ALVO
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Thick Saprolite Clays Intercepted at Bluebush Ionic REE Project

Diamond drill hole intercepts 28m of saprolite clay, adjacent to auger hole BRL008 that ended in 3,779ppm TREO (26% MREO)

HIGHLIGHTS

- **Diamond drill hole BLD004 has intersected 28m of highly weathered saprolite clay at the Bluebush Ionic Adsorption Clay (Ionic Clay or IAC) REE Project.**
- **BLD004 was drilled 4m to the east of the auger drill hole BRL008 which delivered exceptional MREO values of 6m @ 2,537ppm TREO, inc. 3m @ 3,415ppm TREO (24% MREO).**
  - **Grade at hole BLG008 started from surface and appears to be increasing with depth, ending in 3,779ppm TREO (26% MREO).**
- **28m of saprolite clay intercept significantly extends the previously understood clay depth profile where auger drilling had penetrated to an average depth of 8m (max. of 22m).**
- Diamond drill hole BLD004 to be prioritised at the SGS-GEOSOL lab for assay results.
- A total of 217 auger holes and 6 diamond holes have been completed at Bluebush with >130 auger holes and the 6 diamond holes pending assay results.
- **Loupe Portable Electromagnetic surveys that map the near surface conductivity in combination with the diamond drilling will accelerate mapping the saprolite depth profile across the Bluebush IAC REE Project.**
- **The visual saprolite clay intersects follow confirmation of Bluebush as a true IAC project using standard ammonium solution at pH4, with MREO recoveries up to 83%.**
- Confirmed thick clay horizons at Bluebush IAC Project, located adjacent to and in the same geological setting as the tier-one, Serra Verde Ionic Clay REE Project (MRE of 911Mt @ 1,200ppm TREO), believed to be the only ionic clay project commissioning outside of China.

Alvo Minerals Limited (ASX: ALV) ("**Alvo**" or **the** "**Company**") is pleased to announce progress on its maiden diamond drill program at the Bluebush Ionic Adsorption Clay (**IAC**) Rare Earth Project ("**Bluebush IAC**" or "**The Project**"). Bluebush is located on the northern half of the Serra Dourada granite, the same host rock of the Serra Verde Ionic Clay REE deposit ("**Serra Verde**"), believed to be the only ionic clay project currently being commissioned outside of China.

Rob Smakman, Alvo's Managing Director commented on this critical step:

"This is another outstanding milestone at Bluebush with the confirmation that the saprolite clay depth profile significantly extends below the depth profiles previously defined by auger drilling. The 28m of saprolite clay intersected in proximity to the exceptionally high-grade drill hole BRL008 is exciting, especially delivering this result so soon after receiving confirmation that Bluebush is a true ionic adsorption clay project with individual MREO recoveries being as high as 83%.

With over 130 auger holes and the first batch of diamond holes now being shipped to the lab, ongoing auger and diamond drilling, regional exploration through handheld auger drilling and the initiation of the Loupe geophysical surveys, there is plenty of newsflow leading into the end of CY2023 from the Bluebush Ionic REE Project

These diamond drill results illustrate the depths of clay horizons within the Bluebush project, that is adjacent to and on the same geological setting as the world class Serra Verde IAC mine."

Bluebush Diamond Drilling Update

Alvo has completed 6 diamond holes (145m) across the Bluebush IAC REE Project, all of which intersected saprolite clay zones of up to 28m at Boa Vista (see Figures 1&2 and Appendix 1). The intercepts from the diamond drill holes significantly extend the depth of clay horizons within Bluebush. The first batches of drill core samples have been sent to the SGS-GEOSOL lab for preparation and assays, with drill hole BRLD004 being prioritised.

Diamond drill hole BLD004 was drilled approximately 4m east of auger drill hole BRL0008 that delivered exceptional MREO values of 6m @ 2,537ppm TREO (21% MREO), including 3m @ 3,415ppm TREO (24% MREO). BRL008 grade started from surface and appeared to be increasing at depth, ending in 3,779ppm TREO (26% MREO).

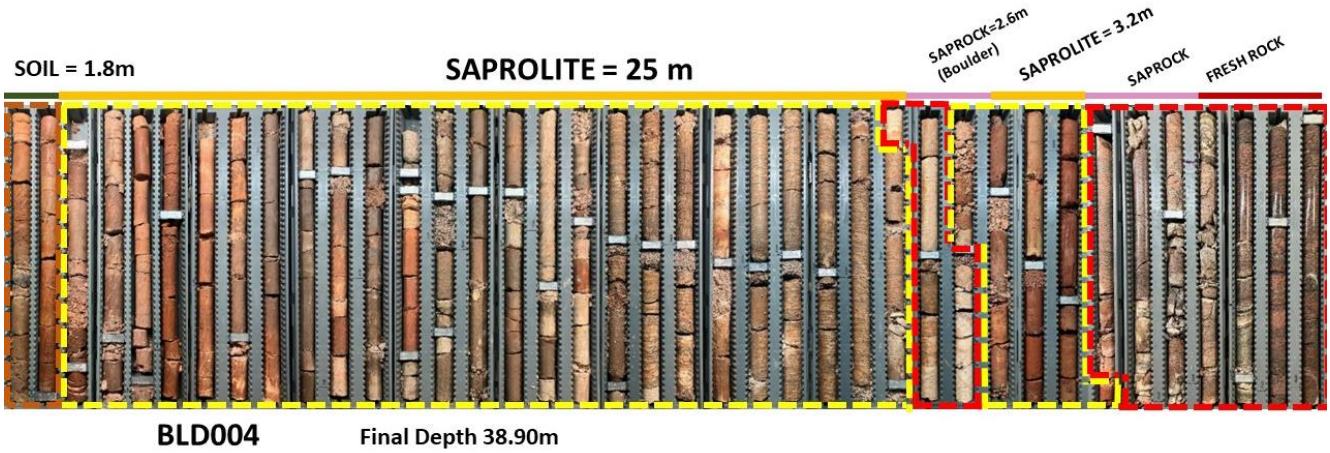

Figure 1: *Visual saprolite clay at BLD004 intercepted over 28m of saprolite clay, hole was collared close to hole auger hole 008 which intercepted 6m @ 2,537ppm TREO from surface.*

A total of 6 diamond holes for 145m have been completed to date (see Table 1) at the Boa Vista prospect. Additional drilling is being planned at both Sao Bento and Boa Vista. The saprolite thickness in the drilling has varied from a minimum of 9.4m in hole BLD006 to 28.3m in hole BLD004 (see Appendix 1), with an average interval of clay intercepted of 18.3m. It is worth noting the average depth of the auger drilling completed to date across the Bluebush project is 8.3m.

