Oonagalabi 2025 Geophysics and Drilling Collaborations Program Final Report (VTEM)

Recipient/Company: Litchfield Minerals Limited (LMS.ASX)

Program: Oonagalabi 2025 GDCP (VTEM)

Applicable Tenement: EL32279

Tenement Holder: Kalk Exploration Pty. Ltd. (100% owned by Litchfield Minerals Ltd.)

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Date: 13th January, 2026

1:250 000 Mapsheet: Alice Springs SF 53-14 (1:250,000)

1:100 000 Mapsheet: Riddoch 5851 (1:100,000)

Datum/Zone: GDA94/MGA Zone 53

Copyright statement

Abstract

An airborne electromagnetic survey (VTEM Max) was completed over the full extent of EL32279 specifically to identify semi-massive to massive sulphide conductors that might be associated with the advanced greenfields Oonagalabi Cu-Zn-Au-Ag prospect. Oonagalabi is interpreted to have formed within a syngenetic, SEDEX-type or an epigenetic carbonate-replacement / skarn-type environment and these deposits are known globally to host high-grade conductive mineralization. Stratigraphic conductors or overburden are not present within the project and VTEM was considered the most appropriate technique to define sub-surface, sulphide-rich mineralization. Other than some trial VLF lines in the 1970’s, no electromagnetic technique had been completed at the Oonagalabi Project.

The prospect currently has a reasonably well-defined, low-grade, disseminated sulphide zone that is estimated to host a non JORC-compliant resource of approximately 25Mt @ 0.5% Cu, 1% Zn, 0.1 g/t Au, 4 g/t Ag. In February 2025, Litchfield Minerals completed a Pole-Dipole IP survey (PDIP) that defined a +1km long, +20mV/V chargeability anomaly (to +60mV/V) that is up to 300m wide with a vertical extent exceeding 200m from surface. Historic and 2025 RC drilling clearly demonstrated that the IP chargeability anomalies are related to disseminated sulphides. This sulphide zone is hosted within the Oonagalabi Formation (dominantly anthophyllite, calc-silicate, marble and garnet quartzite) and is interpreted to host higher-grade feeder zones or remobilized sulphide mineralized zones. The PDIP survey defined extensive zones of chargeability with no geological surface expression, highlighting the importance of geophysics to improve sub-surface ‘visibility’.

The VTEM survey produced a high quality dataset that defined six high-priority, late-time sulphide-bearing basement conductors including four conductors within the older Aileron Province basement and two conductors within the over-thrusted and younger Irindina Province. Conductors were modelled by Kate Hine (Mitre Geophysics) and subsequent RC drilling of the VT2 conductor in late 2025 (OGRC011, OGRC019) intersected narrow zones of stringer, semi-massive and massive sulphides (pyrrhotite-chalcopyrite-sphalerite) hosted within metamorphosed mafic intrusive rocks (amphibolite). RC drilling of the VT1 conductor (OGRC012) intersected a 60m zone of weekly disseminated sulphides (pyrite-chalcopyrite-pyrrhotite) within felsic gneiss, amphibolite and an 8m wide massive quartz vein. Subsequent downhole EM and ground EM at VT1 defined two small conductors (50m strike, 1,500S and 3,000S), approximately 50m to the south and up-dip from OGRC012. Outside of VT1 and VT2, additional conductors within the Aileron basement are all spatially-associated with depth persistent magnetic anomalies, most likely relating to amphibolite intrusions. The two priority conductors within the overlying Irindina rocks are less well-developed than in the Aileron basement and are most likely related to Virginia-type, structurally-controlled epigenetic copper mineralisation.

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Appendices

Appendix 1_UTS Field Data, Processed Images, Survey Report	Raw Field Data
Appendix 2_Mitre Geophysics Modelling and Target Interpretation	Modelling

1. Introduction

The Oonagalabi Project (EL32279) is located approximately 125km northeast of Alice Springs on the Mt Riddock Station (Freehold Pastoral Lease). The project area is situated on the Alice Springs 1:250,000 scale map sheet (SF53-14). The Mt Riddock Station homestead is located 3km south of the fully sealed Plenty Highway and the project can be accessed by unsealed station tracks approximately 35km to the southeast of the homestead. The project area, located in the Harts Range, is dominated by rugged topography ranging in elevation from 780m – 1130m above sea level. The project has almost full basement geology exposure with Quaternary alluvial cover restricted to narrow zones surrounding active drainages.

EL 32279 (145.3km^2) was originally granted to Kalk Exploration Pty. Ltd. (100% owned subsidiary of Comet Resources Ltd.) on the 30th of October 2020 for a period of six years, expiring 29th October 2026 (**Figure 1**). Litchfield Minerals Ltd. purchased the tenement outright from Kalk Exploration Pty. Ltd. on October 10th, 2024. Litchfield Minerals hold 100% interest in EL32279 and is also the operator of the license. The tenement comprises 46 blocks retained during this reporting year. No partial relinquishments have been made to date.

