Est. 1980

Into the mountain: application of underground DHEM at the historic Cassilis Gold Mine, Swifts Creek goldfield, eastern Victoria

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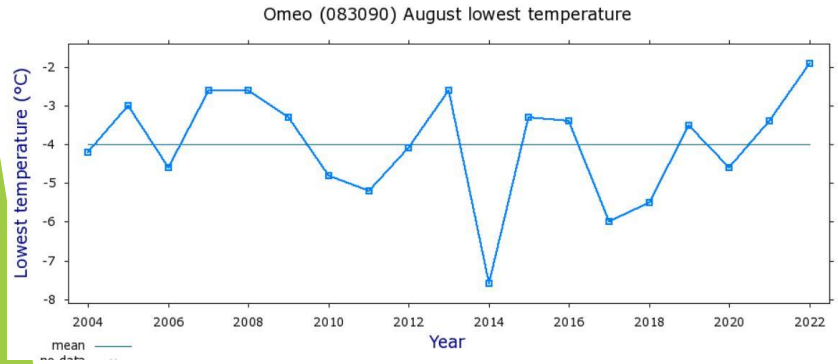
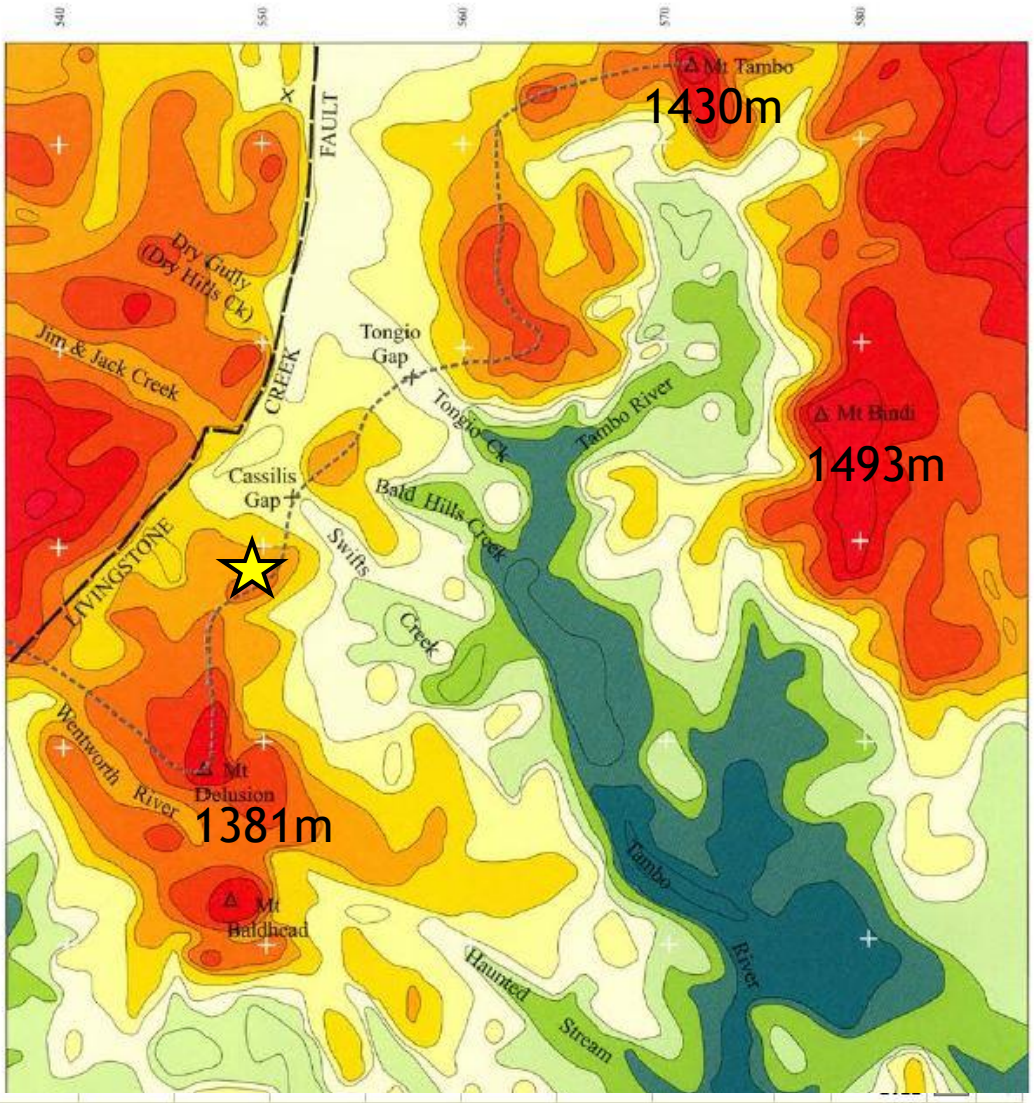
Location

This presentation discusses DHEM at the underground Cassilis Mine part of the Swift Creek goldfield in NE Victoria, under the Main Divide of the Great Dividing Range of eastern Australia

Conditions

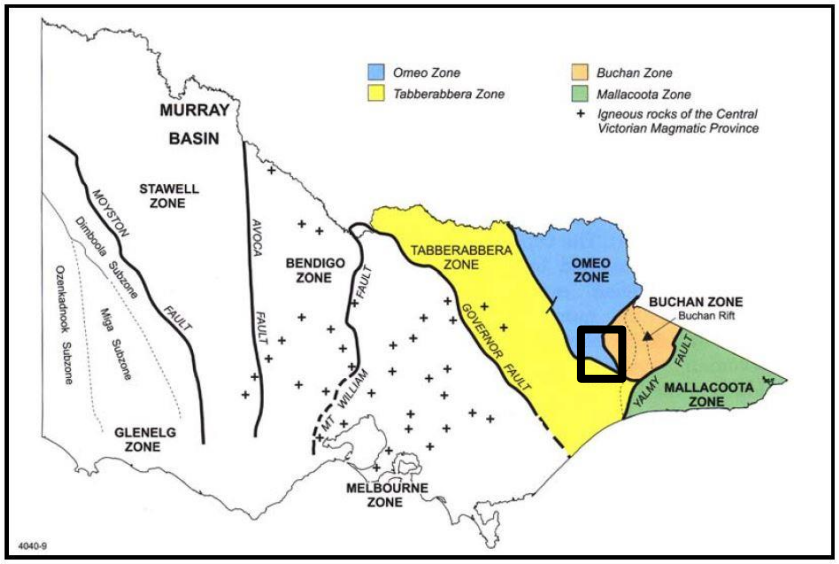




Rainfall															
Mean rainfall (mm)	62.4	53.3	54.3	36.3	38.2	64.3	52.2	51.1	55.8	60.7	75.0	62.4	660.4	15	2004 2022
Decile 5 (median) rainfall (mm)	51.0	51.4	50.6	25.9	36.4	54.4	46.0	51.2	51.2	57.2	69.9	52.6	635.6	18	2004 2022
Mean number of days of rain ≥ 1 mm	6.6	6.1	6.5	6.2	5.9	8.1	8.3	8.4	8.2	8.2	8.3	6.8	87.6	18	2004 2022

