



**Finding the energy metals the world needs for a low-carbon future**

## **The S41 Breccia-Hosted Gold Prospect**

**AIG Victorian Round-Up – 26-27 June 2025**



- This presentation contains only an overview of Stavely Minerals Limited (“Stavely” or the “Company”) and its activities and operations. The contents of this presentation, including matters relating to the geology and exploration potential of the Company’s projects, may rely on various assumptions and subjective interpretations which it is not possible to detail in this presentation and which have not been subject to any independent verification.
- This presentation contains a number of forward-looking statements. Known and unknown risks and uncertainties, and factors outside of the Company’s control, may cause the actual results, performance and achievements of the Company to differ materially from those expressed or implied in this presentation.
- To the maximum extent permitted by law, Stavely does not warrant the accuracy, currency or completeness of the information in this presentation, nor the future performance of the Company, and will not be responsible for any loss or damage arising from the use of the information.
- The information contained in this presentation is not a substitute for detailed investigation or analysis of any particular issue. Current and potential investors should seek independent advice before making any investment decision in regard to the Company or its activities.
- This presentation is intended as a technical presentation to geology-proficient peers and information contained in this presentation may require substantial technical experience for full comprehension – please seek appropriate advice



1. **Geology and structure of the Stavely Volcanic Belt**
2. **The Cayley Lode Setting**
3. **How was the S41 target identified?**
4. **The S41 Breccia-Hosted Gold Prospect**
5. **First-pass aircore drilling results**
6. **Diamond drill hole SMD001**
7. **Carbonate base-metal gold systems attributes**
8. **Petrology**
9. **SEM**
10. **Next Steps**



<sup>1</sup> See ASX announcement 23 May 2023

<sup>2</sup> See ASX announcement 14 June 2022, Appendix 1

<sup>3</sup> See Stavely Minerals Prospectus April 2014





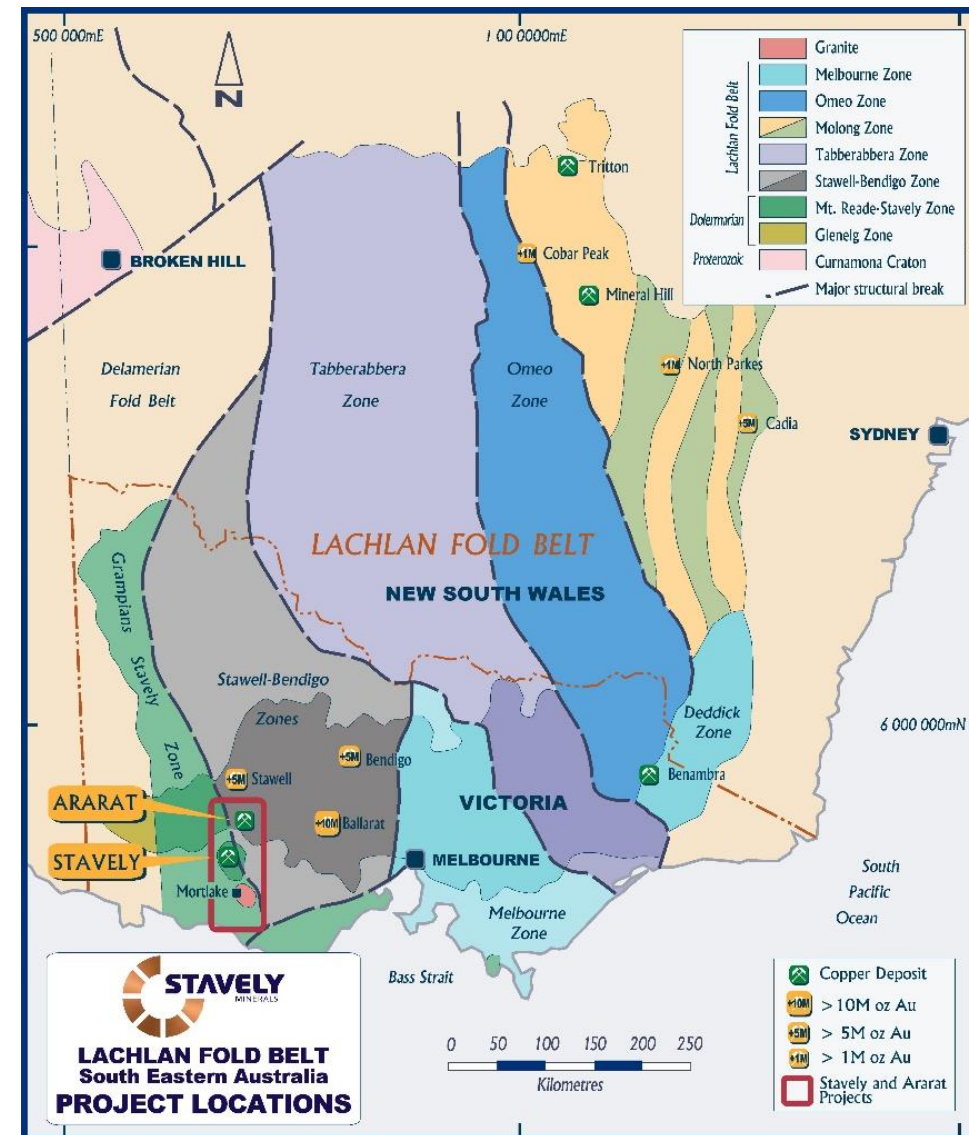
# Geology and structure of the Stavely Volcanic Belt



# Regional Geology and Structure



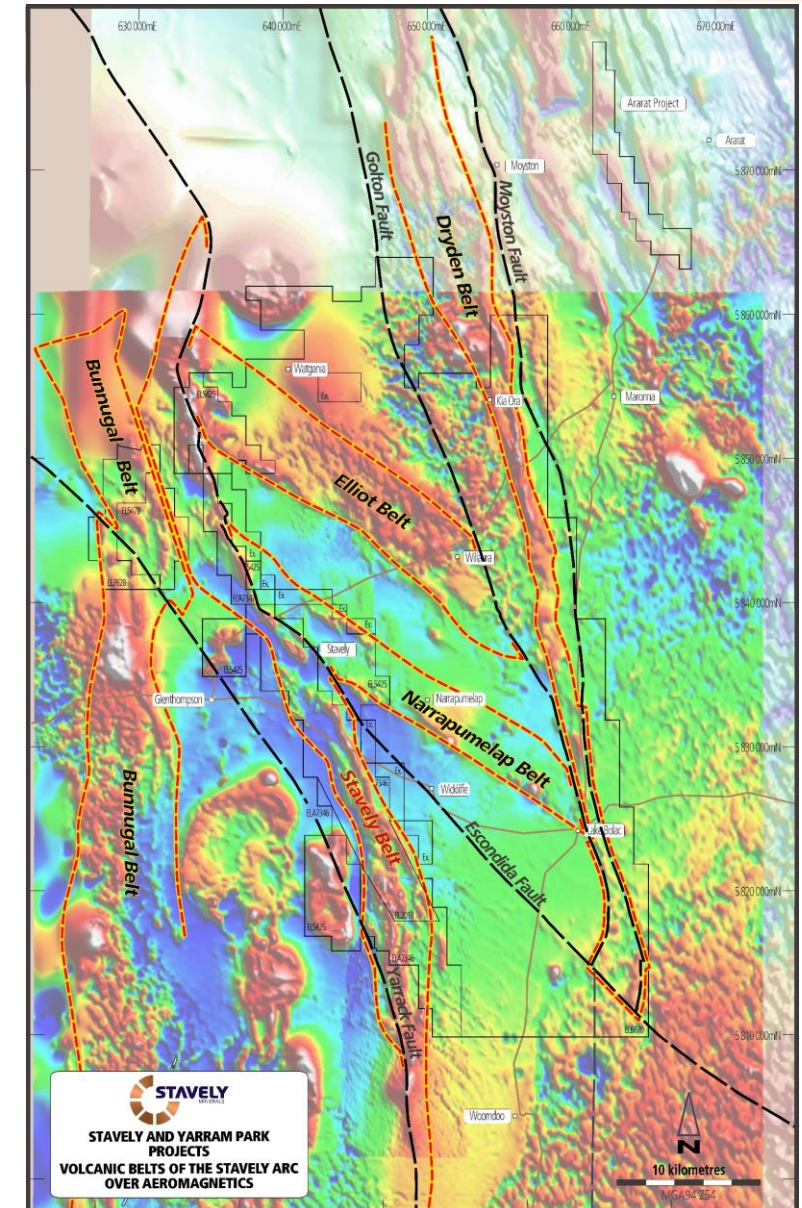
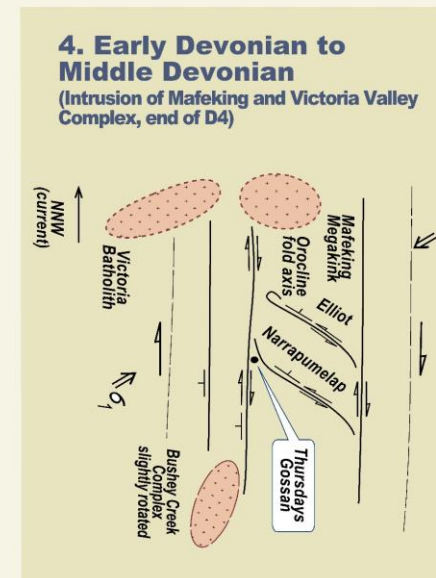
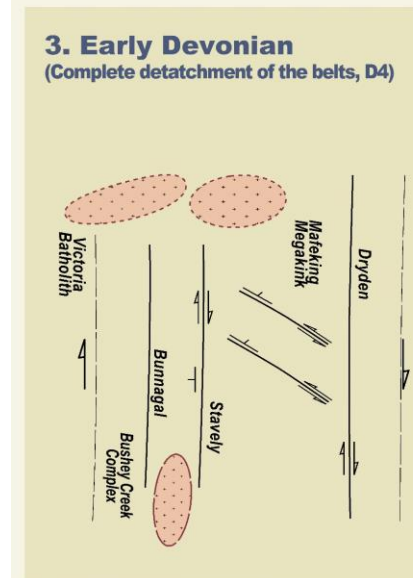
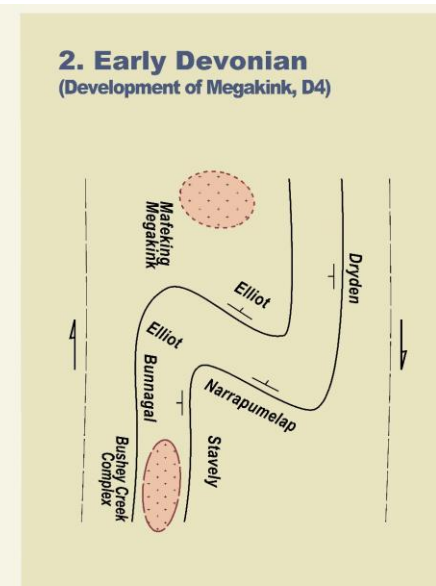
- Located in the Grampians / Stavelly Zone
- Host sequence includes (probable) Late-Proterozoic serpentinitised ultramafic and Late-Cambrian turbidites, tuffs, andesitic flows (most hyaloclastite) and dolerite, granodiorite, tonalite, diorite and dacite intrusions



# Regional Geology and Structure

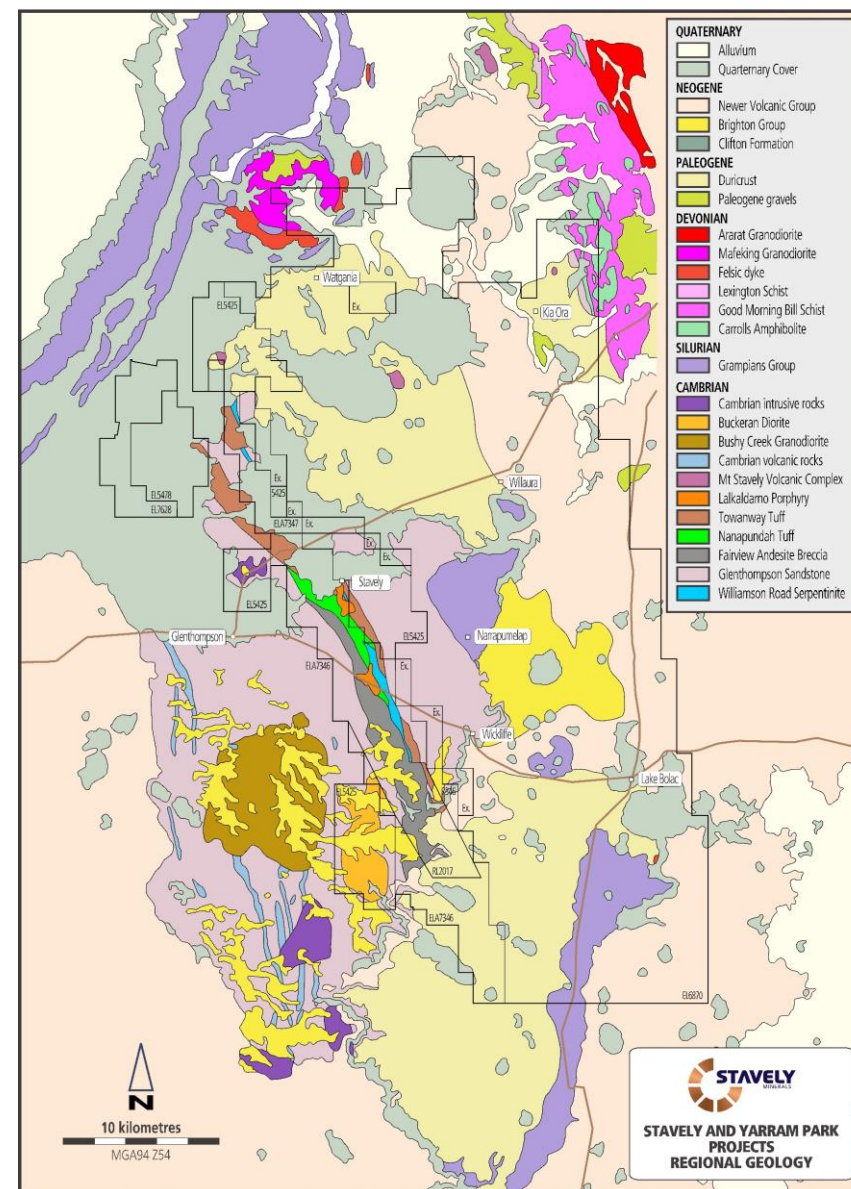
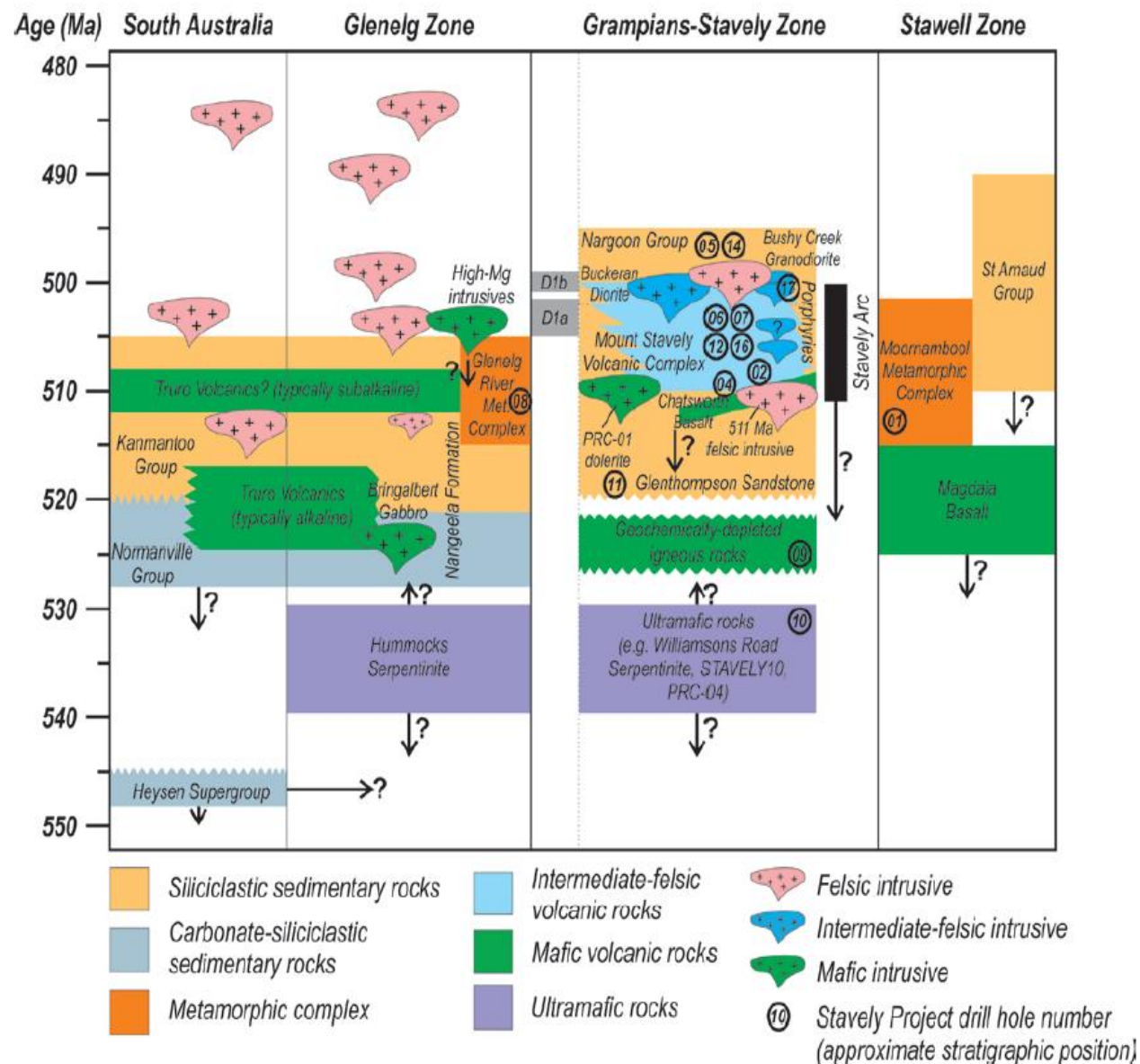


- The Cambrian-age volcanic belts have been subjected to Devonian-age D4 deformation
- All of the historic prospects are in a small 'window' of sub-crop
- Stavely Minerals tenure covers ~130km of fertile volcanic arc





# Regional Geology and Structure





# Stavely Copper-Gold Project – Thursday's Gossan

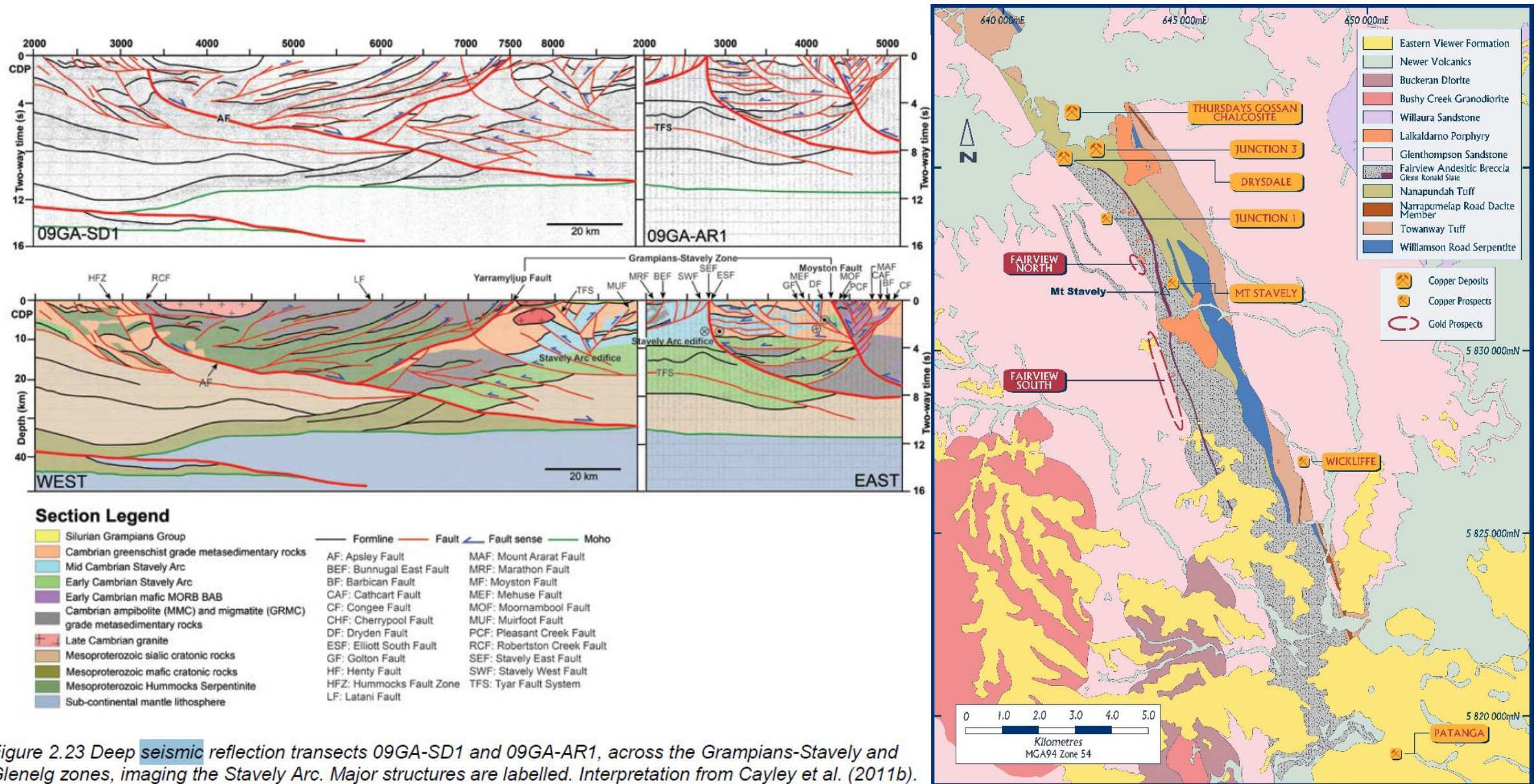


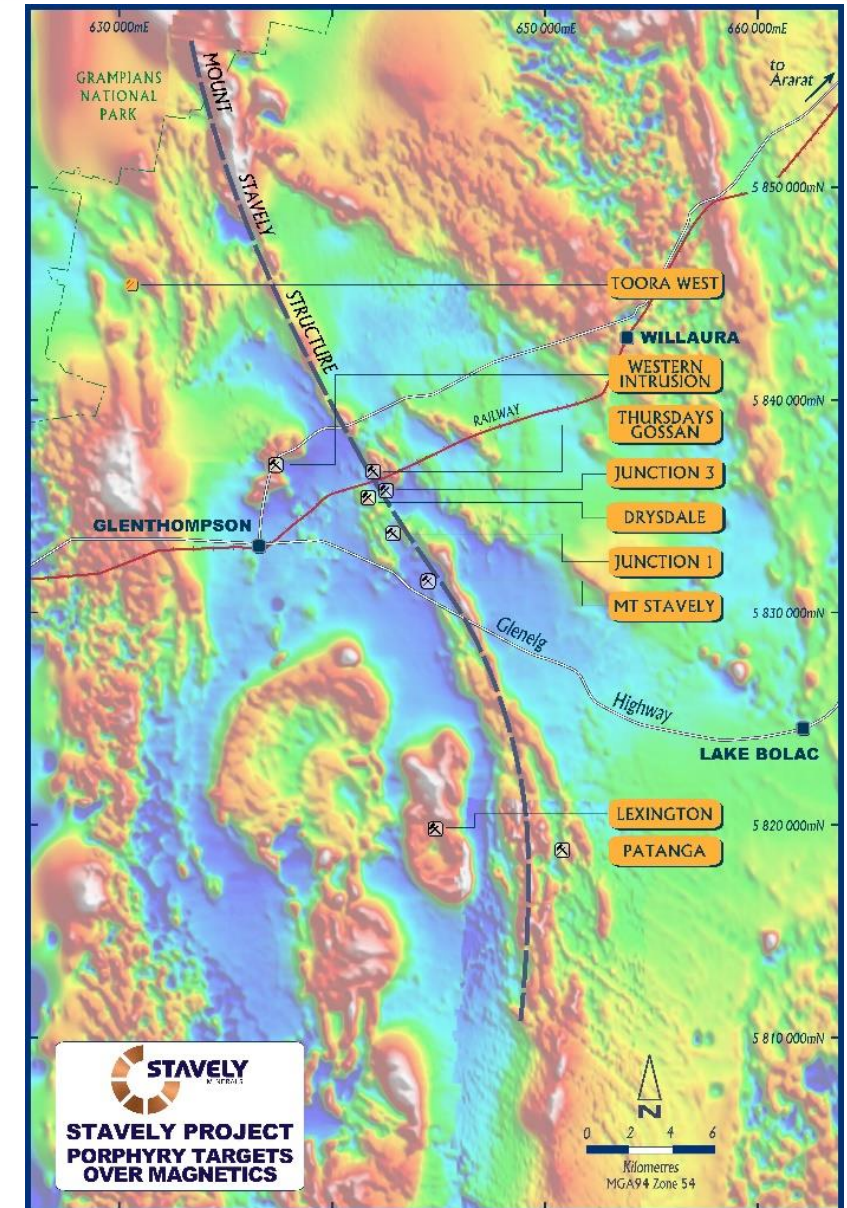
Figure 2.23 Deep seismic reflection transects 09GA-SD1 and 09GA-AR1, across the Grampians-Stavely and Glenelg zones, imaging the Stavely Arc. Major structures are labelled. Interpretation from Cayley et al. (2011b).