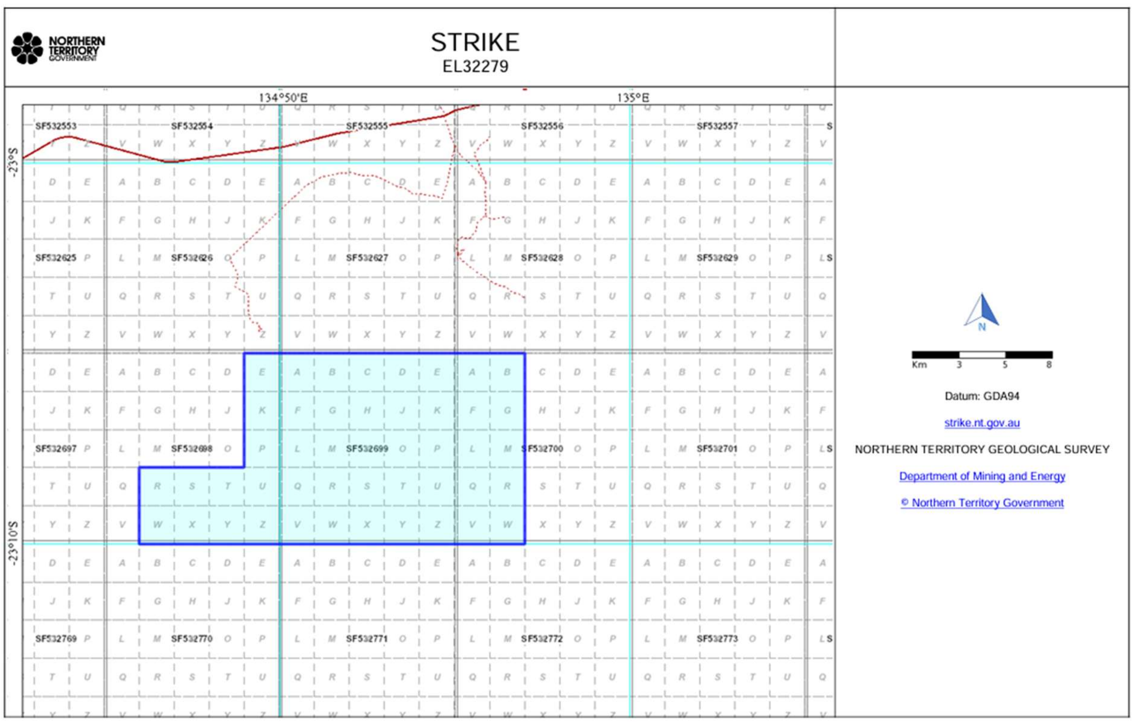

***Figure 1**. Map of the 46 sub-blocks retained within EL32279 during the 5th reporting period.*

2. Regional context

2.1 Regional Geology

The Oonagalabi Project is situated in the Arunta Region of the Northern Territory. The Arunta Region has been sub-divided into three provinces with distinct protolithic ages and histories. The 1860-1700 Ma Aileron Province, the 1690-1600 Ma Warumpi Province and the Neoproterozoic to Cambrian Irindina Province (Scrimgeour, 2003), **Figure 2**. The Oonagalabi Project covers part of the Aileron Province and part of the Irindina Province. The contact is a north-dipping thrusted contact.

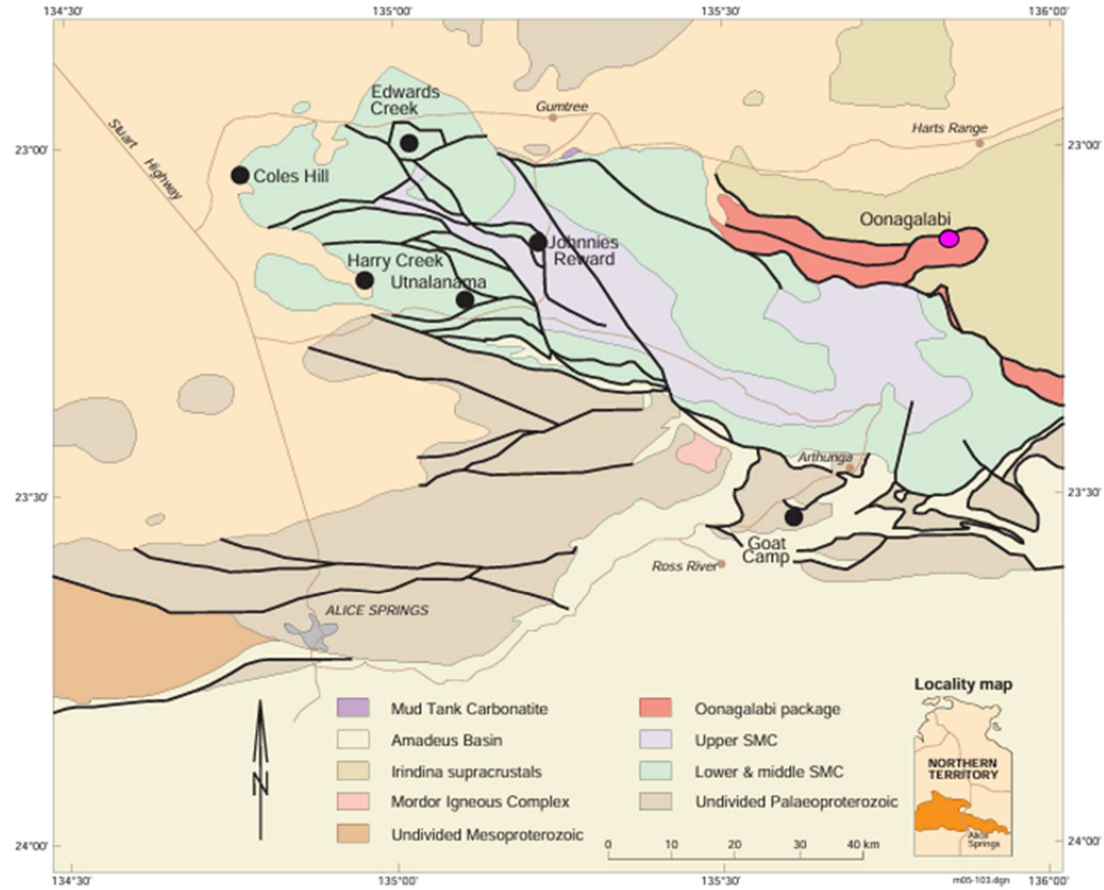

***Figure 2**. Simplified geological map of the Strangeways Metamorphic Complex showing the location of the main prospects.*

The Aileron rock types are varied and include granite, volcano(?)-sedimentary rocks and mafic intrusives all metamorphosed to upper amphibolite to lower granulite facies (now felsic gneiss, mafic gneiss and amphibolite). Minor felsic pegmatites are sporadically observed throughout the project area.

