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# Palma Cu & Zn VMS Project



Noosa Mining Conference | November 2022

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Mr Mortimer 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 JORC Code 2012. Mr Mortimer is responsible for the geological modelling and resource evaluation sections of the Mineral Resource Estimate. Mr Smakman is a full-time employee of Alvo Minerals 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 JORC Code 2012. Mr Smakman is responsible for the site visit report and sampling sections of the Mineral Resource Estimate. Alvo confirms that it is not aware of any new information or data that materially affects the information included in the original IGR. Alvo confirms that the form and context in which the Competent Persons’ findings are presented have not been materially modified from the original IRG. All material assumptions and technical parameters underpinning the estimates in the report continue to apply and have not materially changed. The IGR referred to above may be viewed and downloaded from the Company’s website [www.alvo.com.au](http://www.alvo.com.au).

**Copper Equivalent Calculation** The copper equivalent grades (CuEq) are based on copper, zinc, silver, lead and gold prices of US\$7,782/t Copper, US\$3,189/t Zinc, US\$1,980/t Lead, US\$19.30/oz Silver, and US\$1,696/oz ((price deck based on 3-month LME as of 7/11/22) Recoveries of 81%, 83%, 70%, 50% and 50% respectively, (recoveries based on ASX Metallurgical testwork released 9 November 2022). The copper equivalent calculation is as follows:  $Cu Eq = Cu \text{ grade} \% * Cu \text{ recovery} + ((Pb \text{ grade} \% * Pb \text{ recovery} \% * (Pb \text{ price } \$/t / Cu \text{ price } \$/t)) + (Zn \text{ grade} \% * Zn \text{ recovery} \% * (Zn \text{ price } \$/t / Cu \text{ price } \$/t)) + (Ag \text{ grade } g/t / 31.103 * Ag \text{ recovery} \% * (Ag \text{ price } \$/oz / Cu \text{ price } \$/t)) + (Au \text{ grade } g/t / 31.103 * Au \text{ recovery} \% * (Au \text{ price } \$/oz / Cu \text{ price } \$/t))$ . Reported on 100% Basis.

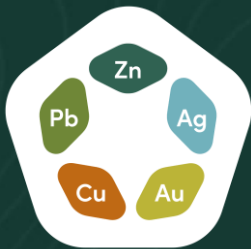
# Alvo: Investment Summary



Palma Project is a high-grade, Cu-Zn rich VMS **district scale opportunity** in Brazil



2 diamond drill rigs operating, multiple EM & IP geophysical surveys ongoing, regional geochemistry



JORC Mineral Resource at IPO  
**4.6Mt @ 1.0% Cu, 3.9% Zn, 0.4% Pb & 20g/t Ag**



VMS targets occur in clusters - Alvo has secured **>60km of prospective strike**



Thick, high-grade drill results- post IPO:

- **36.0m @ 3.79% CuEq<sup>^</sup> - C3**
- **23.15m @ 5.13% CuEq -C3**
- **Inc 10.6m @ 9.45% CuEq**
- **18m @ 4.60% CuEq - C3**
- **14.9m @ 5.06% CuEq - C3**
- **21.8m @ 4.43% CuEq - C1**



Alvo has cash, tight capital structure, experienced management & excellent infrastructure

# Corporate Overview



**\$4.2**  
million<sup>1</sup>

## STRONG CASH BALANCE

*Sufficient cash to undertake exploration for next field season*

**72.8**  
million

## LOW SHARES ON ISSUE

*Exploration success should materially impact share price*

**43%**

## QUALITY SHARE REGISTER

*RCF, Sprott, Paragon & other institutions hold meaningful positions*

**\$8.2**  
million<sup>2</sup>

## ATTRACTIVE ENTERPRISE VALUE

*Cheap for quality of the mineral resource base and exploration upside potential*

<sup>1</sup> Cash at 30 September 2022

<sup>2</sup> EV based on Mkt cap \$12.4M (Share Price \$0.17c 8 Nov 2022)

## BOARD AND MANAGEMENT

Alvo's board has significant minerals exploration and mining experience in Brazil and around the world.

