria as noted above. As a Competent Person, Greg Jones considers that the result appropriately reflects a reasonable view of the deposit categorisation.

Criteria	JORC Code explanation	Comment
	Whether the result appropriately reflects the Competent Person's view of the deposit.	
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	No audits or reviews of the MRE have been undertaken at this point in time.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	Local (nearest neighbour) estimates were undertaken as a preliminary evaluation process. The overall grade interpolation for this method was a fair comparison with inverse distance weighting methodology. Validation of the model vs drillhole grades by observation, swathe plot and population distribution analysis was favourable The statement refers to global estimates for the entire known extent of the Area 4 Goschen deposits. No production data is available for comparison with the Area 4 Goschen deposits.

Section 4: Area 4 Ore Reserve July 2023

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resources of the Goschen Project were estimated by Mr Greg Jones of IHC Robbins. The following comprises the Mineral Resources for Area 4 as at September 2019:

Area	Resource Category	Material (Mt)	In situ THM (Mt)	Density (g/cm^3)	THM (%)	Slimes (%)	OS (%)	Zir (%)	Rut (%)	LX (%)	Ilm (%)	Mon (%)	Xeno (%)
4	Indicated	18.0	0.8	1.74	4.60	20	5	19.0	11.0	10.0	24.0	3.0	1.0

Area	Class.	Ore (Mt)	THM (Mt)	CeO_2 %	Dy_2O_3 %	Er_2O_3 %	Eu_2O_3 %	Gd_2O_3 %	La_2O_3 %	Nd_2O_3 %	Pr_6O_{11} %	Sm_2O_3 %	Tb_4O_7 %	Tm_2O_3 %	Y_2O_3 %	Yb_2O_3 %	TREO %
4	Ind	18.0	0.8	0.67	0.05	0.06	0.002	0.047	0.32	0.28	0.07	0.05	0.01	0.01	0.33	0.04	1.91

Additional Mineral Resources have been estimated for the Goschen Project, these have been reported separately and not included in this analysis.

The following table comprises the Ore Reserves for the Goschen Project Area 4 as 15 September 2023.

Area	Class.	Ore (Mt)	THM (Mt)	THM %	ZIR %	RUT %	LX%	ILM %	MON %	XEN %
4	Prob	11.5	0.6	5.6	19.6	12.2	10.1	24.6	3.0	0.7

Area	Class.	Ore (Mt)	THM (Mt)	CeO_2 %	Dy_2O_3 %	Er_2O_3 %	Eu_2O_3 %	Gd_2O_3 %	La_2O_3 %	Nd_2O_3 %	Pr_6O_{11} %	Sm_2O_3 %	Tb_4O_7 %	Tm_2O_3 %	Y_2O_3 %	Yb_2O_3 %	TREO %
4	Prob	11.5	5.6	0.655	0.049	0.035	0.002	0.046	0.310	0.277	0.073	0.050	0.008	0.006	0.335	0.037	1.88

Notes: Figures in Tables may not sum due to rounding.

The Mineral Resources are reported as wholly inclusive of the Ore Reserves.

Site visits	A site visit is to be carried out by the competent person(s) signing off on the Ore Reserve.	Mr Anthony Keers carried out a site visit in August 2019.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	This work was undertaken at Pre-Feasibility Study level, the Ore Reserve portion of which was carried out on supplied Mineral Resource models. This analysis used information predominately from the March 2023 DFS Refresh, however some specific validation work for Area 4 requires completion prior to assigning DFS level confidence. The process flow sheet including the MUP, FPP, WCP and rare earth flotation circuit (Phase 1) was used as the basis for OPEX, process recovery and product sell price inputs which informed the Ore Reserve estimation process. Any material classified as an Inferred Mineral Resource was not included in the Ore Reserve calculations.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	A single cut-off grade (using thm or tvhm) was found to not accurately reflect the optimisation results, as such a calculation was undertaken to classify each block as ore or waste. The ore/waste classification was performed in three steps: calculating the revenue of each block, calculating the processing cost of each block and ultimately the cashflow of each block. If the block revenue was greater than the processing cost, the block was treated as ore, otherwise the block was treated as waste.

Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc), grade control and pre-production drilling. The major assumptions made, and Mineral Resource model used for pit and stope optimisation (if appropriate). The mining dilution factors used. The mining recovery factors used. Any minimum mining widths used. The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. The infrastructure requirements of the selected mining methods.	Pit optimisations were completed using Whittle software. Complete extraction of ore within pit designs is planned. Ore will be trucked to an MUP ROM on the surface close to the mining face. The MUP will be relocated at as required to optimise truck haulage and slurry pumping. Waste material will be used to create in-pit bunds to contain tailings or dump to fill mined voids. No drill and blast operations will be required, cross ripping of cemented sand horizons by dozers may be required. Mining will be undertaken in as a strip/block-mining operation. Each block will be approximately 500m x 200m. An overall wall angle of 30° has been proposed based on completed geotechnical studies. A batter angle of 40° was applied to the uppermost bench (in the topsoil / clayey-sand material), with a 6 m wide berm created at the 92mRL (between 5 and 12m below surface). Beneath this berm, a single slope of 32° was designed to the pit floor. The Resource model was regularised to a 25m x 25m x 1m block size. This resulted in an approximate mining dilution factor of 8% and a mining recovery factor of 98%. No further mining dilution or recovery was applied. Inferred material was treated as waste during optimisations, designs and scheduling. External temporary waste dumps and tailings storage facilities may be required during early operations until sufficient mined voids are available to commence backfilling.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. Whether the metallurgical process is well-tested technology or novel in nature. The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. Any assumptions or allowances made for deleterious elements. The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Ore material will undergo processing through a Mining Unit Plant (MUP), Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP) and Rare Earth Flotation circuit. Industry standard metallurgical processes and equipment are proposed for the Project. The development of the MUP, FPP, WCP and Rare Earth Plant are based on information derived from extensive, full flowsheet processing test work conducted by Mineral Technologies using sample from Area 1. Metallurgical test work and detailed characterisation has also been completed on ore samples from Area 4. Thanks to similar size, density and mineralogical characteristics and the close geographical location of Area 1 and Area 4, it is reasonable to assume that the recovery performance for Area 4 will be comparable to the recovery performance for Area 1. The work completed for Area 4 to date is considered suitable to support a PFS level estimate, with a nominal +/- 15% level of accuracy. These results would need to be confirmed by full, stage by stage flowsheet test work on a representative sample of the ore