The Irindina Province is characterised by lithologies that include granitoids, gneisses, amphibolites, and calcareous rocks, all of which exhibit high degrees of metamorphism. Seismic reflection data indicate that the Irindina Province is approximately 10 km thick and overlies a mid-crustal detachment, which separates it structurally from the underlying Aileron Province. The sedimentary precursors to the Irindina Province are interpreted as having been deposited within an east- to southeast-trending Cambrian fault-bounded extensional basin (Birch et al., 2005).

Mineralisation within the Irindina Province, particularly in poorly exposed areas, has primarily been derived from small-scale mining activities. This includes pegmatites hosting mica deposits, which produced approximately 1,660 tonnes of muscovite between 1926 and 1952. Despite its relatively low level of exploration (Ahmad et al 2013), the Irindina Province is considered prospective for a range of commodities, including nickel-copper and platinum group elements (PGE), base metals, rare-earth elements, uranium, and gold-tungsten mineralisation.

The adjacent Aileron Province has historically demonstrated significant mineral potential, with documented occurrences of base metals, gold, and rare-earth elements (e.g., Nolans Bore). The province is also notable for granite-related molybdenum, tungsten, tin-tantalum, and widespread uraniferous granites, which may act as a source of mineralisation in overlying sedimentary basins. Additionally, underexplored mafic units hold potential for vanadium-magnetite and nickel-copper sulphide mineralisation (Wygralak and Bajwch, 1998).

Lead-zinc-copper (-silver-gold) mineralisation at the Strangways Range has been classified into three types: Utnalanama, interpreted as volcanic-hosted massive sulphide (VMS); Johnnies, interpreted as iron oxide copper-gold (IOCG); and Oonagalabi, interpreted as either carbonate-replacement or VMS deposits (Hussey et al 2006).

Within Tenement EL32279, approximately 50% of the area is occupied by meta-sedimentary units located southwest of the Oonagalabi prospect. The northern and northeastern portions of the tenement are part of the Irindina Province, with the Florence-Muller Shear Zone traversing the southeastern corner.

3. Previous exploration

3.1 Historical Exploration

Historical exploration has focused on base metal sulphides within an interpreted sediment-hosted, carbonate replacement-type deposit, particularly within the 1970's and early 1980's. Additional exploration for industrial garnets was undertaken during the 1980's and 1990's. Prior to Litchfield exploration, Silex completed the only modern exploration of the project between 2008 and 2010.

The prospect was first properly explored by Russgar in the early 1970's who completed extensive surface mapping, geophysics (airmag, VLF EM, ground mag, resistivity survey) and 14 percussion holes (626.6m). This work helped define an extensive alteration system with variable base metal mineralization (e.g. 36.6m @ 1% Cu, 1.7% Zn from 1.5m in PDH-L). The VLF survey defined a significant anomaly described as a good conductor, located immediately northwest of the outcropping mineralized Oonagalabi Formation. This anomaly was not identified in the 2025 VTEM survey and is now not considered a viable exploration target.

Kinex continued exploring Oonagalabi in the late 70's/early 80's, completing detailed surface soil sampling and mapping, trial IP and 6 drillholes (1083.2m in 4 x percussion for 534m and 3 diamond holes for 549.2m) with best intercepts of 27m @ 0.76% Cu, 1.95% Zn from 68m (ONT79-1) and 24m @ 0.63% Cu, 1.52% Zn from 138m (RPO-2).

Silex completed detailed geological mapping and pole-dipole IP over most of the outcropping Oonagalabi alteration. 3D inversion modelling of IP chargeability data showed a steeply plunging anomaly to the west and a GDC grant-funded diamond hole was approved to test this target (SLX001, 500.7m, -55°/127°Mag). The hole missed the mineralized/altered rock package and subsequent geological and structural modelling, 2025 PDIP and RC drilling by Litchfield indicate that the mineralised Oonagalabi Formation is located within a complex fold structure that 'closes out' approximately 200m below surface. It is now clear that the SLX001 drilled underneath the main mineralised zone.

The following exploration has been completed by Litchfield Minerals since acquisition in October 2024, **Figures 3 – 9**, (Dow, 2025):

- Soil (203) and rock chip sampling (28) over the main outcropping zones of the Oonagalabi Formation
- 5 x 20kg bulk stream sediment samples were collected over a 1km stretch of the Clarence River
- Sentinel-2 remote sensed data was acquired over EL32279 and a combination of novel techniques (gas, thermal) were used to help define targets outside of the Oonagalabi Main Zone
- A drone magnetic survey was completed over the central part of the EL (50m line spacing, 613 line km)
- Pole-Dipole Induced Polarisation (PDIP) was completed over the Oonagalabi Main Zone (8 lines, 13.1 line km) to improve upon the substandard dataset acquired by Silex in 2008
- Ground gravity was completed over the Bomb Diggity prospect to assess the possibility of a sulphide matrix breccia (231 stations, 200 x 100m)
- Airborne EM (VTEM Max) was flown over the full tenement (145.3km2, 1,044 line km, 200m and 100m line spacing), this report

- Nineteen RC drillholes (5,058m) tested the Oonagalabi Main Zone, VT2-VT1 conductors and the Bomb Diggity prospects.