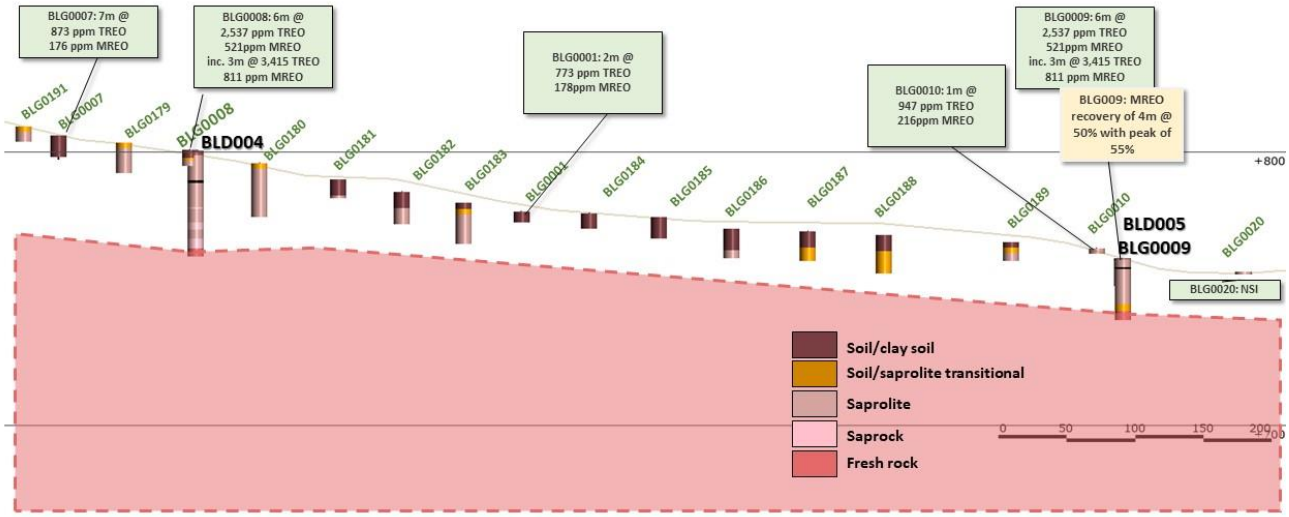

Figure 2: *Cross section through the diamond holes BLD004 and BLD005.*

The Company continues to rapidly advance the Bluebush Project through cost-efficient truck mounted auger drilling to following up on high-grade MREO zones, in parallel to its maiden diamond drill program to gain an understanding of the true depths of the saprolite clay profiles. Alvo will undertake Loupe Portable Electromagnetic surveys across Bluebush that map the near surface conductivity and will accelerate the mapping of the saprolite depth profile across Bluebush.

Alvo will take samples from the diamond drill holes for metallurgical testing to optimize recoveries using standard ammonium sulphate solution (AMSUL).

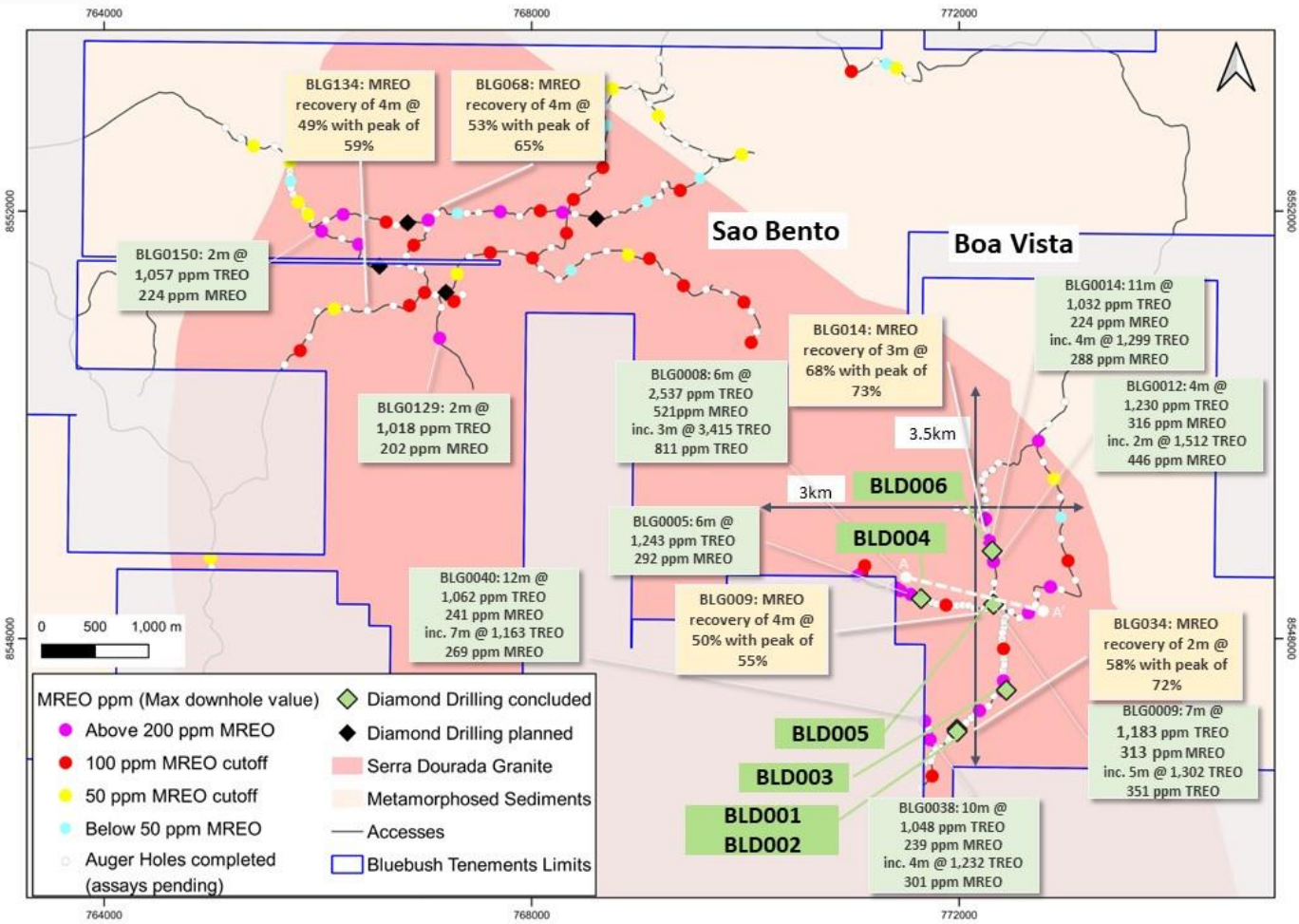

Figure 3: *Plan view Bluebush IAC Project with completed diamond holes, significant intercepts and metallurgical results.*

Table 1: *Diamond drill hole locations*

Prospect	Drill Hole ID	Easting	Northing	Elevation	EOH (m)	Azimuth	Dip
Boa Vista	BLDH001	771,980	8,547,151	811	21	0	-90
Boa Vista	BLDH002	771,981	8,547,128	780	27	0	-90
Boa Vista	BLDH003	772,441	8,547,516	796	21	0	-90
Boa Vista	BLDH004	771,644	8,548,373	784	39	0	-90
Boa Vista	BLDH005	772,322	8,548,321	754	23	0	-90
Boa Vista	BLDH006	772,309	8,548,819	728	15	0	-90