Highest peak in WA = 1253m

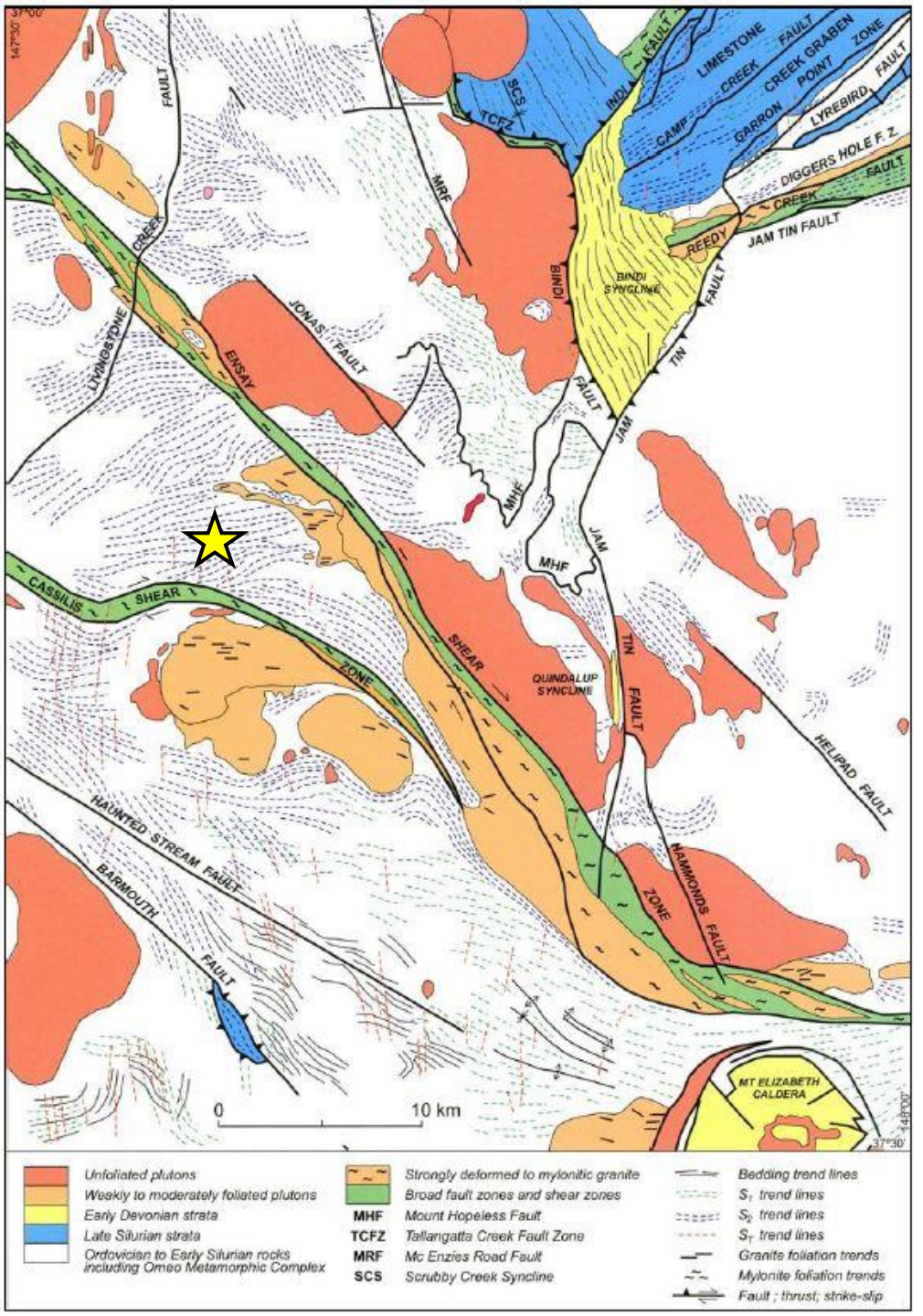
Geology



Omeo Zone of NE Vic
Silurian and Devonian rocks
Multiply deformed: Tabberabberan
Devonian deformation principally

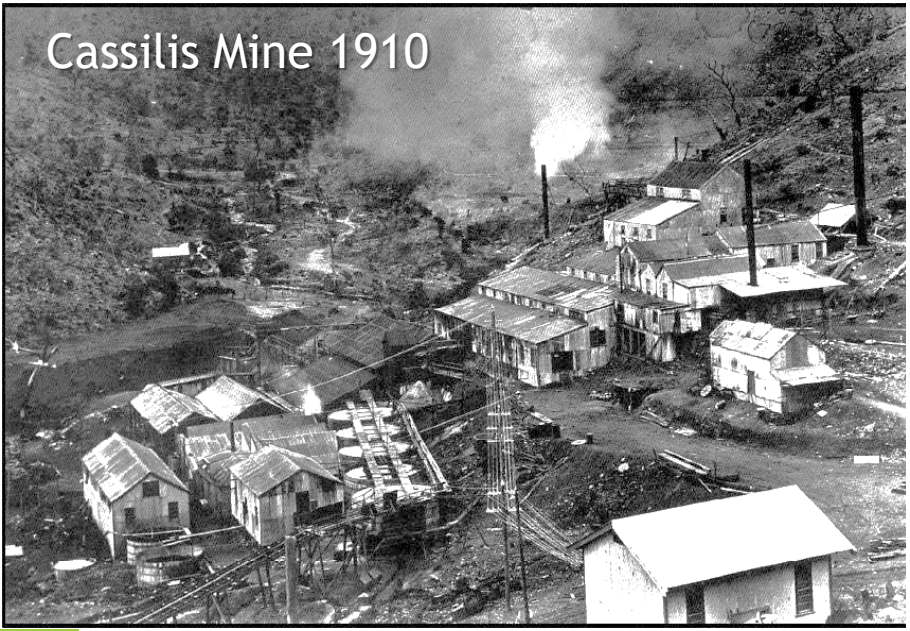
Age equivalent to Wagga Belt in NSW.

Also host to Benambra VHMS

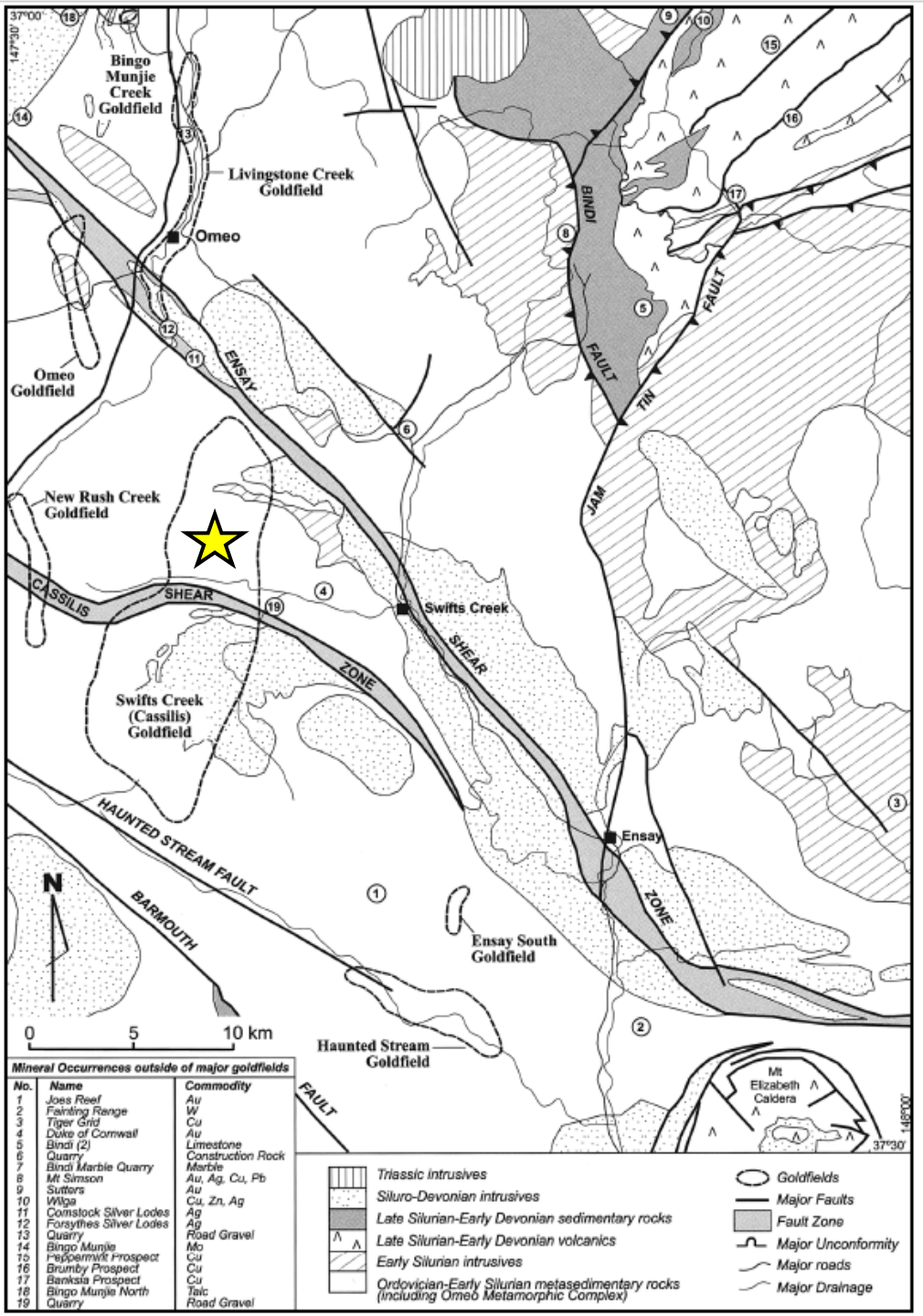


Cassilis Gold

- Hard rock vein Au discovered 1858 after alluvial discovery 1854
- 17t of Cu & >73000 oz. of Au average grade of >30 g/t between 1880 and 1916
- 12 underground levels over 450 m vertical metres