# Regional Geology and Structure



- The Cambrian-age Stavelly Volcanic Belt is exposed or under shallow cover for about 20km south of the Grampians
- All of the historic prospects are in this 'window' of sub-crop
- Approximately 80% transported cover and Newer Volcanics basalt cover – thousands to 4 million years ago



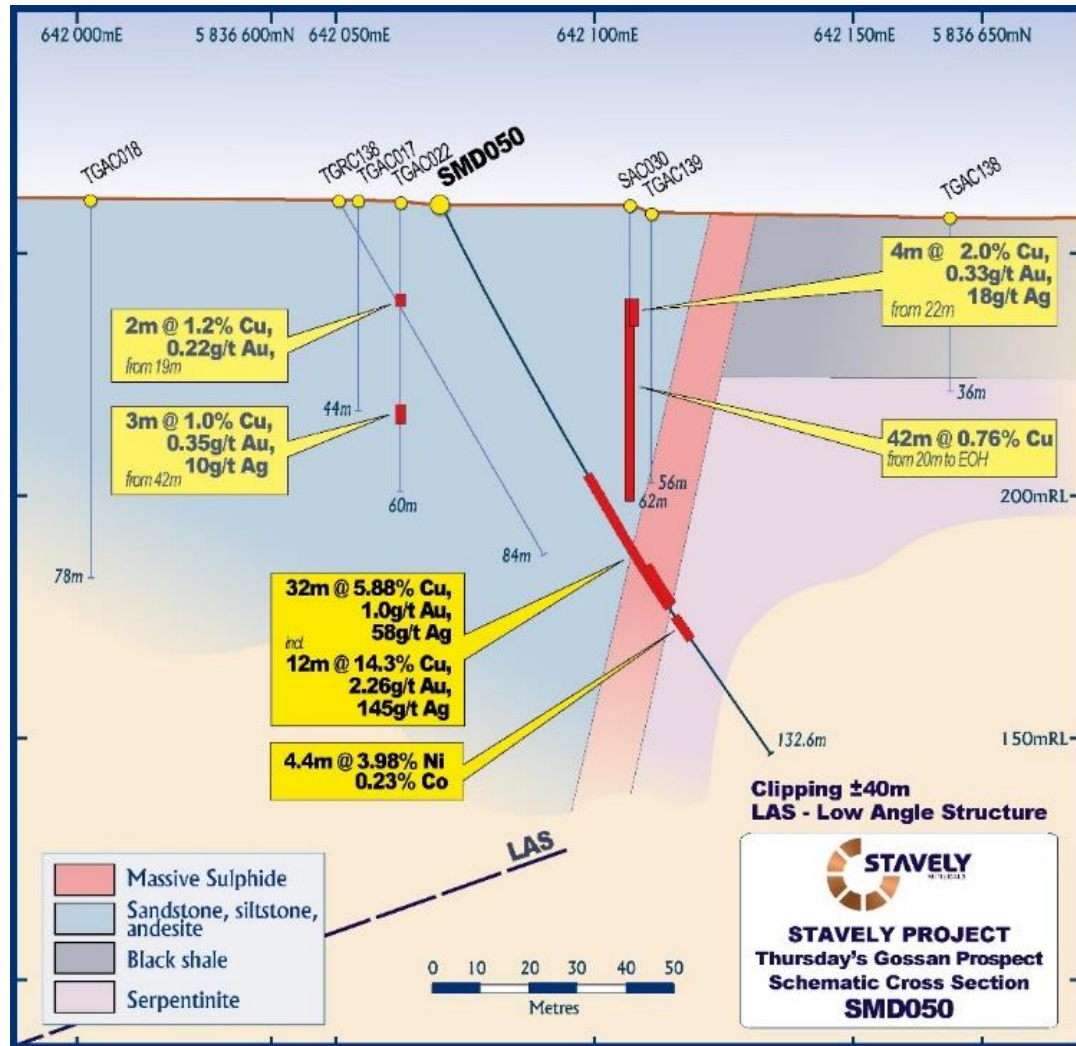




# The Cayley Lode Setting



# The Discovery



## SMD050

- **32m at 5.88% copper, 1.00g/t gold and 58g/t silver**, from 62m drill depth, including:
  - 12m at 14.3% copper, 2.26g/t gold and 145g/t silver from 82m, including:
  - 2m at 40% copper, 3.00g/t gold and 517g/t silver
- Surprisingly, SMD050 also intersected:
  - 4.4m at 3.98% nickel, 0.23% cobalt and >1% chrome

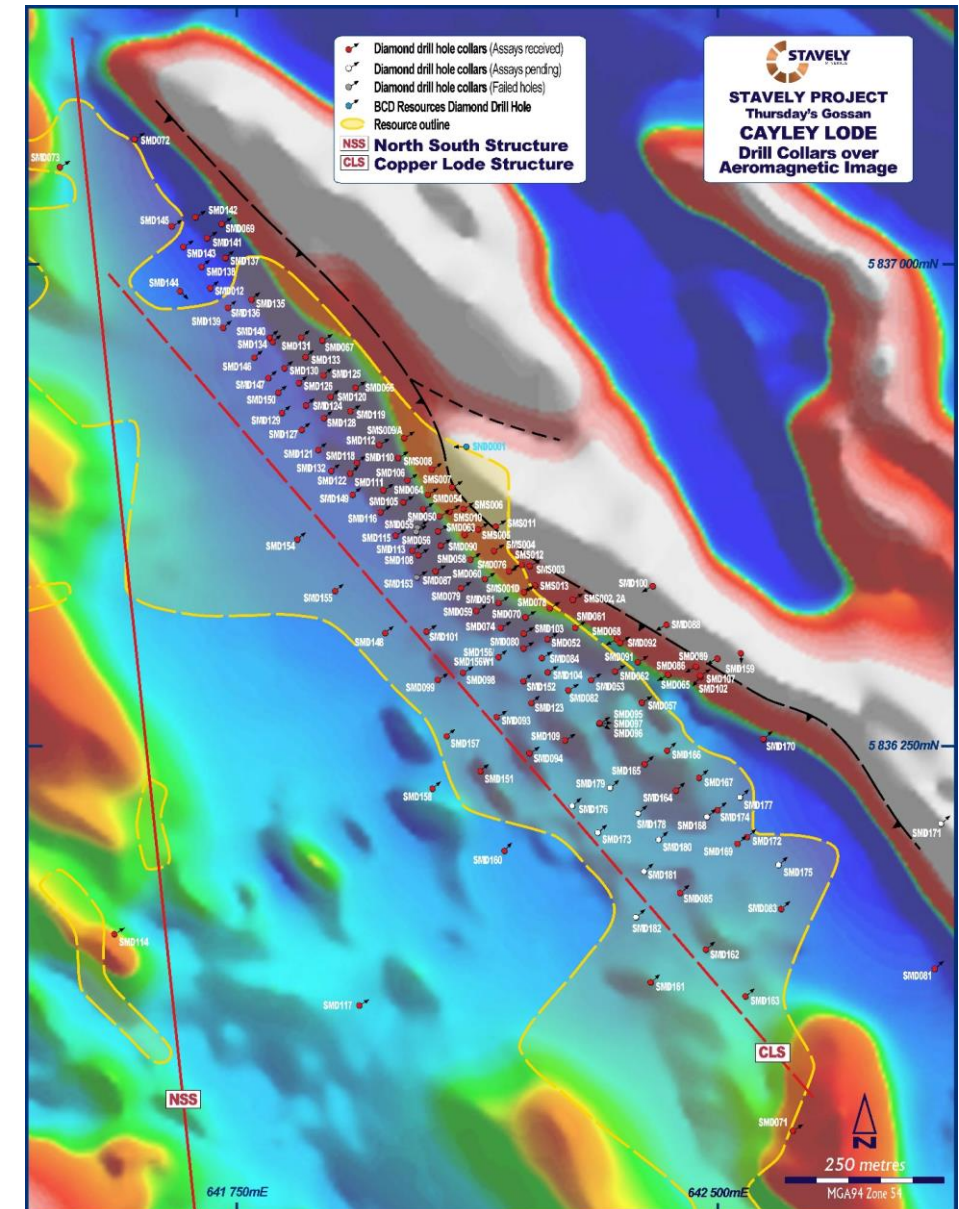


See ASX announcement 26/09/2019 and available from [www.stavely.com.au](http://www.stavely.com.au)

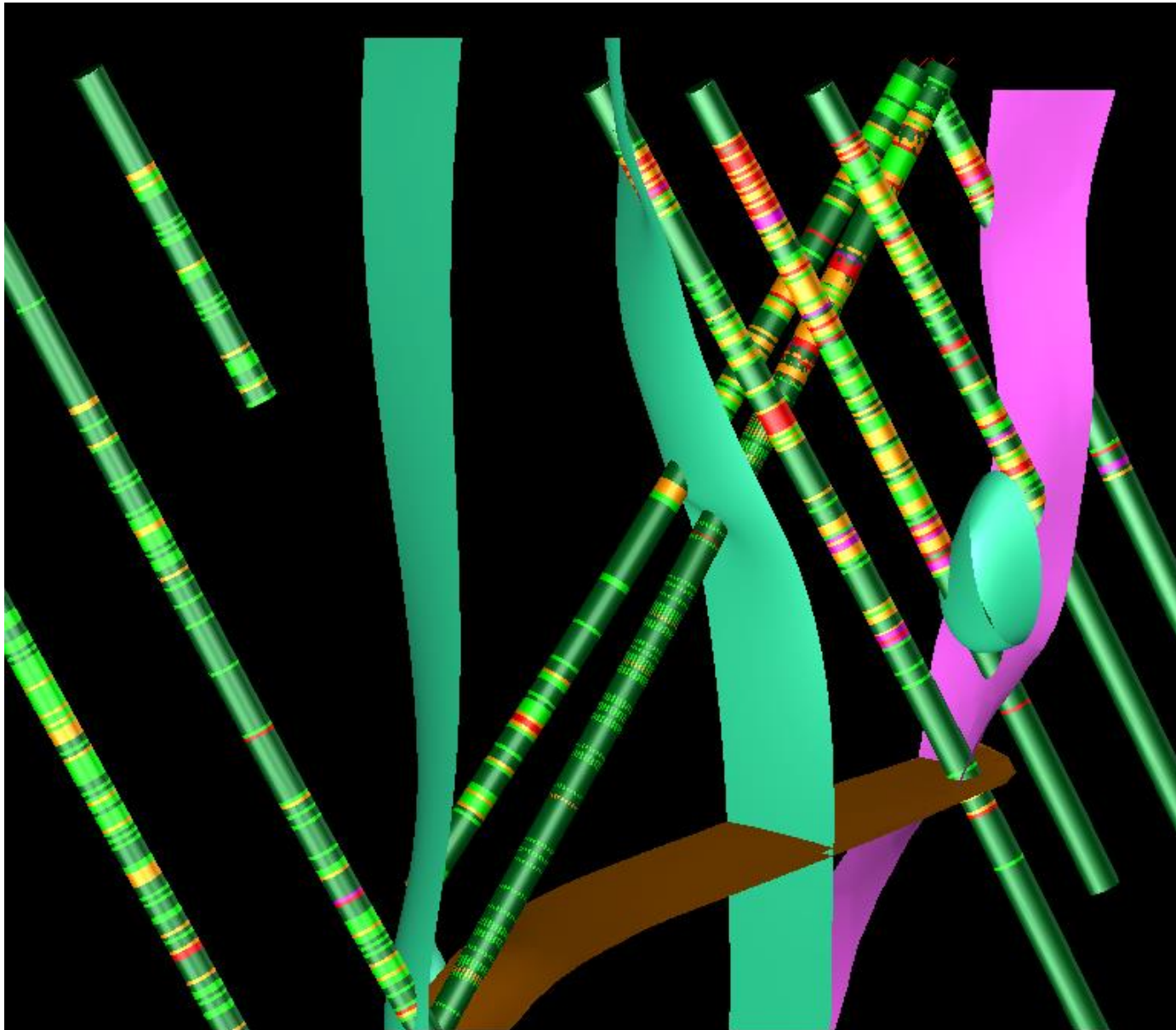
# Cayley Lode Discovery



- Magma / Butte copper lode-style system – outstanding exploration target never before seen in Australia
- Mineralisation so far defined over ~1.5 km strike length to ~300m depth, averaging 10-50m thickness
- Resource drilling completed on ~40m X 40m drill pattern
- Mineralisation remains open along strike and down-dip

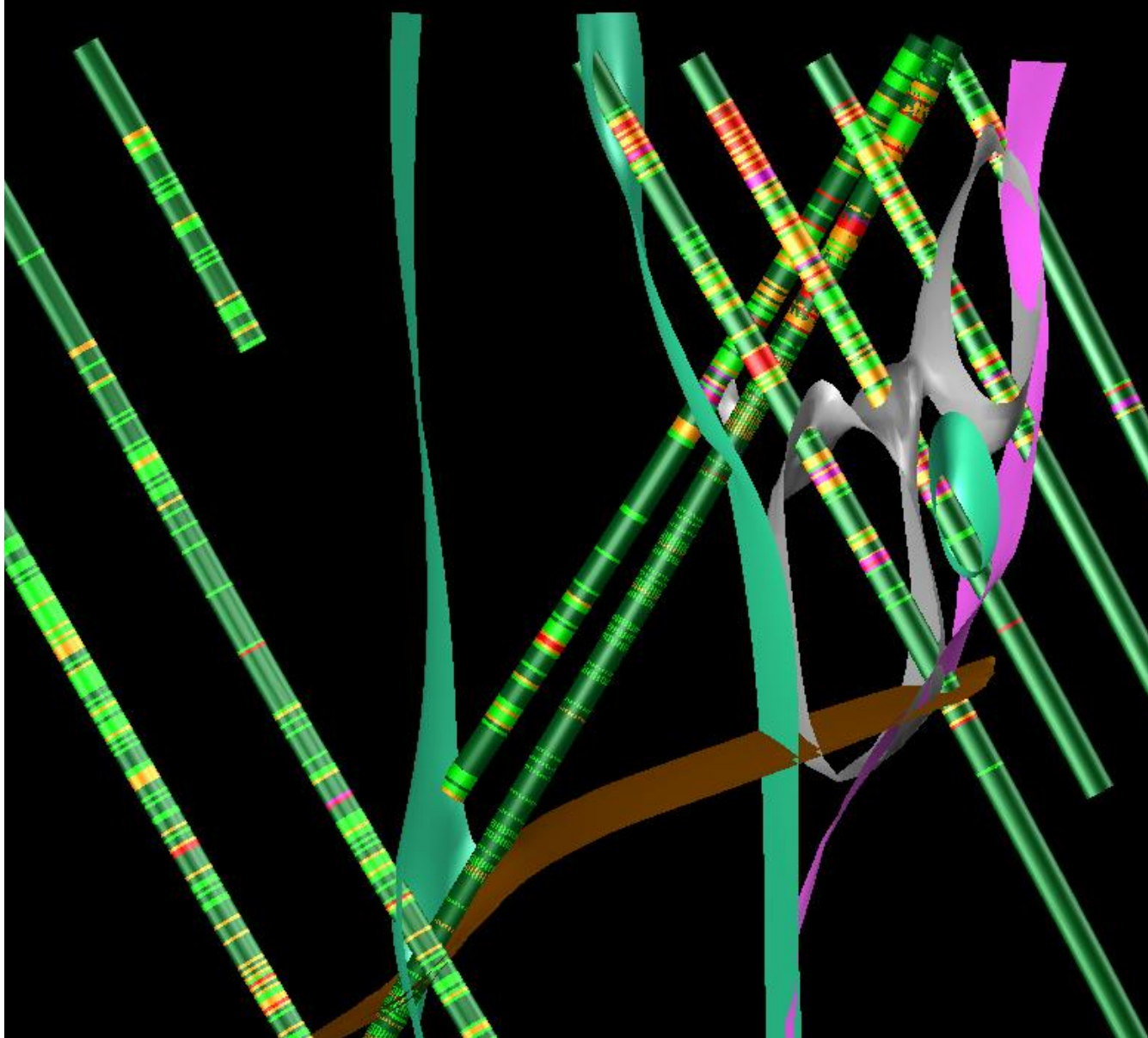






## Composite section – key elements

- Ultramafic Contact Fault (magenta)
- Early Microdiorite (green) – smaller green shape is late-microdiorite
- LKD diorite dyke – Devonian age but a proxy for the low-angle structure (brown)
- Drill hole traces coloured to copper:
  - 0-0.1% dark green
  - 0.1-0.2% bright green
  - 0.2-0.5% orange
  - 0.5-1.0% red
  - 1.0-10% magenta



- Grey shape – Alfa breccia, a pre-mineralisation phreato-magmatic hydrothermal breccia

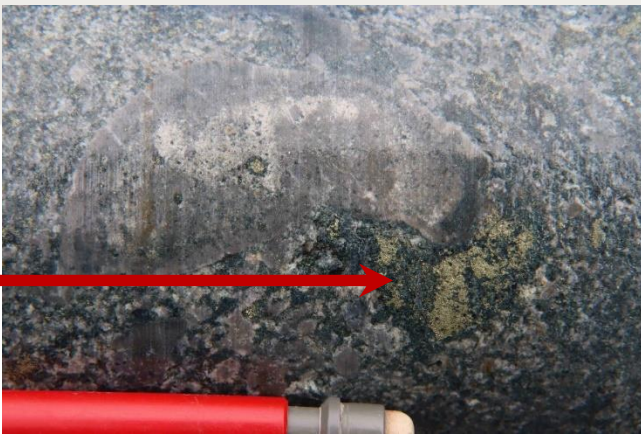






# Stavely Alfa 1 phreatomagmatic breccias

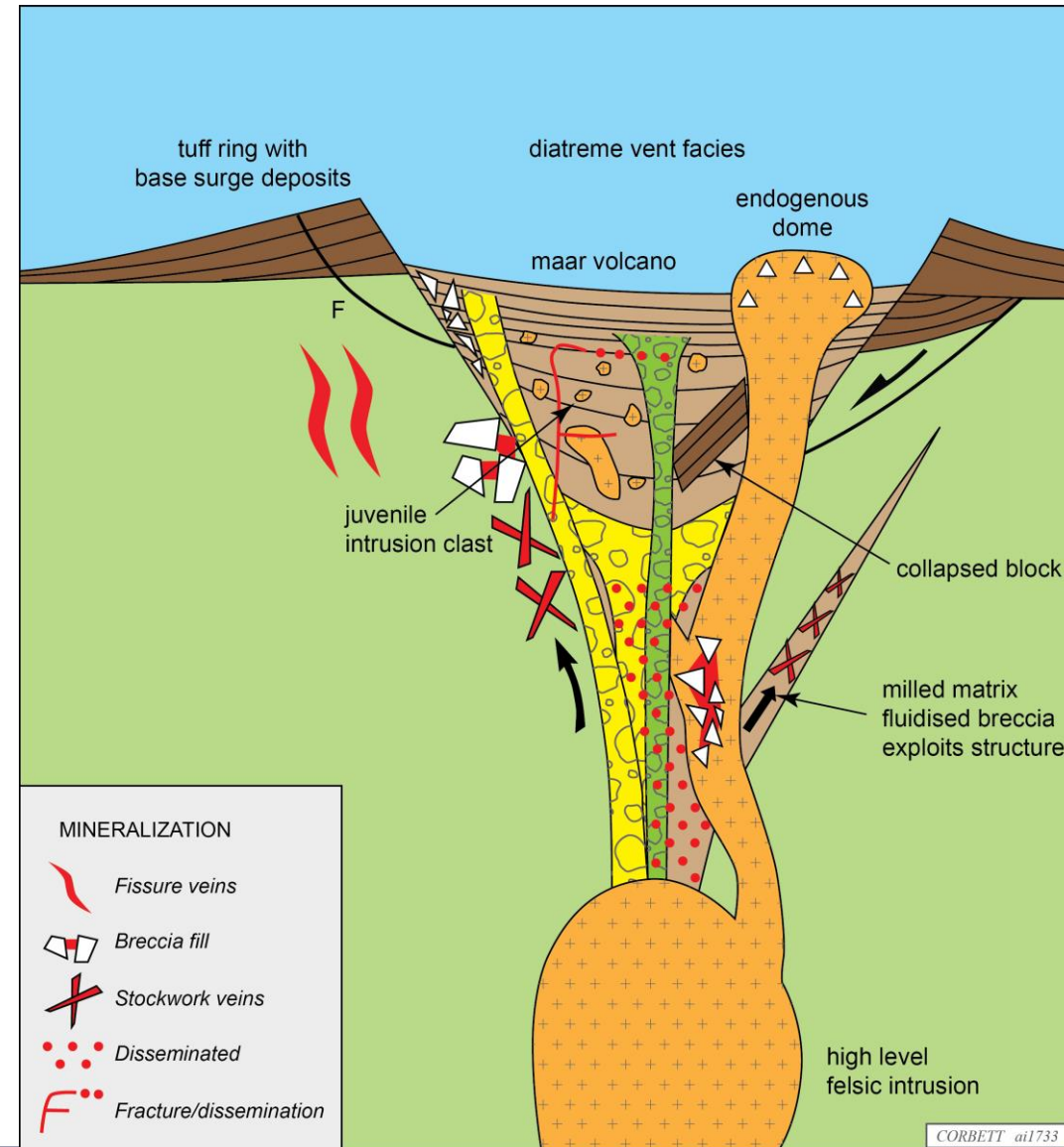
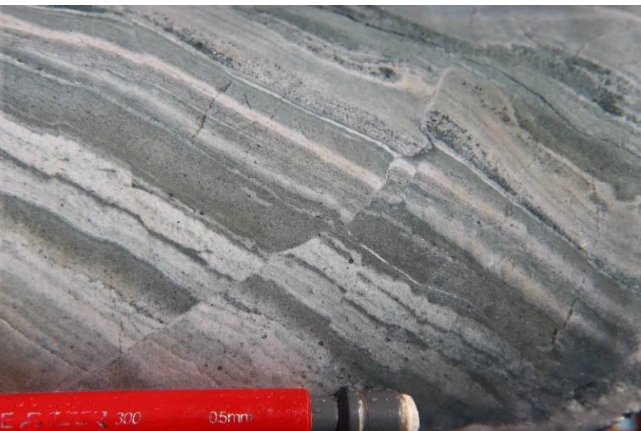
Magnetite-  
chalcopyrite  
mineralised  
clast from  
depth?