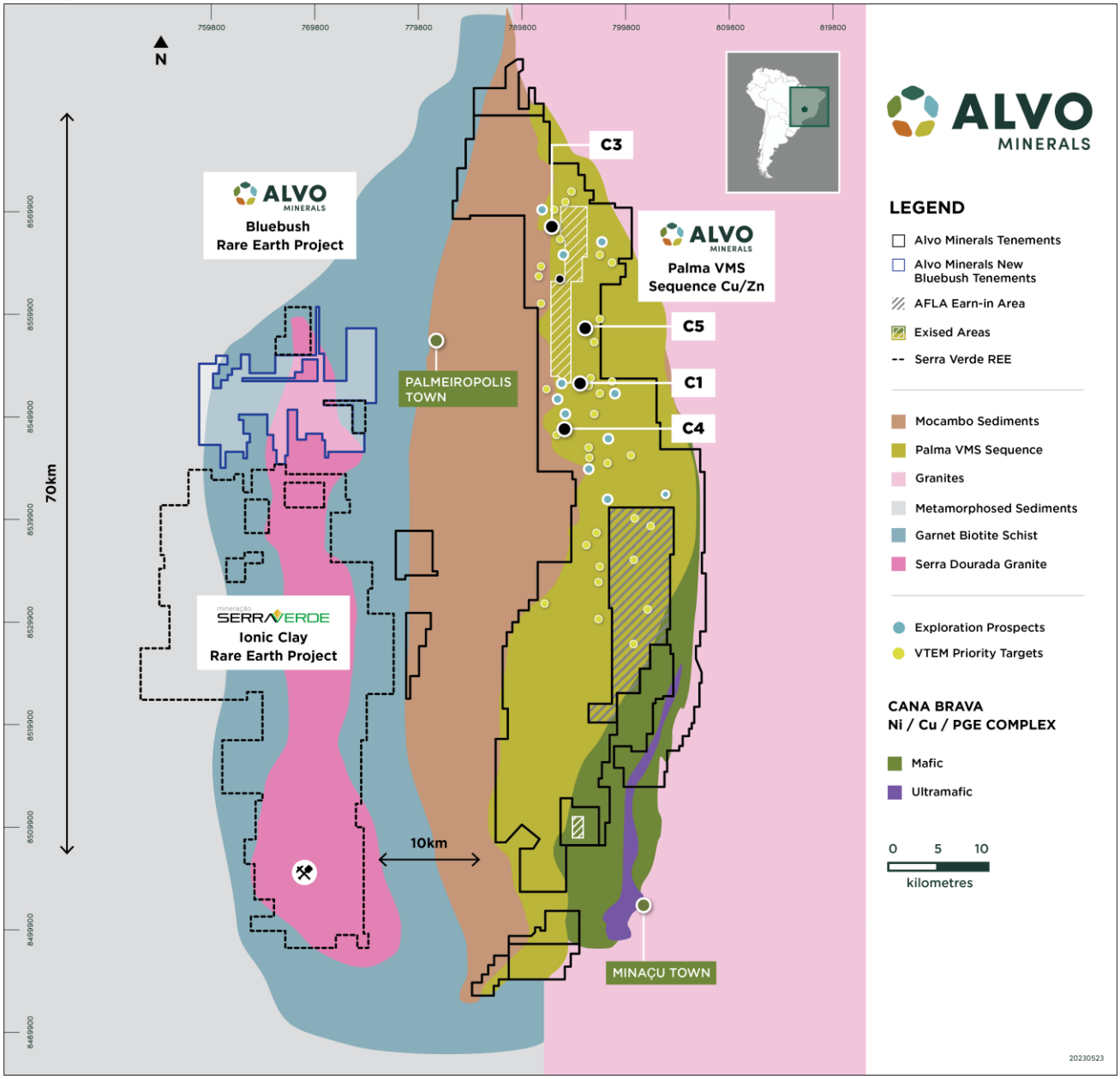

Figure 4: *Regional geology and tenement holdings for Alvo's Bluebush REE Project and Palma Project area*

Alvo's Bluebush Exploration Strategy and Future Work

Alvo is uniquely positioned to rapidly explore and advance Bluebush due to its existing exploration infrastructure, personnel and the equipment the Company has on site in Palmeiropolis.

The Bluebush Project area will be prioritised within Alvo's wider Brazilian exploration schedule, cognisant of the 6-month (extendable by agreement) due diligence period (expiring in December 2023). Alvo intends to build a better understanding around the potential scale, grade and recoverability of the MREO mineralisation at Bluebush.

As a systematic, innovative and accelerated exploration program, Alvo intends to:

- Diamond drill (underway) across Bluebush which will target a better understanding of the saprolite depth profile. Drill core will also be saved for any resource estimation and metallurgical sampling purposes in the future.

- Utilise the Loupe Portable Electromagnetic survey system (now operational onsite), to map the thickness and extent of saprolite/clay horizons to prioritise ongoing exploration.
- Auger drilling using Alvo's truck-mounted auger drill rig that has completed 1,237 auger holes for 12,579m[1] across all of Alvo's Projects since mid-January 2023 (incl. 210 holes for 1,669m at Bluebush).
- Alvo has also recently initiated drilling with a hand-held auger, which is more portable and therefore able to access remote areas of the Project.
- Soil sampling and mapping program is underway, covering areas towards the middle of the Serra Dourada granite. These areas have more difficult access and are therefore being accessed on foot.
- Systematical sampling of the auger and soil samples that are dried overnight, sieved, and analysed using the SciApps X-555 portable XRF analyzer. This analyzer has a higher voltage, providing higher sensitivity for strategic metals, including REEs.
- Samples from the auger and diamond drilling will be sent to an independent lab in Brazil for analysis.

Bluebush REE Project

Alvo has an option agreement with Mata Azul SA (**Mata Azul** or **Project vendors**) to acquire 100% of the Bluebush REE Project. Alvo has six months to complete due diligence on the Project to its satisfaction, after which it can purchase the Project. Bluebush neighbours Alvo's Palma VMS Project (see Figure 2) facilitating due diligence and exploration. Bluebush is considered highly prospective for the high value MREO's hosted in surficial saprolites, classified as the highly valued ionic adsorption clay type.

Ionic Adsorption Clay (IAC) hosted REE deposits are highly favoured due to the relatively simple and environmentally sustainable processing required to create a REE oxide concentrate. These IAC hosted prospects also have relatively high levels of HREO[2] and MREO[3]. IAC prospects are hosted in near surface clays, making mining a relatively simple process.

Bluebush is along strike from, and on the same biotite-rich granitic intrusion called Serra Dourada, host of the Serra Verde Ionic Clay REE Project, the only ionic clay REE project currently in the commissioning phase in the world outside of China. Serra Verde is expecting to commence production in late CY2023[4].