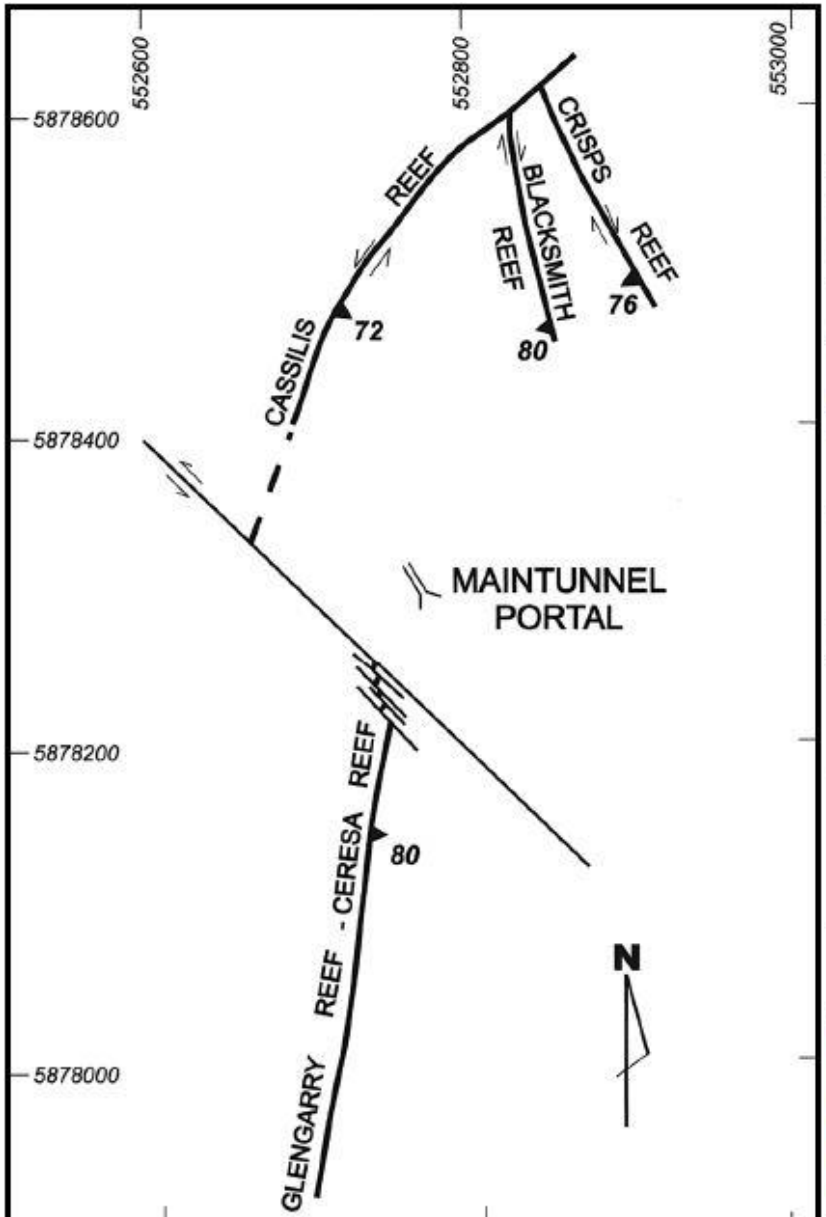


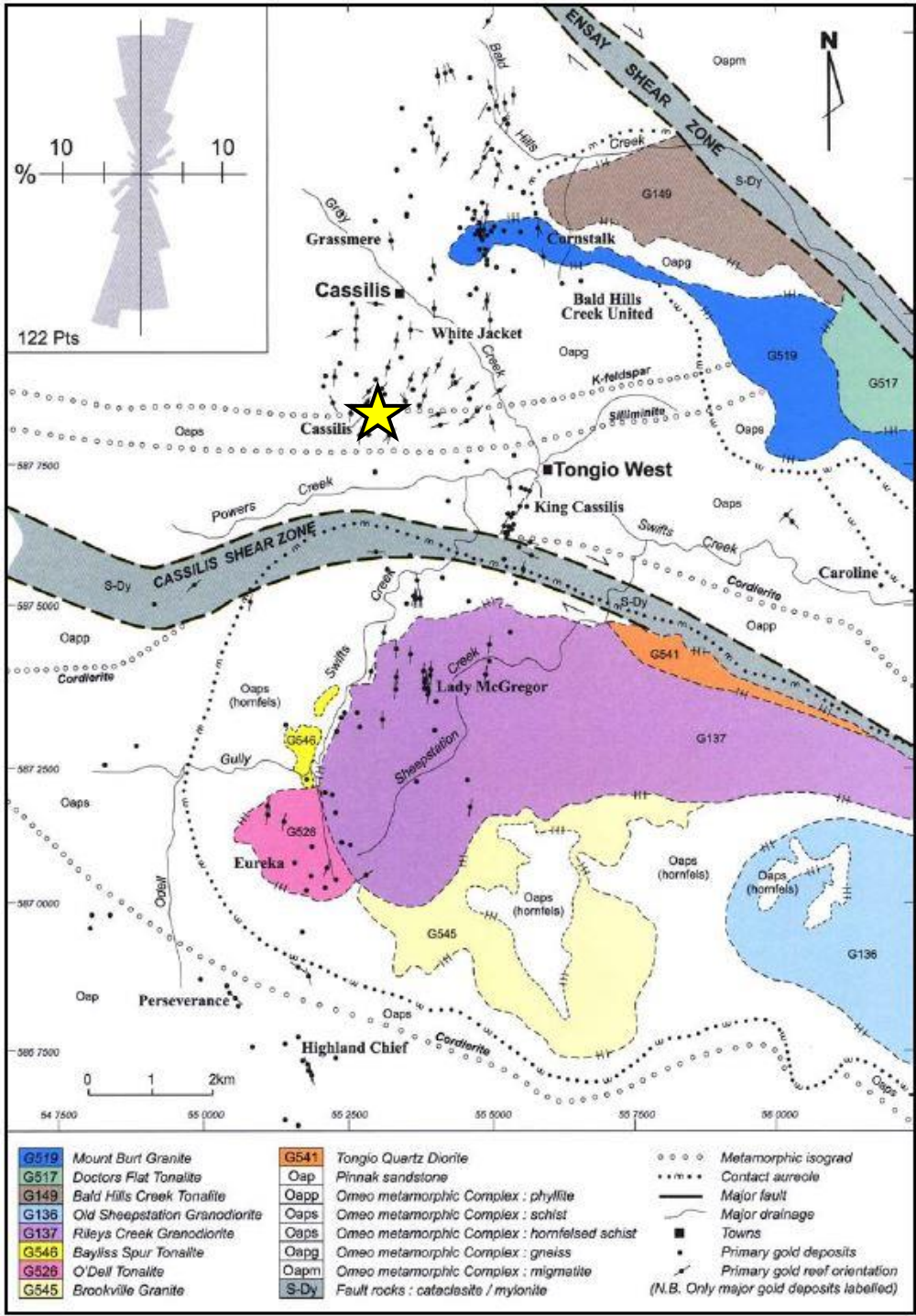
Willman et al, 1999



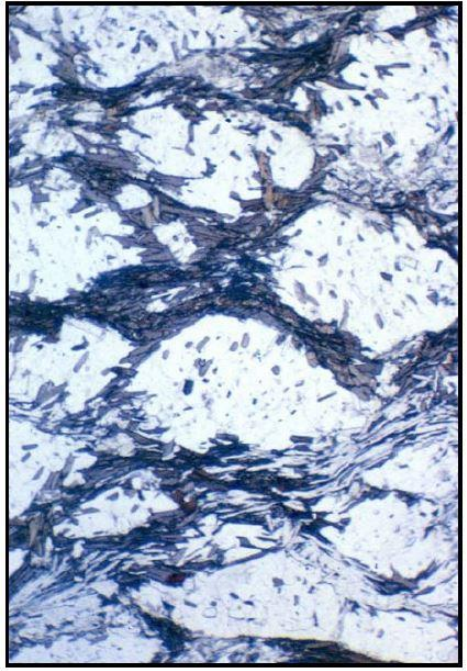
Reef System

NNW & NNE trends





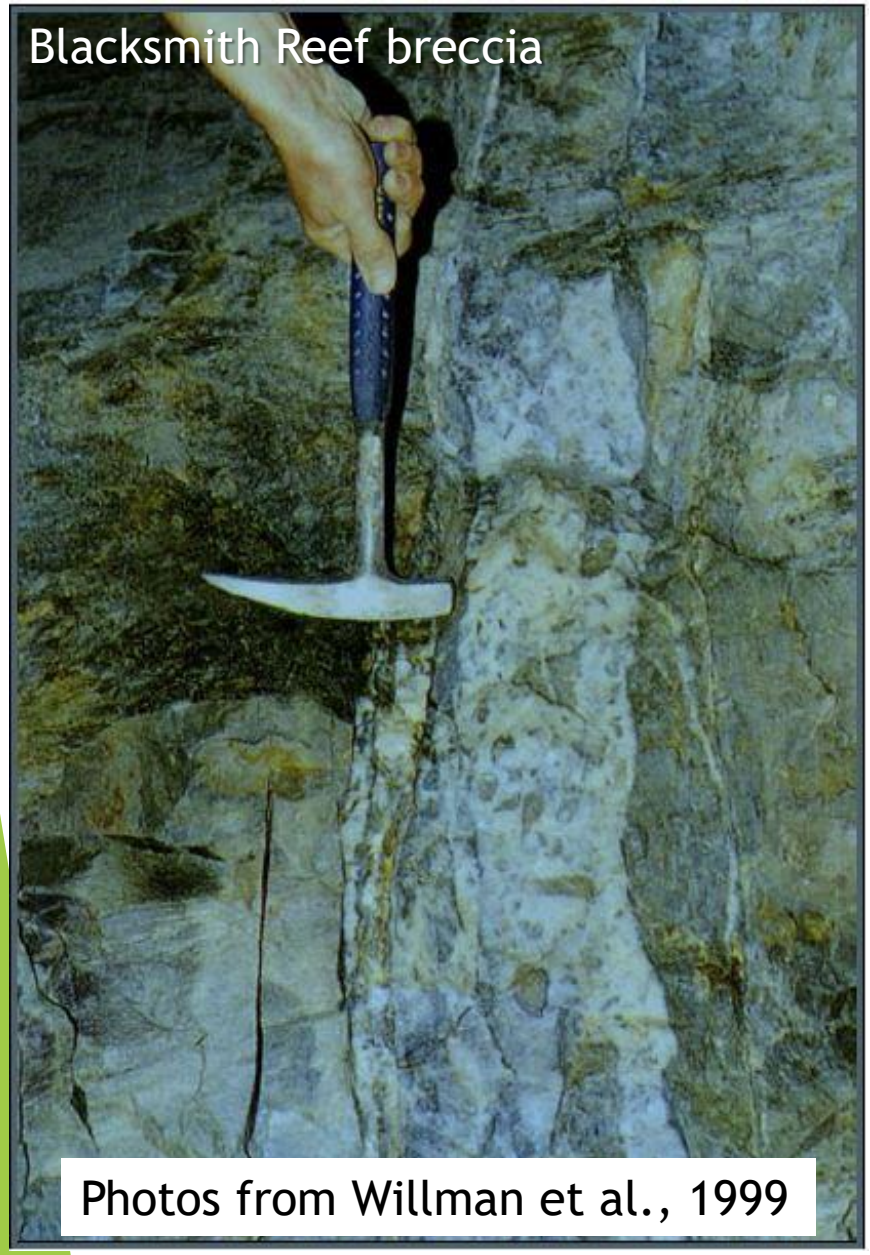
Host Rocks

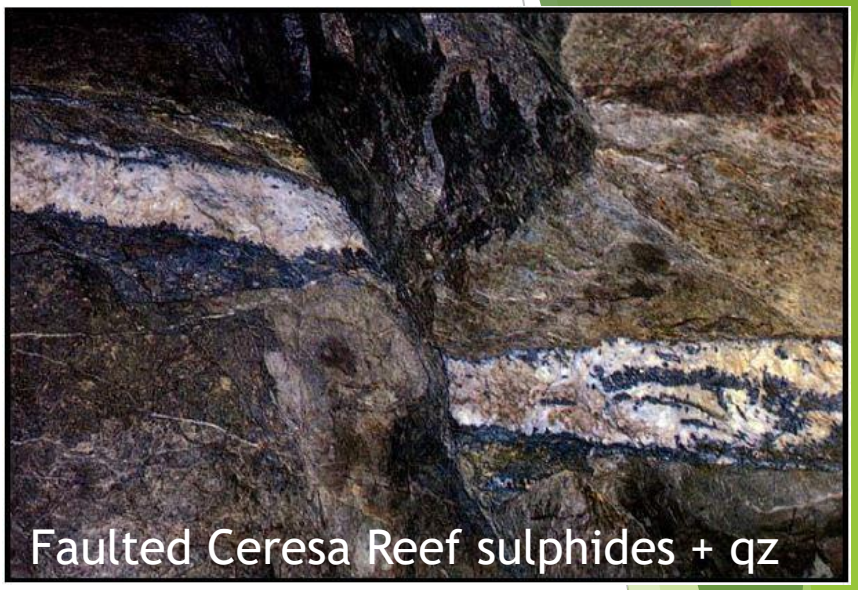


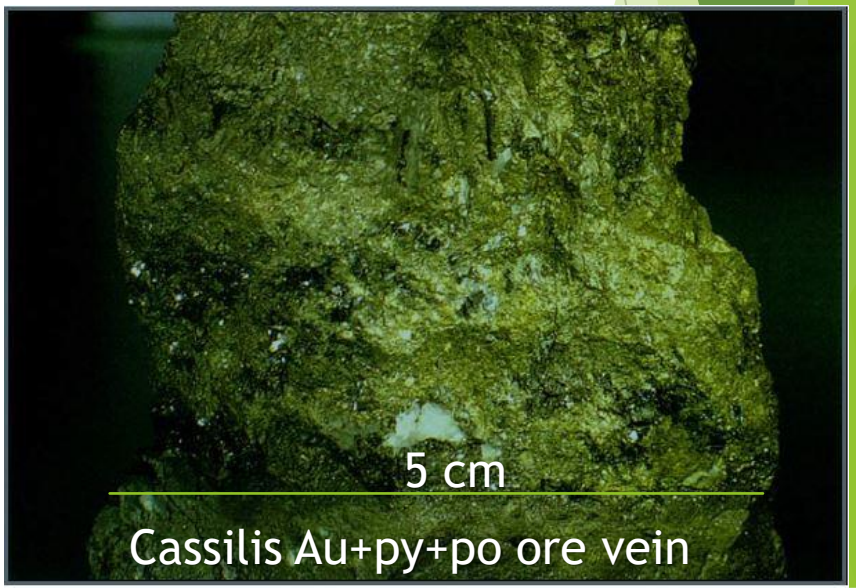
Micrograph of Ksp-sil gneiss (Willman et al., 1999)