Polymictic  
breccia



tuff

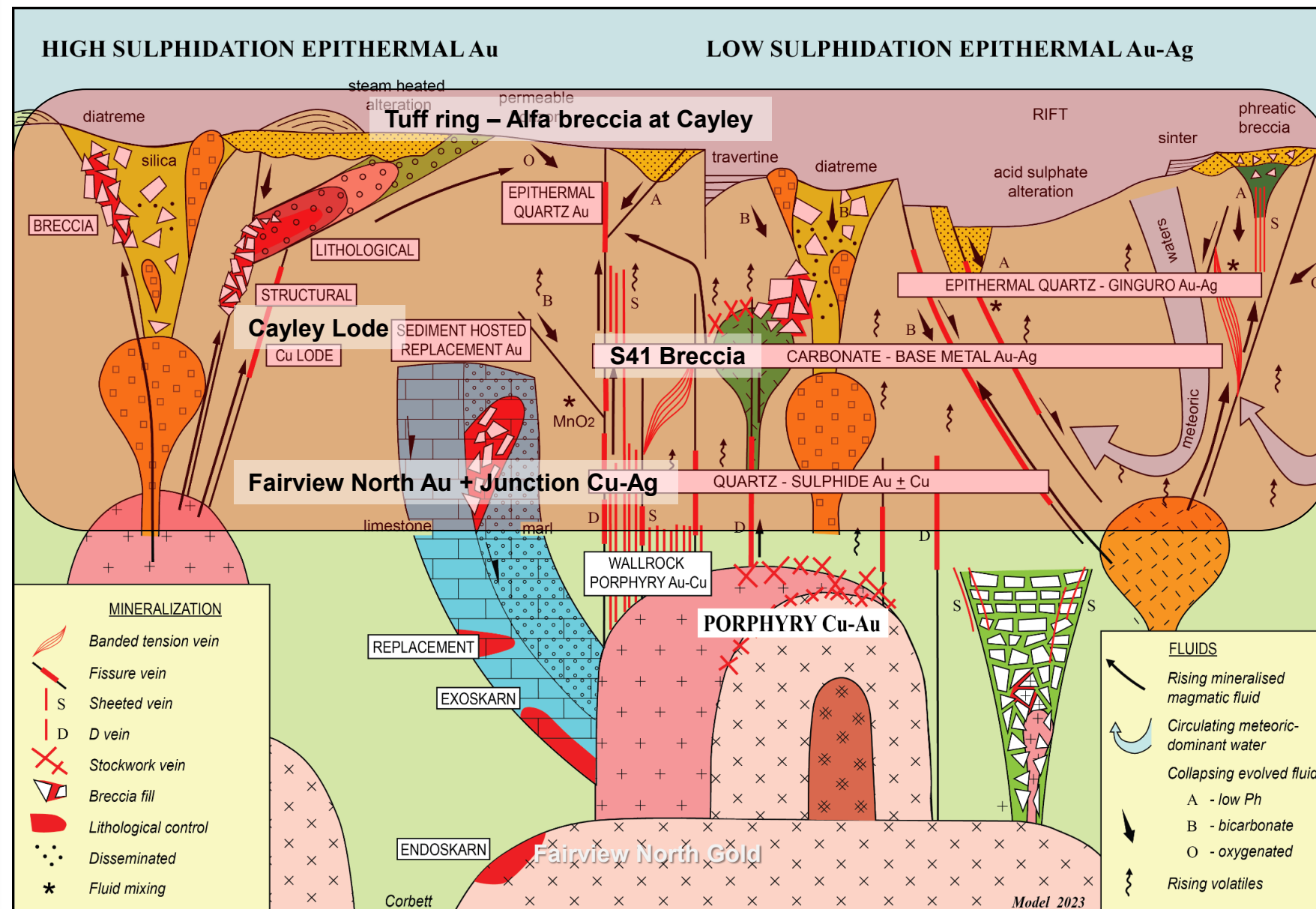


from Corbett short  
course materials  
with permission



## Our search space:

- High-level (at surface) tuff ring at Cayley Lode
- Cu Lode-style at the Cayley Lode
- Quartz-sulphide Au ± Cu at Fairview North and Junction
- Carbonate base-metal gold at the S41 breccia-hosted gold prospect



With kind permission from Greg Corbett

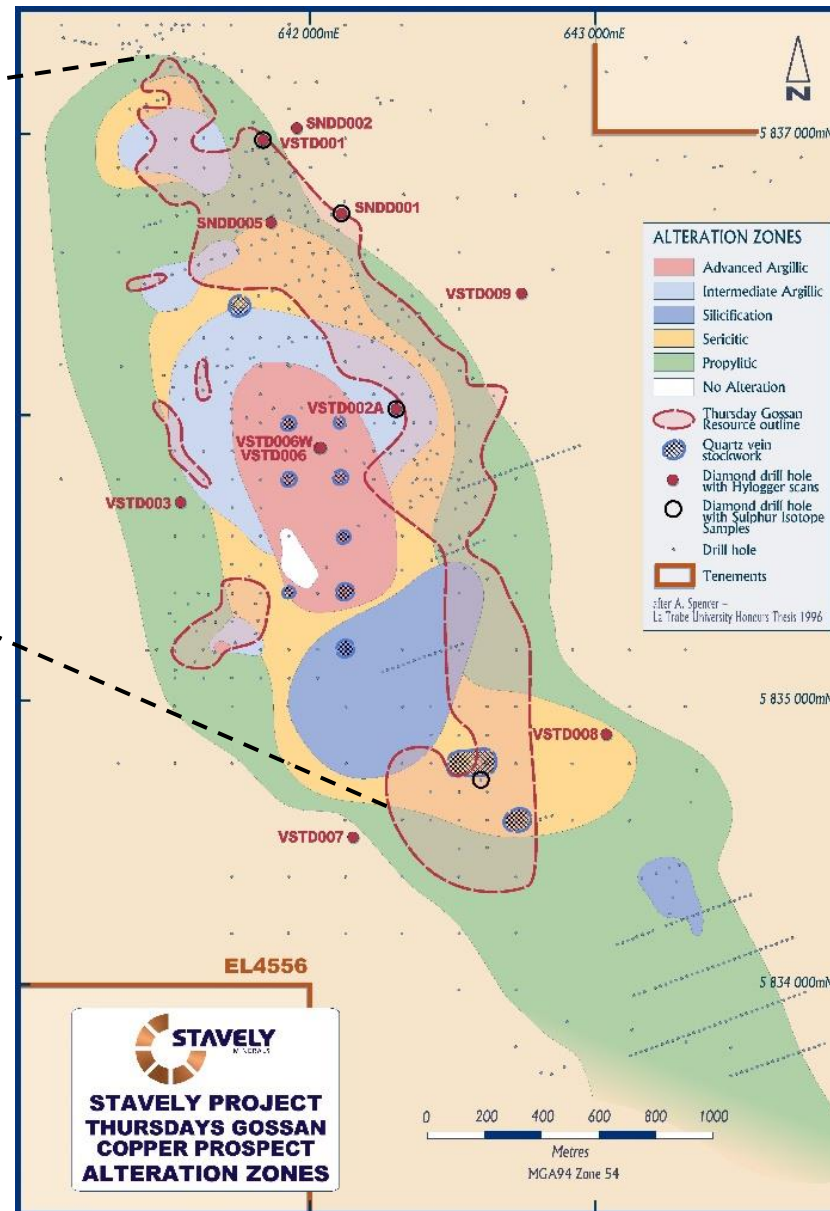
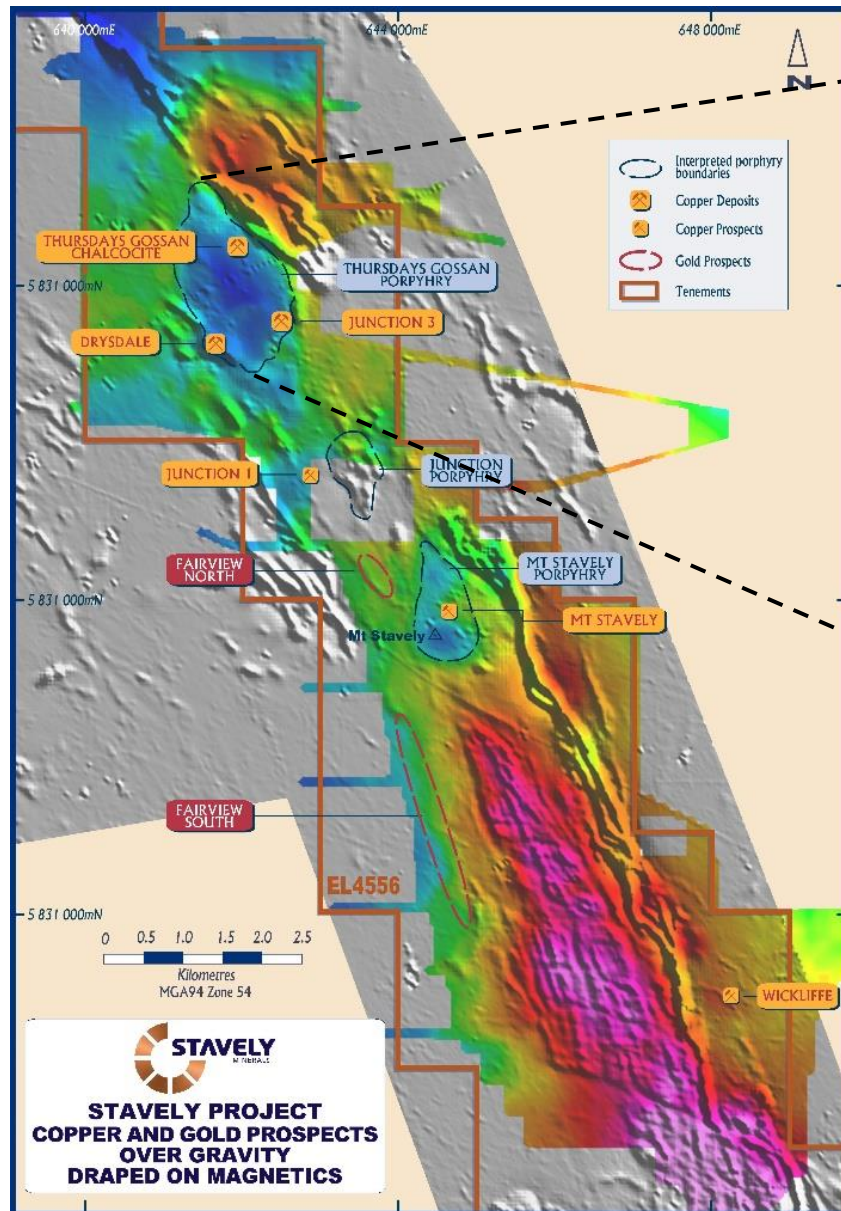




# S41: How was the S41 prospect identified?



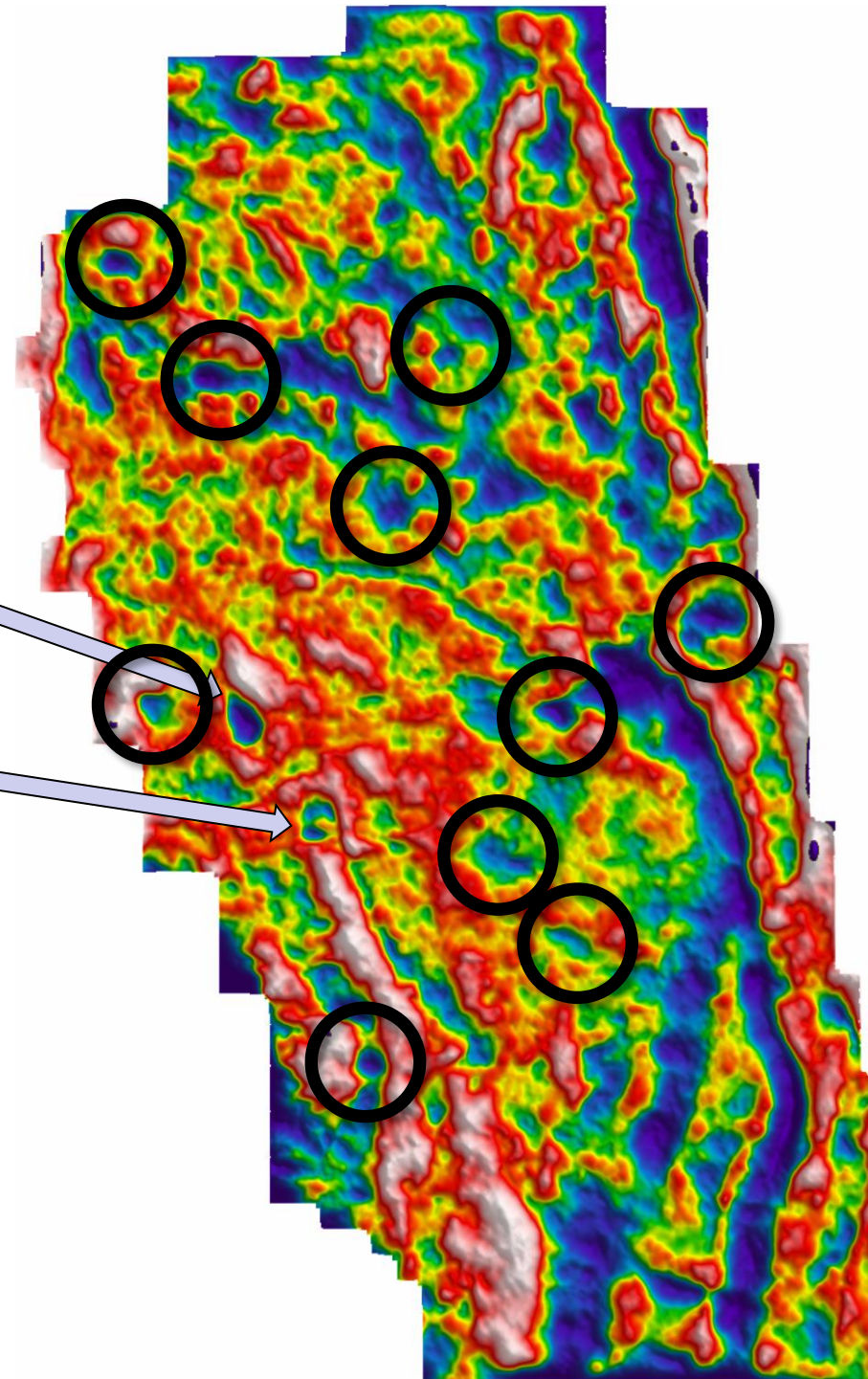
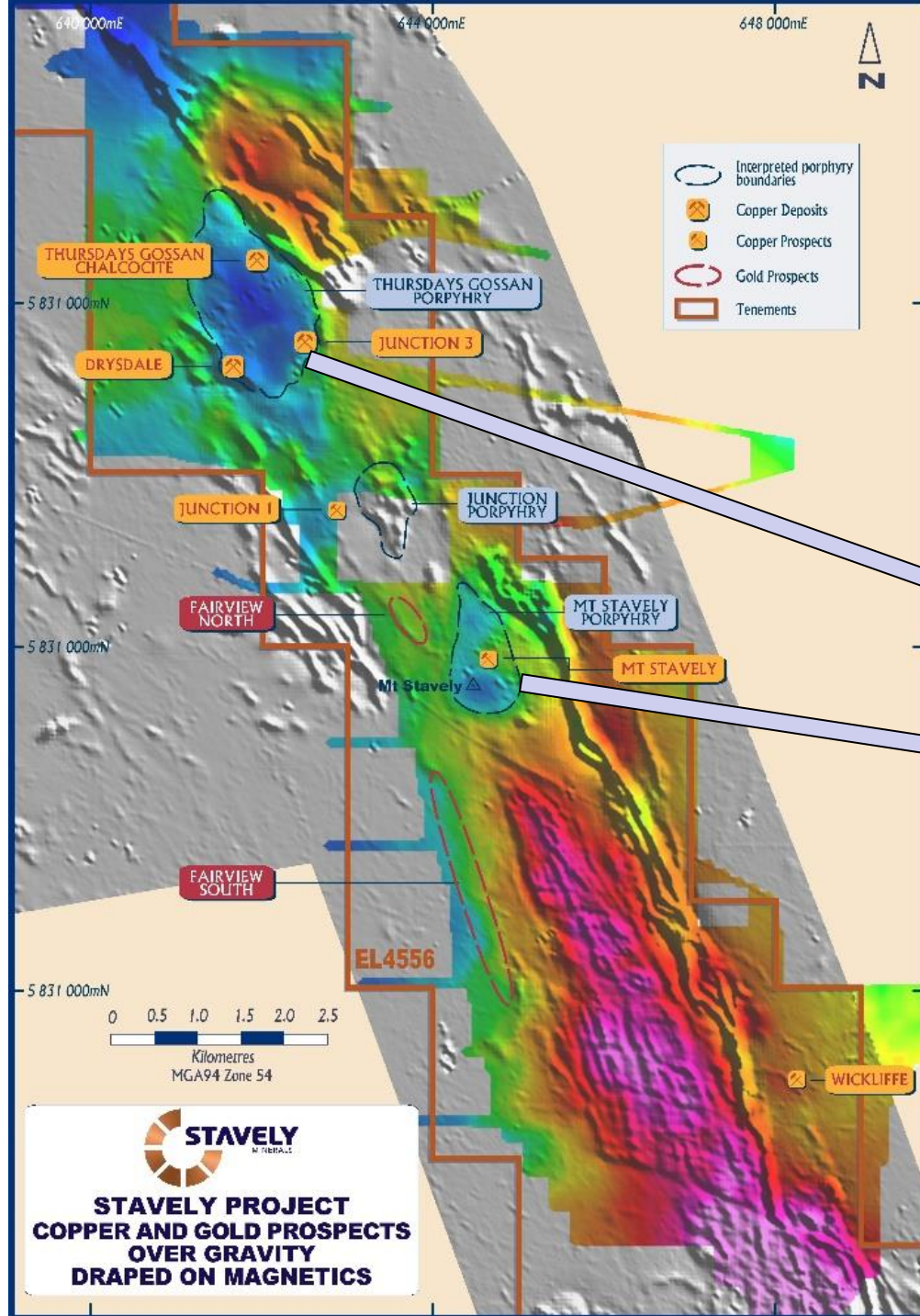
# Ground Gravity – Victor Porphyry Alteration



## Gravity – not to be taken lightly

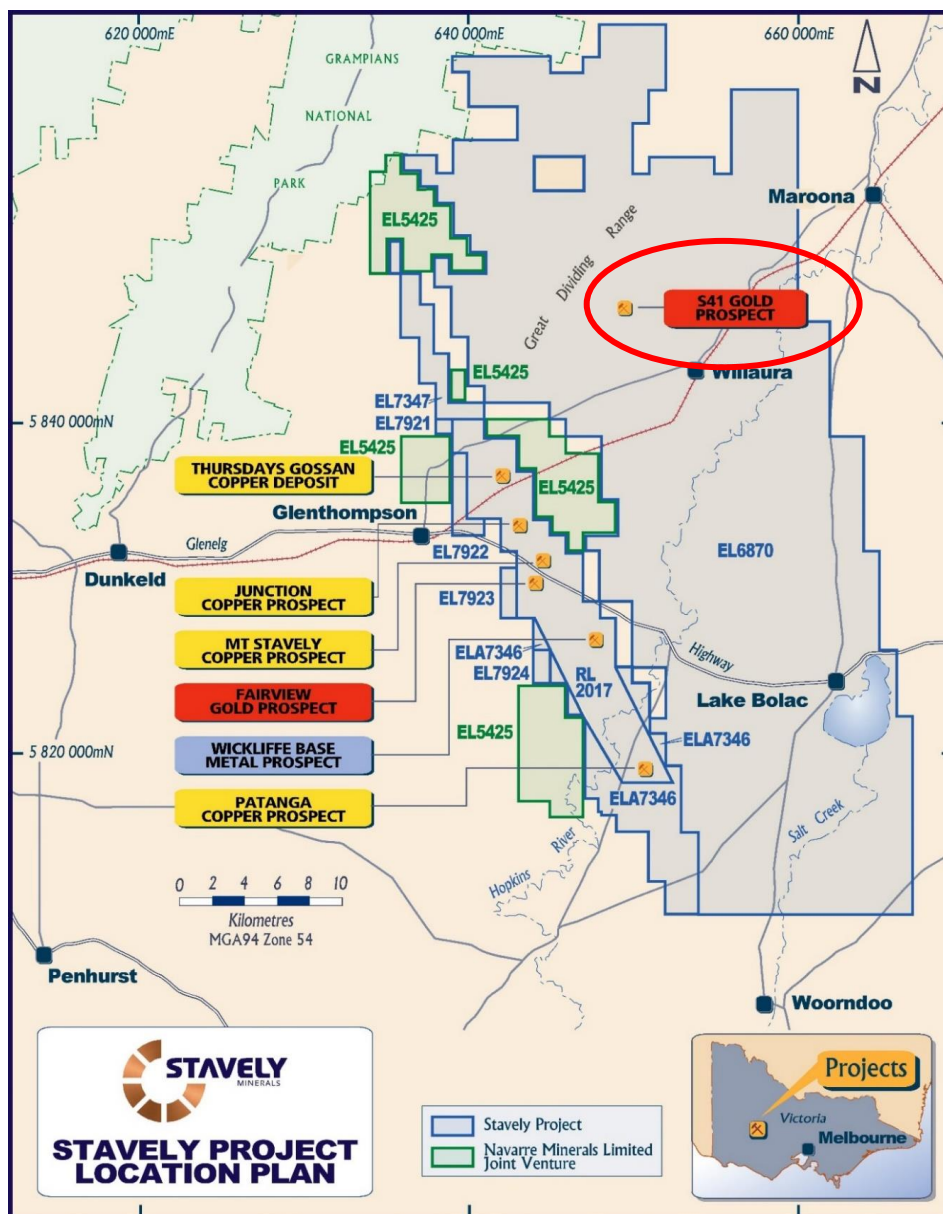
- Right image: gravity colour drape on grey-scale 1VD magnetics
- Left image: classic porphyry concentric alteration from PIMA analysis of bottom of hole aircore drilling (after Spencer 1996)
- The intense argillic clay alteration at Thursday's Gossan results in a gravity low







# Emerging Discovery? – The S41 Breccia Prospect

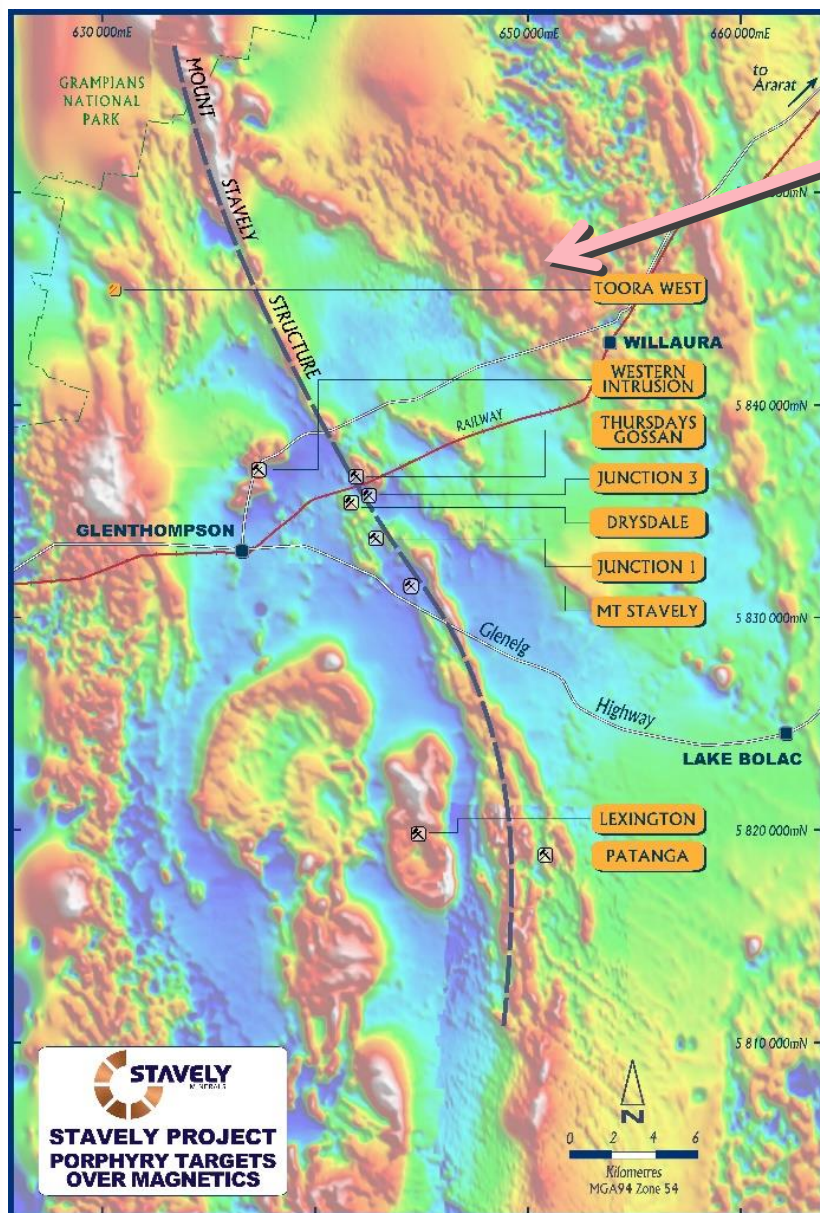


## S41 Breccia-Hosted Gold Prospect

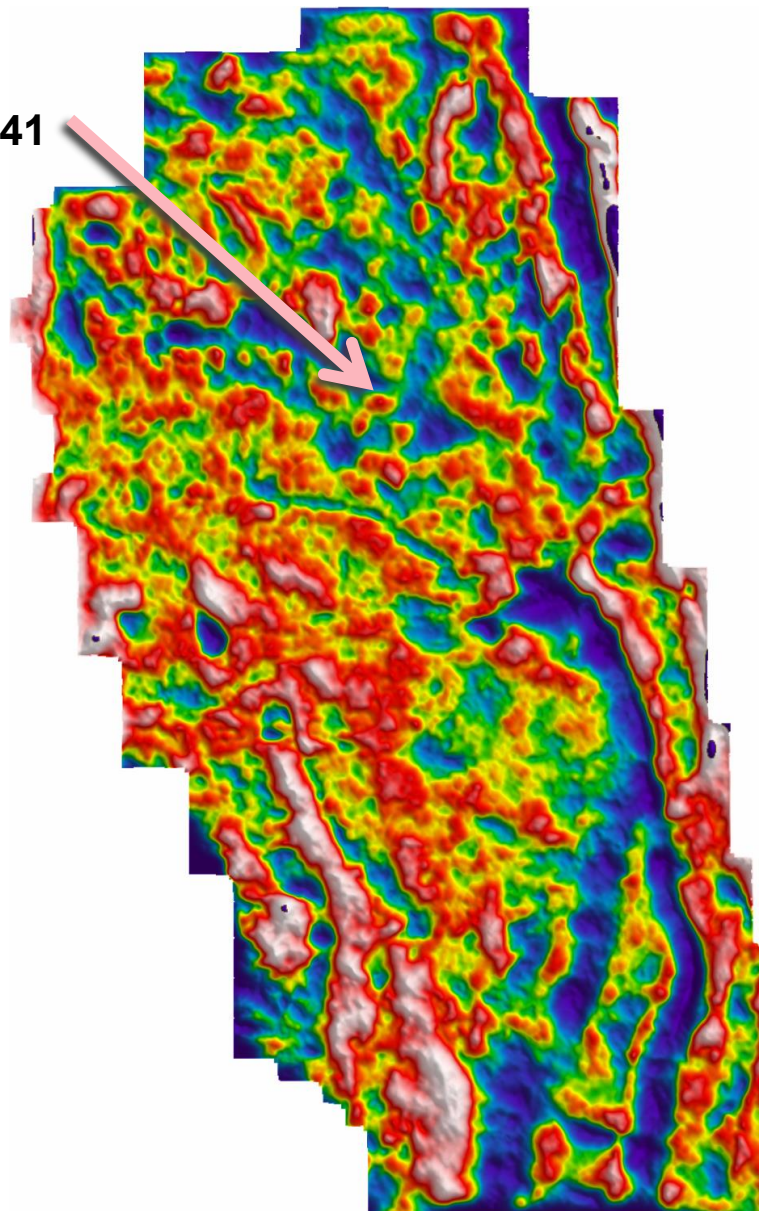
- Identified in Stavely Minerals' Falcon Gravity Gradiometer® survey under 50m of basalt
- Mag lows – hydrothermal destruction of magnetite in the andesitic host
- Gravity highs with broader gravity low – to date of unknown cause