Experienced team in Brazil to manage exploration activities



**Graeme Slattery** | Non-Exec Chairman  
*Lawyer*



**Rob Smakman** | Managing Director  
*Geologist*



**Beau Nicholls** | Non-Exec Director  
*Geologist*

# Infrastructure & Location



For internal use only



Sealed roads to project



Access to multiple hydroelectricity options



Multiple rail options accessing ports and smelters



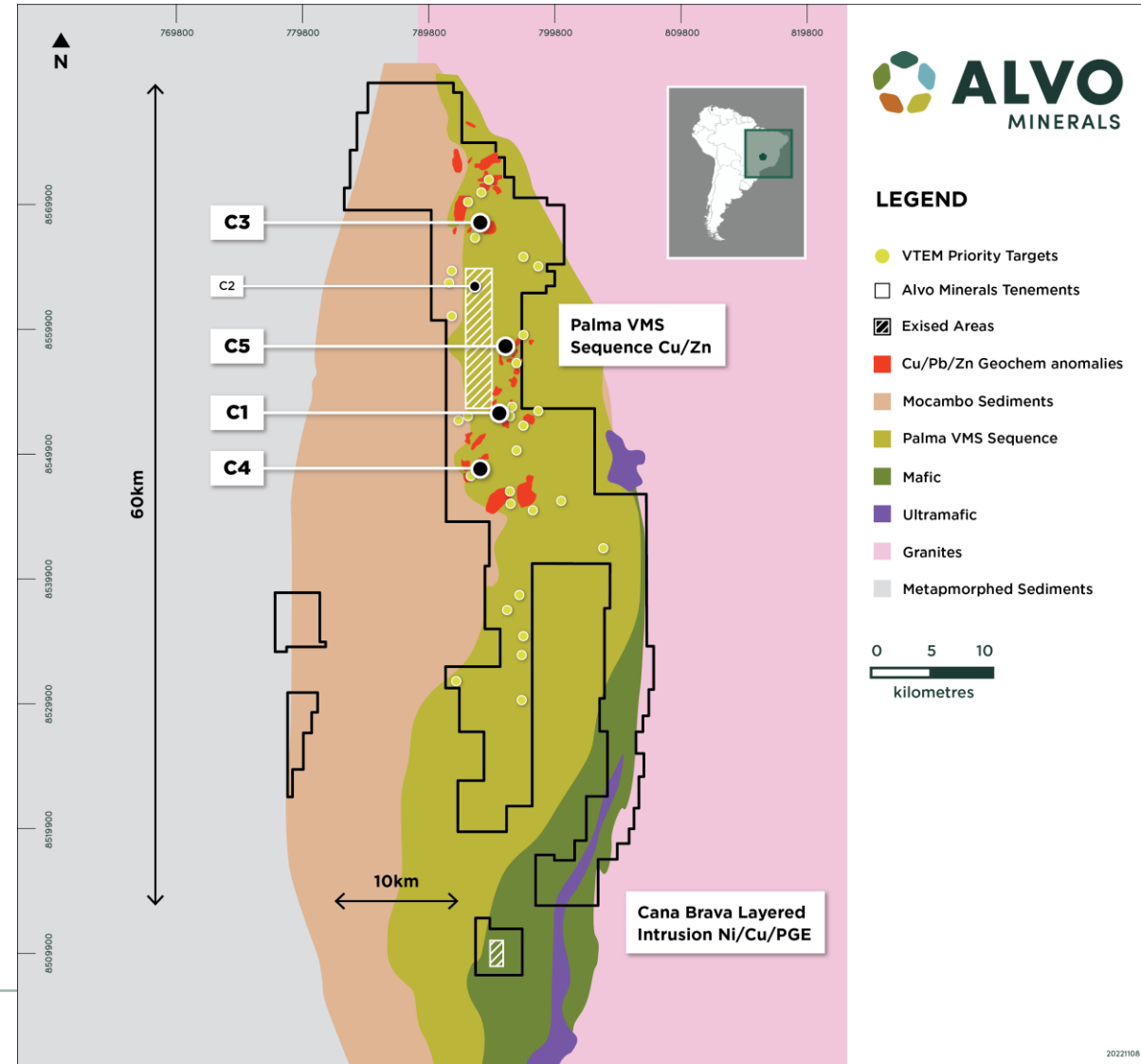
Strong community and political support

# The Palma Project



## LEGEND

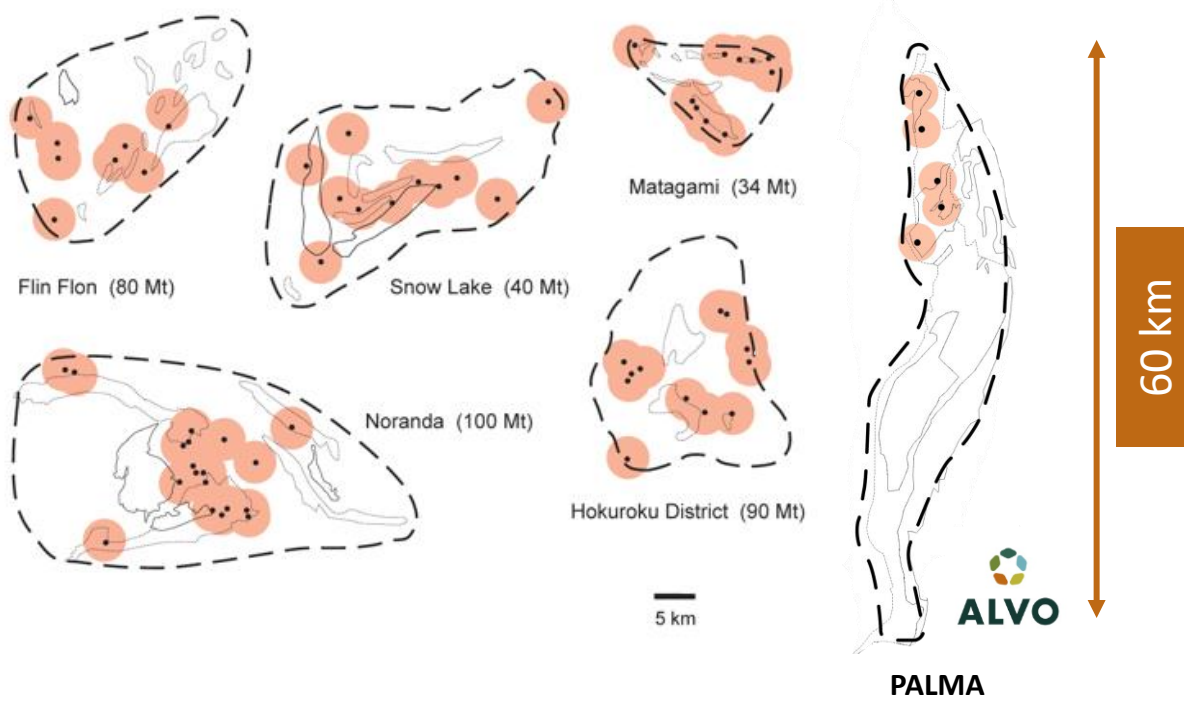
- VTEM Priority Targets
- Alvo Minerals Tenements
- Exised Areas
- Cu/Pb/Zn Geochem anomalies
- Mocambo Sediments
- Palma VMS Sequence
- Mafic
- Ultramafic
- Granites
- Metaporphed Sediments



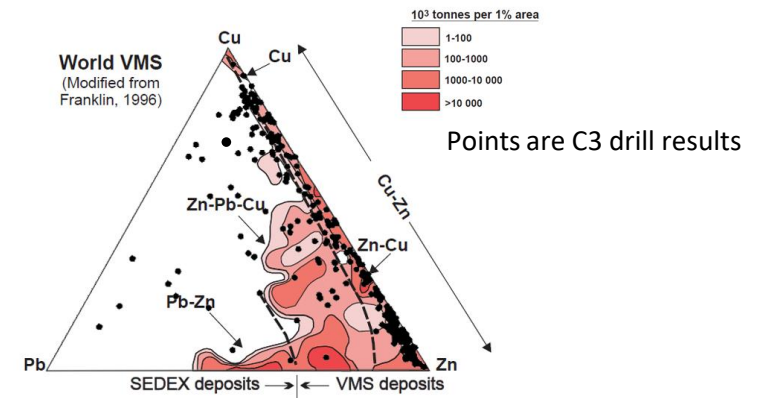
- Palma VMS district- 5 **High-Grade, shallow mineralised prospects**. VMS typically occur in clusters - *only the outcropping* prospects drilled to date
- Discovered in 1970's, Palma has been largely idle for ~30 years - Alvo is the first to apply modern/systematic/aggressive exploration
- JORC 2012 Inferred Mineral Resource Estimate: 4.6Mt @ 1.0% Cu, 3.9% Zn, 0.4% Pb & 20g/t Ag [ C1 and C3 deposits only ]**
- >32,000m of drilling (historic); >14,000m of drilling (Alvo '21 & '22) *not yet in the resource estimate*
- Metallurgical testwork** has confirmed good recoveries and high-grade concentrates
- Alvo controls >80% of the VMS camp**, adding new prospective areas all the time
- VTEM (2008) survey and subsequent **FLEM** and **DHEM** surveys have confirmed multiple conductors
- Alvo has purchased own Electromagnetic (EM) and Induced Polarisation (IP) equipment- flexible and fast in-house exploration

# Palma – A new VMS camp

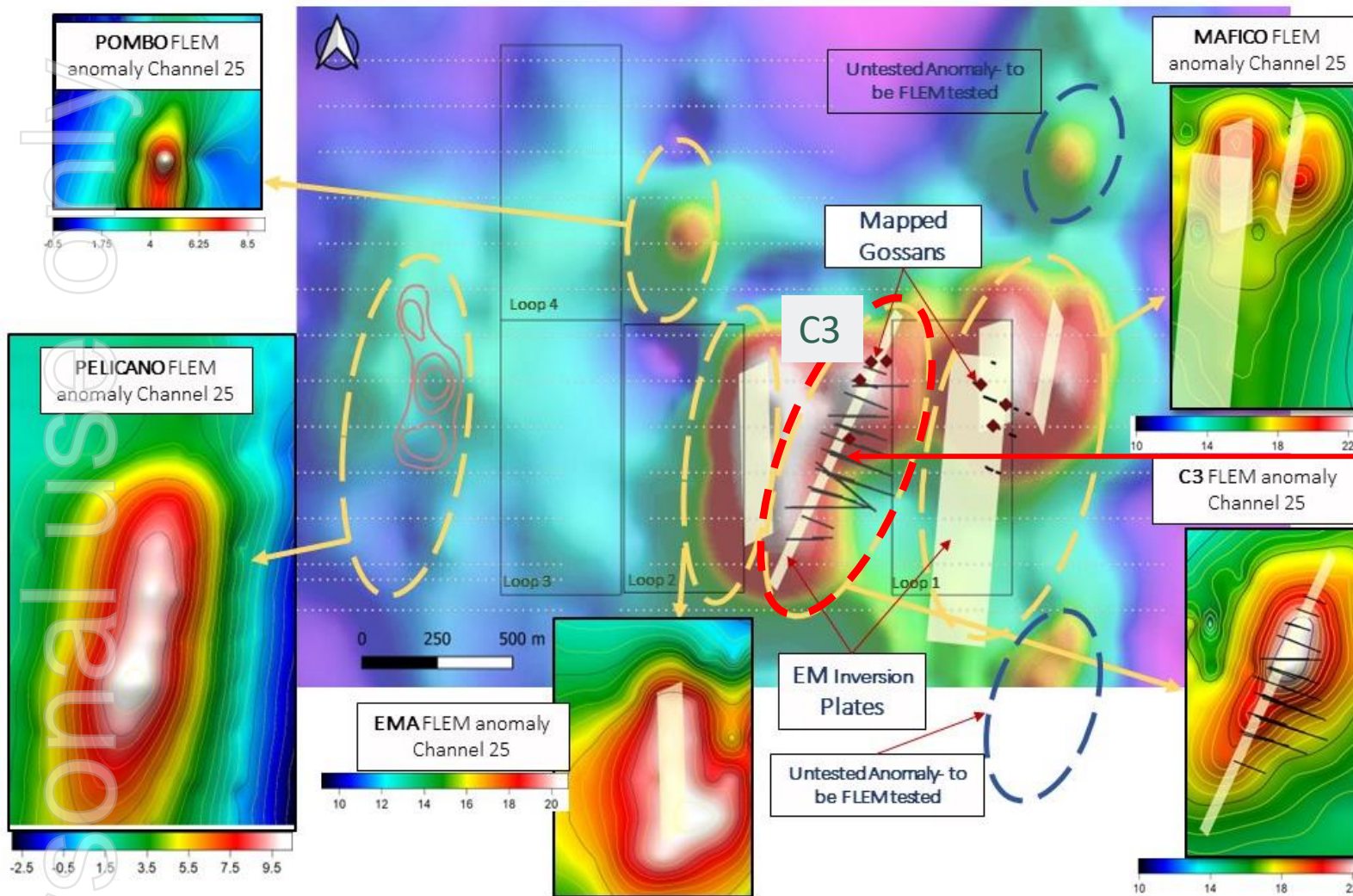
- **Volcanogenic Massive Sulphide (VMS)** deposits occur in clusters that define MAJOR mining camps
- VMS are important global sources of Cu, Zn, Pb, Ag and Au
- **Palma has the right rocks to become a new VMS camp**



- Only outcropping mineralisation drilled to date- limited exploration
- Alvo controls 80% of District
- Palmeiropolis is defined as Bi-Modal Mafic- the most common of the VMS styles
  - Common examples include Kidd Creek, Flin Flon, Noranda, San Nicholas (Mexico) and Preiska (RSA)