Serra Verde has an estimated Mineral Resource[5] of 911Mt @ 1,200ppm TREO and an Ore Reserve of 350Mt @ 1,500ppm TREO. With an elevated percentage of the higher value heavy and magnet REEs, Serra Verde is projecting a mine life of over 20 years.

Alvo intends to utilise the due diligence period to not only verify the historical results by auger drilling but will also apply systematic exploration across the tenure to better understand the potential of the Project.

This announcement has been approved for release by the Board of Alvo Minerals Limited.

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[1] Until end of September 2023

[2] **HREO Heavy rare earth oxides** are defined by their higher atomic weights relative to light rare earth oxides. HREOs include oxides of gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb), lutetium (Lu) and include scandium (Sc) and yttrium (Y). Alvo's results do not include Sc. Uses include computer and phone displays, and fibre optic cables.

[3] **MREO Magnet rare earth oxides** can handle greater saturation magnetization than more common elements such as iron and allow for fabrication of stronger and smaller magnets. These can be used for climate economy products such as electric vehicles and wind turbines. MREOs include oxides of Nd, Pr, Dy, and Tb and are some of the highest value REEs.

[4] For more information on the Serra Verde operation, please refer to the company website: https://serraverde.com/en/our-operation/

[5] For details of the Serra Verde Mineral Resource Estimate, please refer to Serra Verde presentation: https://www.cetem.gov.br/antigo/images/palestras/2015/iiisbtr/05-denilson-fonseca.pdf

ENQUIRIES

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Forward Looking Statements

Statements regarding plans with respect to Alvo's Palma Project and its exploration program are forward-looking statements. Forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions which are outside Alvo's control and actual values, results or events may be materially different to those expressed or implied herein. Alvo does not undertake any obligation, except where expressly required to do so by law, to update or revise any information or any forward-looking statement to reflect any changes in events, conditions, or circumstances on which any such forward-looking statement is based.

Competent Person's Statement

The information contained in this announcement that relates to recent exploration results is based upon information compiled by Mr Rob Smakman of Alvo Minerals Limited, a Competent Person and Fellow of the Australasian Institute of Mining and Metallurgy. Mr Smakman is a full-time employee of Alvo and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the "Australasian Code for Reporting of Mineral Resources and Ore Reserves" (or JORC 2012). Mr Smakman consents to the inclusion in this announcement of the matters based upon the information in the form and context in which it appears.

ABOUT ALVO

Alvo Minerals (ASX: ALV) is an active critical minerals exploration company, with a focus on the under-explored Palmeiropolis region of central Brazil.

Alvo is exploring for Rare Earth Elements, with a binding agreement for the purchase of the highly prospective Bluebush Ionic Clay REE project in Central Brazil, adjacent to its existing exploration base. Bluebush is adjacent to and along strike from the Serra Verde Ionic Clay REE project, which is the only Ionic Clay REE project currently in construction outside of China.

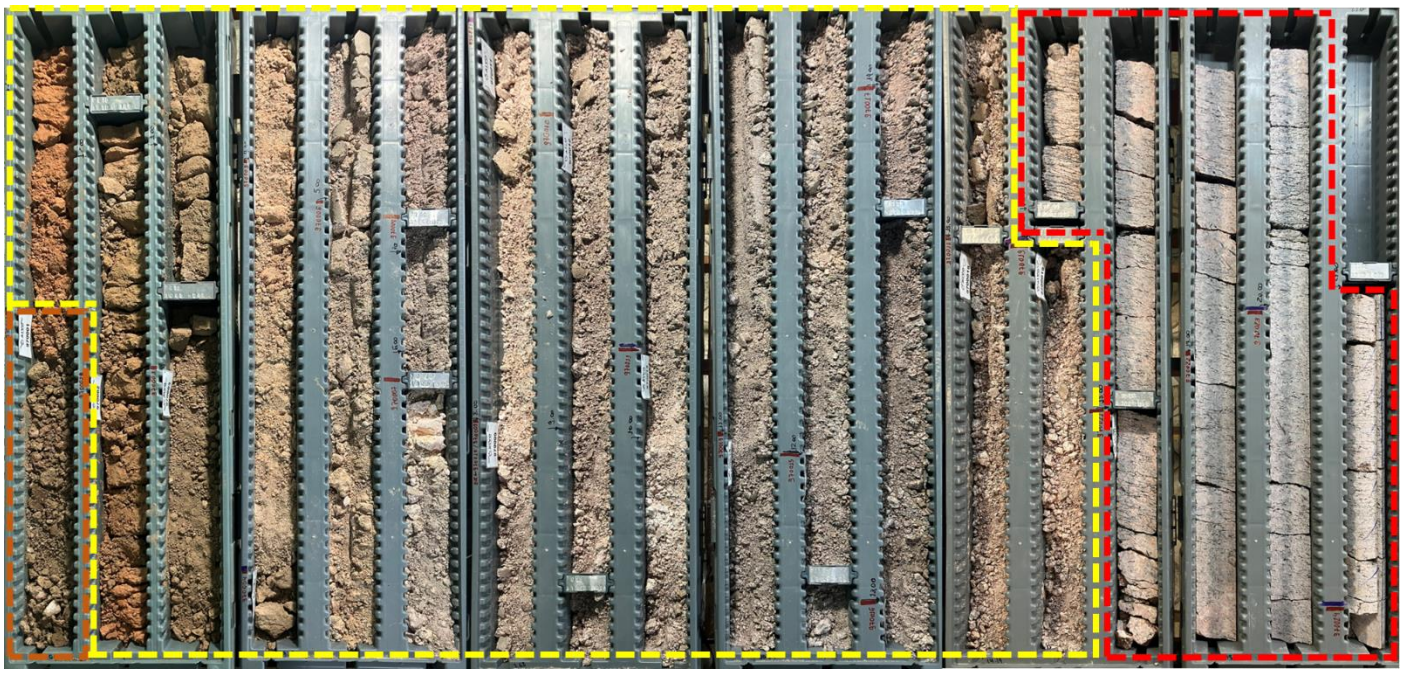
The Company is also exploring for base and precious metals, hunting high-grade copper and zinc at its Palma Project, located adjacent to Bluebush in Central Brazil. The Palma Project has a JORC 2012 Inferred Mineral Resource Estimate - 4.6Mt @ 1.0% Cu, 3.9% Zn, 0.4% Pb & 20g/t Ag.

Alvo's strategic intent is to aggressively explore and deliver growth through discovery, leveraging managements' extensive track record in Brazil. There are three phases to the exploration strategy – *Discover, Expand and Upgrade.*

Alvo is committed to fostering best in class stakeholder relations and supporting the local communities in which it operates.