# Emerging Discovery? – The S41 Breccia Prospect



S41



## S41 Breccia-Hosted Gold Prospect

- Identified in Stavelly Minerals' Falcon Gravity Gradiometer® survey under 50m of basalt
- Mag lows – hydrothermal destruction of magnetite in the andesitic host
- Gravity highs with broader gravity low – to date, of unknown cause





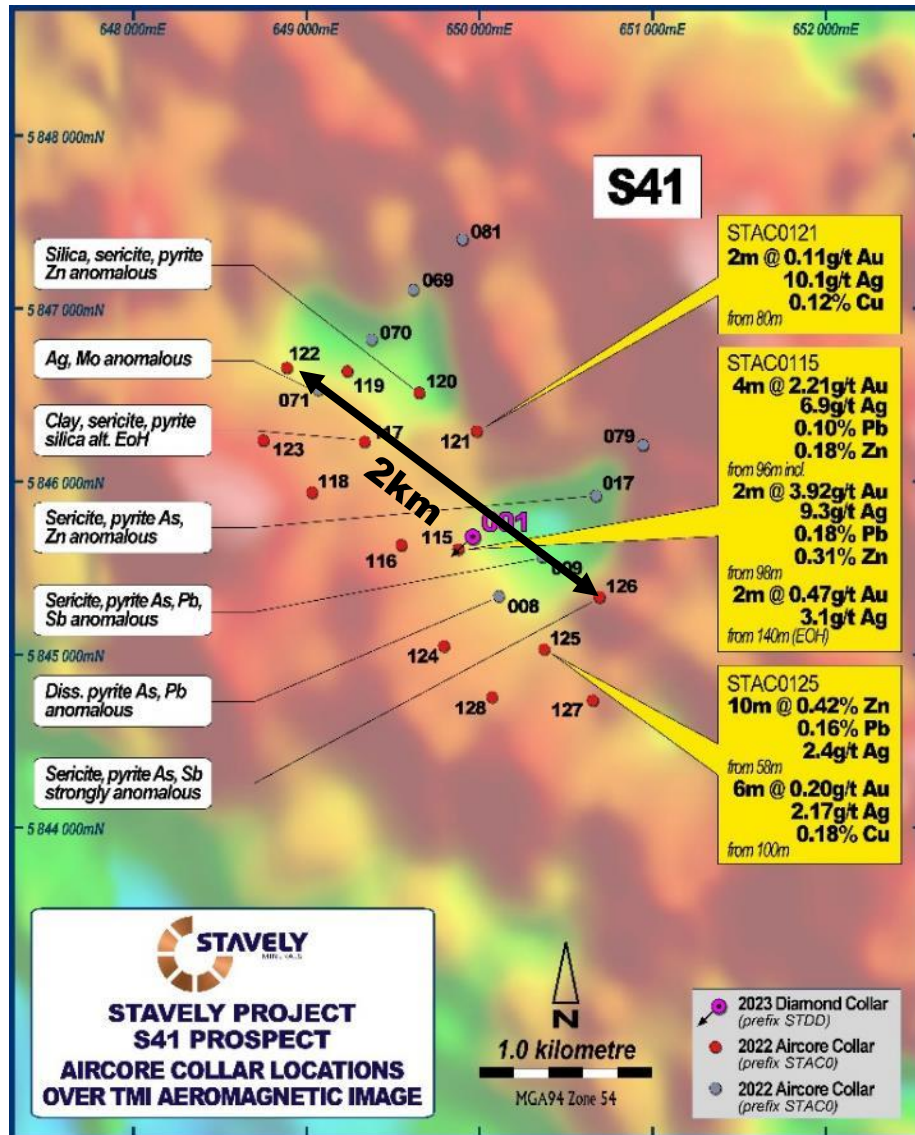
# S41 Breccia-Hosted Gold Target



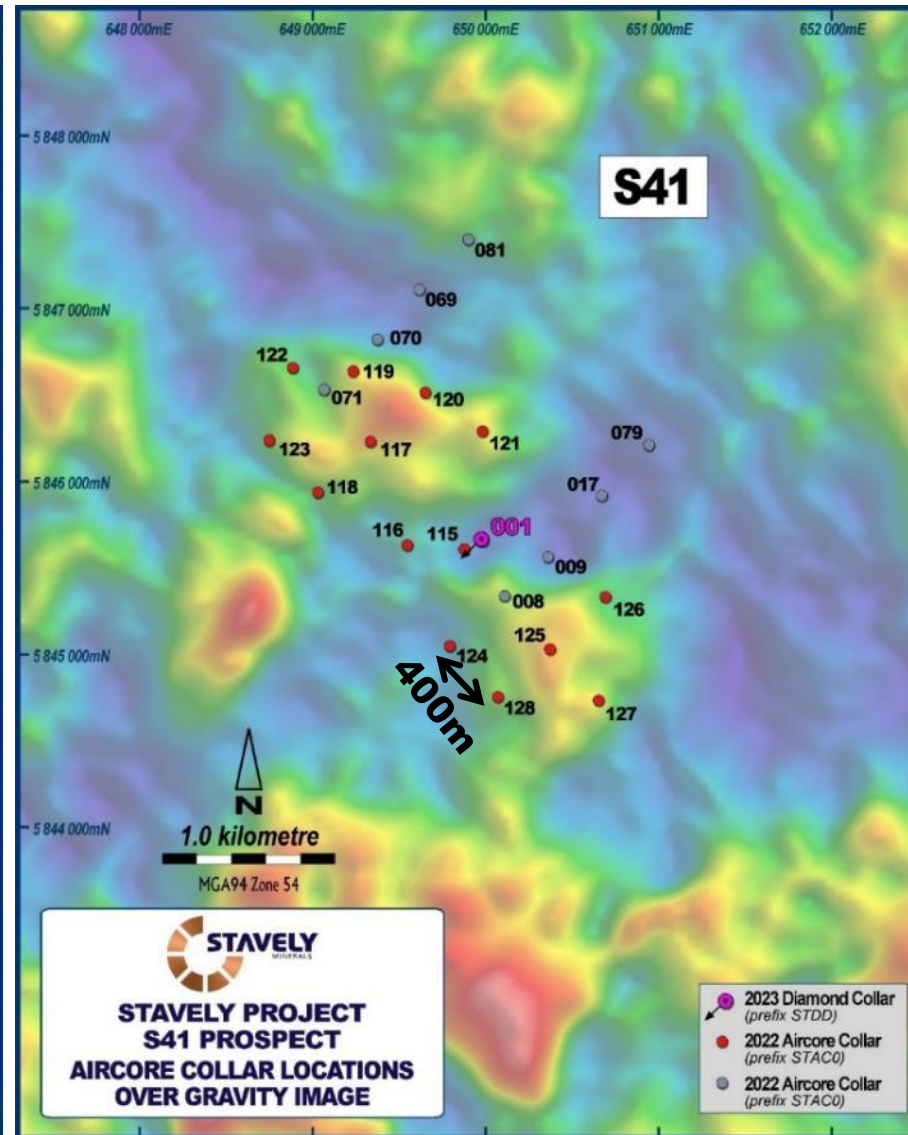
# Emerging Discovery? – The S41 Breccia-Hosted Gold Prospect



## Magnetics



## Gravity



## S41 Prospect Aircore<sup>1</sup>

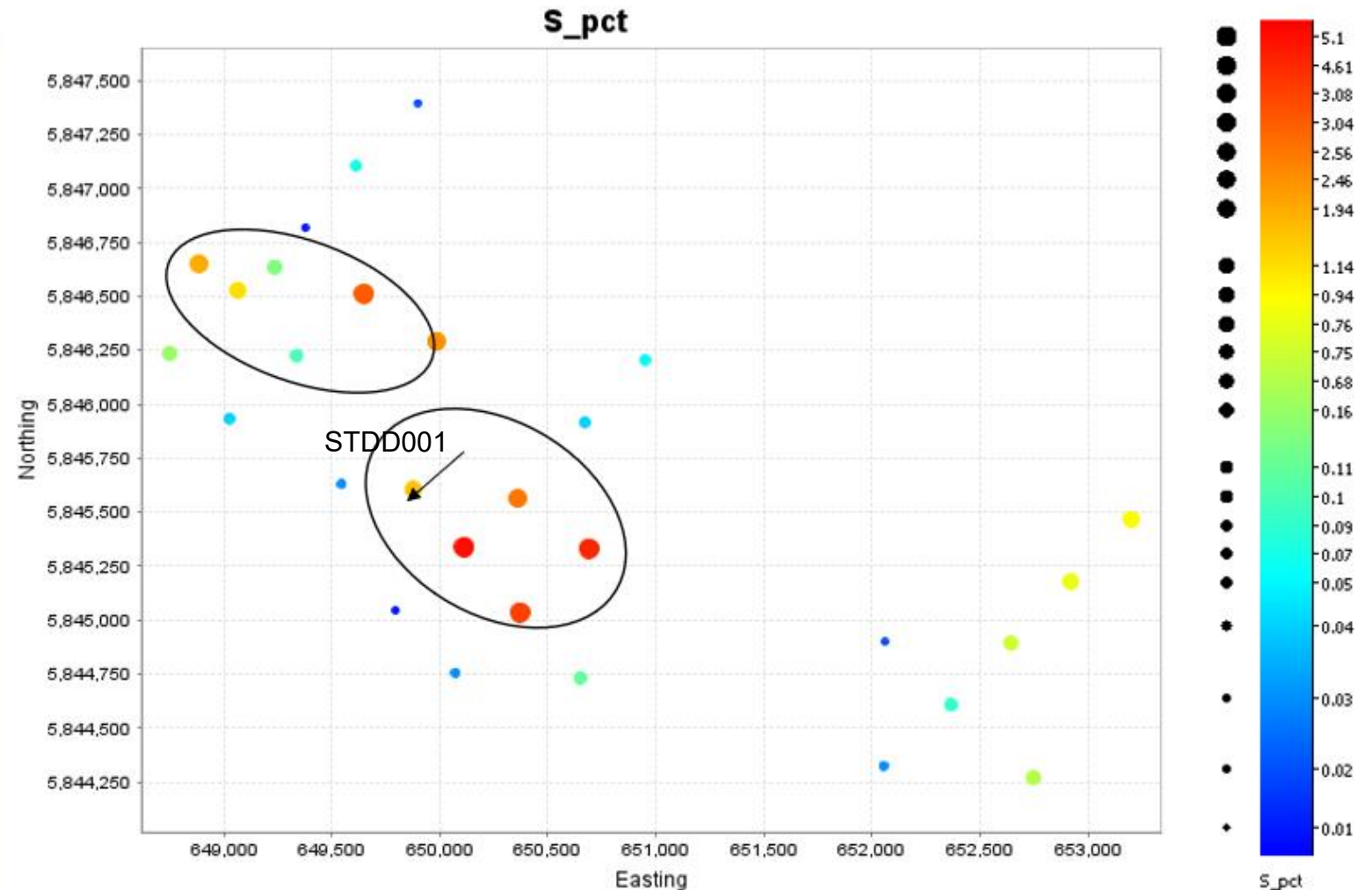
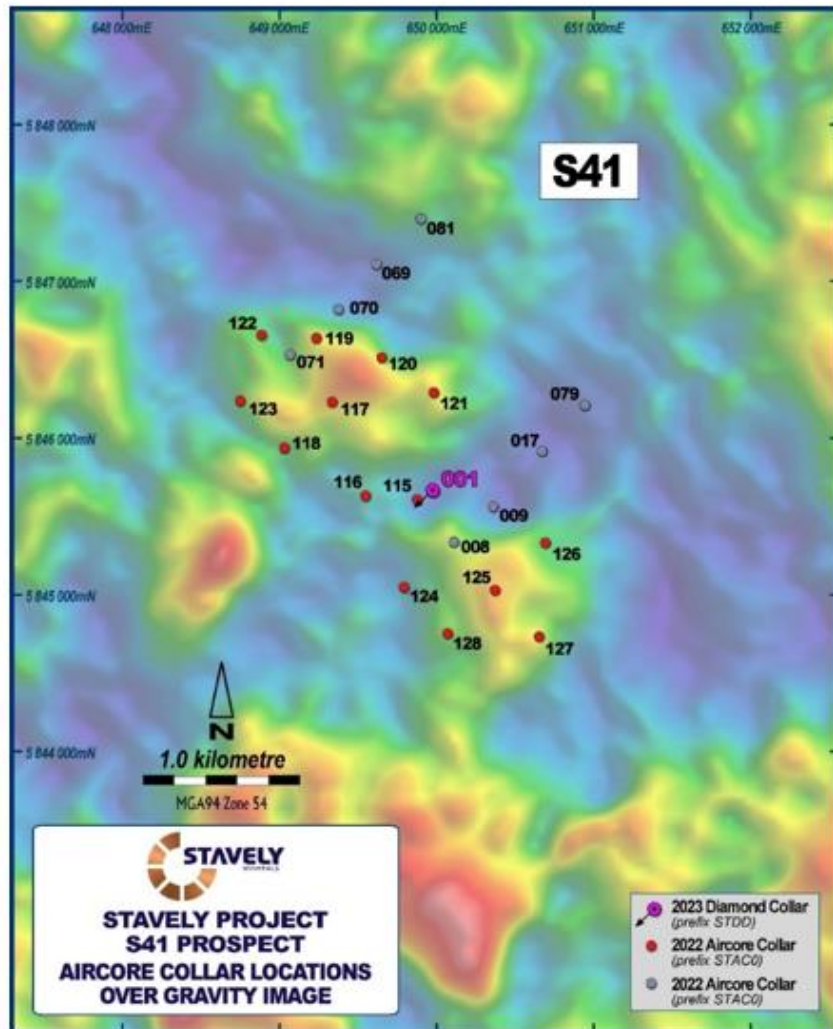
- **4m at 2.21g/t Au** from 96m drill depth, including:
- **2m at 3.92g/t Au** from 98m in aircore drilling
- Large 2km alteration zone
- Strongly anomalous base metals and pathfinder geochemistry

<sup>1</sup>See ASX announcement 19/04/2023

# S41 Aircore Geochem



These are very significant sulfur levels for EOH aircore. Reasonable size pyritic alteration cell.



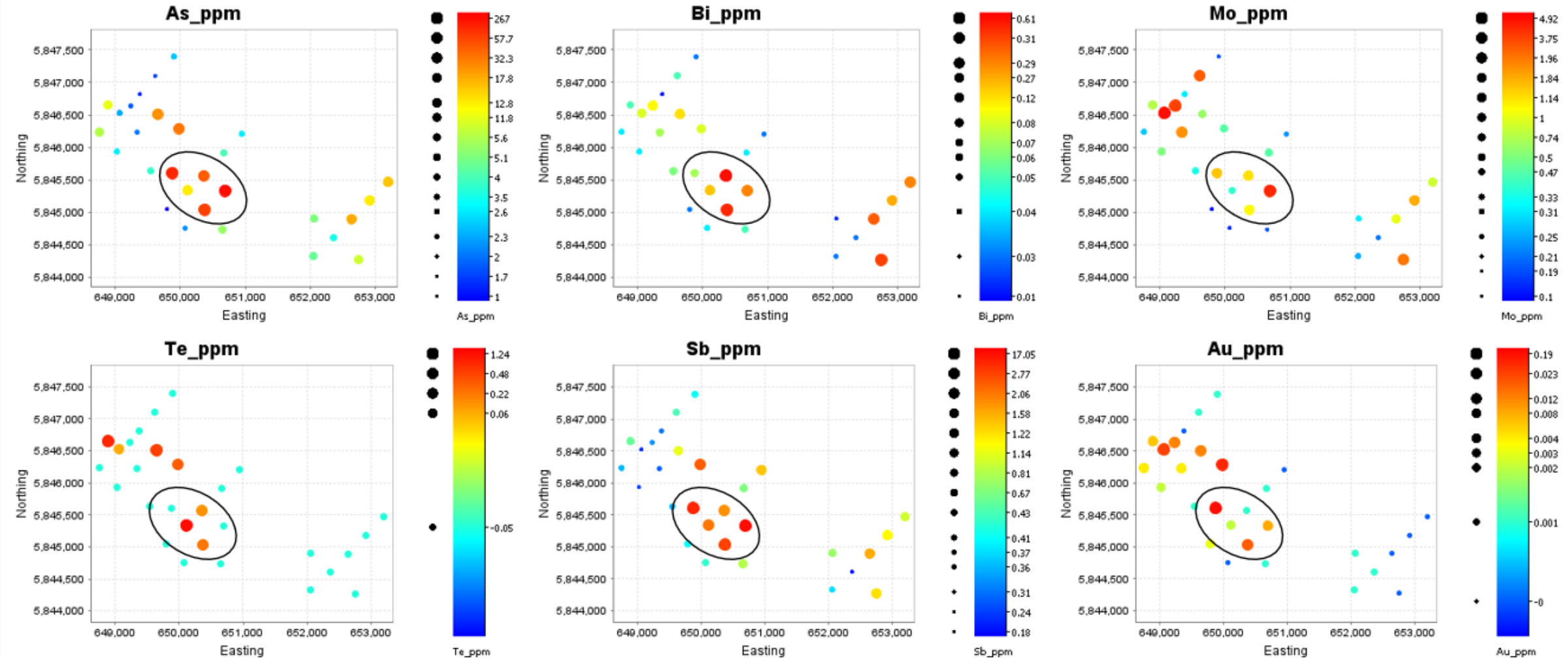
From Halley, internal Stavely report 2023



# S41 Aircore Geochem

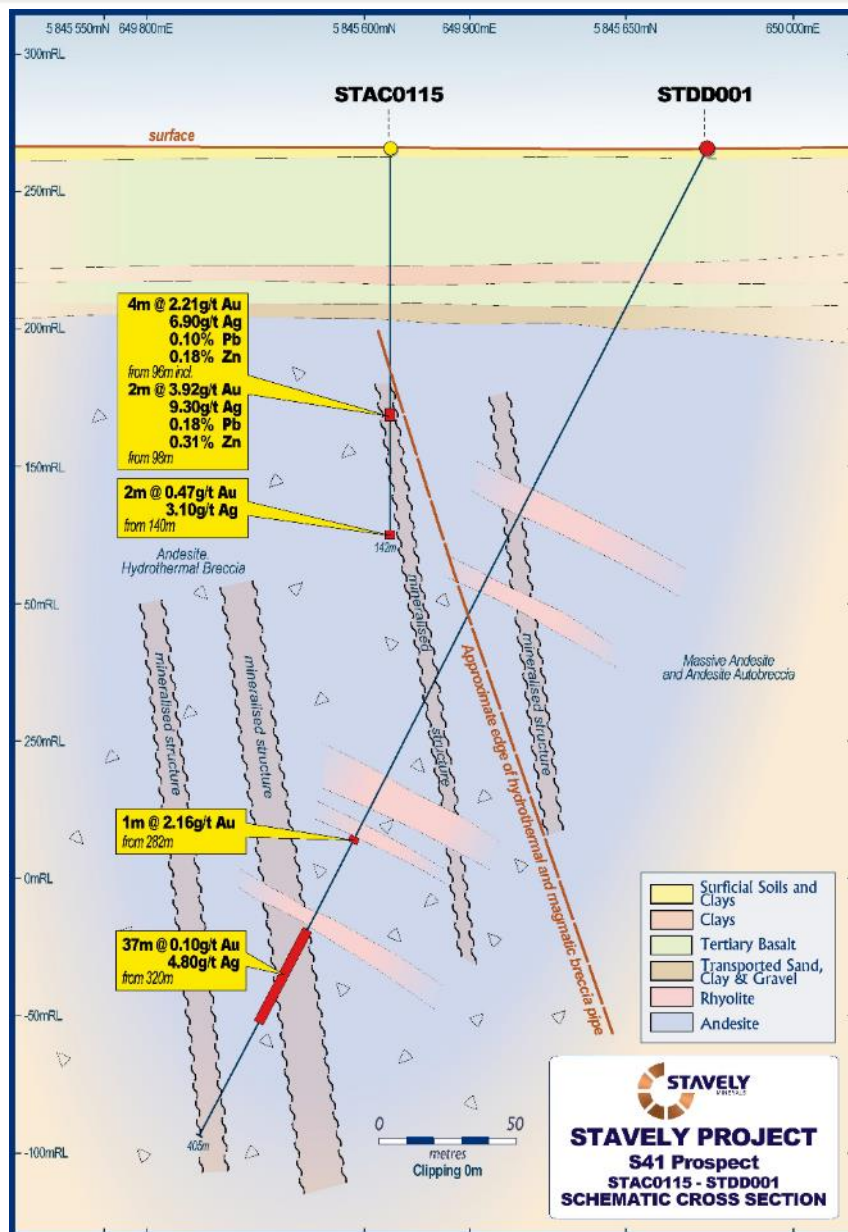


Hole STDD001 was drilled under the highest aircore Au value but not in the middle of the alteration system as defined by As-Sb-Bi anomalism. These are coherent anomalies but not HIGH levels of anomalism.