	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	before they could be used to predict the grade and recovery of commercially acceptable products more accurately from a production plant.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	These products will be taken off site following appropriate regulations. Waste material remaining on site are not considered to pose any environmental risk. Ongoing consultation between the Company and the State of Victoria is required to determine land clearing allowances/requirements.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	The Project is located in an agricultural area of northern Victoria and is well serviced by road, rail, power and water, with nearby communities able to provide labour and accommodation. Additional infrastructure or upgrades may be required for the Project. The Company has engaged with landowners as required to secure access for drilling, environmental surveys, and ultimately project footprints.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study. The methodology used to estimate operating costs. Allowances made for the content of deleterious elements. The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products. The source of exchange rates used in the study. Derivation of transportation charges. The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. The allowances made for royalties payable, both Government and private.	Capital costs for processing infrastructure was completed by Mineral Technologies Pty Ltd (MTPL) based on test work undertaken by them for the Company. Non-process infrastructure capital costs were provided by TZMI based on existing, similar projects. Processing operating costs were estimated by MTPL based on test work. Mining operating costs were sourced from mining contractors by way of a Request For Quotation. A long-term exchange rate of US$0.70: A$1 was selected and provided by the Company, only commodity reference prices were provided in US$, all capital and operating costs were estimated in A$. The Company undertook a study to estimate freight and logistics costs for both land and sea transport. A state royalty of 2.75% of product revenue was applied to the Project.

<table>
<tr><td>Revenue factors</td><td>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.
The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</td><td>Adamas Intelligence (rare earths) and TZMI (zircon and titania minerals) completed independent market reviews and provided long term reference prices in real USD:
<table>
<tr><th>Material</th><th>2030 Reference Product Price</th></tr>
<tr><td>Zircon</td><td>US$1,418/t</td></tr>
<tr><td>Rutile</td><td>US$1,267/t</td></tr>
<tr><td>Leucoxene</td><td>US$294/t</td></tr>
<tr><td>Ilmenite</td><td>US$237/t</td></tr>
<tr><td>REMC</td><td>US$17.33/kg</td></tr>
</table>
Commodity prices used for the study made allowances for transport costs and quality adjustments with input from TZMI regarding the quality of Goschen products.
Pit optimisations used commodity prices based on the 2030 reference prices.</td></tr>
<tr><td>Market assessment</td><td>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.
A customer and competitor analysis along with the identification of likely market windows for the product.
Price and volume forecasts and the basis for these forecasts.
For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</td><td>A market analysis was conducted by TZMI, which indicated that demand would outweigh supply in the short to medium term and should be at least neutral in the long term.
TZMI has endorsed that all products generated from Goschen are potentially marketable subject to successful conclusion of FS test work and off take agreements.
Preliminary discussions with customers have indicated that 100% of products from Goschen will be subject to off take agreements.
Further product testing is scheduled to confirm product specifications and realised product prices.</td></tr>
<tr><td>Economic</td><td>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.
NPV ranges and sensitivity to variations in the significant assumptions and inputs.</td><td>A discount rate of 8% was applied to the optimisation works and financial analysis for this study.
Inputs to the economic analysis include Modifying Factors as described above.
Sensitivity studies were carried out. Standard linear deviations were observed for all tested variables.</td></tr>
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Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Substantial consultation with the community and regulatory agencies in relation to the Goschen Project has commenced, involving consultation activities with identified key stakeholders. Regular meetings have been held with a Technical Reference Group and a Stakeholder Reference Group.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: Any identified material naturally occurring risks. The status of material legal agreements and marketing arrangements. The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	There are no known significant naturally occurring risks to the project. In January 2015, Exploration Licence (EL) 5520 was granted to VHM Exploration Pty Ltd for a period of five years. In January 2020, Retention Licence 6806 was granted to the Company for a period of seven years to replace the expired EL5520.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Indicated Resources have been converted to Probable Reserves, there are no Measured Resources classified for Area 4. The estimated Ore Reserves are, in the opinion of the Competent Person, appropriate for this style of deposit.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	Auralia Mining Consulting Pty Ltd has completed an internal review of the Ore Reserve estimate resulting from this study.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors	The level of study carried out as part of the June 2023 Ore Reserve is to a Preliminary Feasibility Study level. The relative accuracy of the estimate is reflected in the reporting of the Ore Reserves as per the guidelines re: modifying factors, study levels and Competent Persons contained in the JORC 2012 Code. This statement relates to global estimates of tonnes and grade. Sensitivity studies were carried out. Standard linear deviations were observed. Globally, the project is susceptible to fluctuations in commodity price.

	which could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Further product testing is scheduled to confirm product specifications, this information will be relayed to potential customers to determine realised product prices.