Appendix 1 Diamond drill core Photos

Coord. X:	771980	Azimuth: 0	DRILL HOLE: BLD001 Prospect: Boa Vista	
Coord Y:	8547151	Dip: -90°		
Elev.: 811m SIRGAS2000 ZONE 22S		Depth: 21.00m		
From (m)	**To (m)**	**Interval (m)**	**Geological unit**	**Description**
0.00	0.60	0.60	SOIL	Dark brown-coloured soil, clayey, presence of quartz coarse grains.
0.60	8.60	8.00	Saprolite/ clay	Pinkish-coloured clayey saprolite kaolinite-rich interbedded with grey-coloured biotite-rich saprolite.
8.60	16.00	7.40	Saprolite	Saprolite, grey to pinkish coloured, clayey sand texture, with weathered feldspars (kaolinized) residual.
16.00	17.00	1.00	N.R.	Not recovered interval
17.00	20.15	3.15	Saprock	Strongly weathered rock (biotite granite).
20.15	21.00	0.85	Fresh Granite	Biotite granite, red to pink colour, foliated.

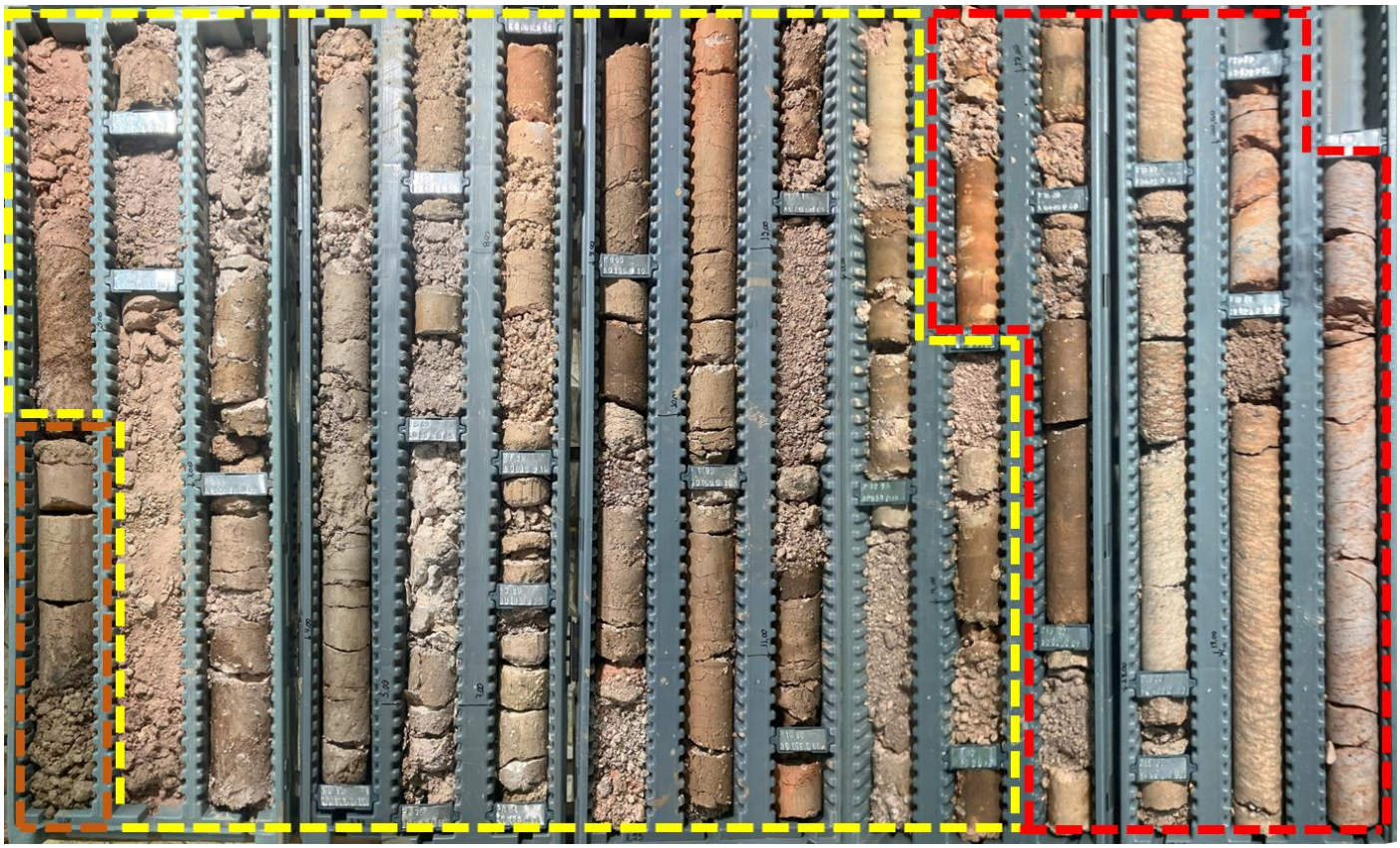


Drill core photo and summary geological log from BLD001

Coord. X:	771981	Azimuth: 0	DRILL HOLE: BLD002 Prospect: Boa Vista	
Coord Y:	8547128	Dip: -90°		
Elev.: 780m SIRGAS2000 ZONE 22S		Depth: 27.15m		
From (m)	**To (m)**	**Interval (m)**	**Geological unit**	**Description**
0.00	0.80	0.80	SOIL	Dark brown-coloured soil, clayey, presence of quartz coarse grains, organic material (roots).
0.80	10.50	9.70	Saprolite	Clayey saprolite grey colour, biotite-rich, intercalated with metric layers of saprolite kaolinite-rich with pale-pink colour.
10.50	13.80	3.30	Saprolite	Saprolite clay, white to pinkish kaolinite-rich with quartz and feldspar (KF) residual grains.
13.80	16.00	2.20	Saprolite	Saprolite clayey sand, pinkish colour with biotite-rich dark brown intercalation.
16.00	16.65	0.65	N.R.	Not recovered interval
16.65	22.05	5.40	Saprolite	Clayey saprolite grey colour, biotite-rich, intercalated with decimetric layers of saprolite kaolinite-rich with pale-pink colour.
22.05	23.30	1.25	N.R.	Not recovered interval
23.30	24.40	1.10	Saprock	Weathered rock (biotite granite).
24.40	27.15	2.75	Fresh Granite	Biotite granite foliated, pegmatite decimetric intervals, pink-coloured, composed of KF, quartz and rare biotite crystals.

Drill core photo and summary geological log from BLD002

Coord. X:	792997	Azimuth: 0	DRILL HOLE: BLD003 Prospect: Boa Vista	
Coord Y:	8548444	Dip: -90°		
Elev.: 444 m SIRGAS2000 ZONE 22S		Depth: 21.00m		
From (m)	**To (m)**	**Interval (m)**	**Geological unit**	**Description**
0.00	0.30	0.30	SOIL	Dark brown-coloured soil, clayey, presence of quartz coarse grains.
0.30	15.00	14.70	Saprolite	Clayey saprolite grey colour, biotite-rich, intercalated with decimetric layers of saprolite kaolinite-rich with pale-pink colour.
15.00	19.40	4.40	Saprock	Strongly weathered rock (biotite granite).
19.40	21.00	1.60	Fresh Granite	Biotite granite foliated. At 19.4m, decimetric pegmatite with granitic composition.