From Halley, internal Stavely report 2023

# Emerging Discovery? – The S41 Breccia Prospect



## S41 Diamond Drill Hole<sup>1</sup>

- Only one diamond drill hole in the 2,000m x 750m interpreted breccia system
- **1m at 2.16g/t Au** from 282m drill depth
- **37m at 0.10g/t Au**, including:
  - **2m at 0.56g/t Au** from 320m, and
  - **5m at 24.3g/t Ag** from 353m
- Importantly, it demonstrated that there is gold and silver in the system associated with Mg/Mn-carbonate and Zn & Pb base metals
- Breccia-hosted systems host notoriously inconsistent gold mineralization eg. Kidston
- Potential for scale

<sup>1</sup>See ASX announcement 26/04/2023





# Carbonate Base-Metal Gold Systems: Simplified attributes

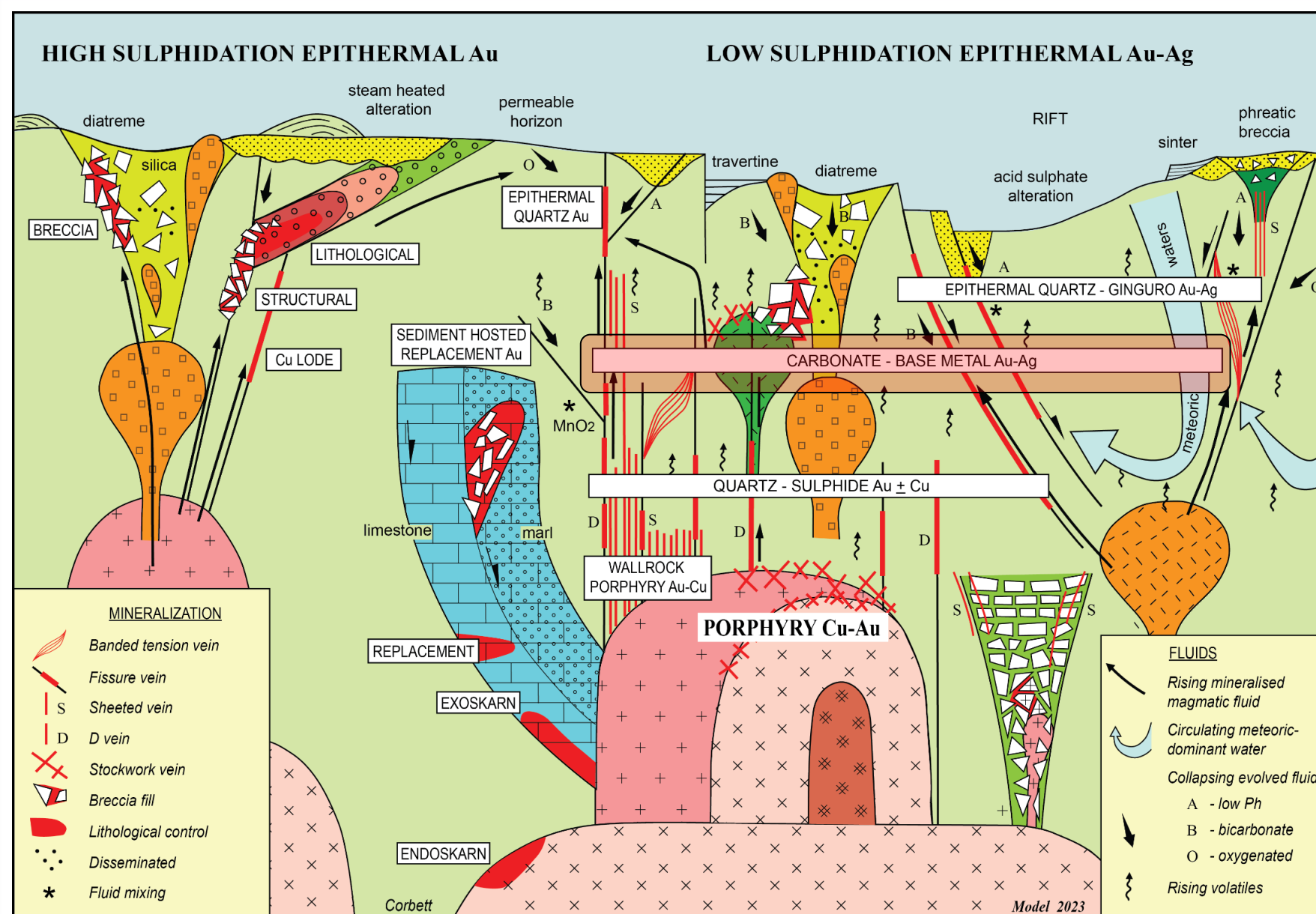
# Breccia-hosted Carbonate – Base Metal – Gold Systems



## Key attributes:

- Metal source – magmatic hydrothermal fluids, moderate to high NaCl
- Plumbing – ground preparation / porosity through sub-volcanic to phreato-magmatic breccia pipes
- Metal precipitation mechanism – upwelling hot, metal-bearing hydrothermal fluids mix with downward percolating, carbonate-rich, low-pH meteoric fluids

With kind permission from Greg Corbett





# Breccia-hosted Carbonate – Base Metal – Gold Systems



Low sulphidation mineralisation style					
Depth	quartz-sulphide Au ± Cu	carbonate-basemetal Au			epithermal quartz Au
Shallow	opal, chalcedony marcasite	<u>Sphalerite</u> Fe-poor	<u>Ag sulphosalts</u> acanthite	<u>Carbonate</u> siderite FeCO <sub>3</sub>	
		<div><div>white</div><div>rhodochrosite MnCO<sub>3</sub></div><div>yellow</div><div>argentite</div><div>Ca (MgMgFe)(CO<sub>3</sub>)<sub>2</sub></div><div>+ galena</div><div>→</div><div>→</div><div>→</div></div>			quartz
	pyrite quartz	red		ankerite CaCO <sub>3</sub> (MgFe)CO <sub>3</sub>	high fineness free Au
		brown	tennantite tetrahedrite	dolomite CaCO <sub>3</sub> .MgCO <sub>3</sub>	<u>Te minerals</u> hessites tellurobismuthenite
		black		Mg calcite	
		Fe-rich	calcite CaCO <sub>3</sub>		
Deep	chalcopryrite, pyrrhotite specularite				

CORBETT ai1851

‘goldilocks’ gold precipitation zone

With kind permission from Greg Corbett

# Carbonate – Base Metal – Gold Mineralisation Examples



Upper Ridges mine, Wau Papua New Guinea



Frute Del Norte, Ecuador, Rhodochrosite and sulphides 3.5g/t Au & 6.3g/t Ag



Caylloma, Peru - 30,000g/t Ag



Kerikil, Mount Muro, Kalimantan  
~10g/t Au

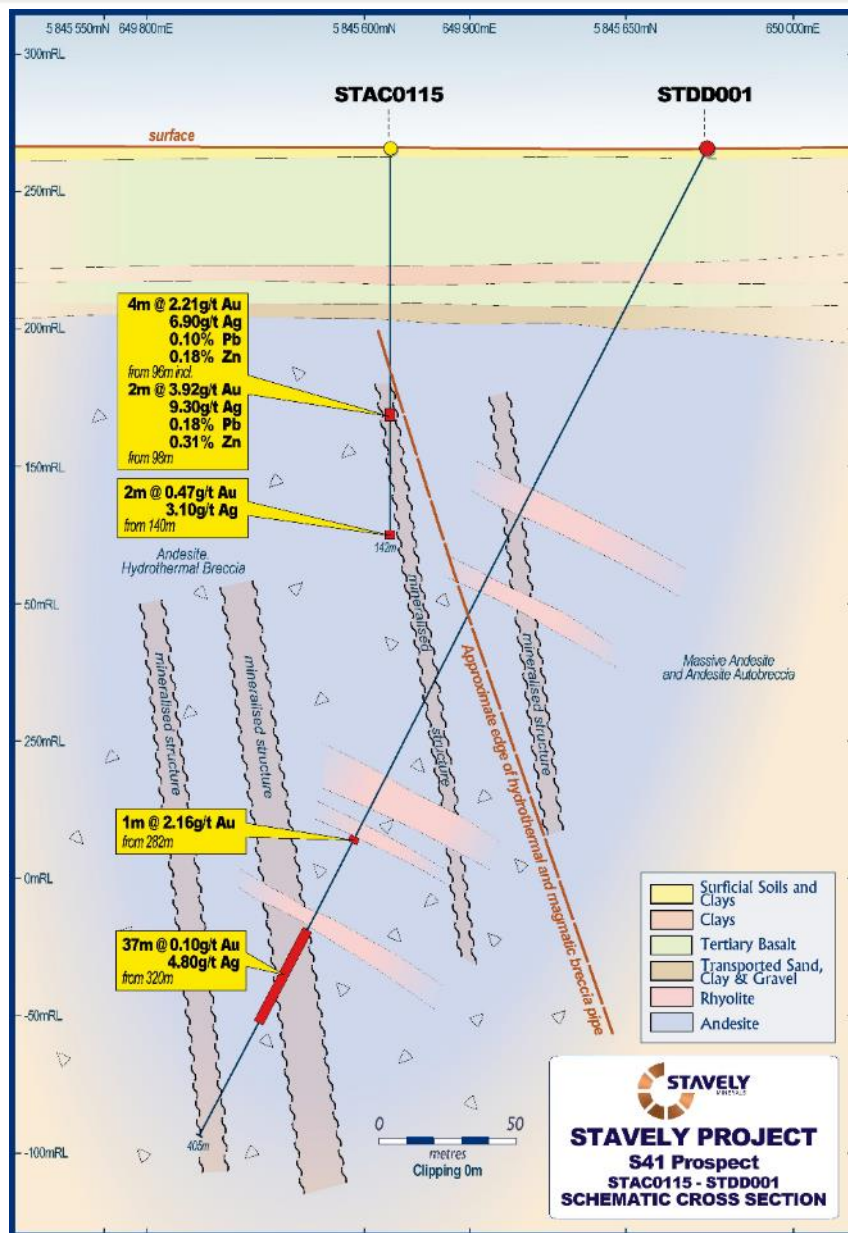
Top row with kind permission from  
Greg Corbett





# STDD001 – Geology, Geochemistry and Mineralogy

# Emerging Discovery? – The S41 Breccia Prospect

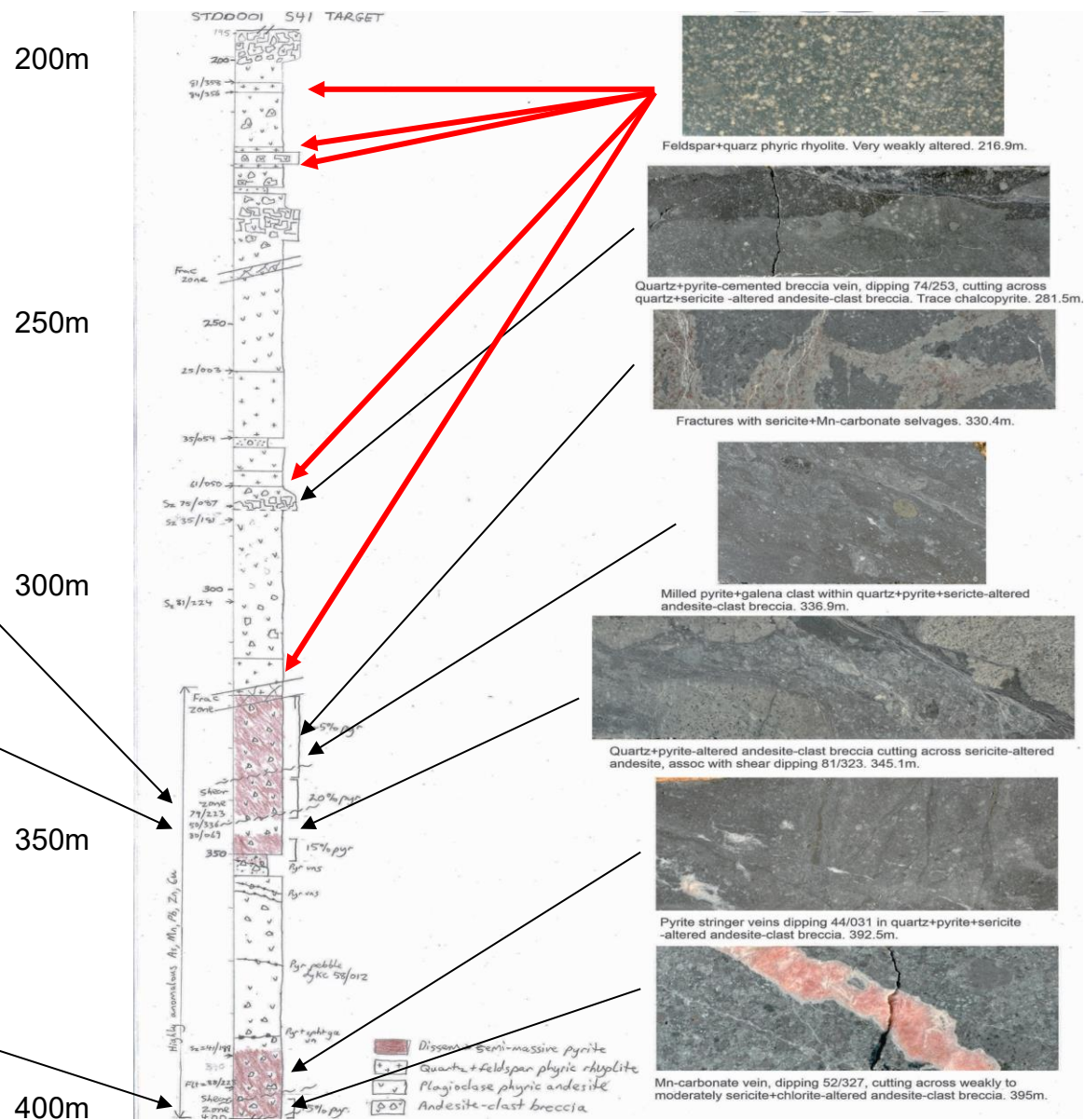
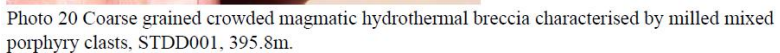
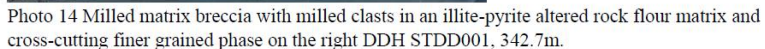


## S41 Diamond Drill Hole<sup>1</sup>

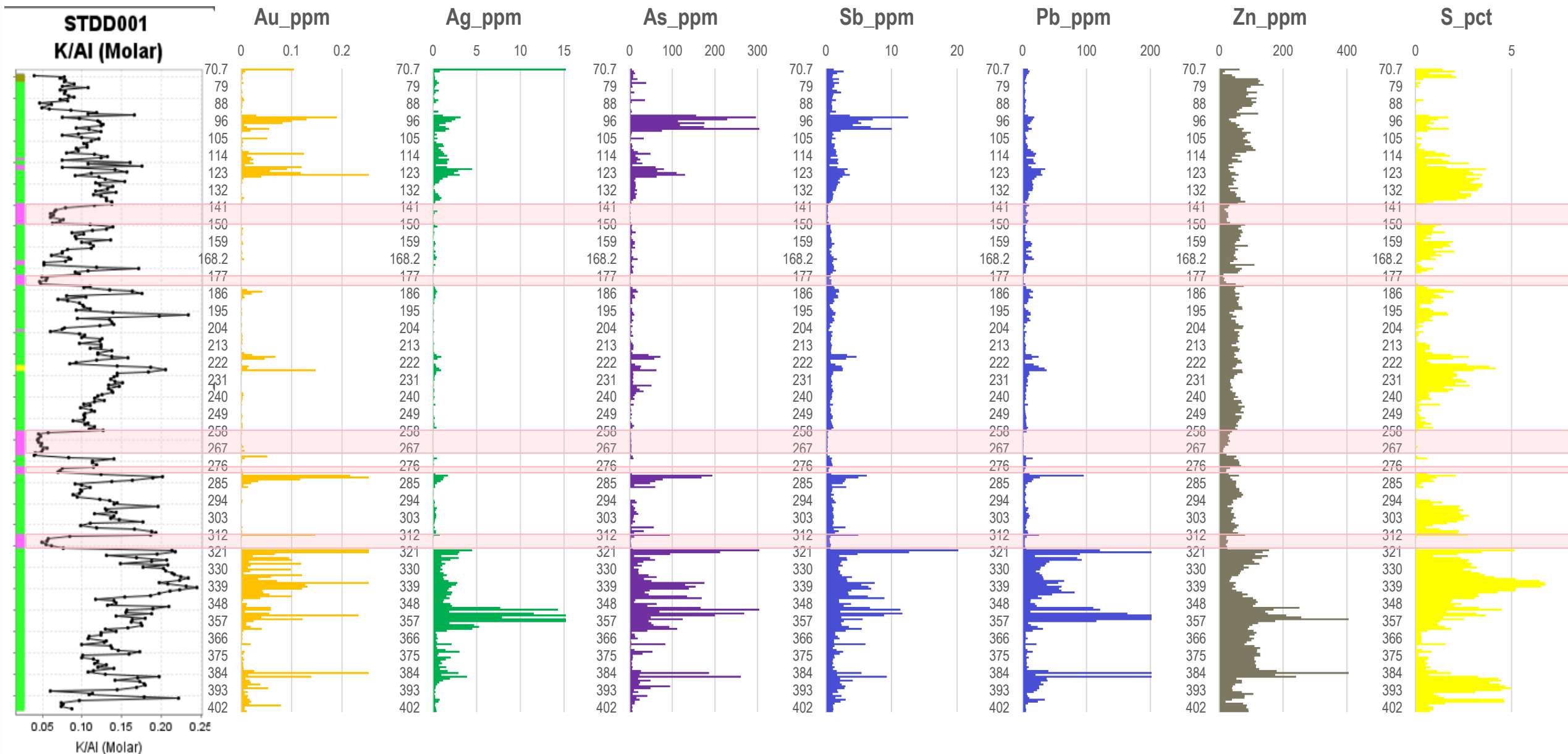
- Only one diamond drill hole in the 2,000m x 750m interpreted breccia system
- **1m at 2.16g/t Au** from 282m drill depth
- **37m at 0.10g/t Au**, including:
  - **2m at 0.56g/t Au** from 320m, and
  - **5m at 24.3g/t Ag** from 353m
- Importantly, it demonstrated that there is gold and silver in the system associated with Mg/Mn-carbonate and Zn & Pb base metals
- Breccia-hosted systems host notoriously inconsistent gold mineralization eg. Kidston
- Potential for scale

<sup>1</sup>See ASX announcement 26/04/2023



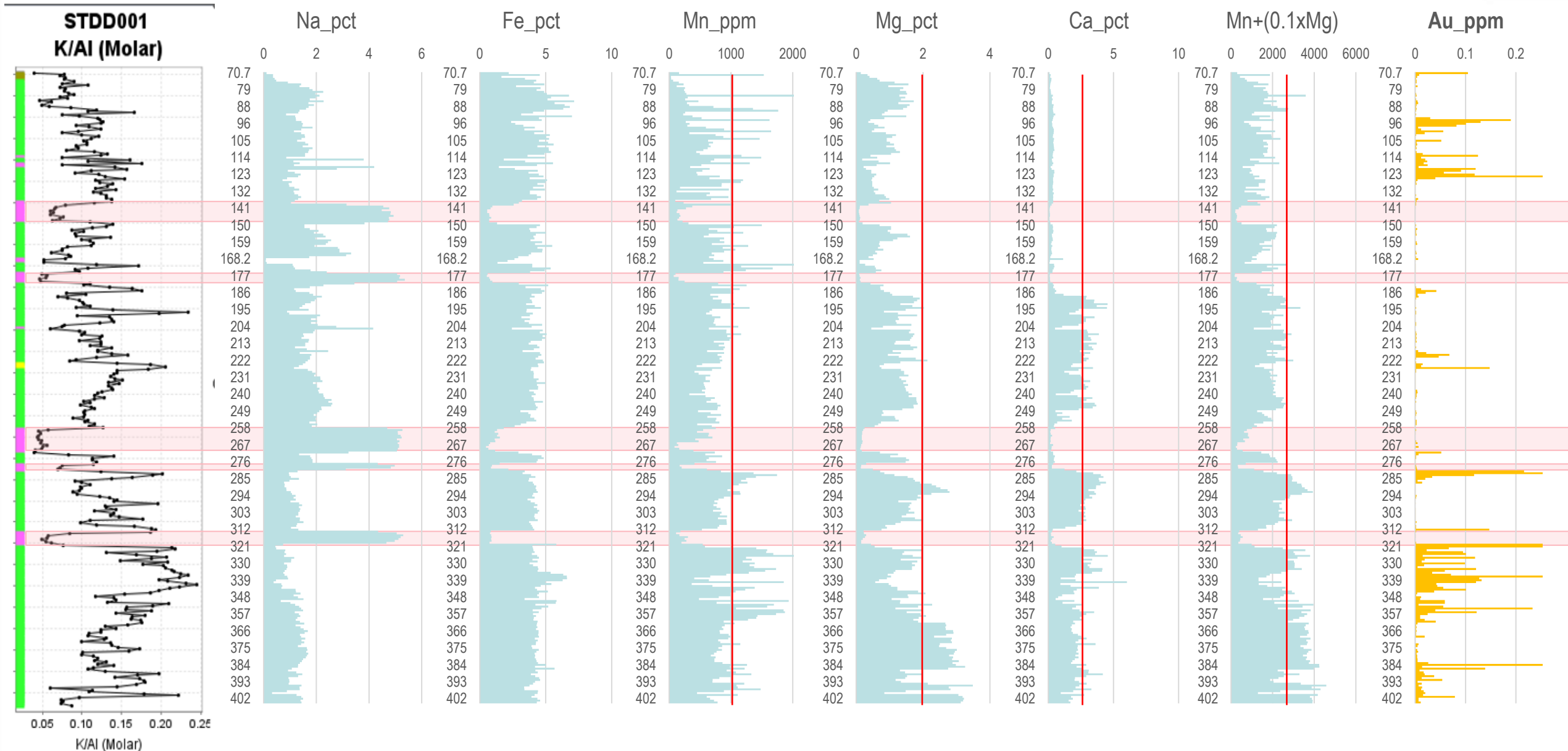


# STDD001 – Down-Hole Geochem: classic signature





# STDD001 – Down-Hole Geochem: Major Elements





# S41 Breccia Evolution – What processes can explain the geology, textures and chemistry?

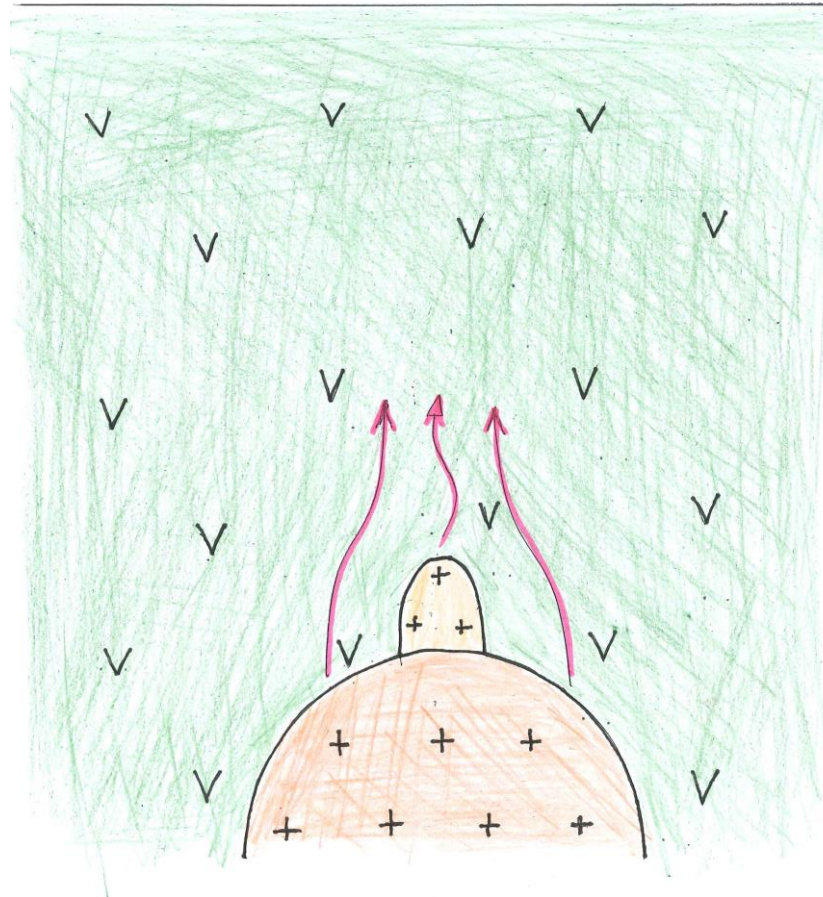


# S41 Breccia-Hosted Gold Multi-phase Evolution



Fairview Andesite Breccia  
(sea-floor extrusive  
hyaloclastite), thickness  
unknown but in an upright  
sequence, maximum outcrop  
width is 2,500m (Buckland,  
1982)

High-level porphyry intrusions



# S41 Breccia-Hosted Gold Multi-phase Evolution



Volatile accumulation in intrusion carapace, explosive release and formation of sub-volcanic magmatic / hydrothermal breccia pipe. The magmatic breccias contain juvenile intrusion clasts. Ascending hydrothermal fluids result in quartz-illite-pyrite alteration.



Photo 20 Coarse grained crowded magmatic hydrothermal breccia characterised by milled mixed porphyry clasts. STDD001, 395.8m.

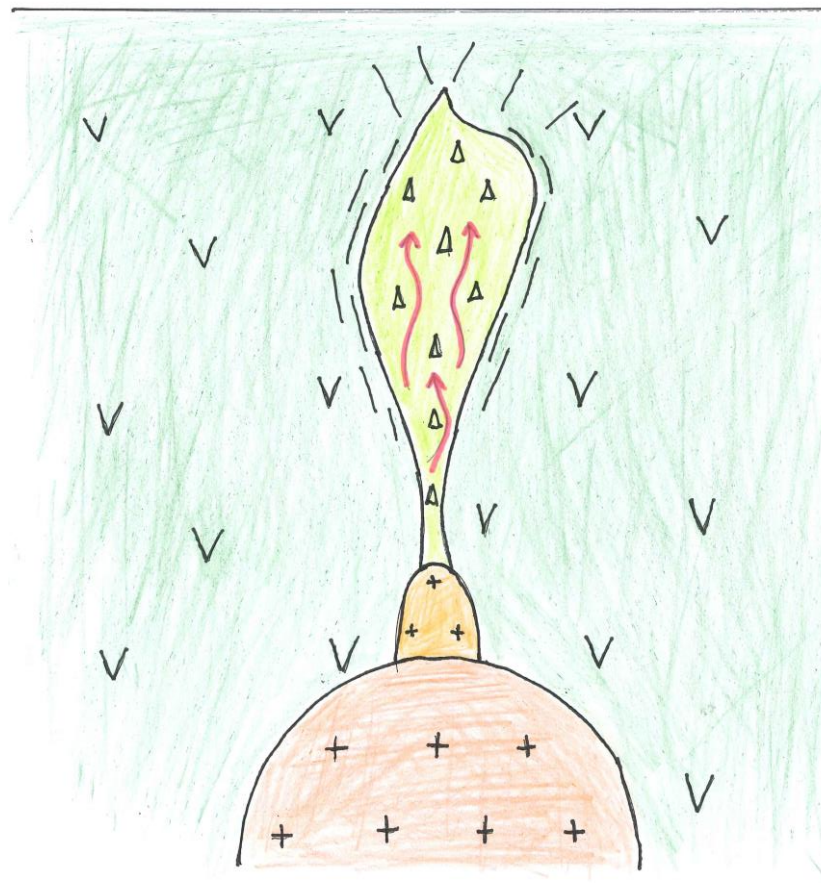


Photo 17 Ragged juvenile intrusion clast within a magmatic hydrothermal breccia, DDH STDD001, 336.8m.