# C3 – High grade Copper and Zinc- Mini Cluster



JORC 2012 MRE at C3 of 2.8Mt @ 1.1% Cu, 4.3% Zn, 0.2% Pb & 23g/t Ag

New drilling -multiple high-grade intercepts drilled will grow the resource;

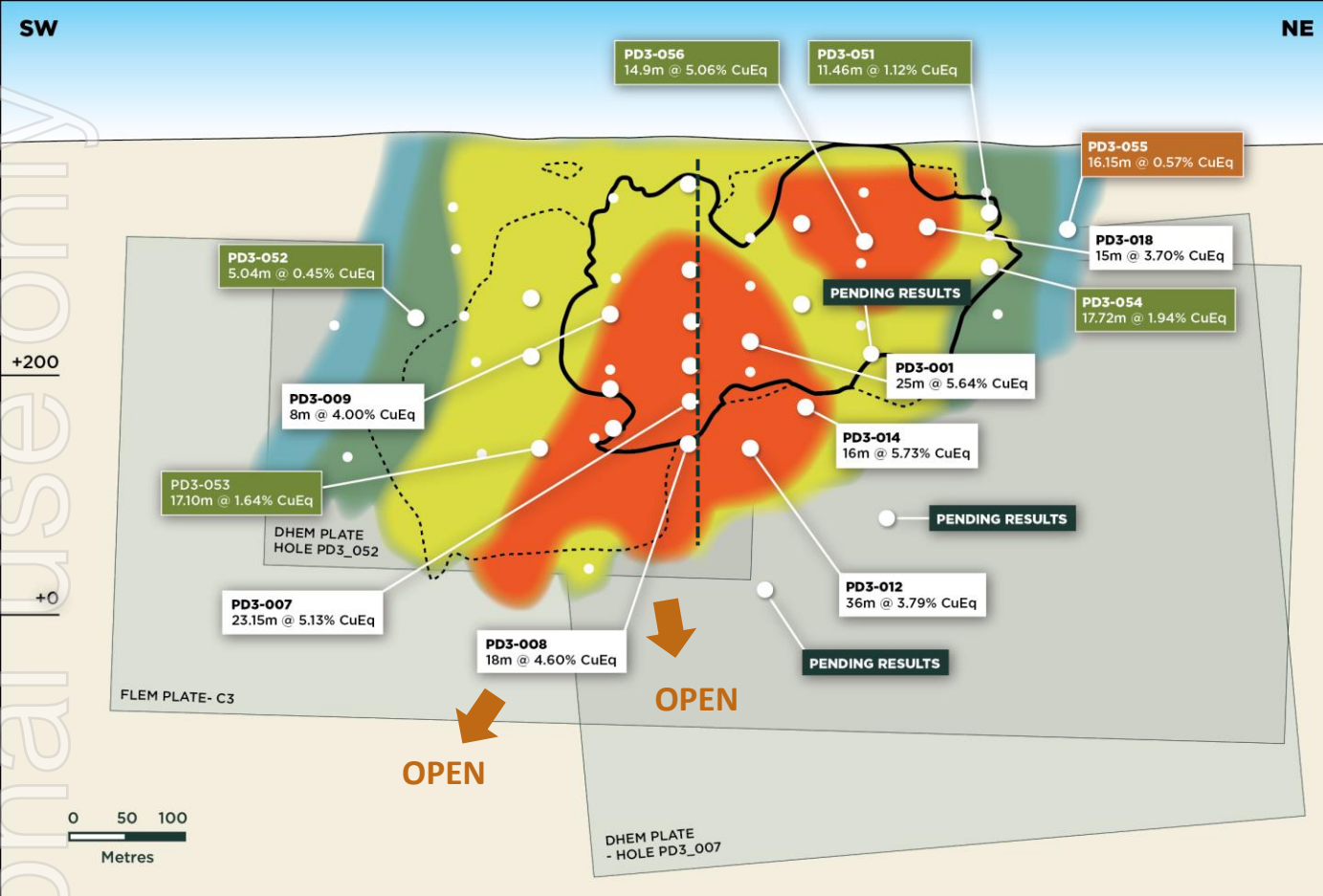
- PD3-001: **25.00m @ 5.64% CuEq<sup>^</sup>**
- PD3-007: **23.15m @ 5.13% CuEq**
  - Inc. **10.57m @ 9.45% CuEq**
- PD3-008: **18m @ 4.6% CuEq**
- PD3-012: **36m @ 3.79% CuEq**
- PD3-014: **16.0m @ 5.73% CuEq,**
  - Inc. **7.4m @ 8.7% CuEq**
- PD3-018: **15.0m @ 3.7% CuEq**

Phase 2 drilling underway targeting C3 Extensions and multiple prospective conductors surrounding C3

<sup>^</sup>The copper equivalent grades (CuEq) are based on copper, zinc, silver, lead and gold prices of US\$7,782/t Copper, US\$3,189/t Zinc, US\$1,980/t Lead, US\$19.30/oz Silver, and US\$1,696/oz Gold with overall recoveries of 81%, 83%, 70%, 50% and 50% respectively (price deck based on 3-month LME as 7/11/22, recoveries based on ASX release 9 November 2022. The copper equivalent calculation is as follows: Cu Eq = Cu grade% \* Cu recovery + ((Pb grade % \* Pb recovery % \* (Pb price \$/t/Cu price\$/t)) + (Zn grade % \* Zn recovery % \* (Zn price \$/t/Cu price \$/t)) + (Ag grade g/t /31.103 \* Ag recovery % \* (Ag price \$/oz/Cu price \$/t)) + (Au grade g/t /31.103 \* Au recovery % \* (Au price \$/oz/Cu price \$/t)). Reported on 100% Basis.



# C3 Prospect – Thick and High-Grades; Open at Depth





**LEGEND**

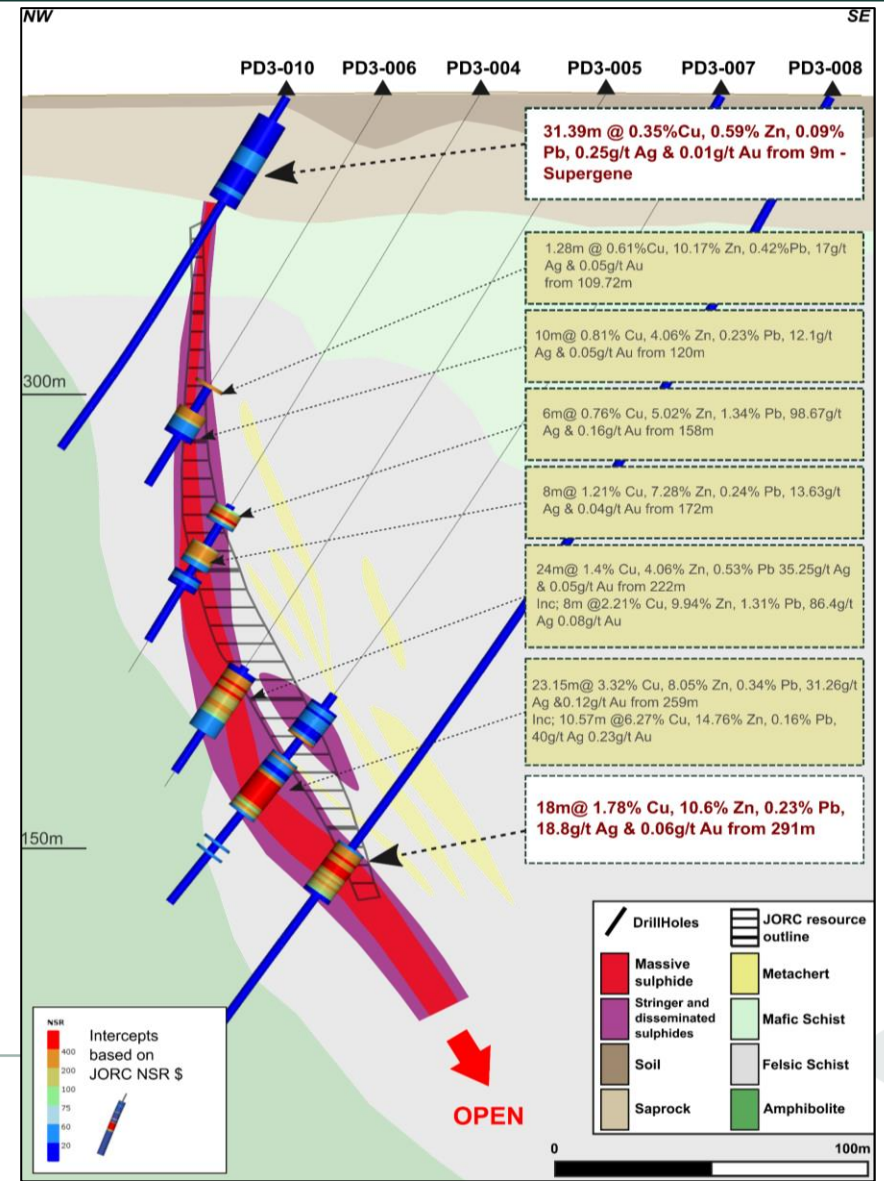
○ CPRM Pierce Points   ○ Alvo Minerals Pierce Points   ● VMS   ● Supergene