Drill core photo and summary geological log from BLD003

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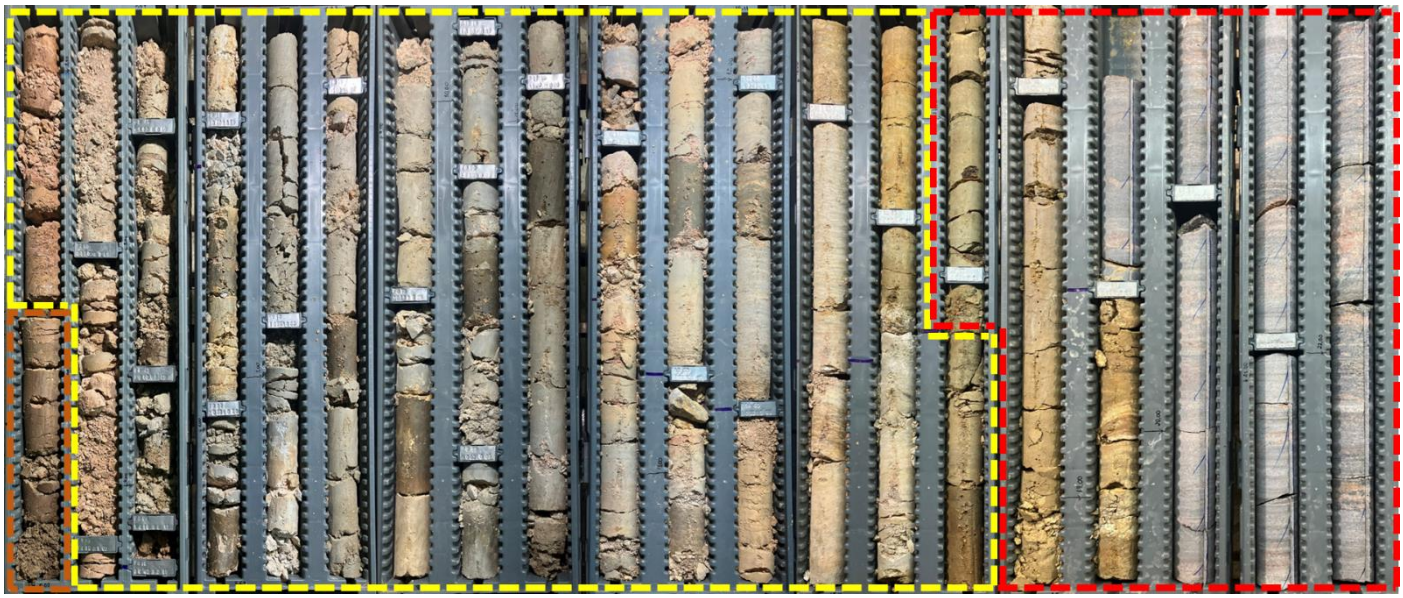
Coord. X:	771644	Azimuth: 0	DRILL HOLE: BLD004 Prospect: Boa Vista	
Coord Y:	8548373	Dip: -90°		
Elev.: 784m SIRGAS2000 ZONE 22S		Depth: 38.90m		
From (m)	To (m)	Interval (m)	Geological unit	Comment
0.00	0.50	0.50	SOIL	Dark brown-coloured soil, clayey, presence of quartz coarse grains, organic material (roots).
0.50	6.40	5.90	Saprolite	Saprolite with a clayed sandy texture, orange colour, kaolinite-rich, locally coarse-grained.
6.40	11.00	4.60	Saprolite/ clay	Saprolite with clay texture, brown to grey portions biotite-rich and pale pink portions kaolinite rich.
11.00	12.00	1.00	N.R.	Not recovered interval
12.00	15.70	3.70	Saprolite	Saprolite with clay texture, brown to grey portions biotite-rich and pale pink portions kaolinite rich.
15.70	26.40	8.40	Saprolite	Saprolite with sand clayey texture and grey to yellow colour.
26.40	29.00	2.60	Saprock	Strongly weathered granite, pink-coloured, feldspar-rich, and friable (granite boulder).
29.00	32.20	3.20	Saprolite	Saprolite dark red colour, clayey-sandy texture.
32.20	35.75	3.55	Saprock	Weathered biotite granite, grey to reddish coloured.
35.75	38.90	3.15	Fresh Granite	Biotite granite foliated, reddish coloured, with centimetric intervals of pegmatite.

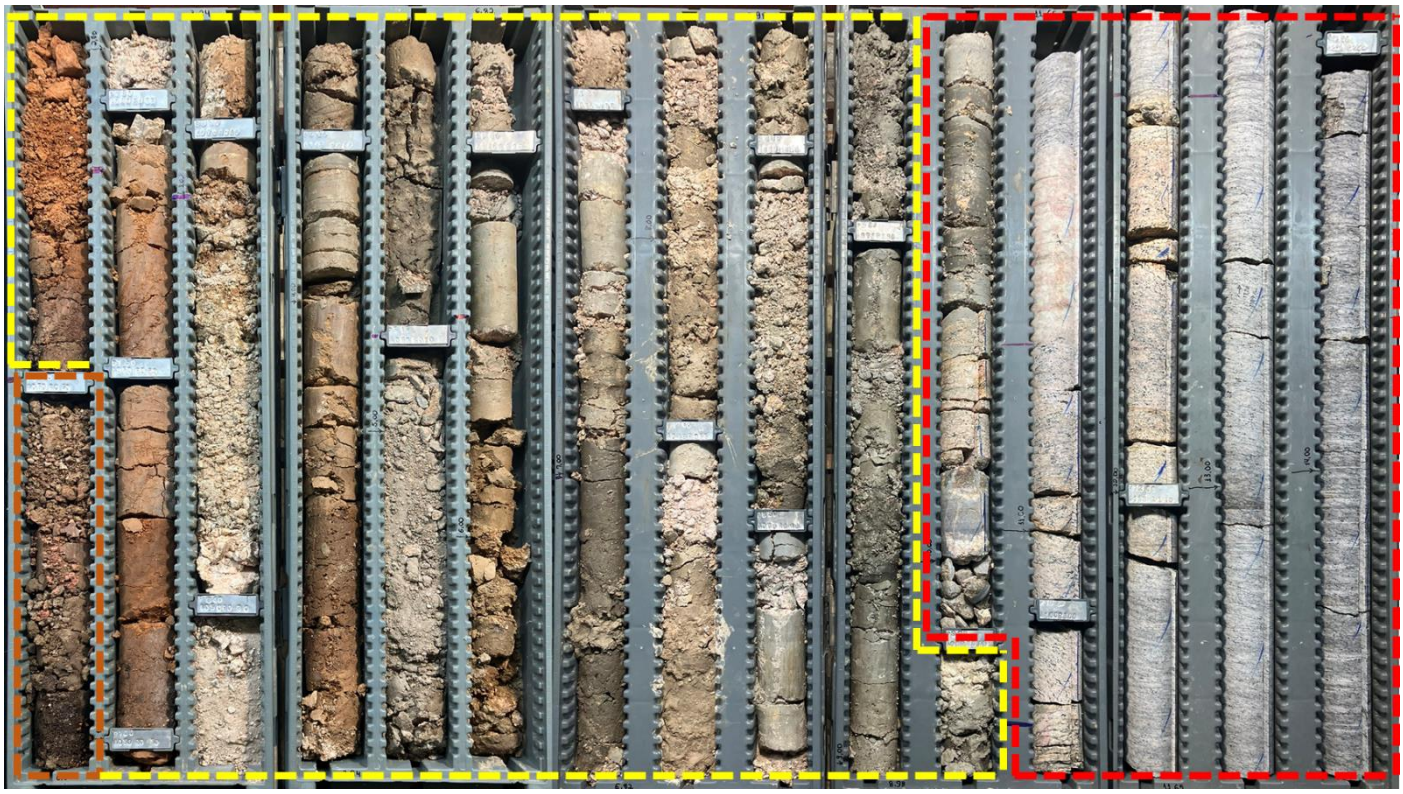
Drill core photo and summary geological log from BLD004