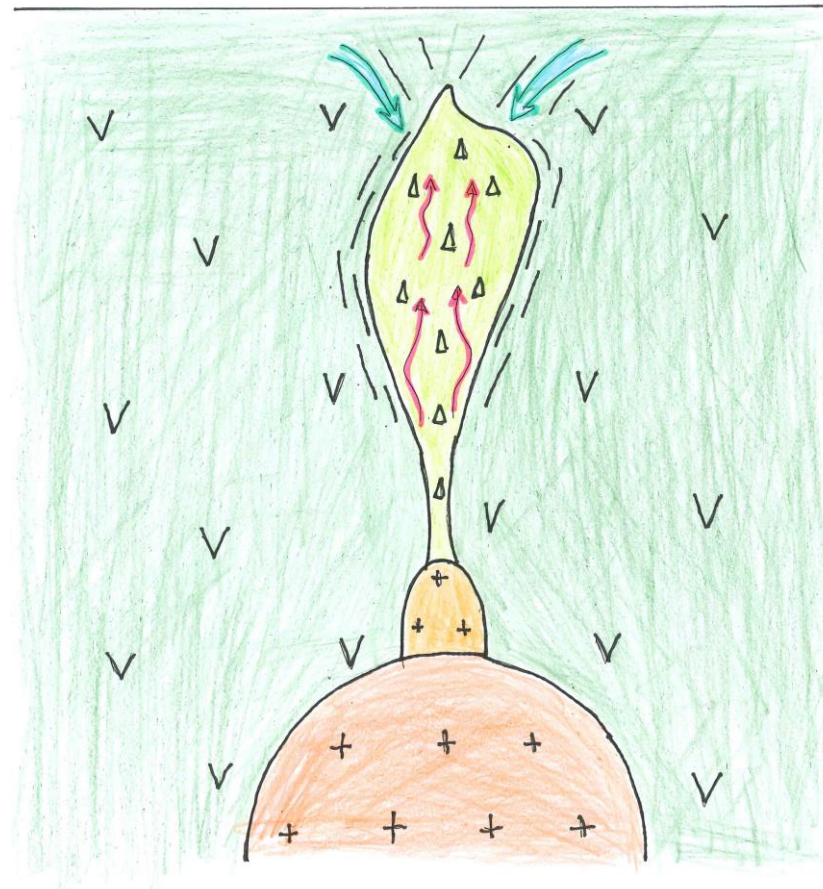


Photo 18 ragged juvenile intrusion clast in magmatic hydrothermal breccia, STDD001, 331.4m.





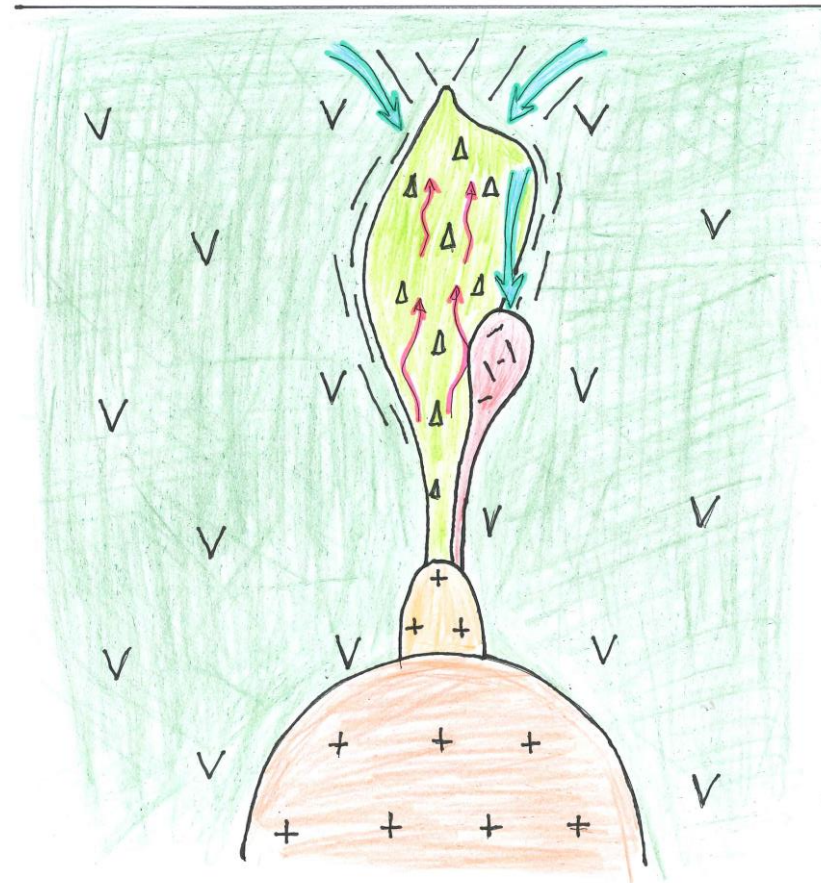
Ascending volatiles dis-associate into cool, low-pH, carbonate-rich fluids which percolate downwards.



# S41 Breccia-Hosted Gold Multi-phase Evolution



Resurgent intrusion comes into contact with cool descending fluids.





# S41 Breccia-Hosted Gold Multi-phase Evolution



Explosive interaction of rising magma and descending cool fluids results in a phreato-magmatic milled-matrix breccia pipe that vents to the surface with associated tuff ring.

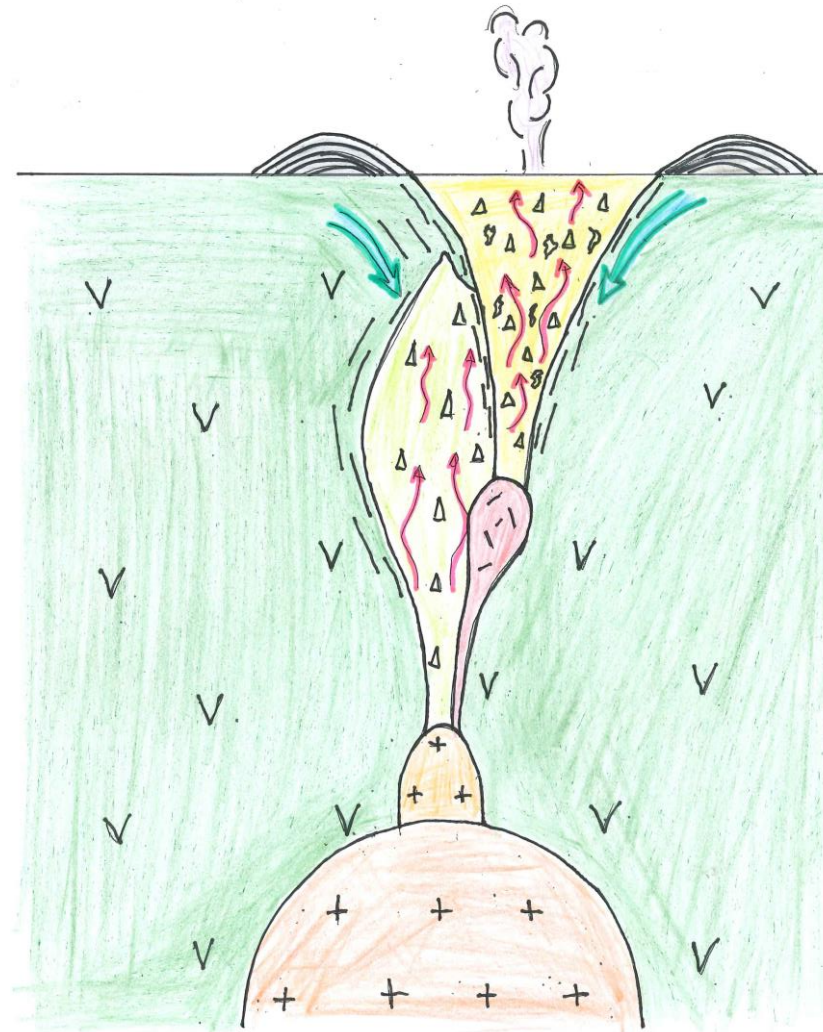


Photo 14 Milled matrix breccia with milled clasts in an illite-pyrite altered rock flour matrix and cross-cutting finer grained phase on the right DDH STDD001, 342.7m.

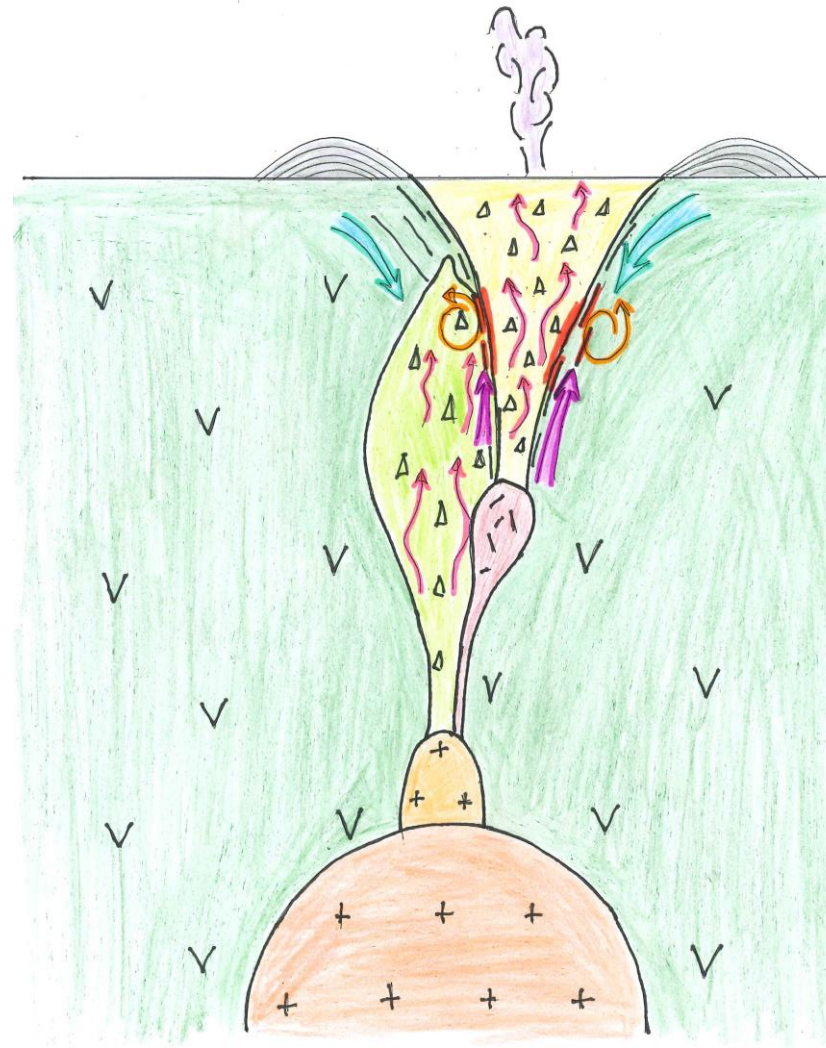


Photo 15 Milled matrix breccia with milled clasts in an illite-pyrite altered rock flour matrix and cross-cutting dyke-like finer grained phase on the right DDH STDD001, 336.6m.

# S41 Breccia-Hosted Gold Multi-phase Evolution



Late, metals-rich ascending fluids interact with low pH, carbonate-rich descending cool fluids resulting in the deposition of carbonate, base-metal and gold (+silver).



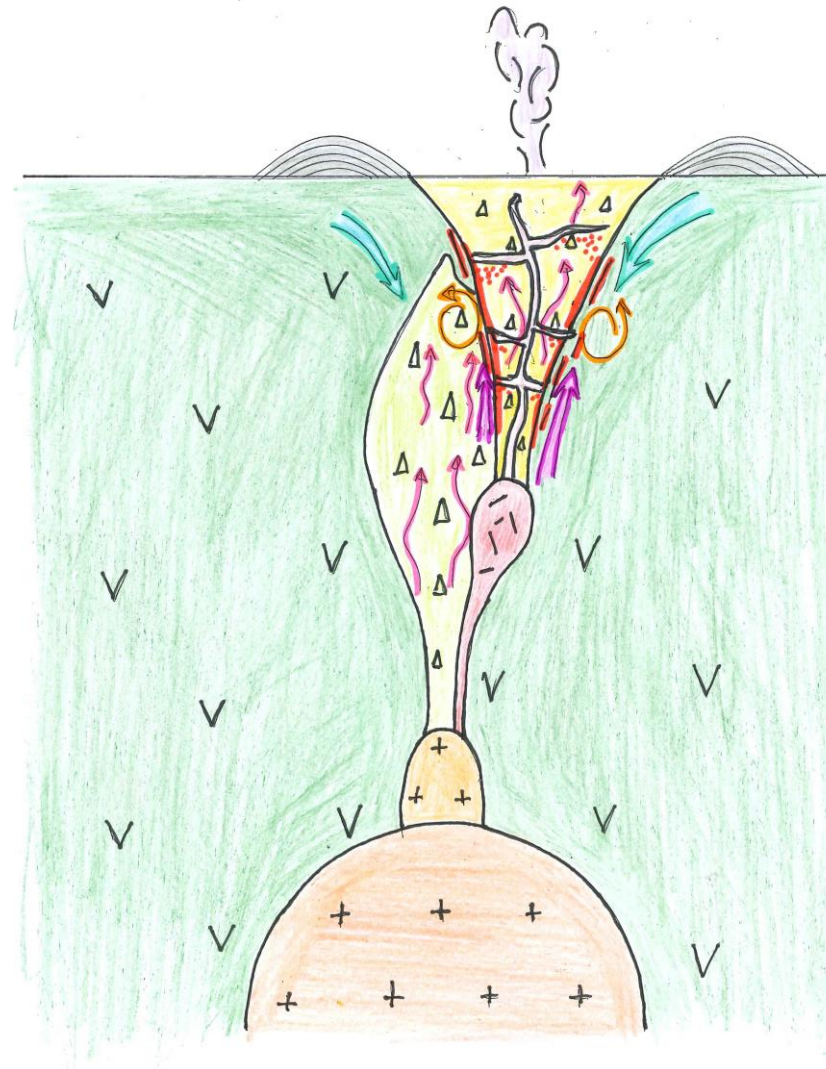


# S41 Breccia-Hosted Gold Multi-phase Evolution



Late, metals-rich ascending fluids interact with low pH, carbonate-rich descending cool fluids resulting in the deposition of carbonate, base-metal and gold (+silver).

Intrusion of late rhyolite dykes – they may arguably be from the metals source intrusion but certainly do have an influence on focusing gold mineralisation. Low-grade mineralisation up to 2 g/t Au located immediately below rhyolite dykes.



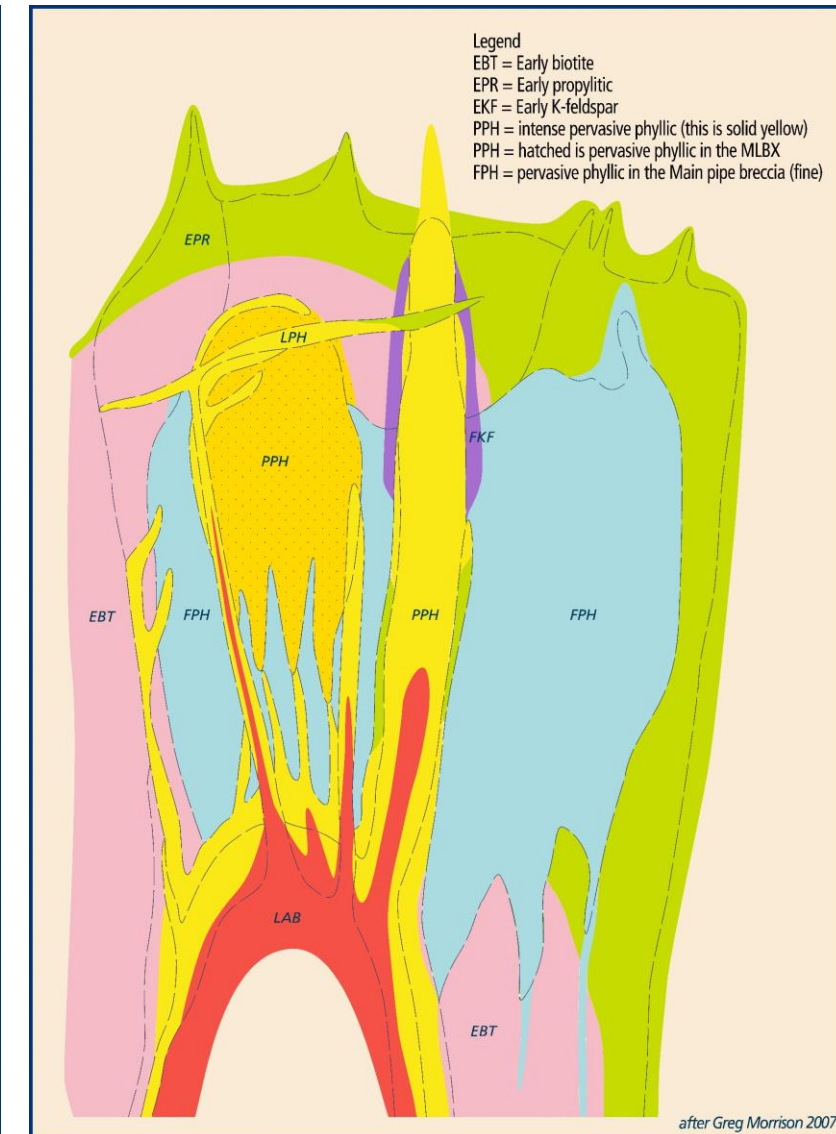
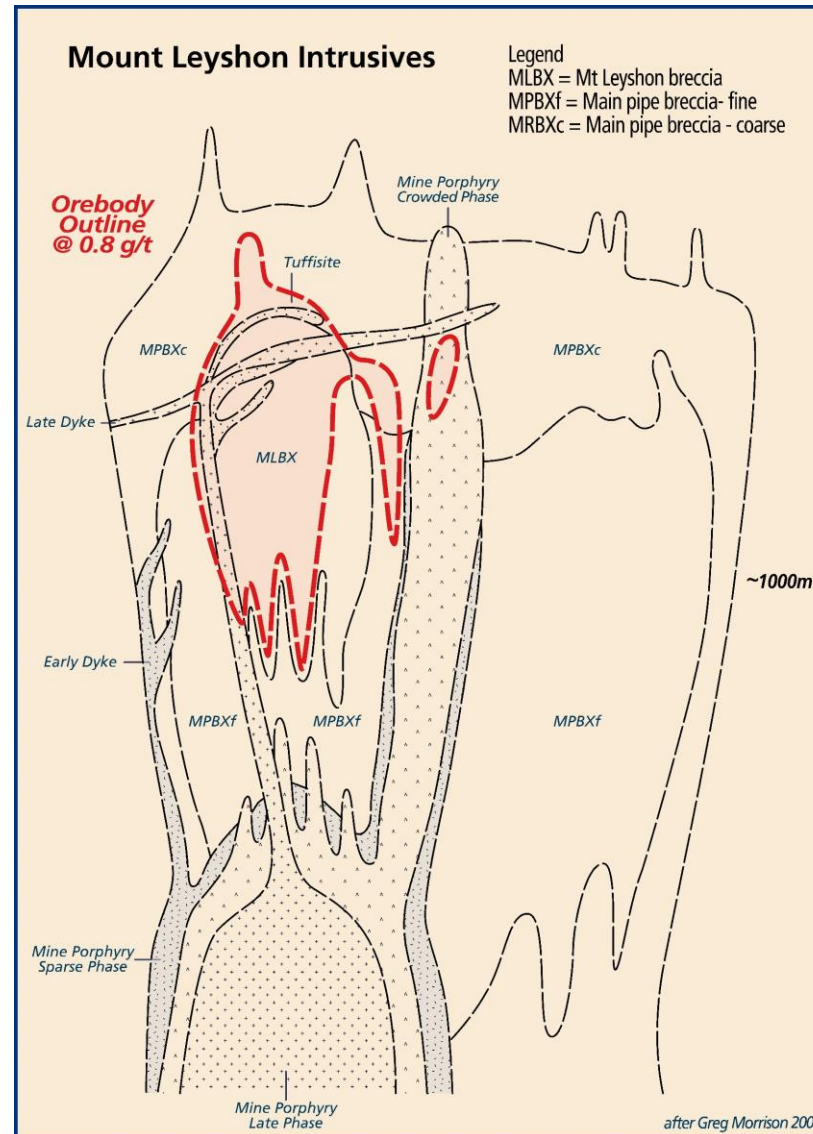
# S41 Breccia-Hosted Gold Multi-phase Evolution



Late, metals-rich ascending fluids interact with low pH, carbonate-rich descending cool fluids resulting in the deposition of carbonate, base-metal and gold (+silver).

Intrusion of late rhyolite dykes – they may arguably be from the metals source intrusion but certainly do have an influence on focusing gold mineralisation. Low-grade mineralisation up to 2 g/t Au located immediately below rhyolite dykes.

As does the tuffisite dyke at Mount Leyshon.





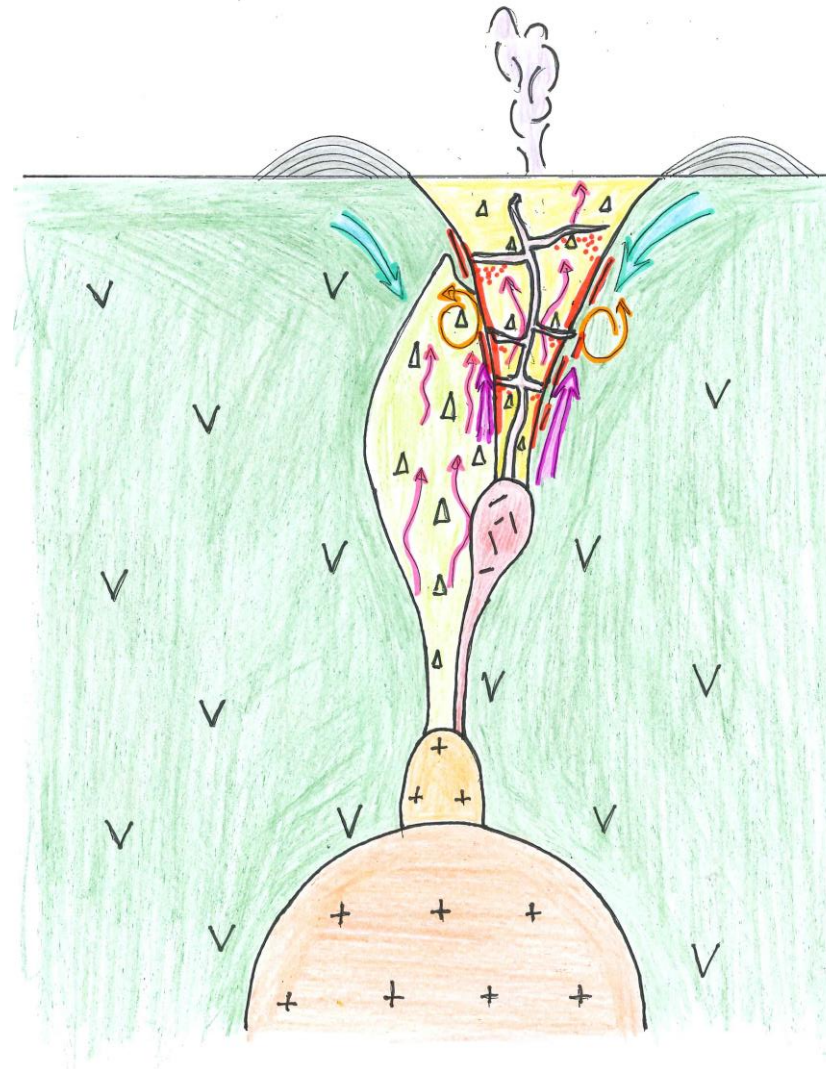
# S41 Breccia-Hosted Gold Multi-phase Evolution



Late, metals-rich ascending fluids interact with low pH, carbonate-rich descending cool fluids resulting in the deposition of carbonate, base-metal and gold (+silver).