**NSR \* WIDTH**

● -100   ● +100   ● +250   ● +1000

**MINERAL RESOURCE OUTLINE**


--- >60NSR   - - - >200NSR



**NSR**



Intercepts based on JORC NSR \$



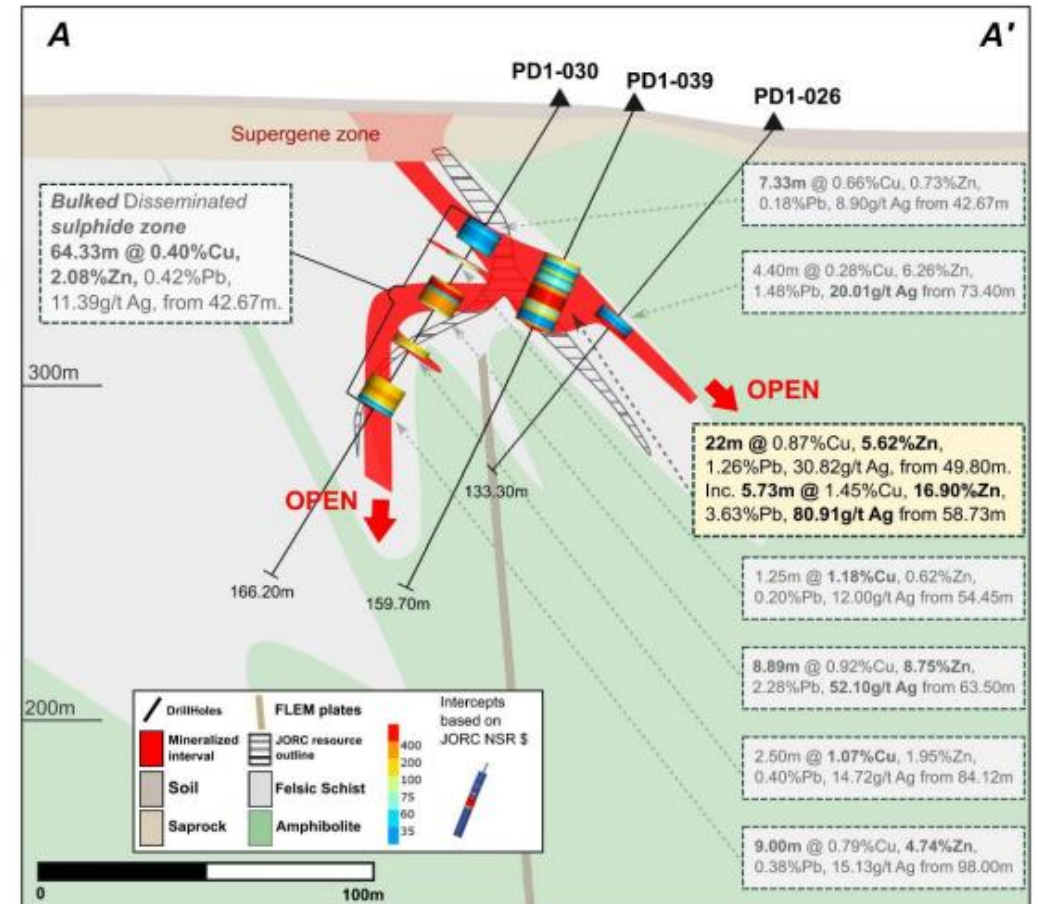
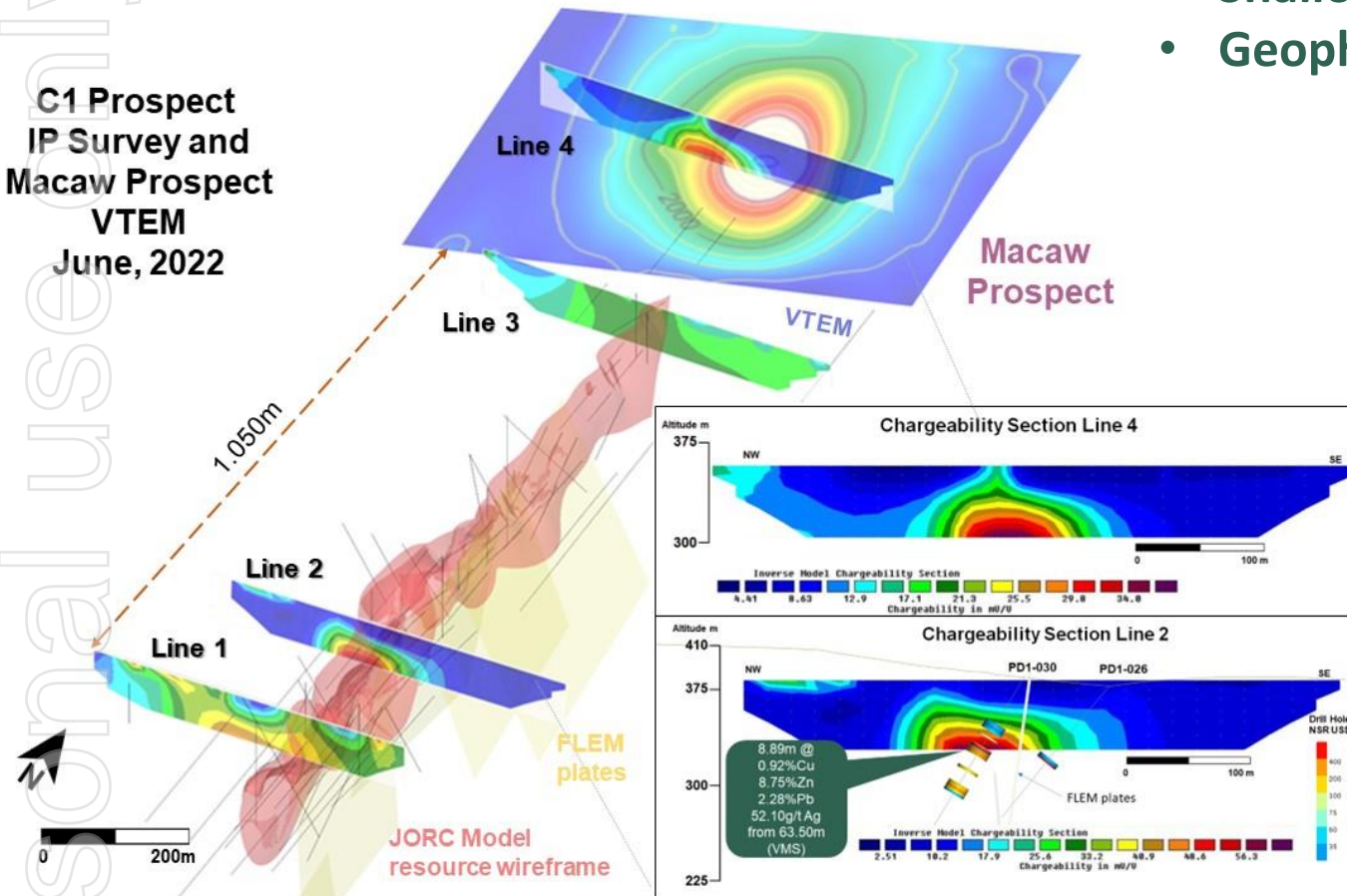
Massive sulphide	Metachert
Stringer and disseminated sulphides	Mafic Schist
Soil	Felsic Schist
Saprock	Amphibolite

# C1 – Drilling, FLEM & IP Surveys -Extensions & Discoveries



- Phase 1 drilling successful – high grade polymetallic
- Shallow and folded = thickening-considering open pit
- Geophysics key exploration tools

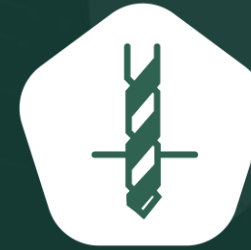
C1 Prospect  
IP Survey and  
Macaw Prospect  
VTEM  
June, 2022



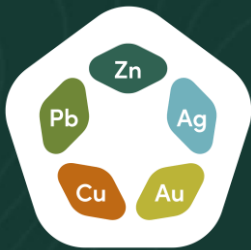
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**4.6Mt @ 1.0% Cu, 3.9% Zn, 0.4% Pb & 20g/t Ag**



VMS targets occur in clusters - Alvo has secured **>60km of prospective strike**



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Alvo has cash, tight capital structure, experienced management & excellent infrastructure