Mineralisation

Fe, As Zn, Pb Cu and Ag sulphide rich selvedges
= geophysically responsive



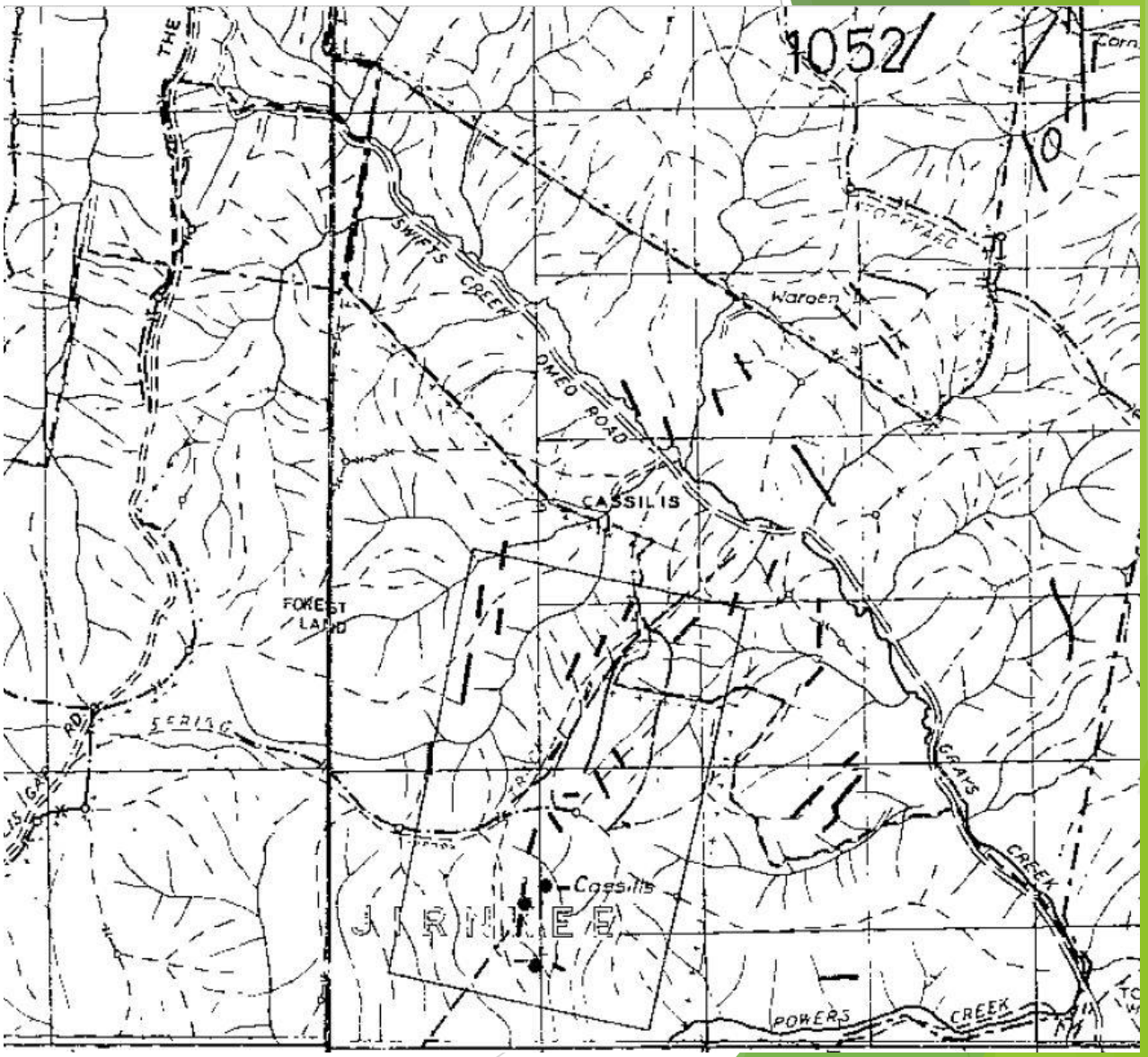




Previous geophysical prospecting

- 62 lines of McPhar IP / resistivity surveys acquired in the 1960s
- No successful targets
- 1970's TURAM all false positives (py, graphite)
- 1983 DIGHEM II airborne survey – no follow-up