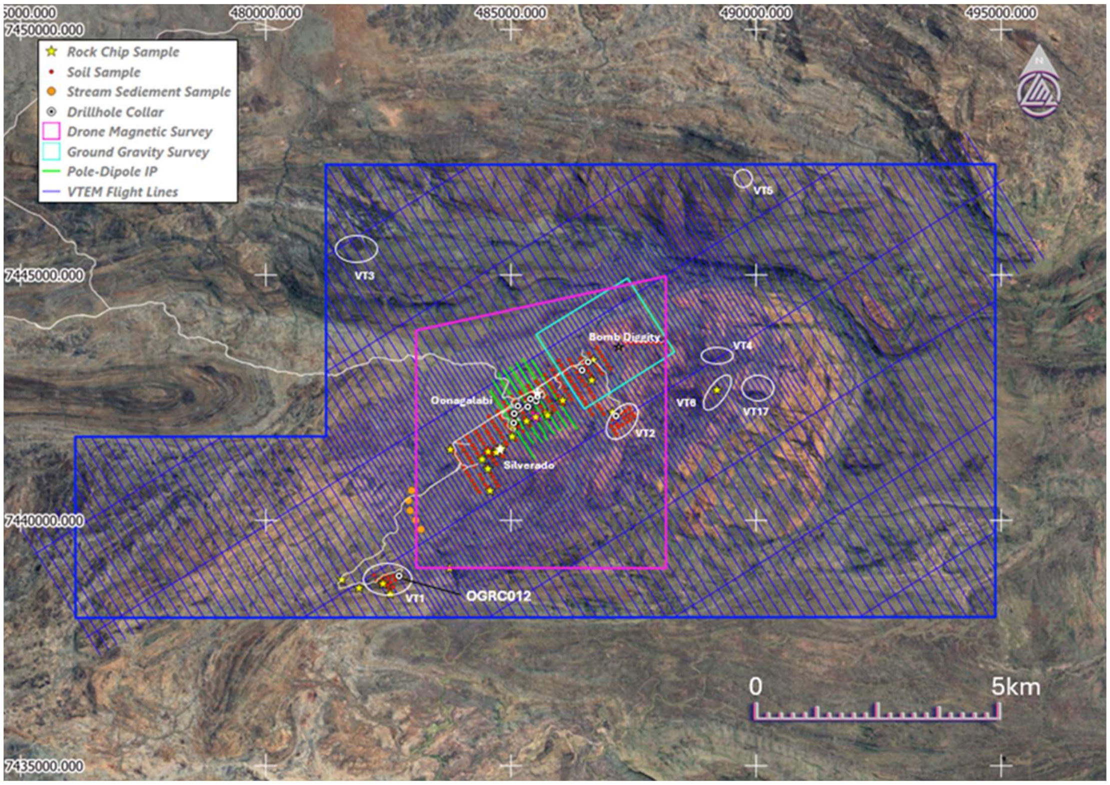

***Figure 3**. Exploration work completed by Litchfield Minerals Ltd. on EL32279 during the Year 5 reporting period.*

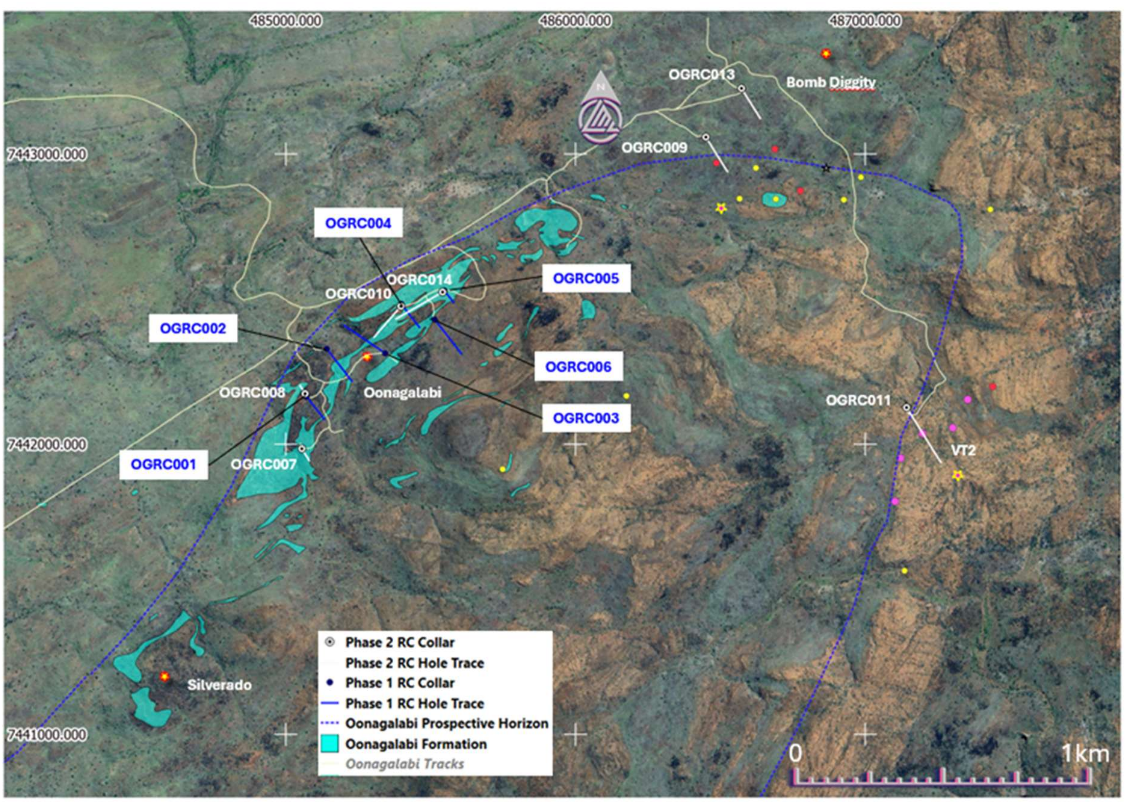

***Figure 4**. Satellite image of the central Oonagalabi Project showing the location of Litchfield drillholes completed in Year 5.*

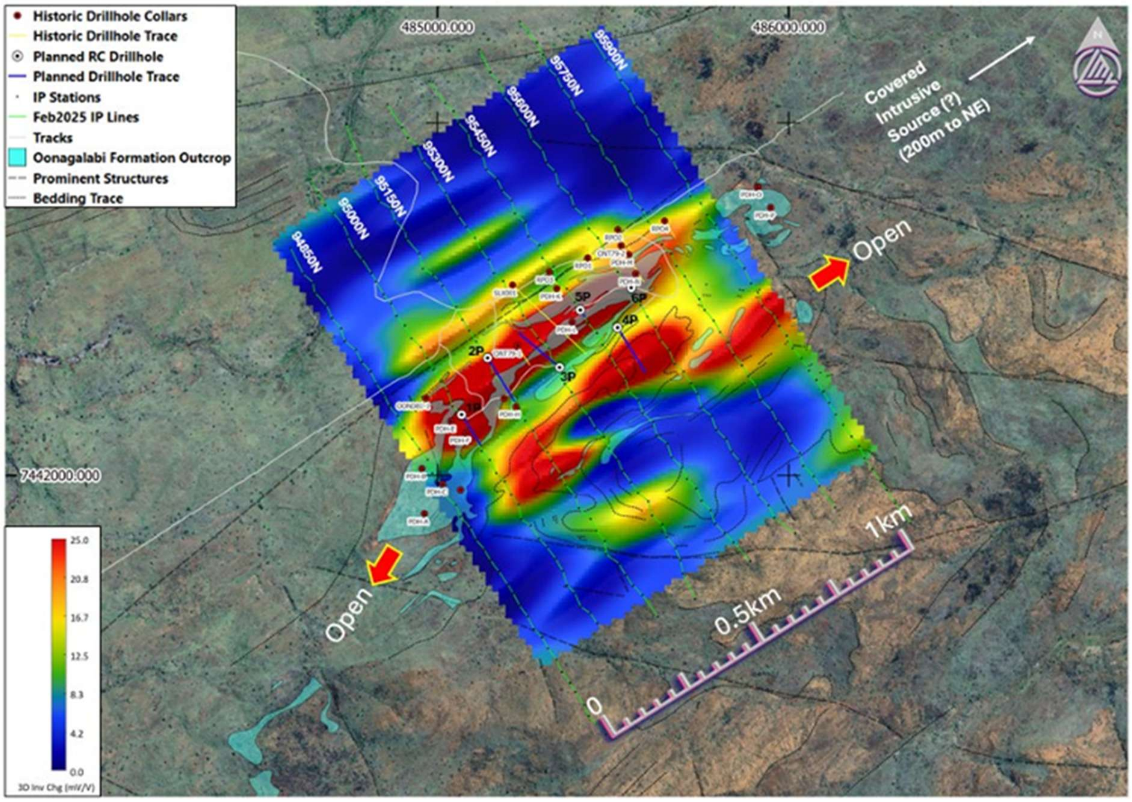