Intrusion of late rhyolite dykes – they may arguably be from the metals source intrusion but certainly do have an influence on focusing gold mineralisation. Low-grade mineralisation up to 2 g/t Au located immediately below rhyolite dykes.

Better late fluid (metals rich) pathways tend to be in sheeted veins on pipe margins as they were at Kidston.



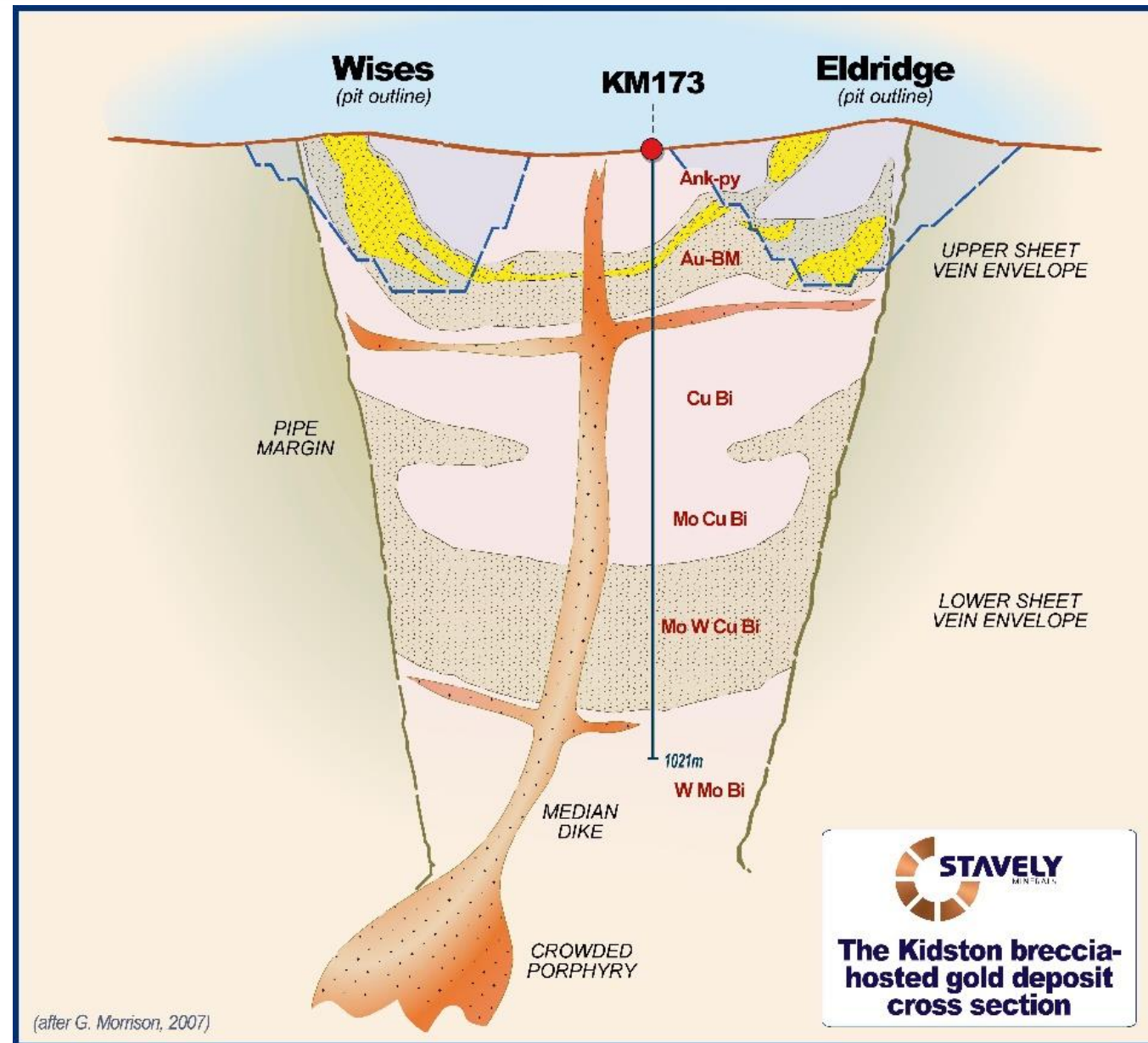
# S41 Breccia-Hosted Gold Multi-phase Evolution



Late, metals-rich ascending fluids interact with low pH, carbonate-rich descending cool fluids resulting in the deposition of carbonate, base-metal and gold (+silver).

Intrusion of late rhyolite dykes – they may arguably be from the metals source intrusion but certainly do have an influence on focusing gold mineralisation. Low-grade mineralisation up to 2 g/t Au located immediately below rhyolite dykes.

Better late fluid (metals rich) pathways tend to be in sheeted veins on pipe margins as they were at Kidston.



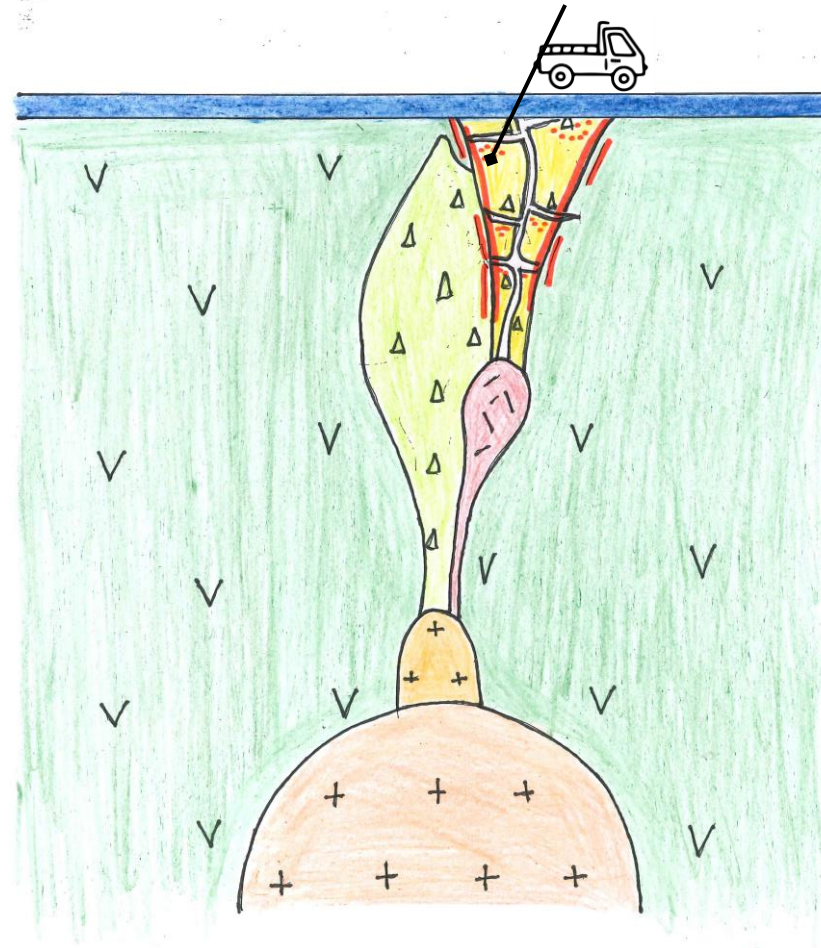


# S41 Breccia-Hosted Gold Multi-phase Evolution



Erode away a ?few hundred metres and then cap with ~50m of much younger Newer Formation basalt (to ~4Ma).

Then drill with 1 x diamond drill hole to 405.2m.



# S41 Breccia-Hosted Gold Multi-phase Evolution



Late, metals-rich ascending fluids interact with low pH, carbonate-rich descending cool fluids resulting in the deposition of carbonate, base-metal and gold (+silver).

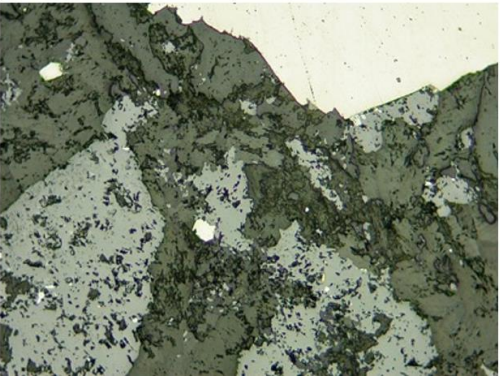
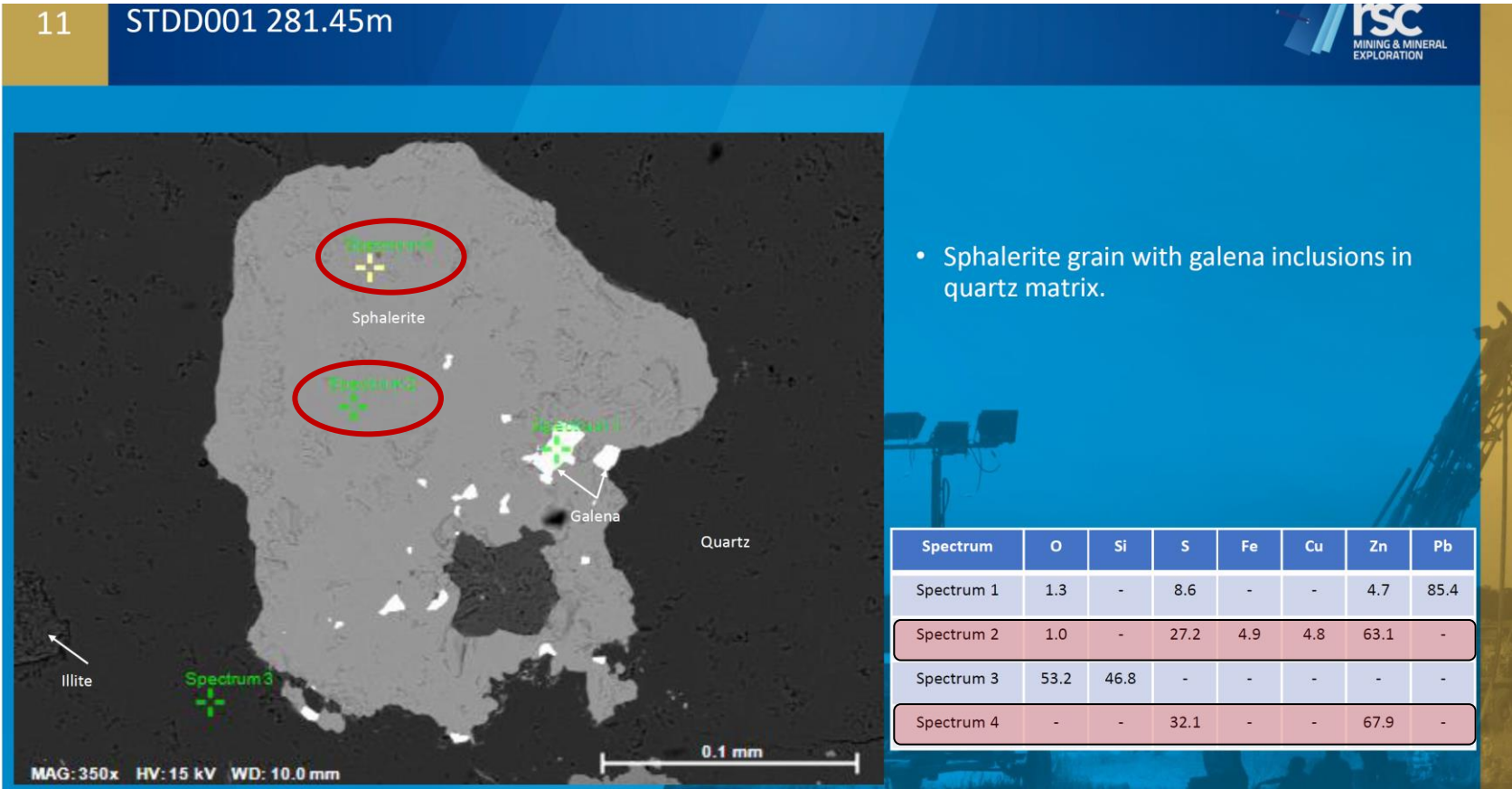


Fig. 32: Pyrite (pale creamy) adjacent to sphalerite (mid grey) that is hosted in calcite and quartz (dark). Plane polarised reflected light, field of view 1 mm across.

STDD001 384.0m  
(reflected light)

Low-Fe sphalerite ✓



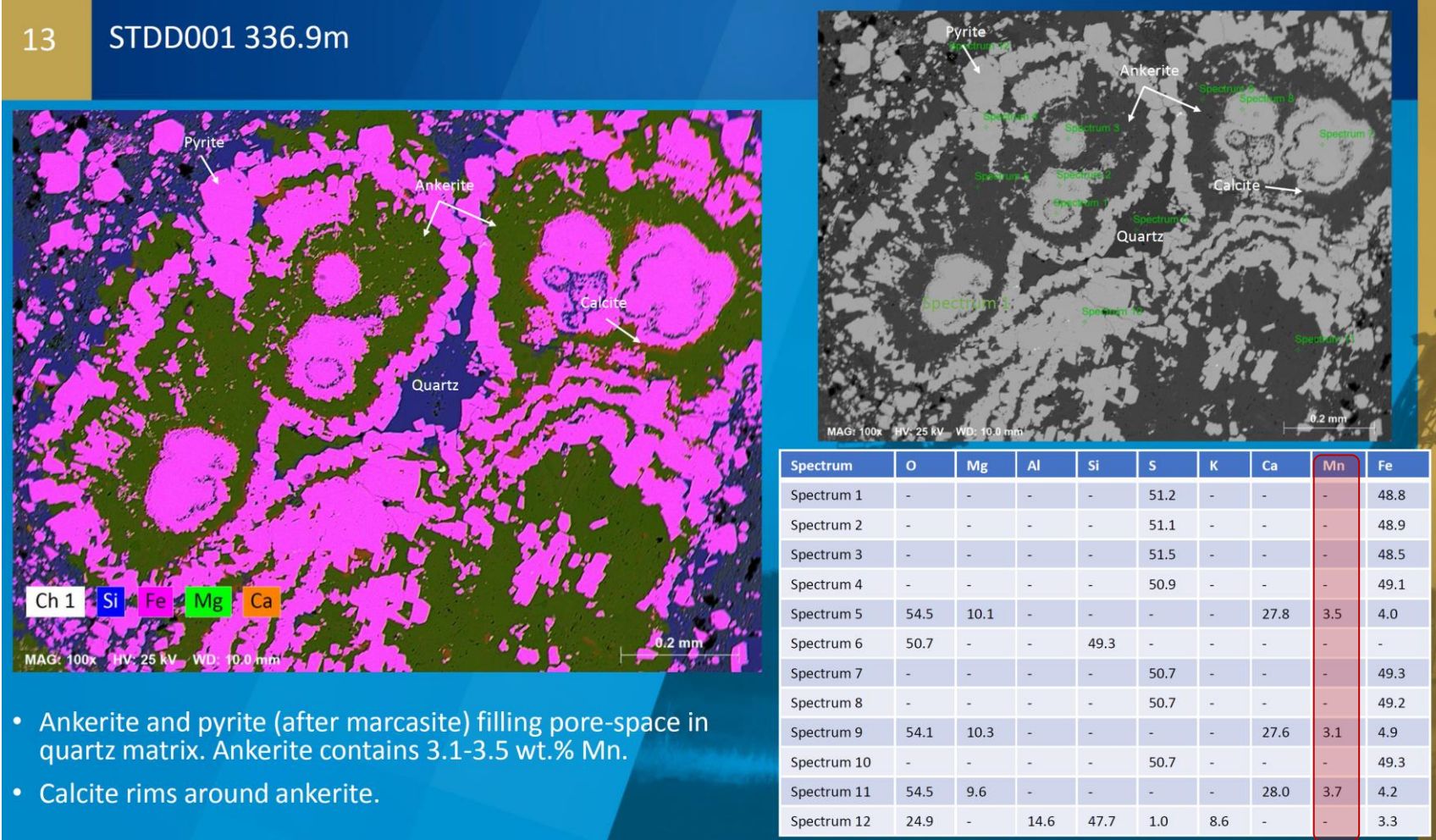


# S41 Breccia-Hosted Gold Multi-phase Evolution



Late, metals-rich ascending fluids interact with low pH, carbonate-rich descending cool fluids resulting in the deposition of carbonate, base-metal and gold (+silver).

Pyrite after low-temp marcasite ✓  
Manganoan ankerite ✓

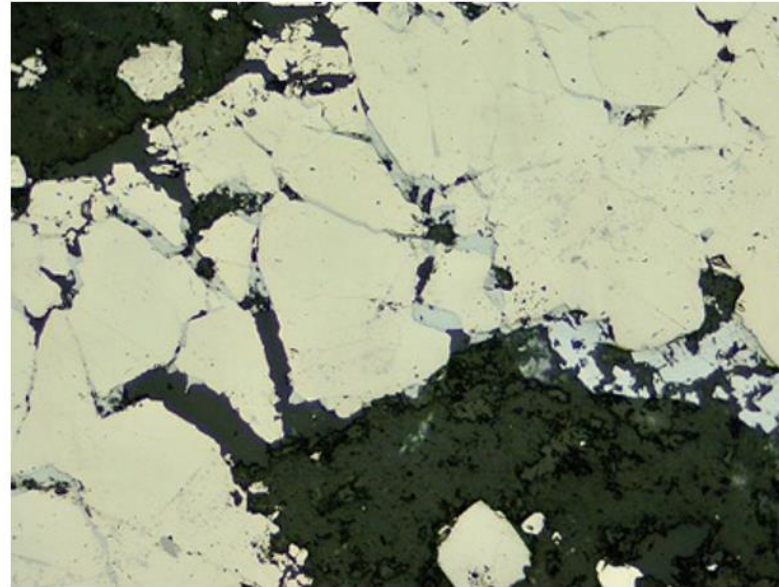


# S41 Breccia-Hosted Gold Multi-phase Evolution



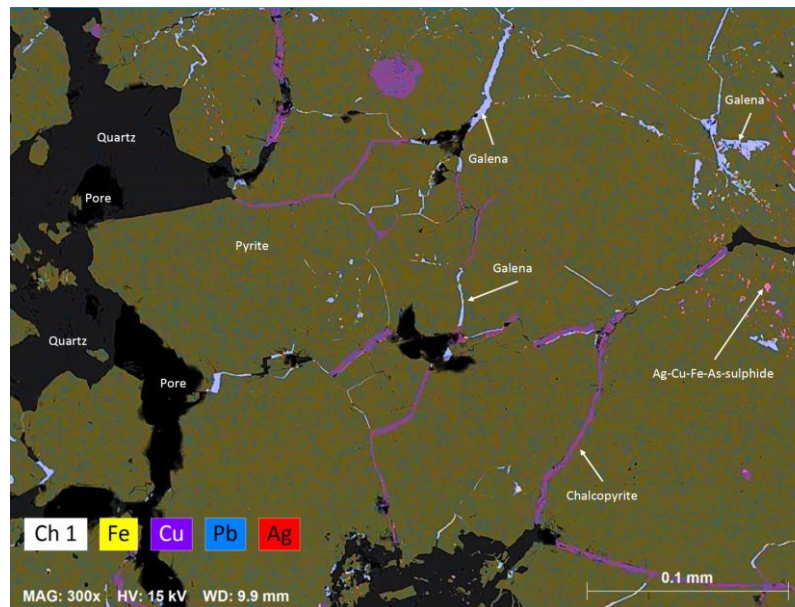
Late, metals-rich ascending fluids interact with low pH, carbonate-rich descending cool fluids resulting in the deposition of carbonate, base-metal and gold (+silver).

Galena and sphalerite ✓  
paragenetically after pyrite ✓



**Fig. 29:** Vein-hosted pyrite aggregate (pale creamy) with fracturing and local invasion by galena (pale silvery grey). Plane polarised reflected light, field of view 0.5 mm across.

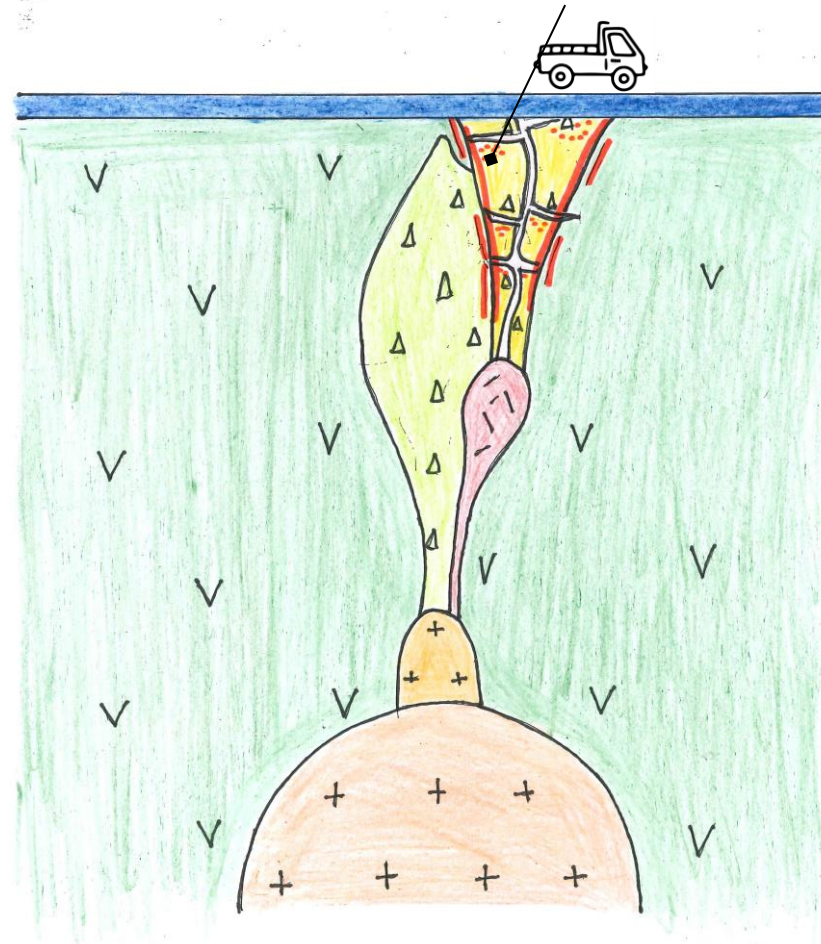
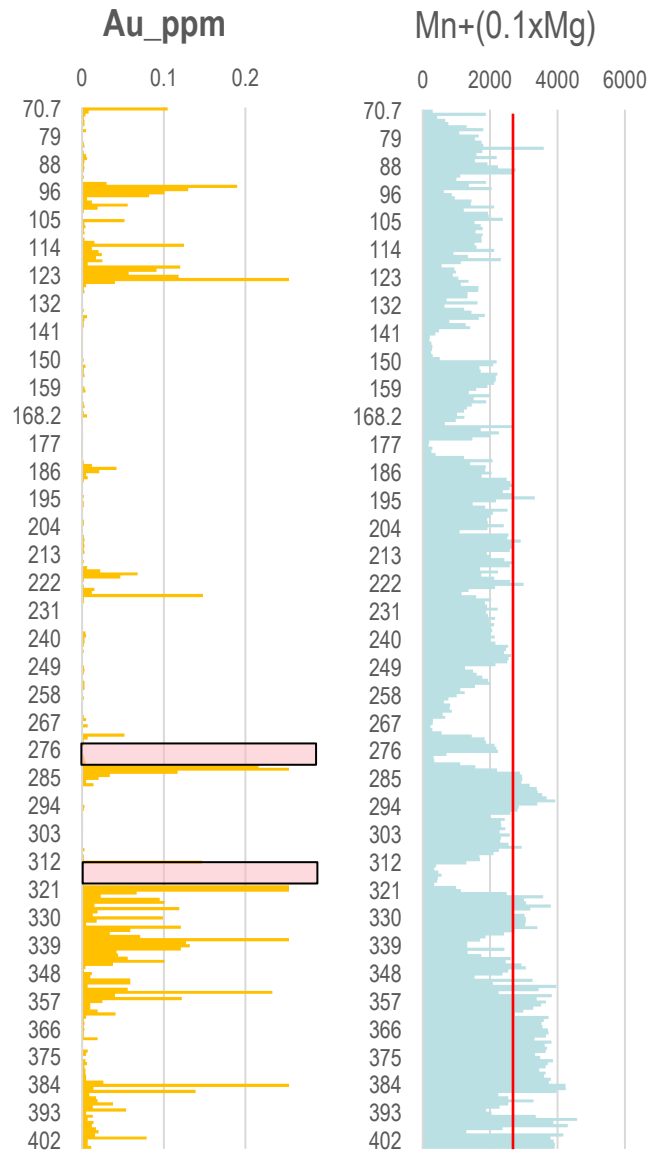
STDD001 356.9m  
(reflected light)