TURAM conductors —



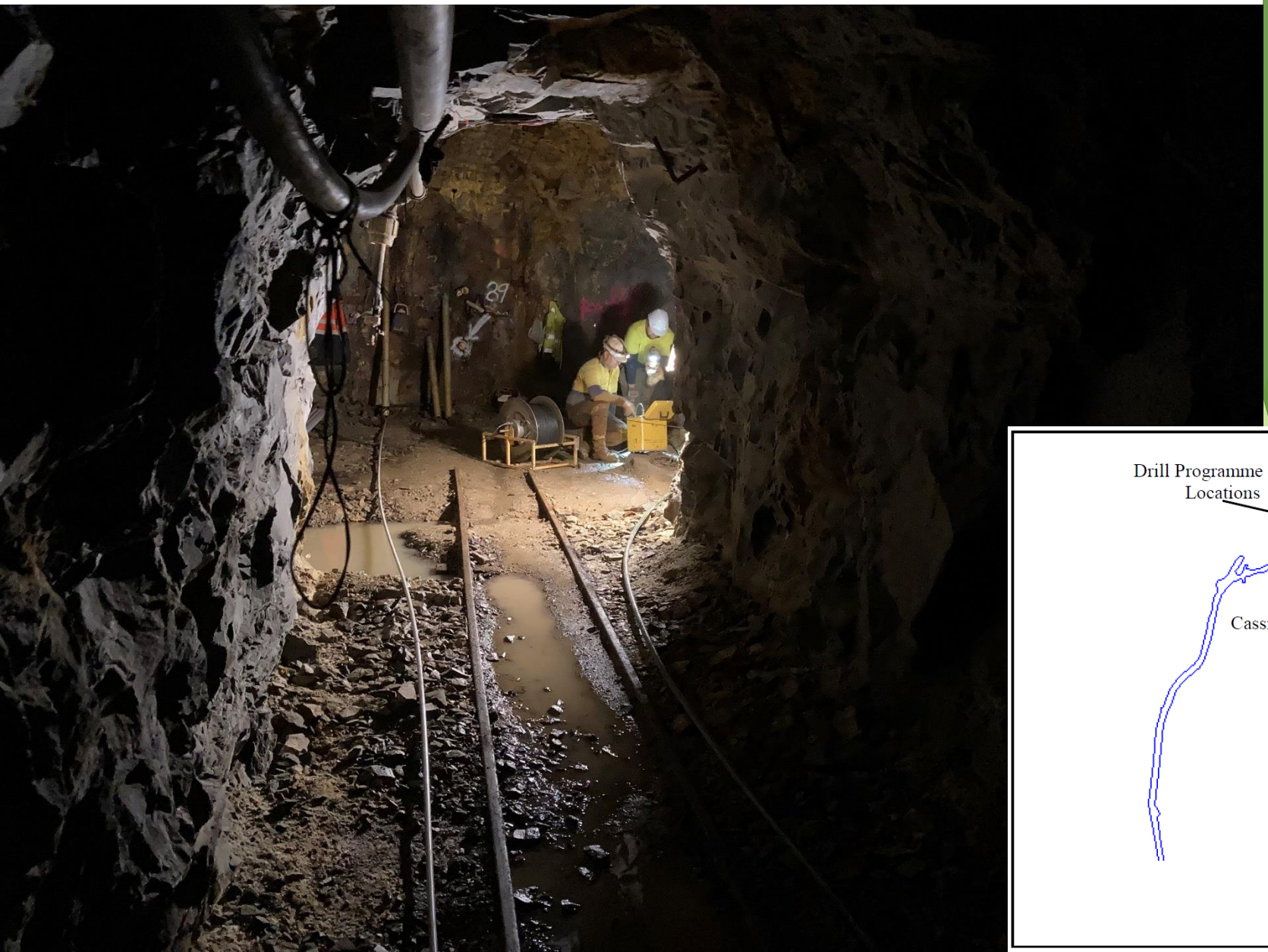
Wells 1974 Tanganyika Holdings Ltd Prospect Map

DHEM 2021

Video1

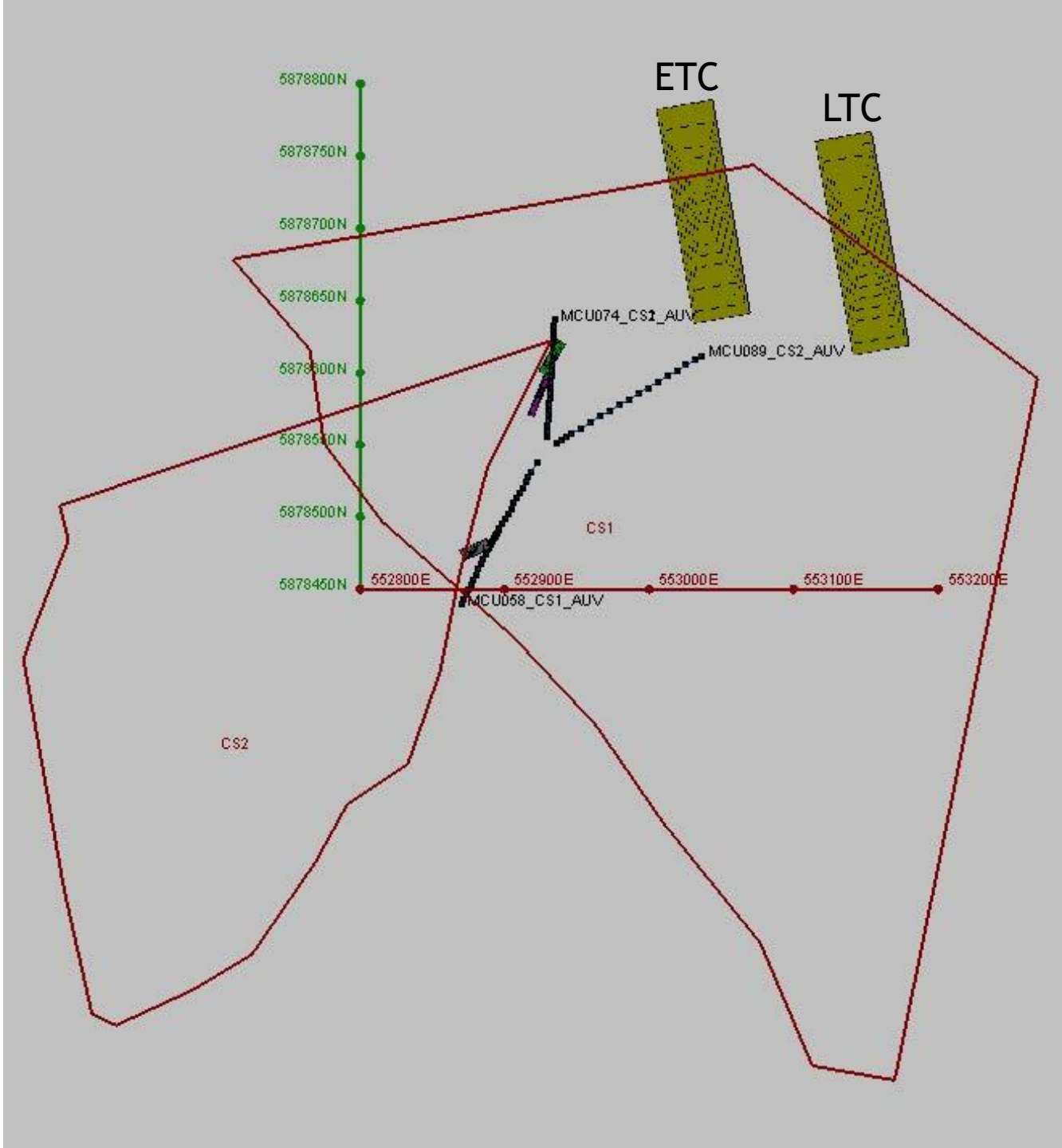
2021 Survey

* Thanks HiPower EM



2021 Modelling Results

- Several small in-hole conductors associated with known sulphides
- Two large 150 x 150 m offhole conductors 110 & 150 m ahead of MCU089 (127m TD)
- Position not well constrained as at limit of detection
- ~75° dips (same as Cassilis Reef)
- 230S & 100S conductances