**VMS**  
Brazil

**Thank you**

Rob Smakman

Managing Director

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# APPENDICES

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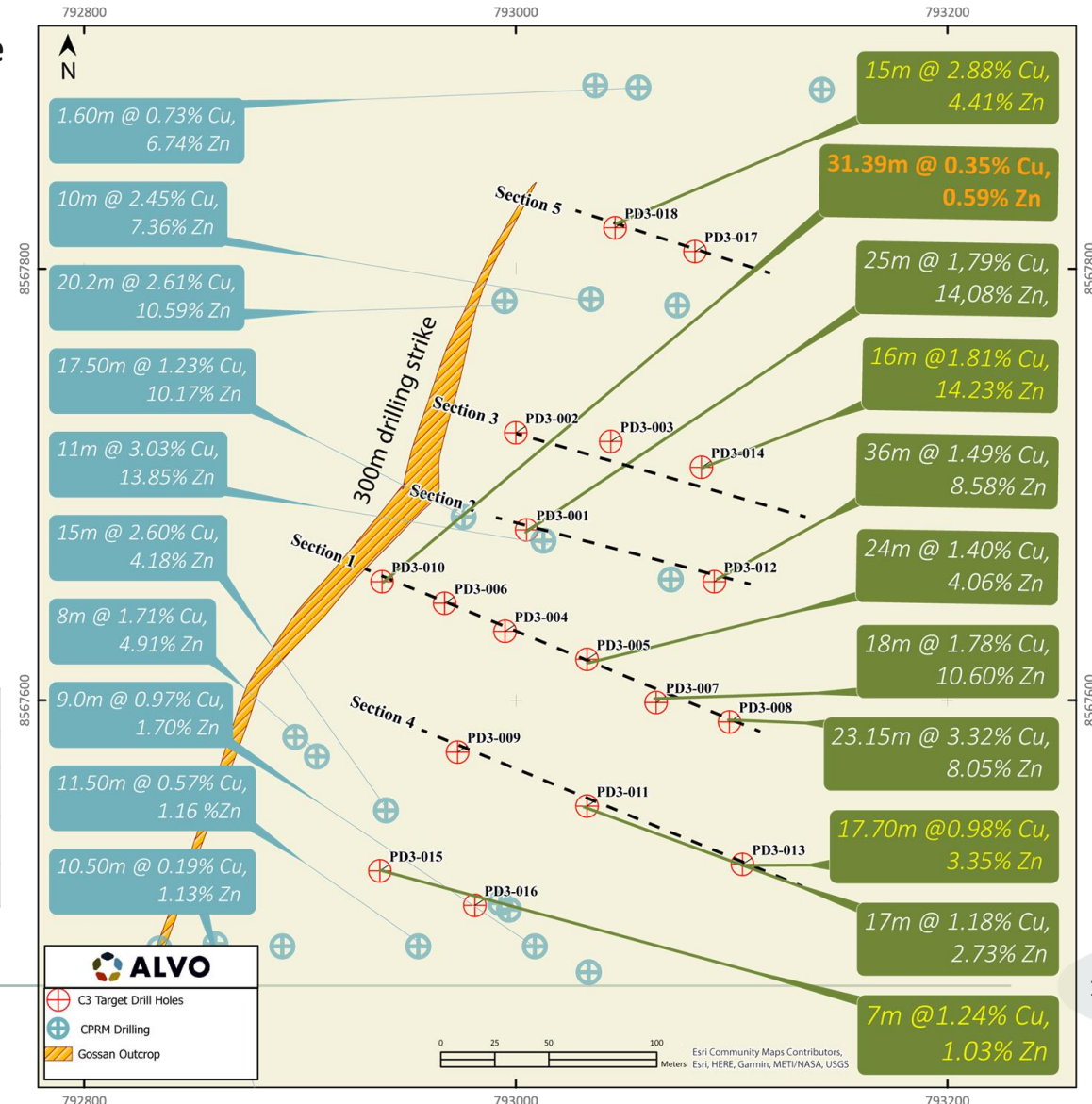
# C3 Prospect – High grade Copper and Zinc

- Phase 1 drilling complete, mineralisation open at depth and along strike
- JORC 2012 Resource of **2.8Mt @ 1.1% Cu, 4.3% Zn, 0.2% Pb & 23g/t Ag**
- Multiple high-grade intercepts drilled will grow the resource;
  - PD3-001: **25.00m @ 1.79% Cu, 14.08% Zn** from 187m
  - PD3-007: **23.15m @ 3.32% Cu, 8.06% Zn** from 258.85m
    - Inc. **10.57m @ 6.27% Cu, 14.76% Zn** from 267.47m
  - PD3-008: **19.65m @ 1.64% Cu, 9.72% Zn** from 291m
  - PD3-012: **36m @ 1.49% Cu, 8.58% Zn** from 285m
  - PD3-014: **16.0m @ 1.81% Cu, 14.23% Zn** from 252m
    - Inc. **7.4m @ 2.20% Cu, 23.13% Zn**, from 259m
  - PD3-018: **15.0m @ 2.89% Cu, 4.41% Zn** from 71m

**JORC 2012 Inferred Mineral Resource**

Prospect	Tonnes (Mt)	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)
C1	1.80	0.8	3.2	0.8	15
C3	2.80	1.1	4.3	0.2	23
<b>Total</b>	<b>4.60</b>	<b>1.0</b>	<b>3.9</b>	<b>0.4</b>	<b>20</b>

\*The NSR cut-off of USD\$60/t has been calculated using the following prices: 2.90\$/lb Cu, 1.04\$/lb Zn, 0.79\$/lb Pb, 24.5\$/oz Ag and assuming recoveries of 90% for all metals in sulphide and 45% for all metals in oxides.