STDD001 356.9m  
(SEM)



# S41 Breccia-Hosted Gold: Attributes

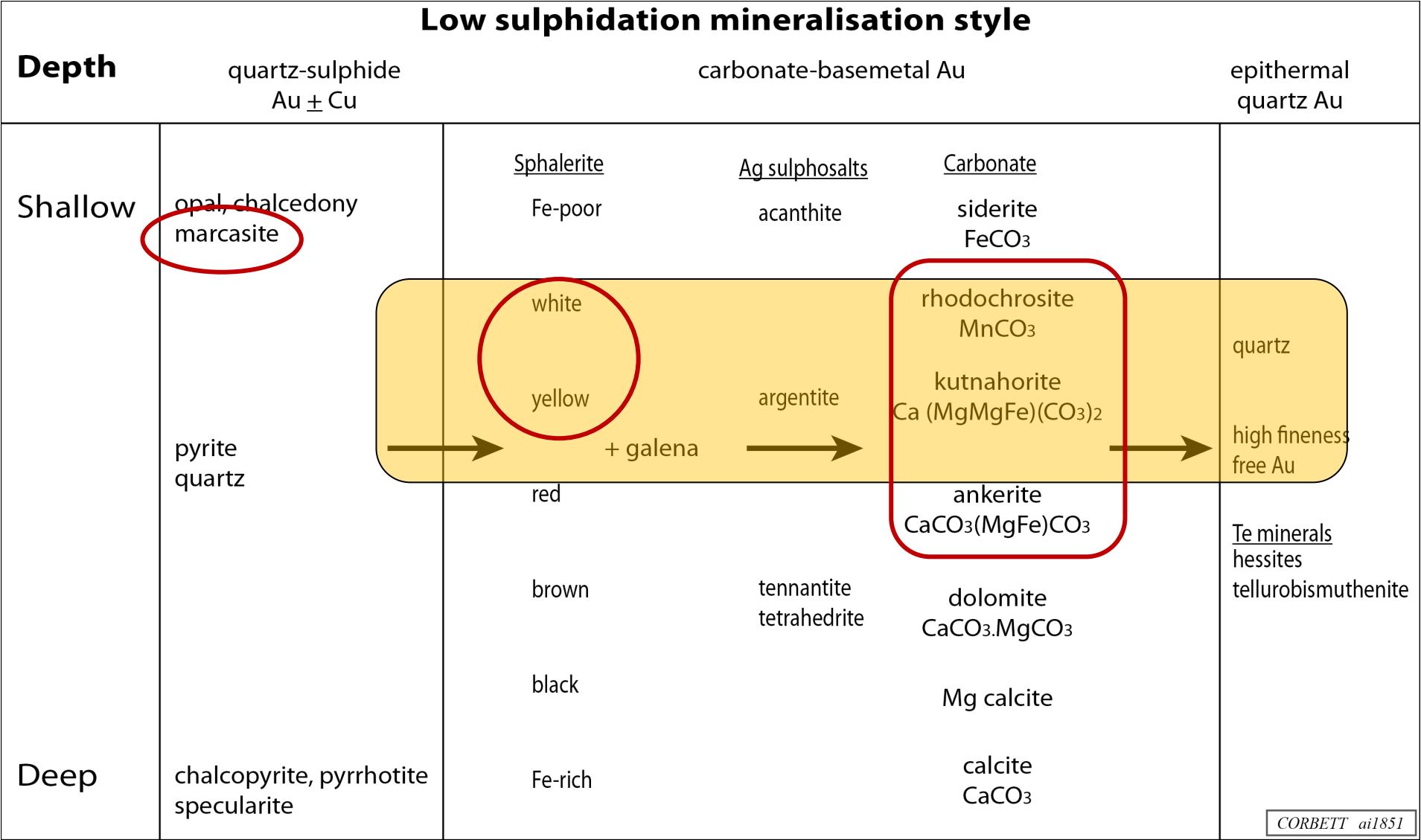


- STDD001 drilled to 405.2m
- Gold mineralisation associated with Pb / Zn sulphides focused below rhyolite dykes
- Pale Fe-poor sphalerite – low-temp
- Pyrite after low-temp marcasite
- Base metals later than pyrite
- Increasing late Mn / Mg carbonates down-hole
- Did not drill through the margin of the breccia



Photo 25 Shear-hosted rhodochrosite vein cuts magmatic hydrothermal breccia, DDH SMTDD001, 386.1m.

# Breccia-hosted Carbonate – Base Metal – Gold Systems



‘goldilocks’ gold precipitation zone

With kind permission from Greg Corbett





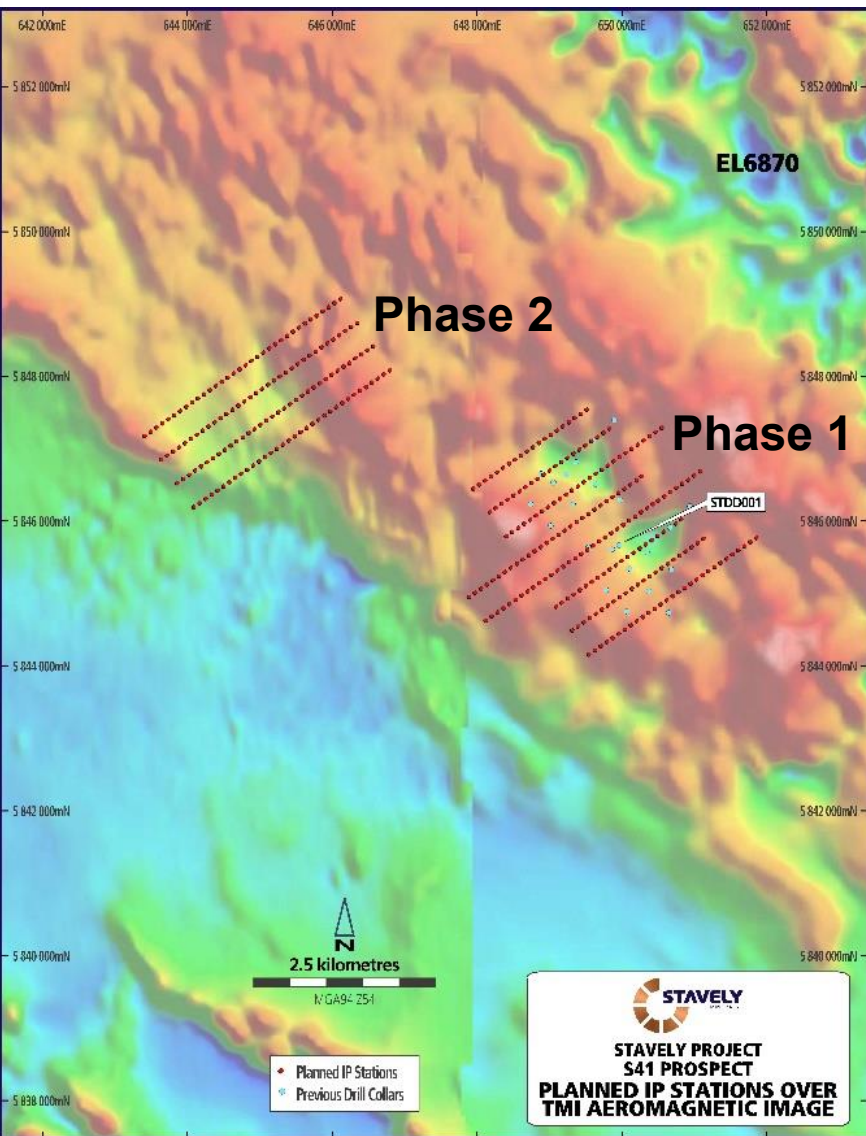
# Next Steps



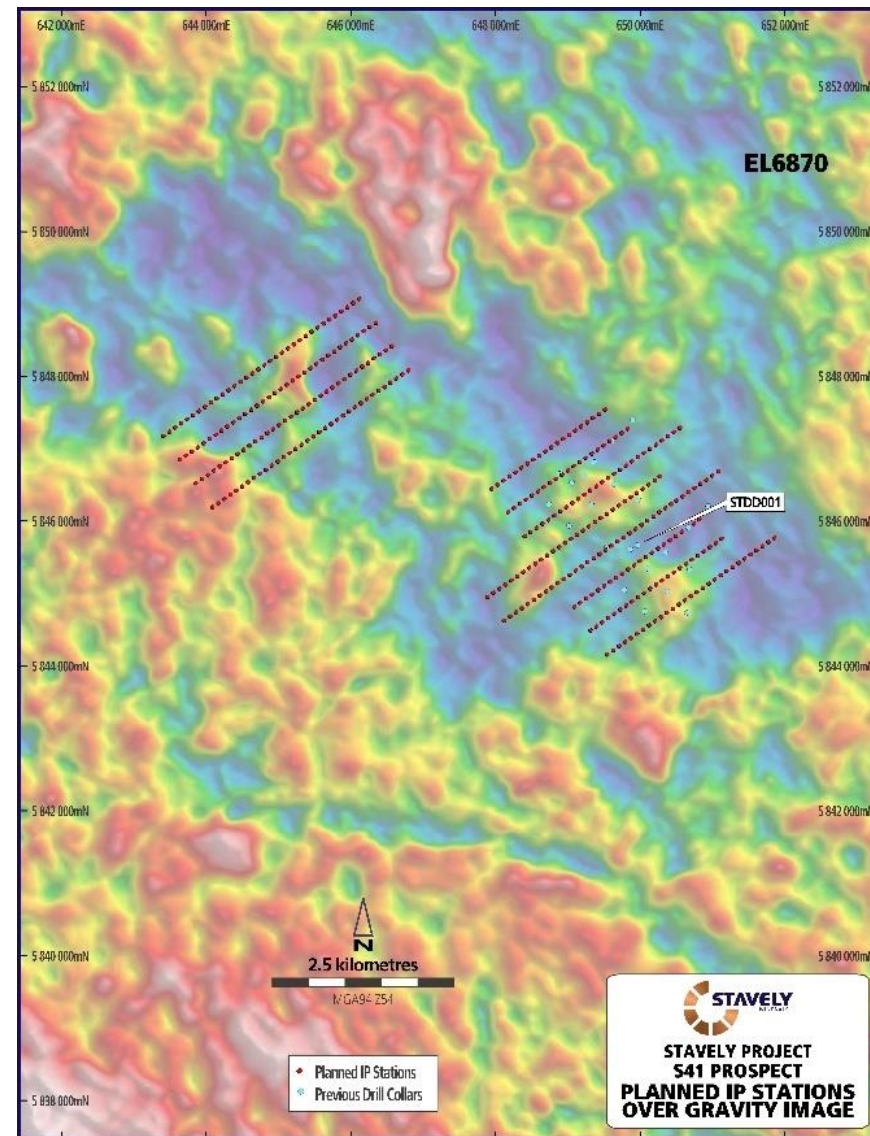
# Emerging Discovery? – The S41 Breccia-Hosted Gold Prospect



Magnetics



Gravity



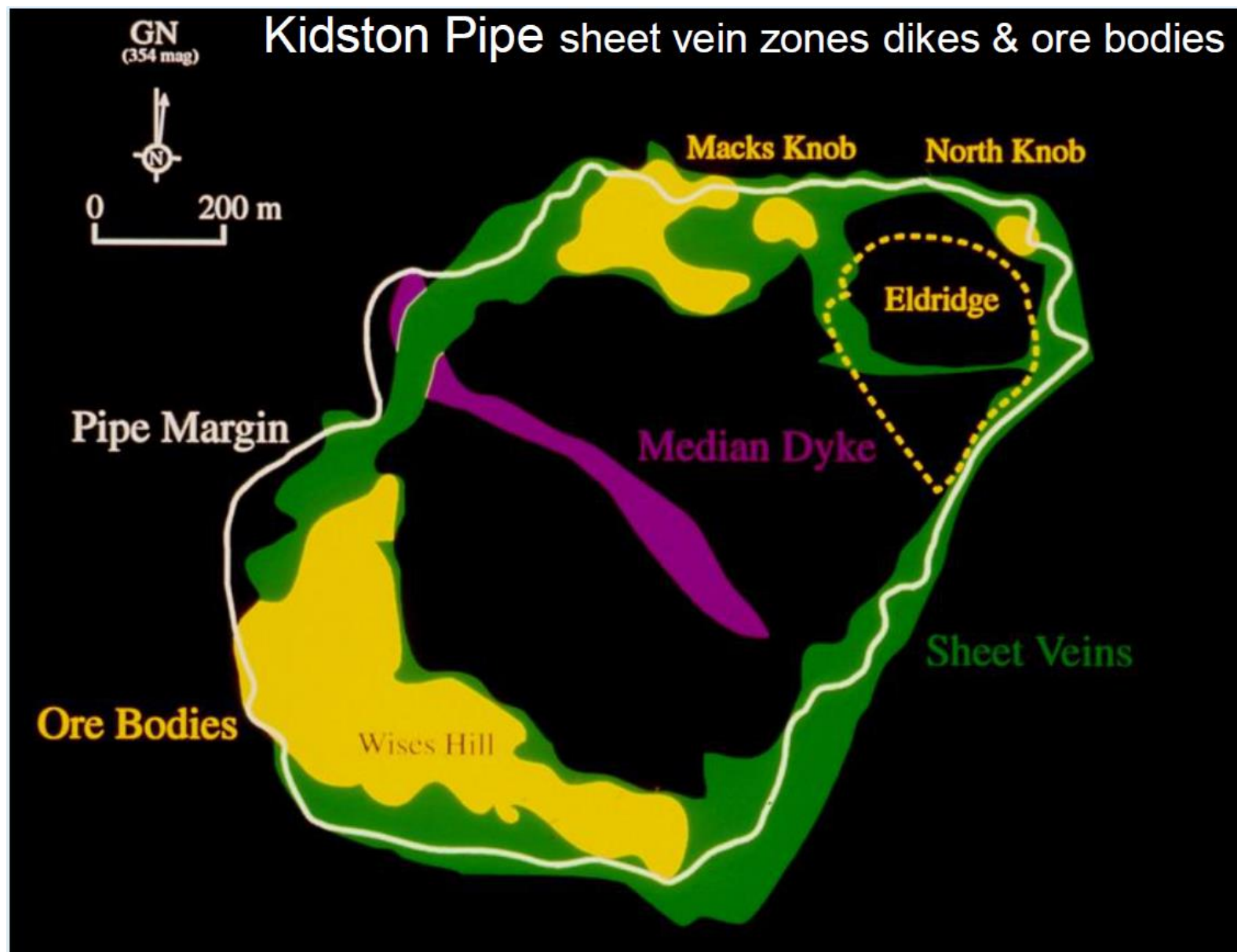
## S41 Prospect Geophysics<sup>1</sup>

- Pending Induced Polarisation (IP) geophysical program
- Should 'see' through the basalt and identify zones of better developed sulphide mineralisation – expecting to see illite-pyrite alteration ass. chargeability anomaly
- Follow-up aircore drilling

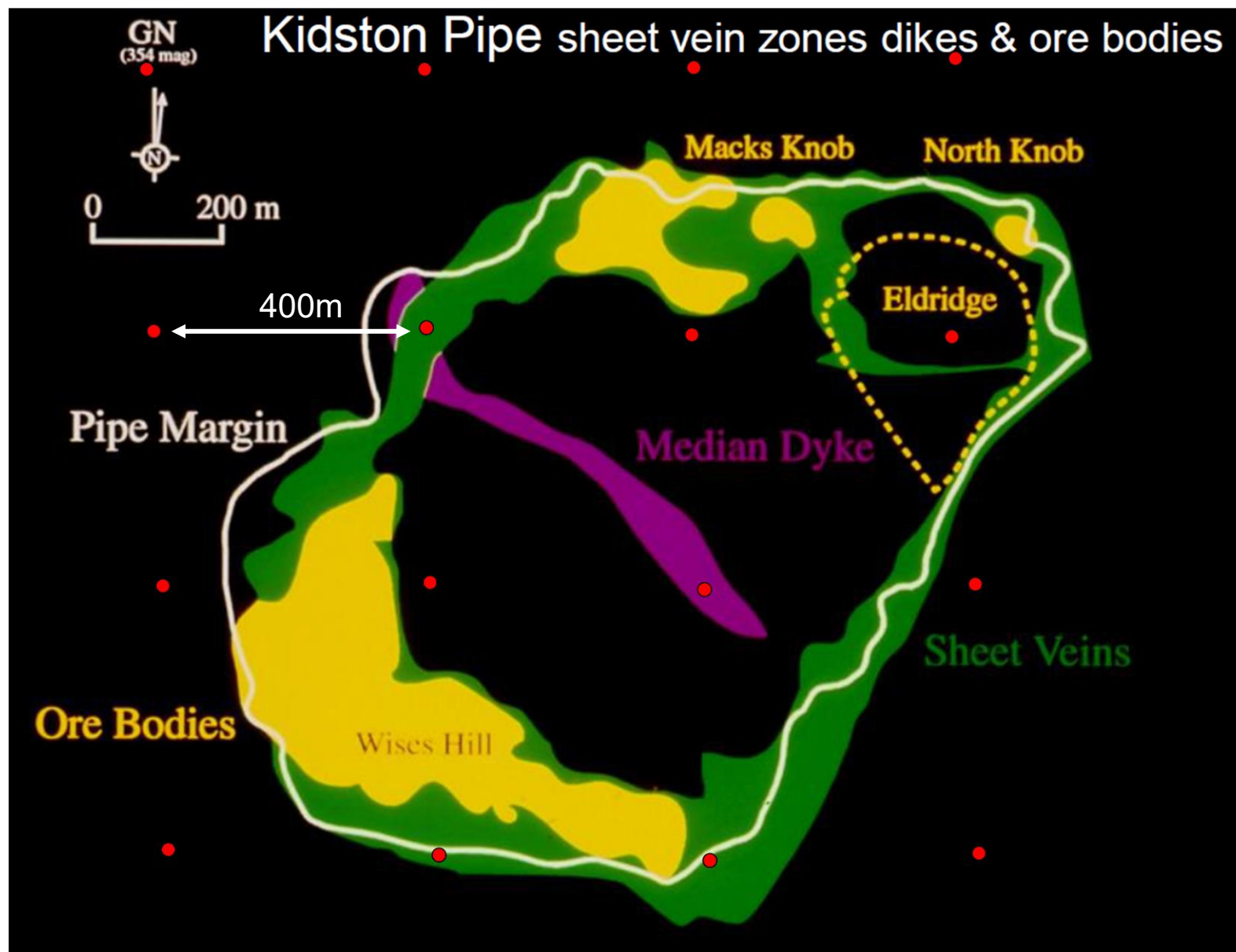
<sup>1</sup>See ASX announcement 21/01/2025



# Kidston Sheeted Veins and Orebodies – +5Moz

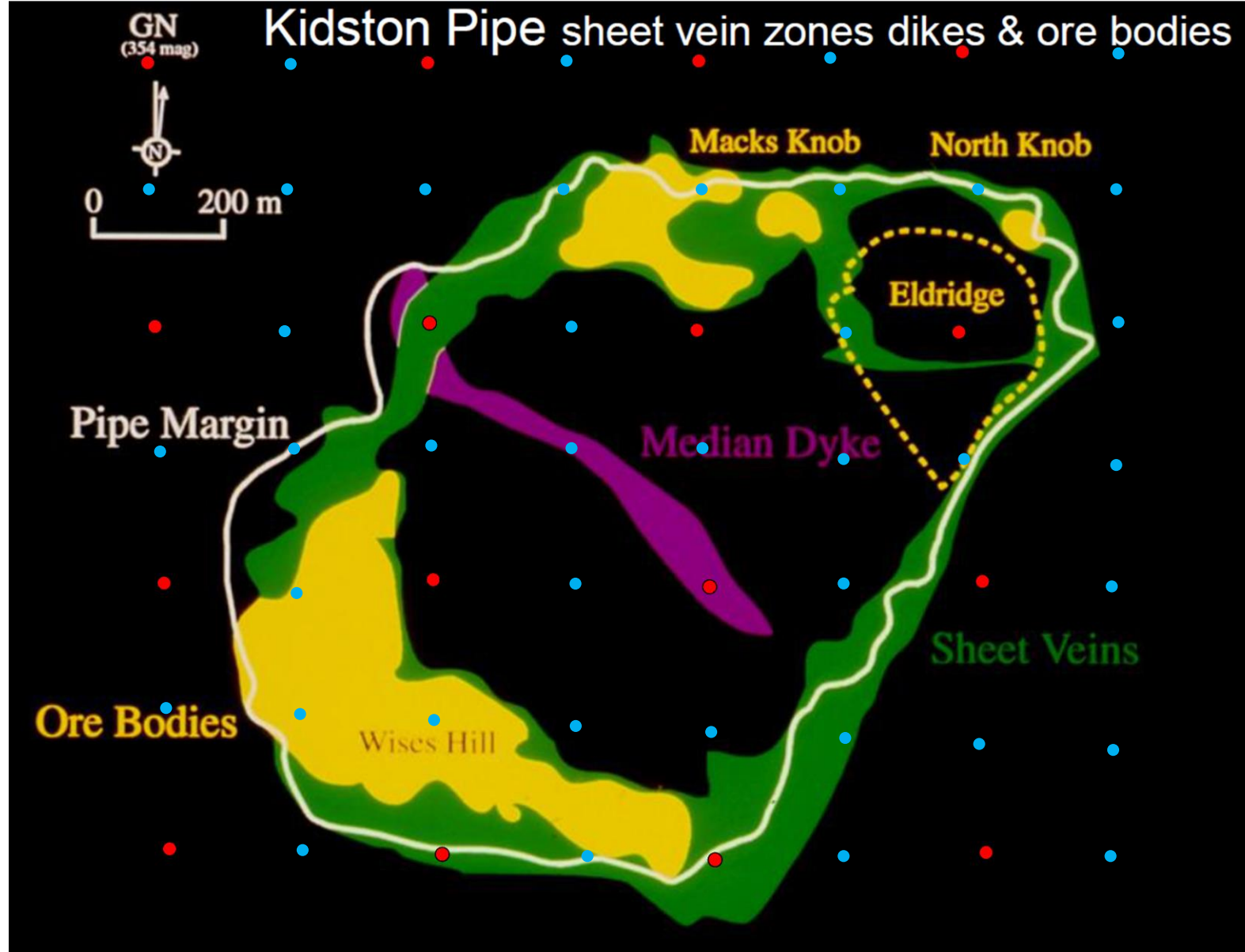


# Kidston Sheeted Veins and Orebodies – +5Moz





# Kidston Sheeted Veins and Orebodies – +5Moz



Red = 400m spaced aircore

Blue = 200m spaced aircore



**Contact Us:**  
**Stavely Minerals Limited**  
Level 1, 168 Stirling Highway  
Nedlands WA 6009  
[www.stavely.com.au](http://www.stavely.com.au)  
[info@stavely.com.au](mailto:info@stavely.com.au)  
Ph: 08 9287 7630

The information in this presentation is extracted from information available to view on [www.stavely.com.au](http://www.stavely.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.





# Appendix 1: Mineral Resources

# Appendix 1: Mineral Resources Classifications



Table 1. Cayley Lode Initial Mineral Resource estimate

Resource Material	Resource Category	Cut-off	Tonnes (Mt)	Grade	Cont.	Grade	Cont.	Grade	Cont.
		(Cu %)		(Cu %)	Cu (Mlbs)	(Au g/t)	Au (oz)	(Ag g/t)	Ag (oz)
Primary Mineralisation (OP)	Indicated	0.2	5.87	1.04	134.4	0.23	43,407	7	1,321,074
	Inferred	0.2	1.7	1.3	49	0.2	10,931	9	491,907
Sub-Total Primary OP			7.6	1.1	183	0.2	54,338	7.4	1,808,158
Primary Mineralisation (UG)	Indicated	1.0	-	-	-	-	-	-	-
	Inferred	1.0	1.7	1.8	69	0.2	10,931	6	327,938
Sub-Total Primary UG			1.7	1.8	69	0.2	10,931	6	327,938
Total Cayley Lode			9.3	1.23	252	0.23	65,000	7.1	2,100,000



Table 4. Stavely Minerals Total Mineral Resources estimates

Resource Material	Resource Category	Cut-off	Tonnes (Mt)	Grade	Cont.	Grade	Cont.	Grade	Contained Metal	Grade	Cont.
		(Cu %)		(Cu %)	(Mlbs Cu)	(Au g/t)	(oz Au)	(Ag g/t)	(oz Ag)	(Zn %)	(kt Zn)
Total Resources	Indicated	1	21.5	0.61	288	0.1	67,301	3.1	2,153,972	0.3	8
	Inferred	1	6.8	1.2	175	0.1	32,797	4.7	1,043,839	0.2	16
Total Stavely Minerals			28.3	0.75*	463	0.11*	100,000	3.5	3,200,000	0.2	24



<sup>1</sup> Reported in compliance with the JORC Code 2012, see ASX announcement 14 June 2022

Cayley Lode bornite mineralisation - photo from ASX announcement 11 September 2019