Video 2

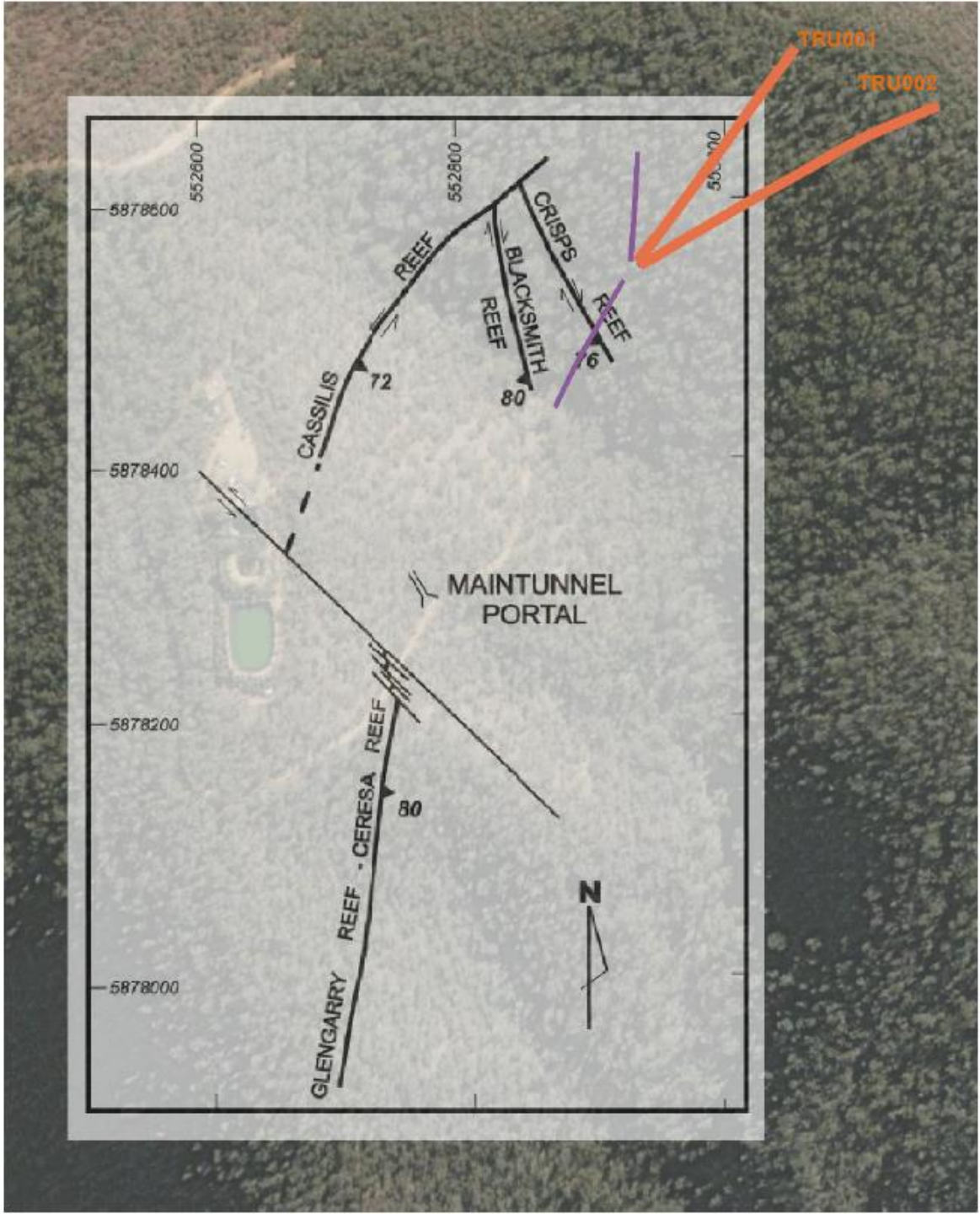
- Video of topo, MCU holes, in hole conductors and model plates CS1 500 x 560 m loop 200 A; CS2 400 x 360 m loop, 200A

Video 2b

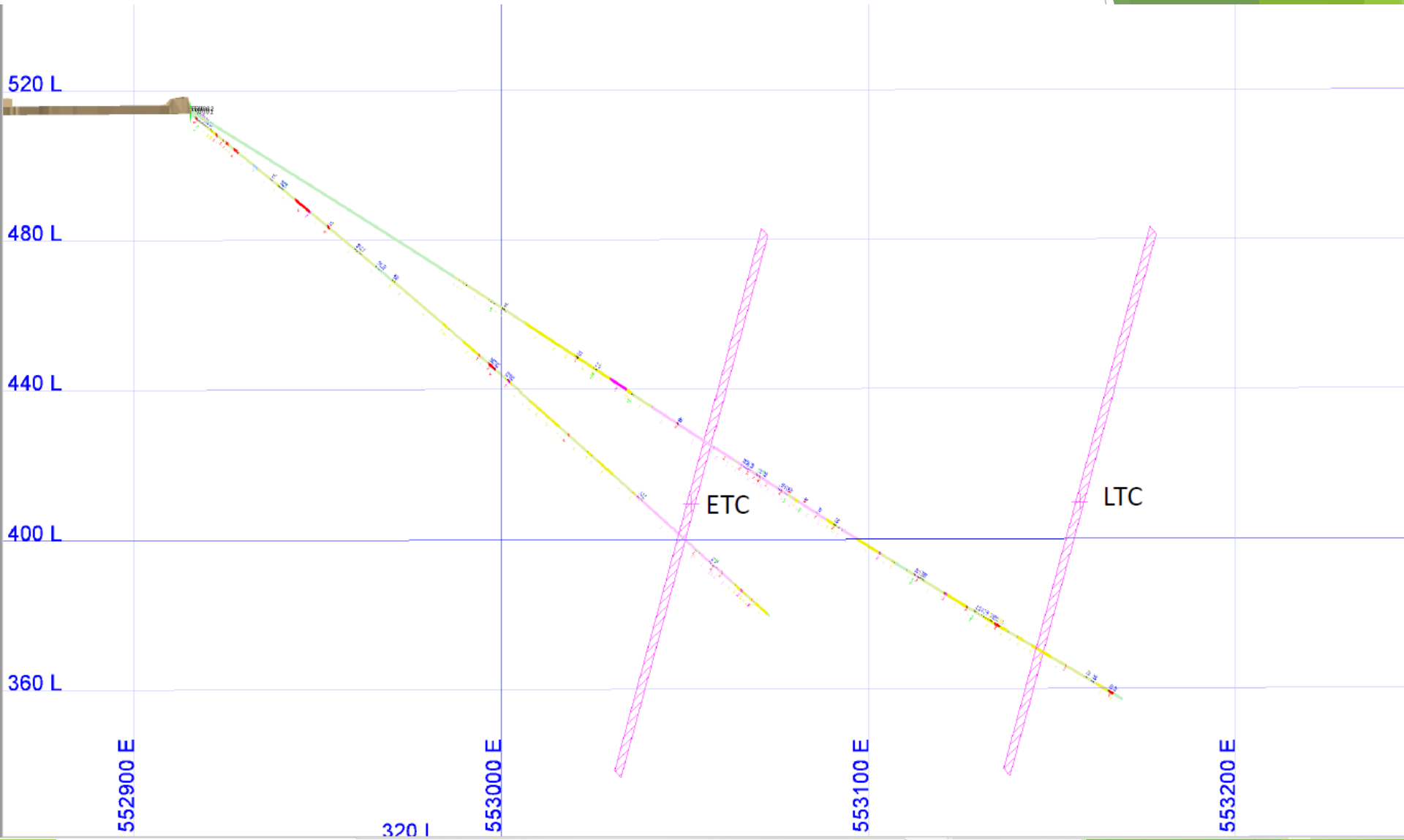
- MCU holes, new plates, Cassilis Reef & other reefs

TRU001 & TRU002

- Targeted 2021 plates from same underground drill cuddy as the MCU holes
- Drilled Jan-Feb 2022