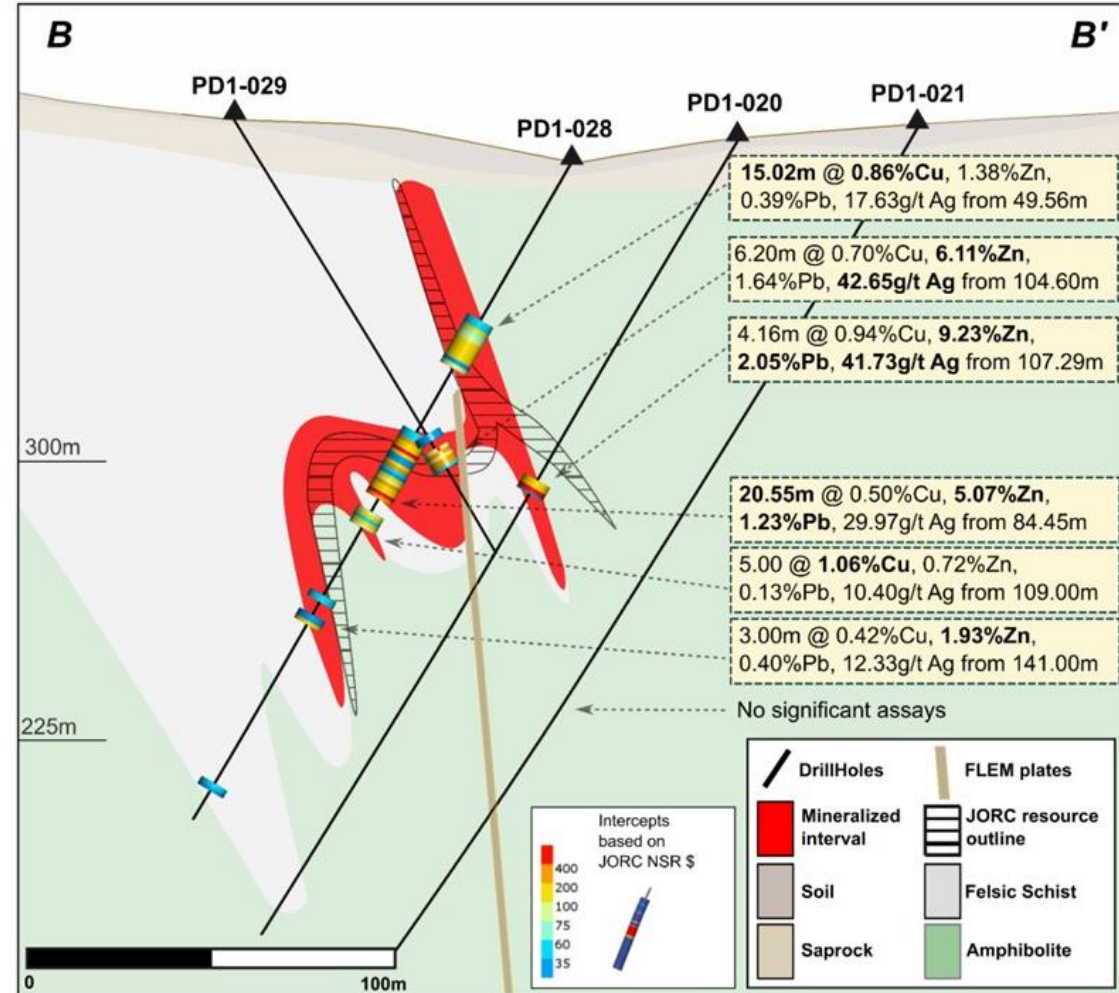
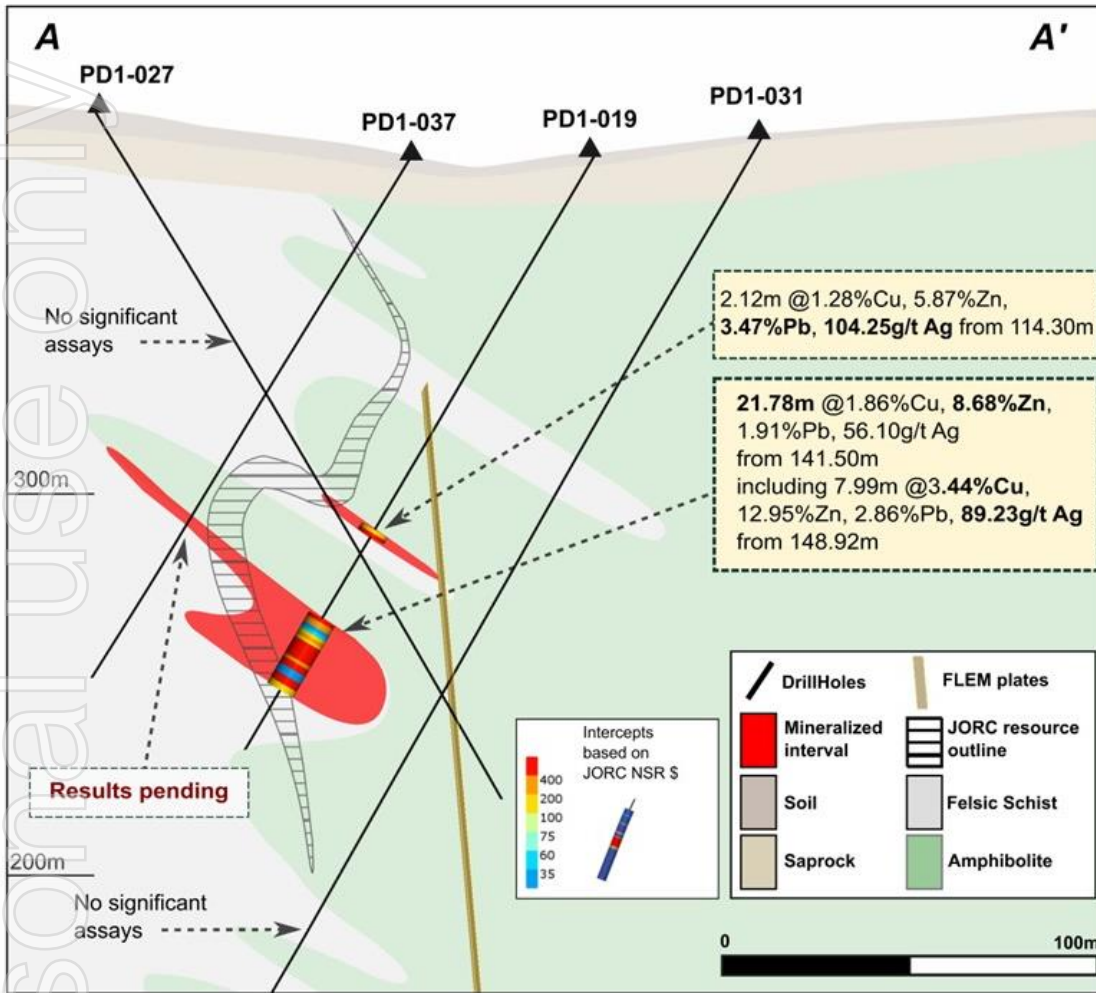


# C1 Prospect –Diamond Drilling



- C1 is mineralised over **1.2km of strike** - open at depth and along strike
- Phase one diamond drilling intercepted significant polymetallic massive/semi-massive and disseminated sulphides
  - PD1-019: **21.8m @ 1.86% Cu, 8.68% Zn, 1.91% Pb, 56.10g/t Ag & 0.12g/t Au** from 142m  
*Inc. 8.0m @ 3.44% Cu, 12.95% Zn, 2.86% Pb, 89.23g/t Ag & 0.20g/t Au* from 149m
  - PD1-030: **8.9m @ 0.92% Cu & 8.75% Zn 2.28% Pb, 52.10g/t Ag & 0.04g/t Au** from 64m  
*Inc. 2.8m @ 1.17% Cu, 15.30% Zn, 4.01% Pb, 82.16g/t Ag & 0.06g/t Au* from 64m
  - PD1-028: **20.6m @ 0.50% Cu, 5.07% Zn, 1.23% Pb, 29.97g/t Ag & 0.03g/t Au** from 84m  
*Inc. 2.1m @ 0.46% Cu, 13.74% Zn, 2.79% Pb, 62.00g/t Ag & 0.05g/t Au* from 103m
  - PD1-029: **6.2m @ 0.70% Cu, 6.11% Zn, 1.64% Pb, 42.65g/t Ag & 0.05g/t Au** from 105m
- Fixed loop Electromagnetic Survey (**FLEM**) highlighted potential extensions down dip and new targets to the south - drilling and DHEM to test these positions
- RC drilling to test shallow VMS massive and disseminated mineralisation imminent