Coord. X:	772322	Azimuth: 0	DRILL HOLE: BLD005 Prospect: Boa Vista	
Coord Y:	8548321	Dip: -90°		
Elev.: 754m SIRGAS2000 ZONE 22S		Depth: 22.65m		
From (m)	**To (m)**	**Interval (m)**	**Geological unit**	**Description**
0.00	0.30	0.30	SOIL	Dark brown-coloured soil, clayey, presence of quartz coarse grains, organic material (roots).
0.30	3.10	2.80	Saprolite/ clay	Saprolite is greyish to yellowish in colour, with biotite and kaolinite content variations.
3.10	3.85	0.75	N.R.	Not recovered interval
3.85	12.00	8.15	Saprolite	Clayey saprolite grey colour, biotite-rich, intercalated with decimetric layers of saprolite kaolinite-rich with pale-pink colour.
12.00	17.70	5.70	Saprolite	Saprolite with sand clayey texture and grey to yellow colour.
17.70	19.35	1.65	Saprock	Weathered biotite granite, foliated, intervals biotite-rich.
19.35	22.65	3.30	Fresh Granite	Biotite granite foliated and centimetric occurrences of pegmatite (quartz, KF, rare coarse-grained biotites)



Drill core photo and summary geological log from BLD005

Coord. X:	772309	Azimuth: 0	DRILL HOLE: BLD006	
Coord Y:	8548819	Dip: -90°	Prospect: Boa Vista	
Elev.: 728m SIRGAS2000 ZONE 22S		Depth: 14.50m		
From (m)	To (m)	Interval (m)	Geological unit	Description
0.00	0.50	0.50	SOIL	Soil is brownish, clayey and sandy, with millimetre-sized fragments of quartz.
0.50	1.80	1.30	Saprolite/ clay	Saprolite clay, white to pinkish kaolinite-rich.
1.80	4.00	2.20	Saprolite	Saprolite with clayed to sand texture, grey to orange coloured, intervals with a high concentration of kaolinite
4.00	9.90	5.90	Saprolite	Saprolite with sand to clayed texture, greyish colour, primarily rich in biotite and with layers of an elevated kaolinite content.
9.90	10.70	0.80	Saprock	Weathered biotite granite, quartz-rich (pegmatite) intervals grey colour, friable.
10.70	14.50	3.80	Fresh Granite	Biotite granite, grey colour, foliated. A pegmatite interval between 11.20 and 12.50m, pegmatite KF-rich interval with pink-pale colour.



Drill core photo and summary geological log from BLD006

Appendix 2 JORC Tables

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections, note data in this section is extracted from historic reports)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg 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 (eg '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 Nickel that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• No sampling is being reported.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	• Standard-tube diamond drilling by independent drill contractor. Drillhole diameter was variable- HW for collar and friable material, HQ diameter was generally used until the base of complete oxidation and then into fresh rock. Holes are vertical and not oriented. Drill core is not oriented. • Auger drilling was completed using a hydraulic auger drilling machine with a 4.5" auger bit and 2m helicoidal rods. The drilling is open hole, meaning there is a significant chance of contamination from the surface and other parts of the auger hole. Holes are vertical and not oriented.
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.*	• Recoveries are recorded by both the driller's assistant (on site) and Alvo field assistant once the core has been received at the core shed. Recoveries are measured by comparing the length of the drill run with the amount of core actually recovered. Recovery has averaged 83% for all drilling to date at Bluebush. • Drillers are penalised for poor recovery and are constantly supervised at the rig to ensure care is taken to ensure high recoveries. • No relationship is believed to exist between recovery and grade.

Criteria	JORC Code explanation	Commentary
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.*	• All holes have been geologically logged by Alvo geologists, to a detail relevant for inclusion in an MRE. Basic geotechnical logging is standard, although with highly weathered clay/saprolite minimal information is collected. • Logging and core processing is both qualitative and quantitative. Core is photographed wet and dry, measured for magnetic susceptibility, conductivity, density, RQD and basic geotechnical logging. All core is structurally logged by geologists to look for planar and linear features. Measurements of these are taken on non-oriented core. • All drilling results reported have been logged onsite by Alvo geologists. Logs include hole number, hole location, date drilled, collar, dip and azimuth as well as qualitative data such as rock type, and descriptions of the colour, alteration, weathering, grainsize, mineralisation and texture. All metreage reported has been logged.
Sub-sampling 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 sub-sampling 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.*	• Drill core is either split by hand or sawn in half. One half (consistently the same half) of the core is sampled. The remaining half is stored by Alvo in its dedicated facility. • Sample size, being generally 1m sample intervals, is appropriate to the material being sampled and considered to be representative.
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.* • *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 samples are dispatched to SGS in Goiania, where the physical preparation will be done. Analysis will be completed at the SGS Geosol laboratory in Vespasiano (Belo Horizonte) – Minas Gerais state, Brazil. • The SGS Geosol lab sample preparation includes drying, crushing with P75 of 3mm, homogenised, quartered and pulverized of 300g with P95 below 150#. • The SGS Geosol analytical procedures (ICP95A/IMS95A) include lithium metaborate fusion assays by ICP OES/MS , according to standard industry practices. The elements analysed were: Al_2O_3, Ba, CaO, Cr_2O_3, Fe_2O_3, K2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, Sr, TiO_2, V, Zn, Zr, Ce, Co, Cs, Cu, Dy, Er, Eu, Ga, Gd, Hf, Ho, La, Lu, Mo, Nb, Nd, Ni, Pr, Rb, Sm, Sn, Ta, Tb, Th, Tl, Tm, U, W, Y, Yb. Also, Loss on Ignition (LOI) was determined by calcining the sample at 1000°C. • No sample duplicates. The Standards and Blanks showed acceptable values.