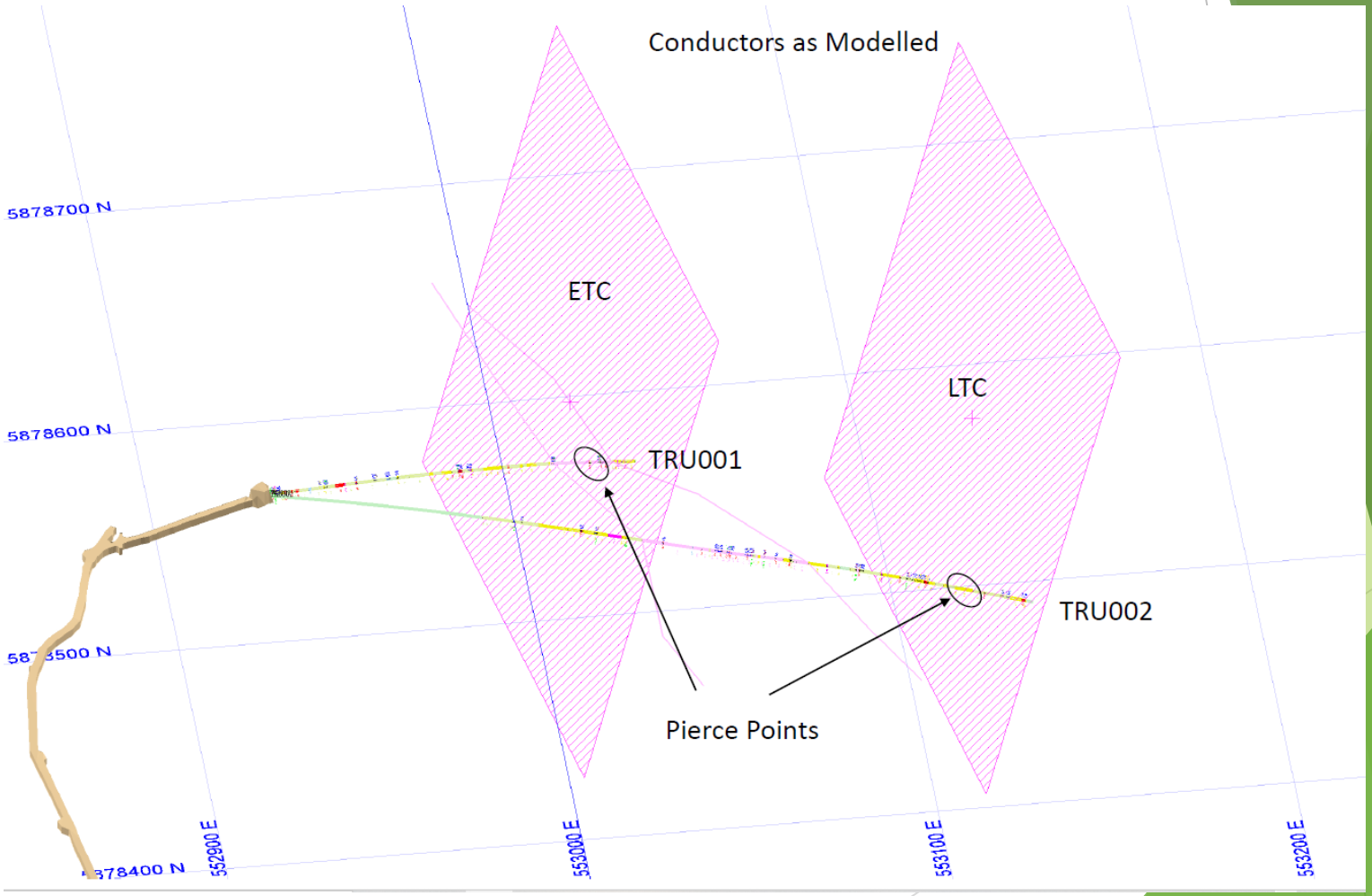
TRU001 & TRU002 Section View



Video 2c

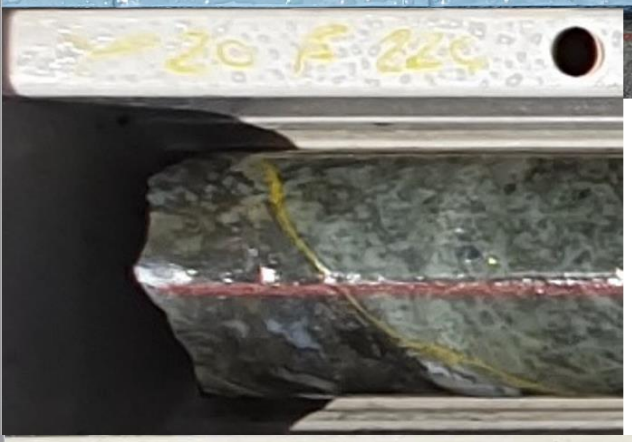
450 x 350 m 150 A loop for both holes

- Topo, 2021 plates, 2022 loop, and intercepts



Encouragement

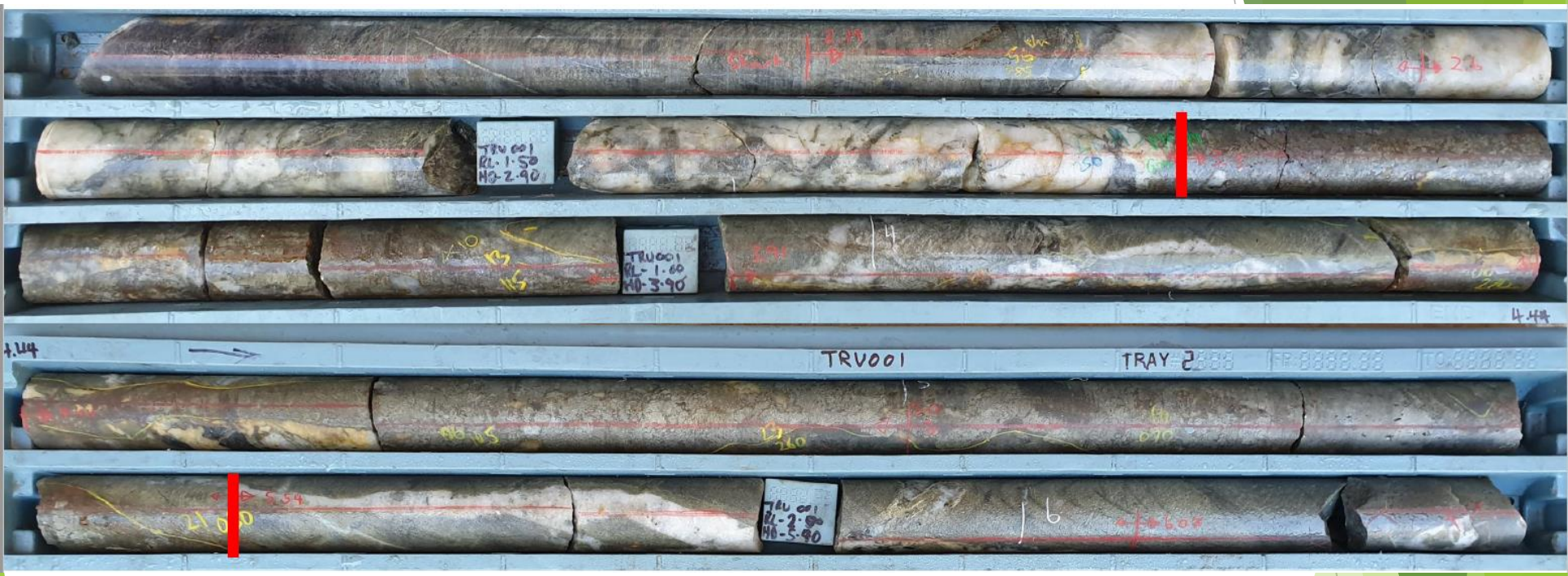
0.2m @8.51 g/t Au



0.13m @8.37 g/t Au

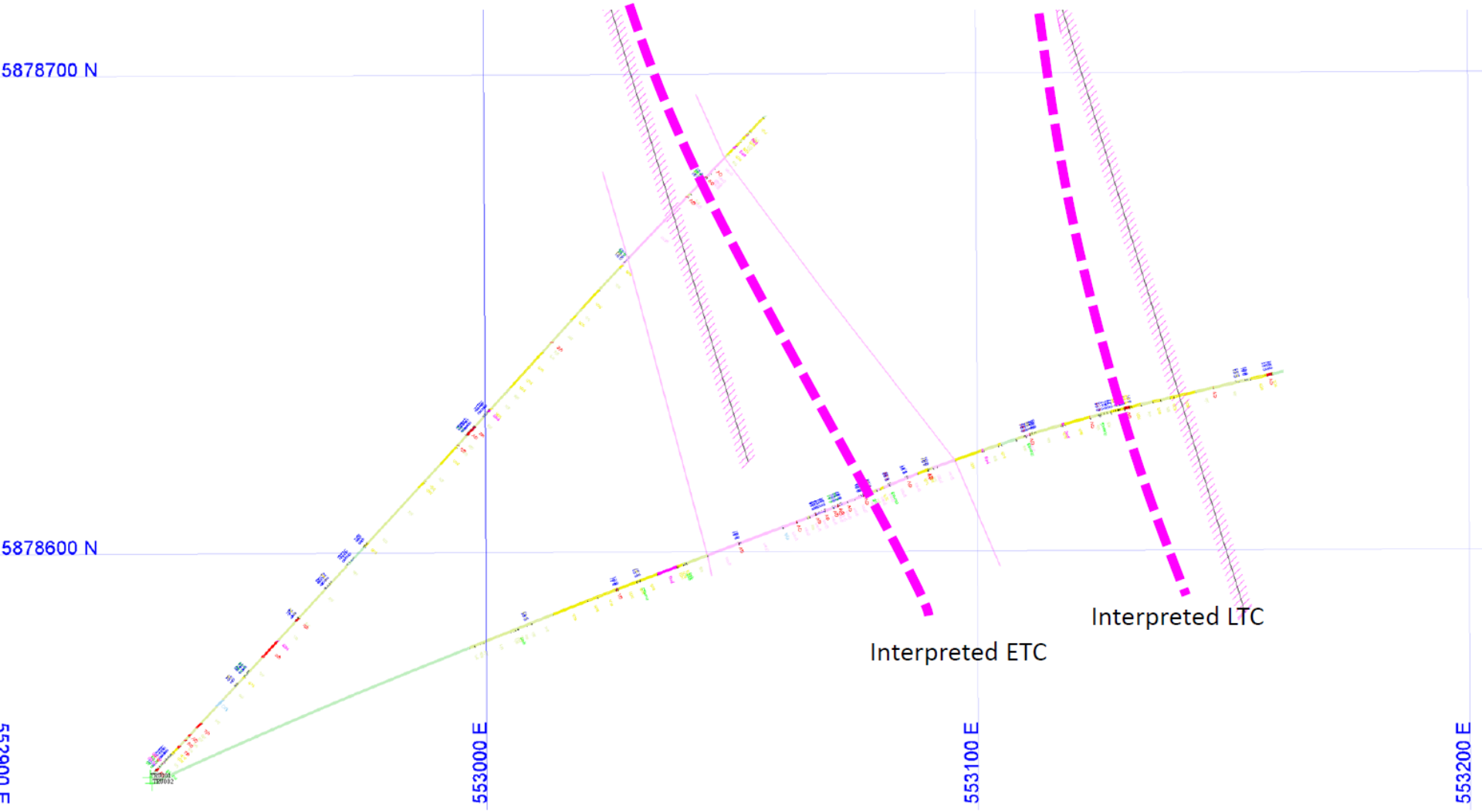
Py+po 0.34m
@ 6.77 g/t Au

Nice...