# C1 Prospect- High-Grade Polymetallic Intercepts

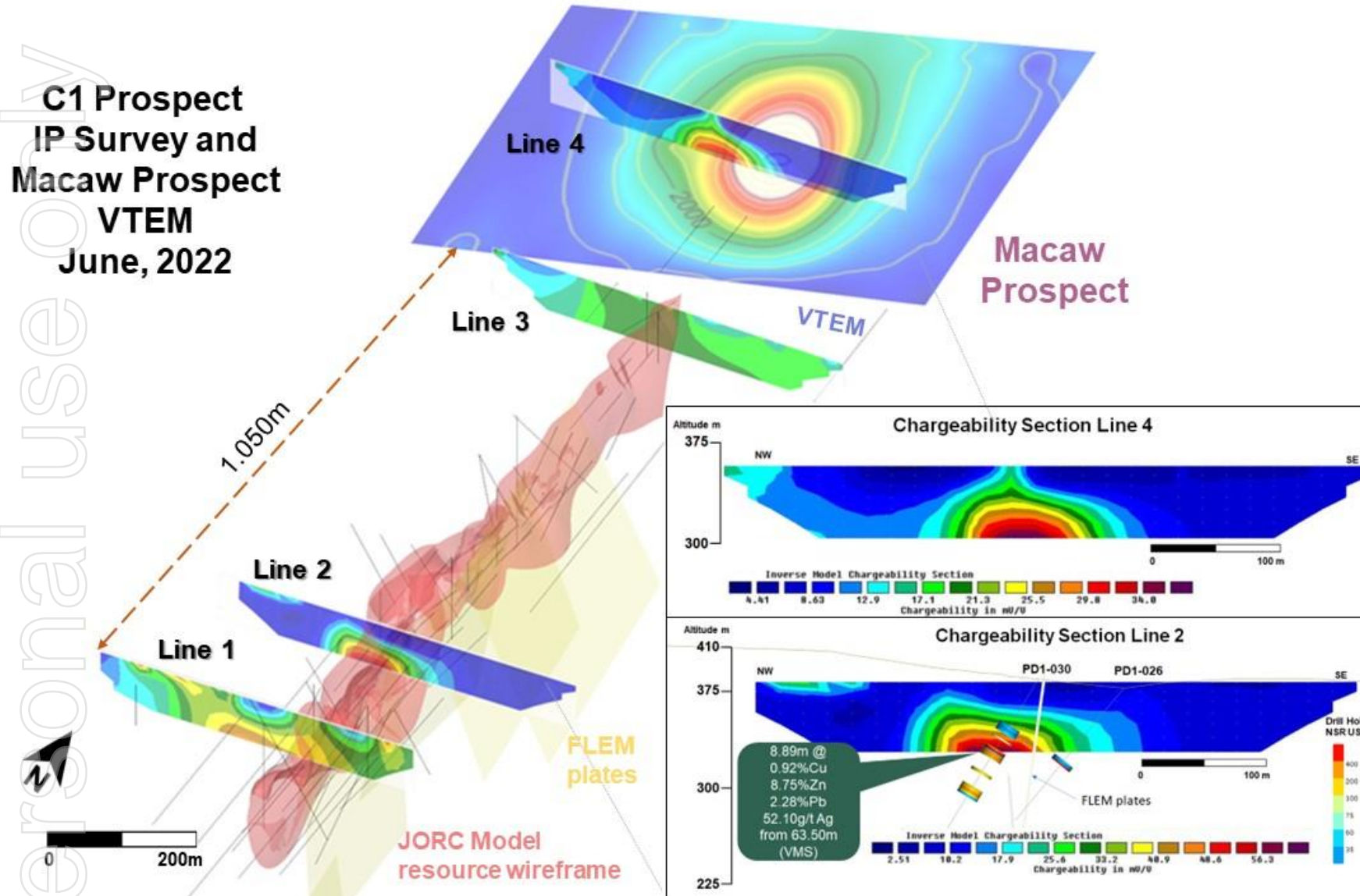




# C1 – FLEM & IP Surveys- Extensions & Potential Discoveries



C1 Prospect  
IP Survey and  
Macaw Prospect  
VTEM  
June, 2022

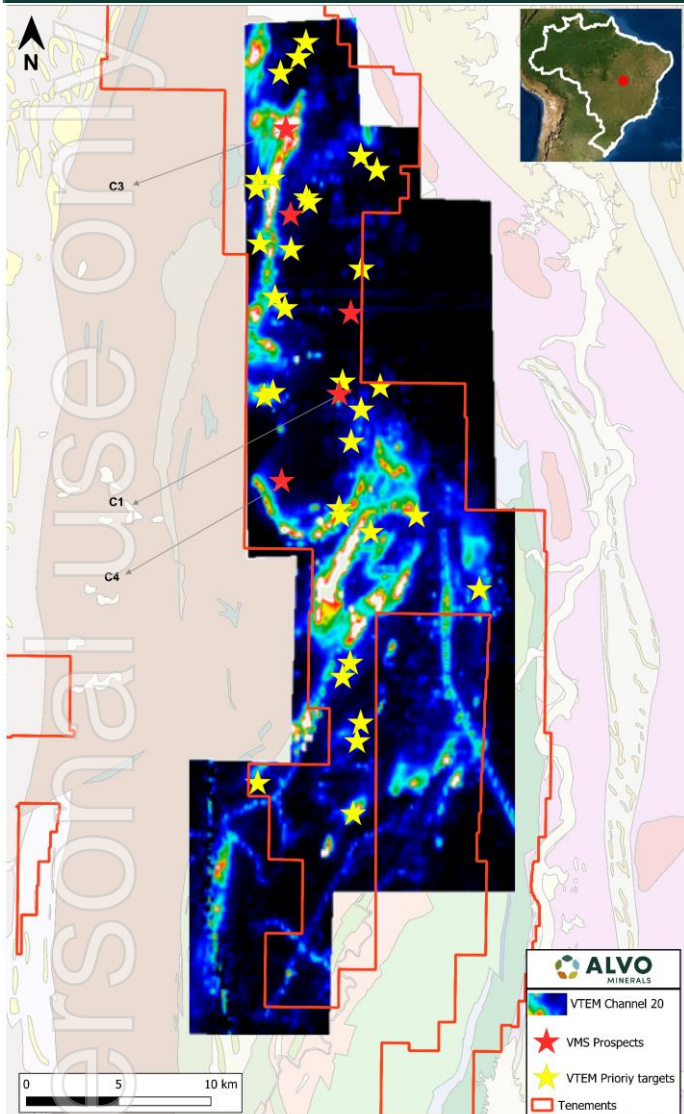


- FLEM survey at C1 extends **potential at depth**
- Induced Polarisation (**IP**) survey completed in collaboration with the University of Brasilia, highlights the **disseminated mineralisation**
- Significant IP anomaly identified at the **untested Macaw** prospect, 500m along strike to the NE of the C1
- **FLEM** survey and **diamond drilling** at Macaw to **commence shortly**
- Mineralisation is structurally controlled, **Zn & Cu** appears to be concentrated to a **high-grade, shallowly plunging zone-** with **significant Pb and Ag**

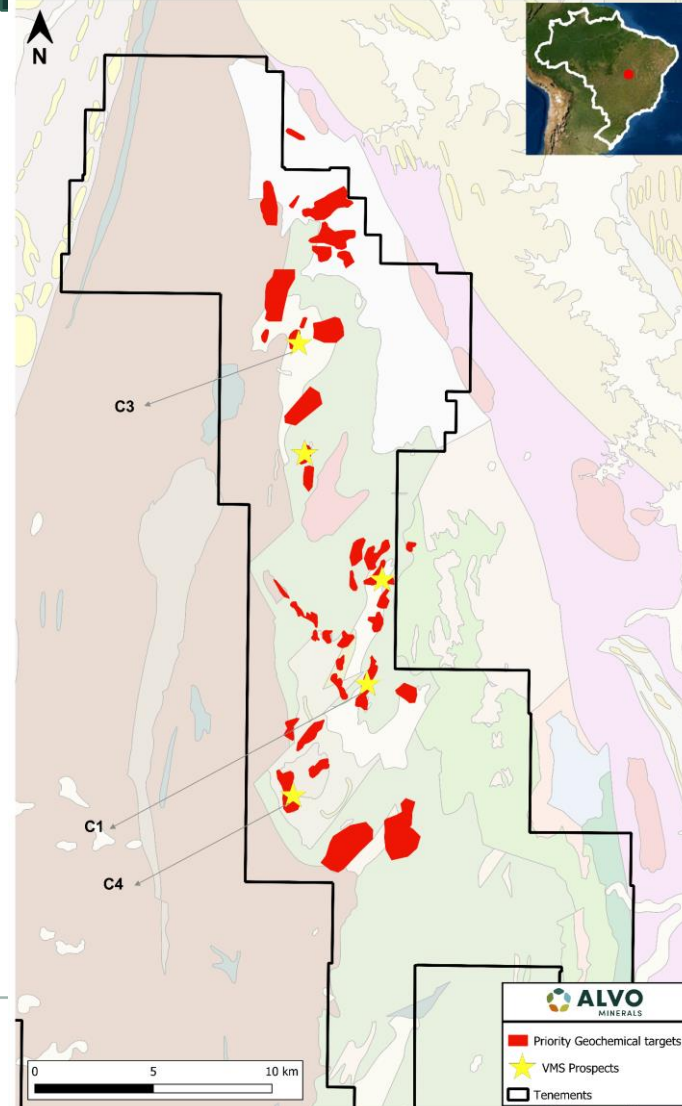
# Palma Exploration –Aiming to uncover a new district scale VMS camp



VTEM ch20 survey with priority conductors



Combined Cu, Zn, Pb 1<sup>st</sup> order geochem anomalies

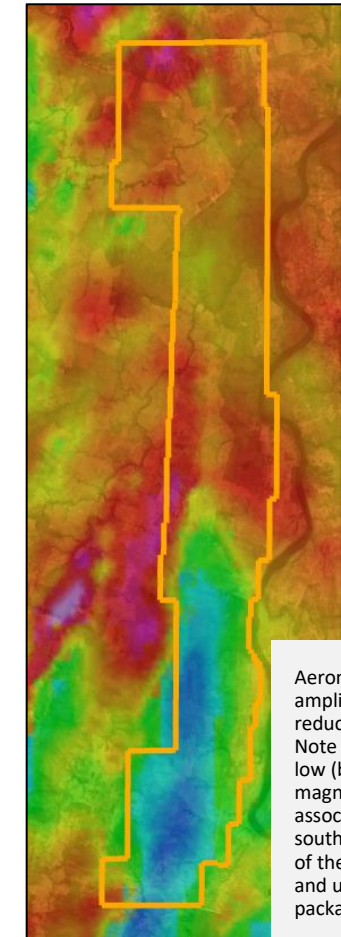
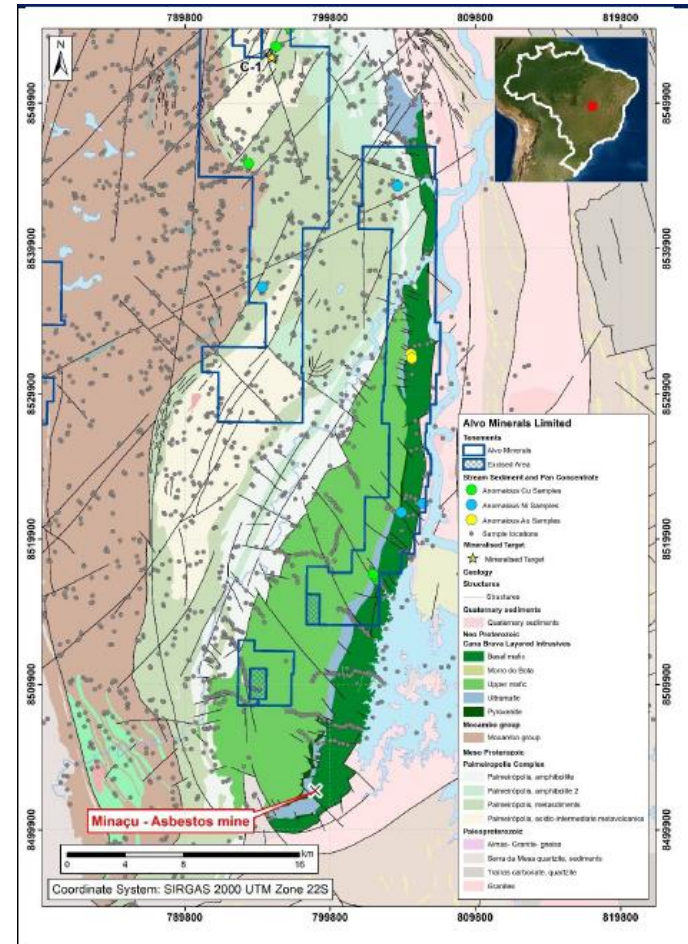