Criteria	JORC Code explanation	Commentary
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.*	• No results are being reported.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• A GPS are used to locate and records the auger drill collars. No drill holes are downhole surveyed. • All location data has been recorded SAD69 (South America 1969 Datum) UTM zone 22S. • Topographic control is adequate for the stage of exploration at Bluebush.
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.*	• Drillholes are variably spaced utilising existing roads as access. • The results reported may be considered in an MRE. • No compositing has been applied to the results- apart from weighted averages
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.*	• Drilling is shallow and considered as a first pass sampling - generally lines are oriented across the assumed geological terrain. No bias is believed to have occurred. Sampling lengths were generally 0.5-2m downhole, unless there was a specific geological control required by the geologist/technician. • No relationship between mineralisation and drilling orientation is known at this stage.
Sample security	• *The measures taken to ensure sample security.*	• Drillcore is transported from the field to a locked facility by Alvo or drilling staff daily. Samples are prepared in the coreshed by Alvo staff and transported to the lab by a dedicated transport company.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audit to date.

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section)

<table>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
<tr>
<td>Mineral tenement and land tenure status</td>
<td>

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.

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The prospects described in the report are all located in Brazil on tenements owned by Mineracao Mata Azul S/A, over which Perth Minerals (Alvo's 100% owned Brazilian Subsidiary) has signed a binding purchase option for up to 100% of the shares in Mata Azul S/A.

<table>
<tr><th>Processo</th><th>Titular</th><th>Área</th><th>Fase do processo</th></tr>
<tr><td>864.251/2004</td><td>Mineração Mata Azul S A</td><td>1827,85</td><td>Autorização de Pesquisa</td></tr>
<tr><td>864.381/2011</td><td>Mineração Mata Azul S A</td><td>1456,99</td><td>Autorização de Pesquisa</td></tr>
<tr><td>864.170/2007</td><td>Mineração Mata Azul S A</td><td>1070,8</td><td>Autorização de Pesquisa</td></tr>
<tr><td>864.059/2012</td><td>Mineração Mata Azul S A</td><td>787,88</td><td>Autorização de Pesquisa</td></tr>
<tr><td>860.066/2009</td><td>Mineração Mata Azul S A</td><td>1796,62</td><td>Autorização de Pesquisa</td></tr>
<tr><td>860.067/2009</td><td>Mineração Mata Azul S A</td><td>1875,6</td><td>Autorização de Pesquisa</td></tr>
<tr><td>864.056/2010</td><td>Mineração Mata Azul S A</td><td>95,64</td><td>Autorização de Pesquisa</td></tr>
<tr><td>864.612/2008</td><td>Mineração Mata Azul S A</td><td>3122,48</td><td>Autorização de Pesquisa</td></tr>
<tr><td colspan="2">TOTAL</td><td>12033,86</td><td></td></tr>
</table>

Alvo has reviewed the publicly available information on the government websites and is comfortable the tenements are in good standing. Additional work will be completed during the due diligence period to verify the veracity of the tenement status and ownership.

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<td>Exploration done by other parties</td>
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Acknowledgment and appraisal of exploration by other parties.

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Exploration was mainly completed by Mata Azul S/A (Project vendors). The work was completed to a high standard for the time and included auger drilling, pitting, trenching and channel sampling. Much of the focus of the historical exploration was completed looking for alluvial and colluvial deposits of REE minerals.
Some work was completed by GE21, an independent exploration services company based in Brazil. This work included pitting and auger drilling, comparing against the earlier work of Mata Azul. The work overall appeared to replicate the older work and focussed more on the alluvial potential of the Project.
Airborne geophysics. There have been several combined aeromagnetic and radiometric surveys which cover the area, generally flown by Brazilian Government Agencies. These are generally broad spaced and useful for regional context. Maps of radiometrics and magnetics flown by a third party- believed to be Mining Ventures Brazil, covered the area, although the source information is not available.

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<tr>
<td>Geology</td>
<td>

Deposit type, geological setting and style of mineralisation.

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The REE occurrences at Bluebush are located on the Serra Dourada Granite (GSD), which is part of the Goiás Staniferous Province. The GSD is an oval and elongated batholith approximately 55km long in the N-S direction by 12km wide. In the intrusion, there have been various phases of post-magmatic alteration identified that generated albitites and greisens mineralized in Sn (Ta-Nb-W), pegmatites mineralized in Be and tourmaline. These granites are generally enriched in U, Th, Nb, F, Li, Ga, Zn and REE including Y with progressive enrichment of the HREE in relation to the LREE in the most metasomatized phases.
Alvo is targeting the saprolite horizon above the granite where enrichment and transformation into ionic adsorption clay REE's may have occurred. Alvo believes the Bluebush project may have the same properties as the Serra Verde Project located 40km to the south.

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Criteria	JORC Code Explanation	Commentary
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *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.*	See Collar table in report.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg 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.*	• The significant intercepts were calculated using values > 750ppm TREO only in consecutive intervals of saprolite or soil samples originally sampled meter by meter. No upper cuts were considered. • To calculate the Total Rare Earth Oxide (TREO) values, the values of CeO2, La2O3, Sm2O3, Nd2O3, Pr6O11, Dy2O3, Eu2O3, Tb4O7, Gd2O3, Ho2O3, Er2O3, Tm2O3, Yb2O3, Lu2O3 and Y2O3 were summed. • To calculate the Magnet Rare Earth Oxide (MREO) values, the values of, Nd2O3, Pr6O11, Dy2O3 and Tb4O7 were summed. • Weighted averages were calculated for all intercepts.
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 drill hole 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 (eg 'down hole length, true width not known').*	• Mineralisation orientation is not known at this stage, although assumed to be generally flat lying. • The downhole depths are reported, true widths are not known at this stage.
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 drill hole collar locations and appropriate sectional views.*	See diagrams reported in the announcement

Criteria	JORC Code Explanation	Commentary
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.*	All results are reported above the cut-offs described above.
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.*	• *Historical work has been reported previously by Alvo, where work completed generally did not target the clay horizon, more alluvial accumulations of the minerals hosting primary REE's.* • *No other data is considered relevant at this time.*
Further work	• *The nature and scale of planned further work (eg 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.*	• Alvo intends to sample the auger drilling and in areas of high prospectivity, samples will also be tested for their ionic clay potential. • Alvo will conduct soil sampling across the project, once an orientation program is complete- especially in areas of difficult access. A handheld auger has also been purchased and will be utilised to test saprolite horizons in areas of difficult access. • Alvo has recently purchased a Loupe Geophysical mobile electromagnetic equipment, which should be able to map the depth of the saprolite to the granite (soon to be imported). • Alvo has in-house electromagnetic and Induced polarisation survey equipment and is performing FLEM, DHEM and IP surveys in the region. These techniques or others may be utilised during the due diligence period and beyond. • Alvo will geologically map and occasionally dig trenches/pits to better understand the under-surface geology and geochemistry.