Figure 5. *Oonagalabi Main Zone PDIP survey showing a 150m depth slice from the 3D inversion model, outcropping zones of Oonagalabi Formation, historic drilling and Phase 1 RC drillholes (OGRC001 - OGRC006).*

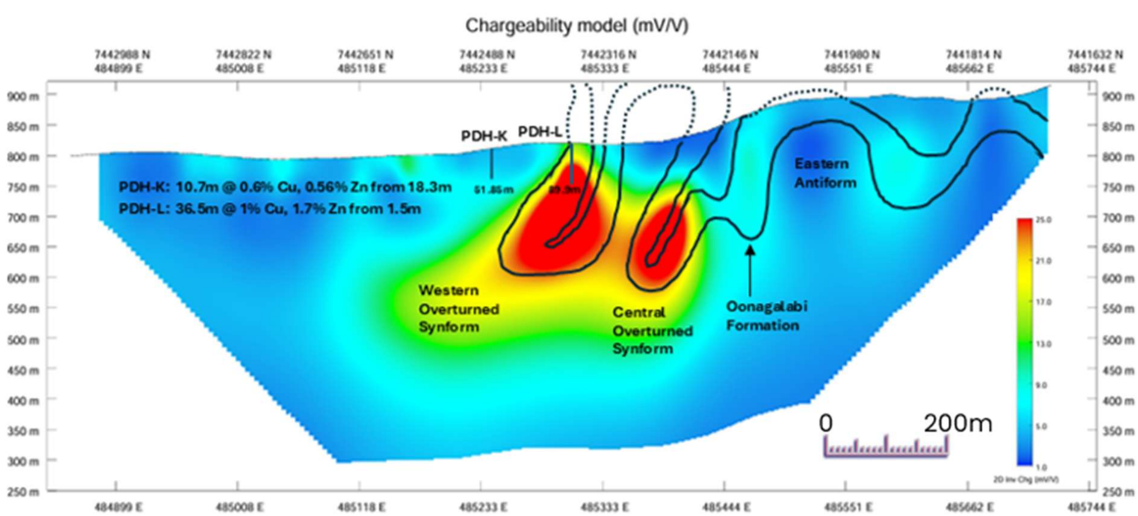

Figure 6. *Cross-section interpretation (4750E) through central Oonagalabi showing the interpreted parallel overturned synforms that 'close-out' above SLX001.*