Massive sulphides 2.24m @ 21.04 g/t Au

Geology Interp 2022



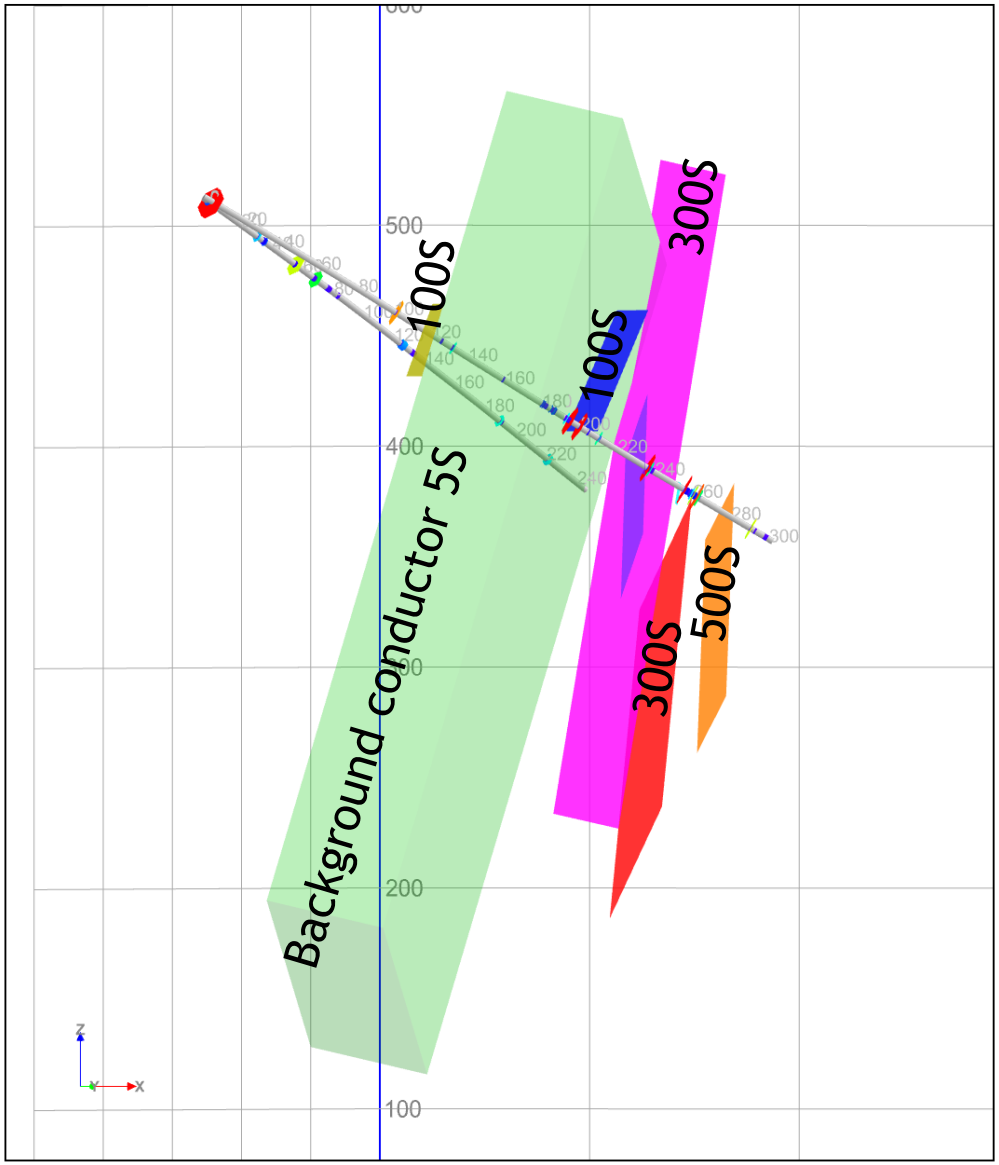
Massive Sulphides 258m – rock physics

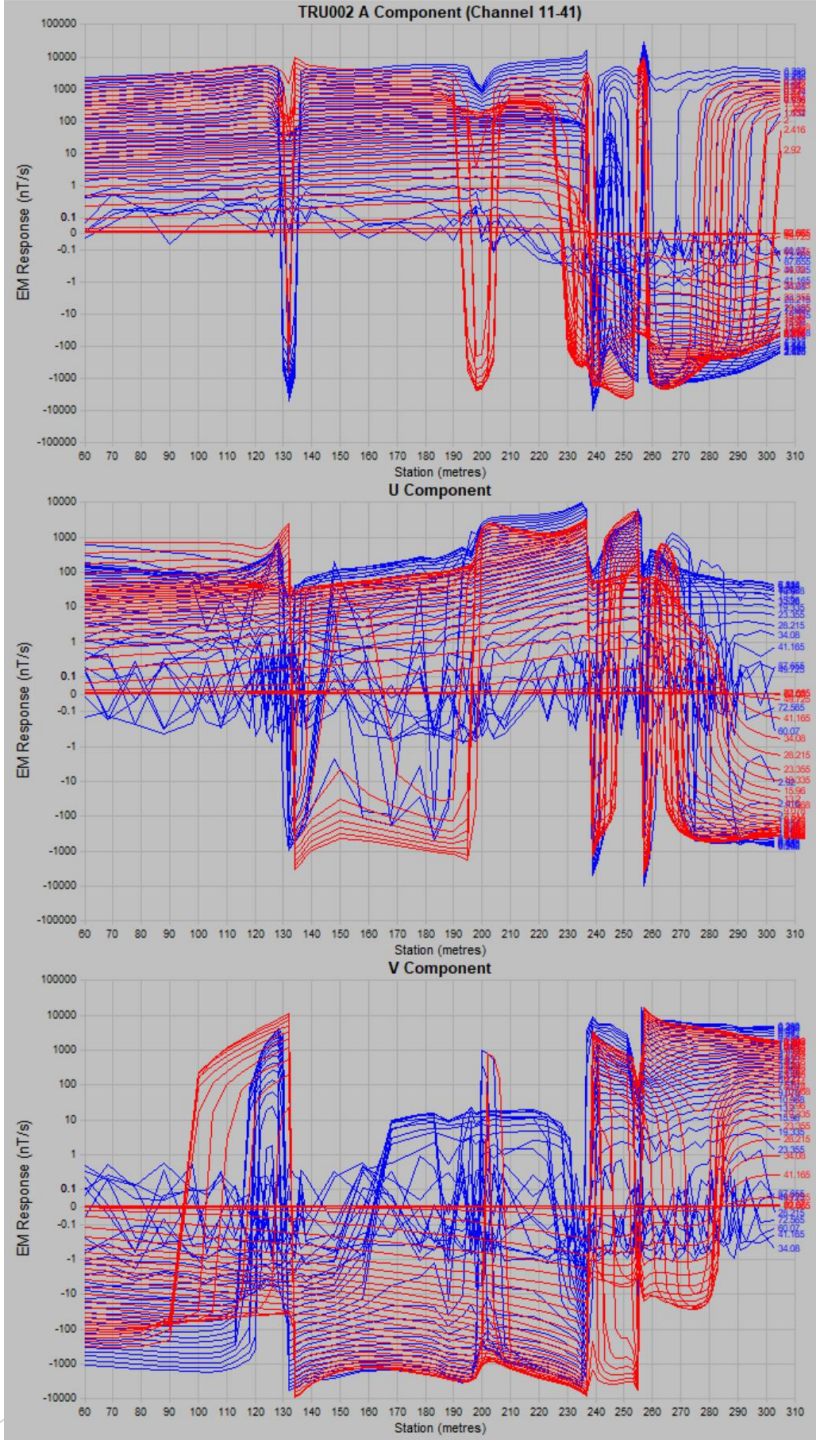
Galvanic resistivity 9 Ω.m
Inductive Conductivity ~80 S/m
>8 g/t Au
vs 1500-21000 Ω.m in granite, gneiss, siltstone
*Thanks Terra

2022 Modelling

8 plates, not 2.

Better defined from intersections





Video 3

- Final modelling plates, vs existing Cassilis Reef (pink) Blacksmiths and Crisps Reefs (green)
- Significant extension of ore system in the mountain, down to 200m below existing workings
- More drilling to come – stay tuned