- Alvo has **>500km<sup>2</sup>** of contiguous and highly prospective ground in a known VMS district.
- Regional geochemistry dataset - 27km of untested high tenor Cu/Zn Soil anomalies
- VTEM survey flown in 2008 has been re-interpreted and **>20 late-time conductors**
- Various government magnetics and radiometrics compiled to assist exploration targeting
- In-house and contract geophysics combined with new geochem and geology to advance prospects to drill ready status
- Based on the combination of geochemistry, geophysics and geology, Alvo has a **pipeline of advanced targets** that will be systematically explored

# Ni/Cu/PGEs Magmatic Sulphide Target

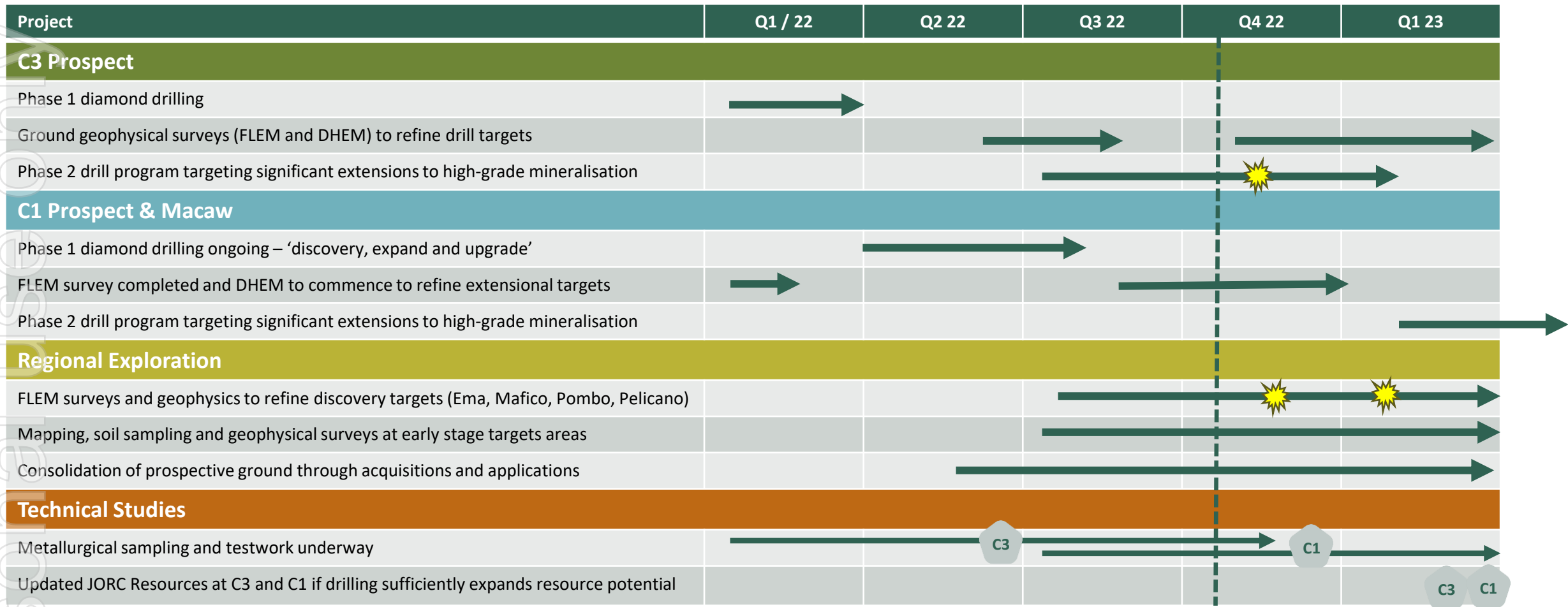
## Early stage exploration target - Cana Brava mafic/ultramafic belt

- N-S striking mafic/ultramafic layered intrusion **prospective for Ni/Cu/PGE's**
- Stream sediment sampling Ni shows a very strong correlation with Co, Cr, Cu & V with a moderate correlation with Ba, Ga, Mo & Zn.
- Correlation indicative of **mafic host with magmatic mineralisation**
- Spatially these samples are associated with a layered gabbroic intrusion to the south east and it's adjacent metanorite
- Regionally, this ultramafic unit is the host of important Nickel mines at Niqelandia (Nickel-land) ~50km to the South
- ~180km<sup>2</sup> 100% owned by Alvo - 30km of strike, with additional ground recently won in e-Auction



Aeromagnetic amplitude image-reduced to pole. Note the relatively low (blue clouds) magnetic signature associated with the southern portion of the lower mafic and ultramafic package

# Palma Project - Next Steps

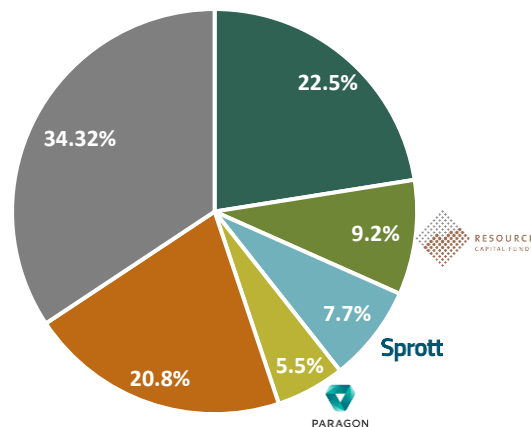
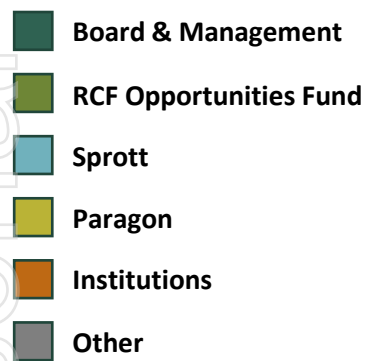


# Alvo Minerals Corporate Overview



## ALV Structure Summary

Key Information	
Share price (as at 8 November 2022)	\$0.17
Total shares on issue	72.8M
<b>Market capitalisation</b>	<b>\$12.4M</b>
Net Cash (as at 30 September 2022)	\$4.2M
<b>Enterprise value</b>	<b>\$8.2M</b>
Options <sup>1</sup>	12.6M
Performance Options <sup>2</sup>	3.0M
Shareholder Breakdown	
Top 20 Shareholders	64.8%
Top 50 Shareholders	79.1%



## Board and Management

- Alvo's board has significant minerals exploration and mining experience in Brazil and around the world
- Experienced team in Brazil to manage exploration activities



### Graeme Slattery | Non-Exec Chairman

Graeme is a practising corporate lawyer with over 20 years of experience advising companies in the mining and resources sector on all aspects of corporate and commercial law. He has extensive experience dealing with foreign jurisdictions and regulatory issues and serves on numerous international boards.



### Rob Smakman | Managing Director

Rob is a Geologist with over 20 years international experience, over 10 of which were in Brazil. Fluent in Portuguese, he successfully founded and listed Crusader Resources and was responsible for instigating its Brazilian entry and operations. In Crusader, Rob sourced, negotiated, explored and built projects whilst raising >USD100M in capital (equity and debt) for multiple projects. Projects included the Borborema Gold Project, the Posse Iron Ore Mine and the Juruena Gold Project.



### Beau Nicholls | Non-Exec Director

Beau is a Geologist with over 25 years international experience, including 9 years in Brazil as the Principal consultant for Coffey Mining- a leading international consulting firm (Beau is fluent in Portuguese). Beau is an Executive Director with ASX listed Big River Gold and Principal Consultant for Sahara Natural Resources, specializing in exploration and mining services in Africa.

1. 9.0m options exercisable at \$0.35 expiring 3 years from date of issue; 0.6m Board options exercisable at \$0.000001, 3.0m MD options exercisable at \$0.45  
 2. 3.0m options exercisable at \$0.45 expiring 27 May 2026 with varying vesting conditions – 1.2m options vesting on definition of Inferred Resource of +10Mt @ >2.0% CuEq; 0.9m options vesting on 20-day VWAP greater than \$0.50; 0.9m options vesting on 20-day VWAP greater than \$0.75