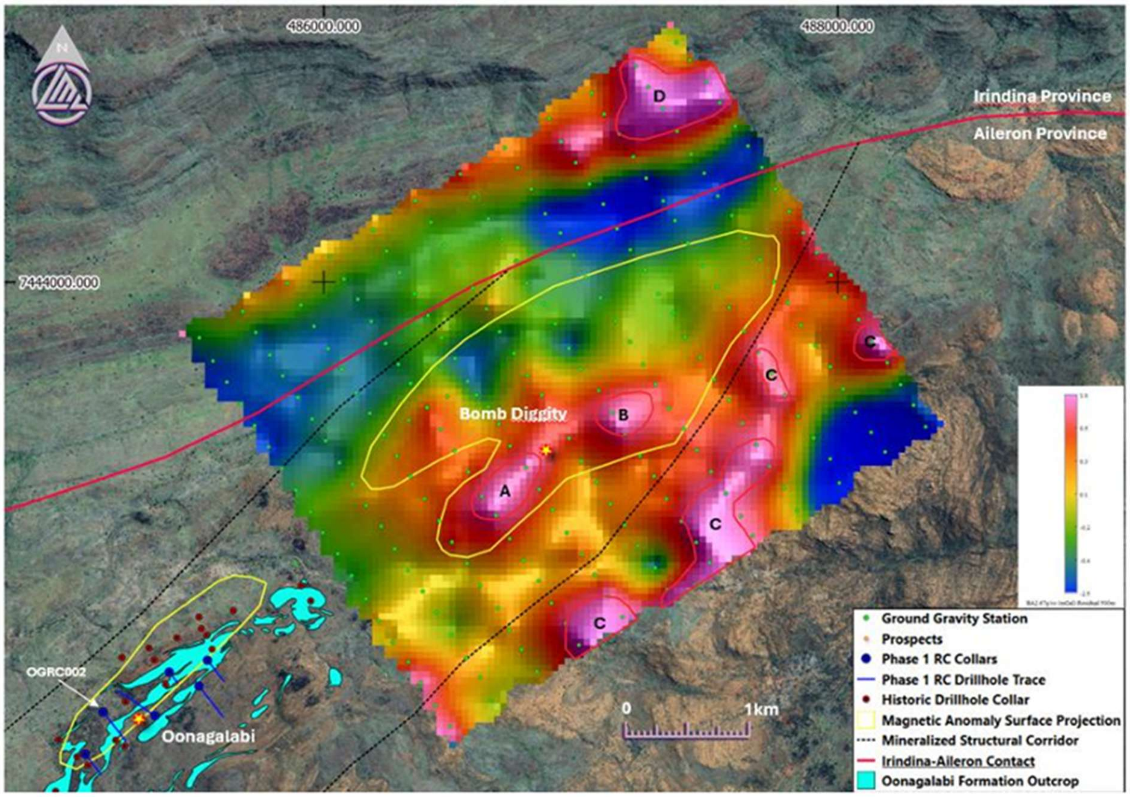

Figure 7. *BA267_Res500m_H_NEsun residual gravity image of the Bomb Diggity ground gravity survey showing the main gravity anomalies.*

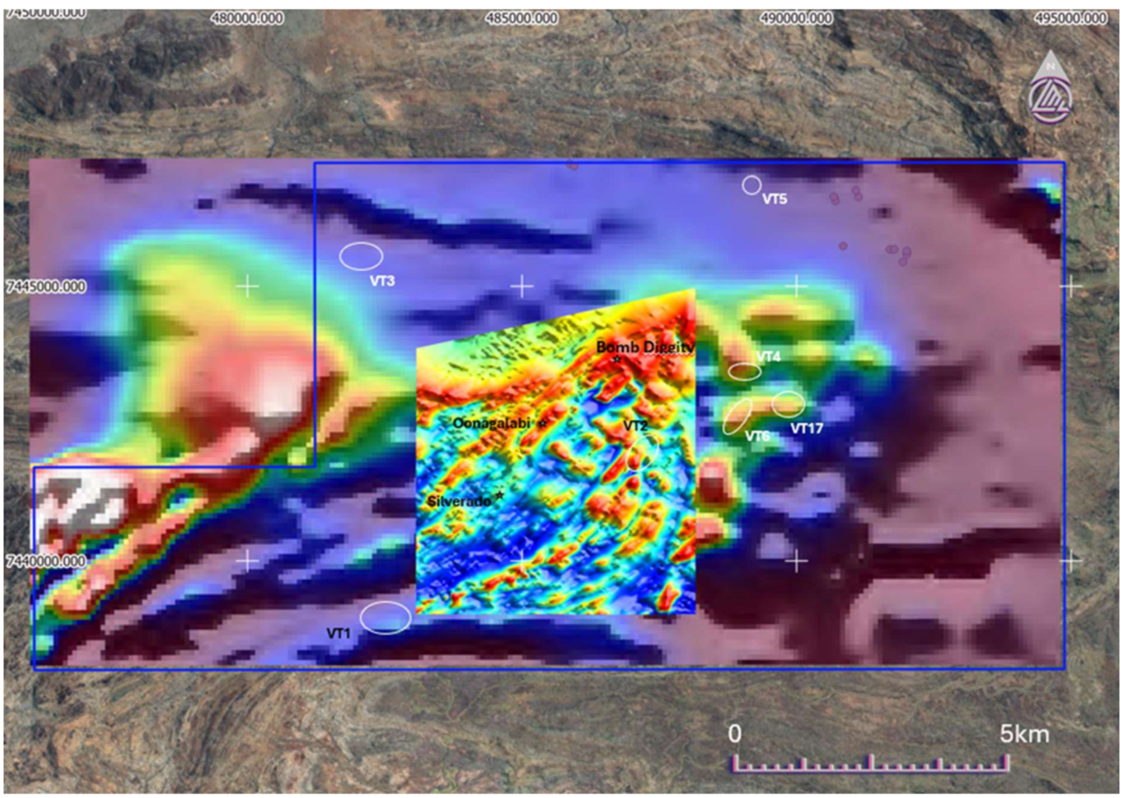

Figure 8. *Historic regional TMI RTP 400m magnetic data overlain by the new 50m drone magnetic survey showing the significant improvement in resolution between the two surveys.*

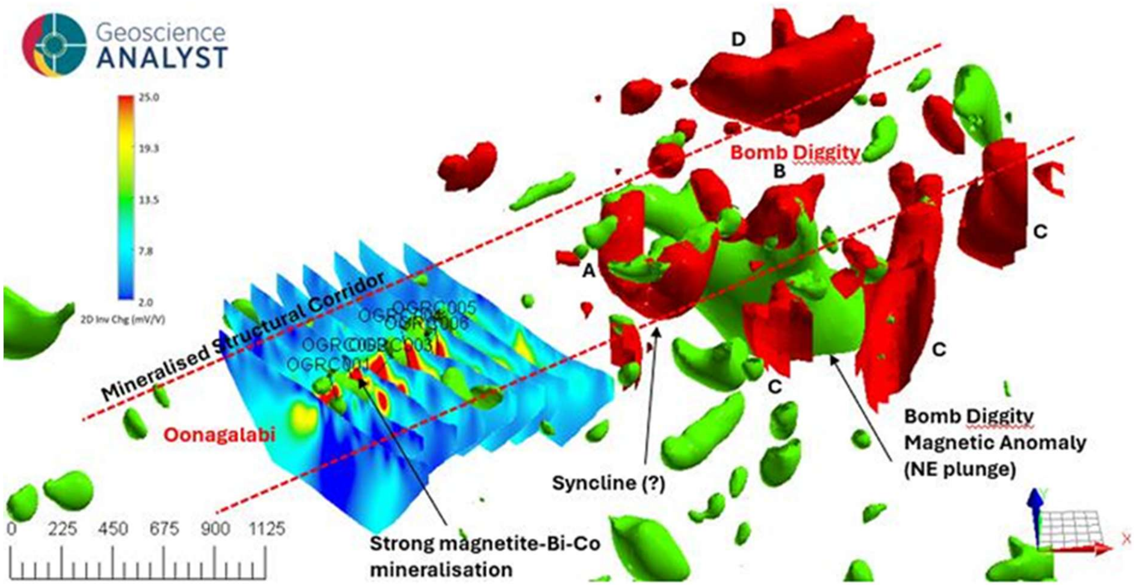

Figure 9. *Magnetic (green, +0.022 mesh) and gravity (red, +2.77SG) three dimensional inversion models and the Oonagalabi two-dimensional IP chargeability inversion sections (looking north).*

3.2 Historical Mining

No evidence for historical mining has been documented within EL32279. Small-scale prospecting pits have been observed sporadically within the Oonagalabi Main Zone (1m x 1m x 1m) where higher-grade copper carbonates have been excavated within the Oonagalabi Formation.

4. Exploration concept

4.1 Regional Metallogeny

VTEM has been demonstrated to be a highly effective airborne EM technique for identifying sulphide conductors within non-conductive stratigraphy. The prospect type is likely to host zones of semi-massive to massive sulphide conductors, based on its scale (+3km strike) and intensity of development (+40mV/V IP anomaly). The known prospect is highly folded and consequently, the sub-surface distribution of the mineralized Oonagalabi Formation is poorly understood. IP is capable of detecting the disseminated alteration surrounding the system core but is unable to define the high-value, more massive sulphide parts of the system.

The 2025 PDIP survey demonstrated that potentially extensive parts of the mineralized Oonagalabi Formation are hidden at depth with no direct surface expression. The VTEM survey is capable of detecting semi-massive to massive sulphide conductors within this folded stratigraphy and will be a critical tool for 3D modelling and drillhole targeting.

4.2 Exploration Focus

The exploration target is semi-massive to massive sulphide mineralisation associated with higher-grade, structurally-controlled feeder zones and carbonate replacement within the Oonagalabi Formation. The Jervois Cu-Au-Ag deposit, located 125km northeast of Oonagalabi, is considered a direct analogue for Oonagalabi-type mineralisation (Morgan, 2020, *McGloin et al., 2023)*. This interpretation is based on the two deposits being hosted by similar type and age rocks, shared structural and metamorphic histories and similar styles of mineralisation. The high grade mineralisation at Jervois is mostly hosted within structurally-controlled sulphide remobilisation zones and it is this style of mineralisation that is anticipated to occur within the project area. This higher-grade, sulphide rich style of mineralisation has not been observed at Oonagalabi to date but is exactly the type of mineralisation that VTEM is capable of detecting.

5. Details of the collaborative program

A full-tenement VTEM Max survey was completed in August 2025 by UTS Geophysics Pty. Ltd. The survey comprised a total of 1,044 line km with the central part of the EL flown at 100m line-spacing and then 200m spacing for the rest of the tenement (**Figure 10**). Flight lines were oriented northwest-southeast to ensure the bulk of the survey was flown perpendicular to stratigraphy. Full survey details and specifications are presented in the final UTS Geophysics survey report (**Appendix 1**).

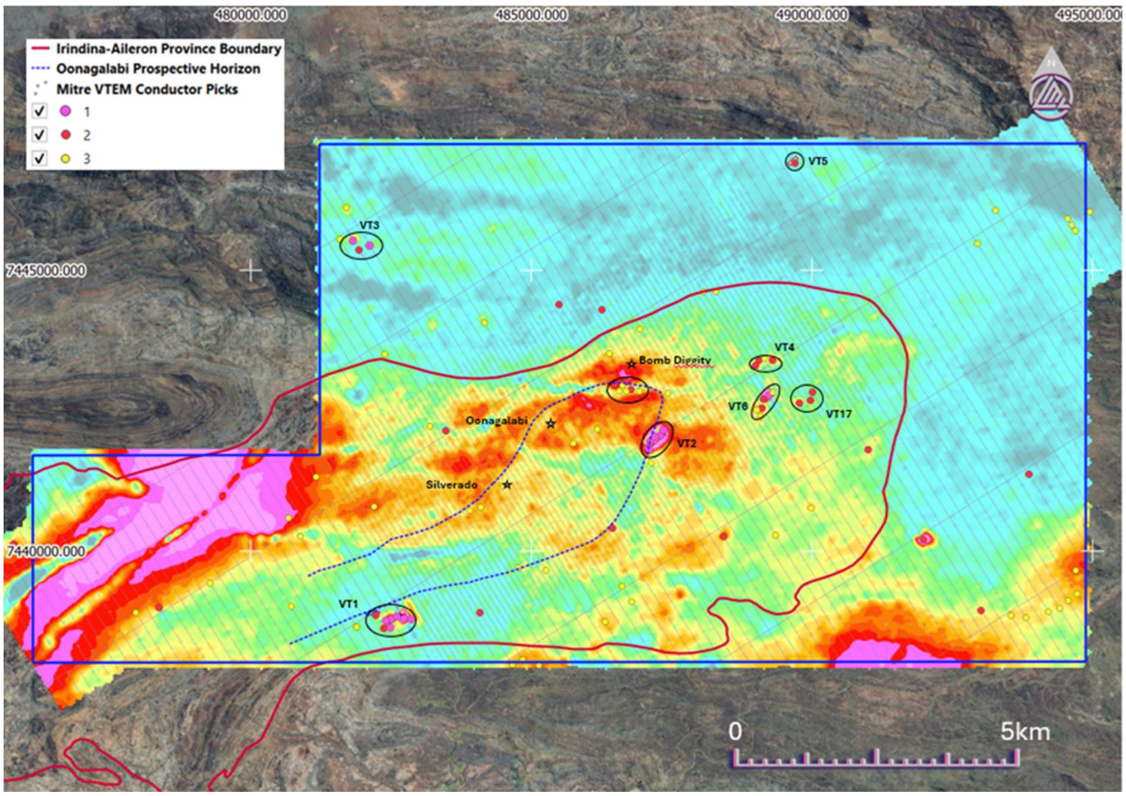

***Figure 10**. BFz30 VTEM conductivity image of EL32279 showing flown lines, the location of priority conductor picks, the five main conductor clusters and the folded prospective horizon within the broader Oonagalabi Anticline.*

6. Results and interpretations

The VTEM survey produced a high quality dataset that defined six high-priority, late-time sulphide-bearing basement conductors (VT1 – VT6) including three conductors within the older Aileron Province basement and two conductors within the over-thrusted and younger Irindina Province (**Figure 10**). Survey data was processed and interpreted by Kate Hine at Mitre Geophysics Ltd. who completed a preliminary anomaly pick and then plate modelling of the VT1 and VT2 conductors (**Figures 11, 12, Appendix 2**). The large area of conductance in the west and southeast of the tenement (**Figure 10**) are likely caused by lithological effects and were not investigated during the interpretation process.

Modelling at VT1 resolved into six small and disconnected conductor plates (**Figure 11**) that are reflective of the structurally complex nature of the VT1 geology. RC drilling of the VT1 conductor (OGRC012) intersected a 60m zone of weekly disseminated sulphides (pyrite-chalcopyrite-pyrrhotite) within felsic gneiss, amphibolite and an 8m wide massive milky quartz vein. Subsequent downhole EM and ground EM defined two small conductors (50m strike, 1,500S and 3,000S), approximately 50m to the south and up-dip from OGRC012.

The VT2 anomaly was modelled at +400m long, starting at 150m below the surface and with a conductance of 100S (**Figure 12**). Subsequent RC drilling of the VT2 conductor in late 2025 (**Figures 13**, **14**, OGRC011, OGRC019) intersected narrow zones of stringer, semi-massive and massive sulphides (pyrrhotite-chalcopyrite-sphalerite) hosted within metamorphosed mafic intrusive rocks (amphibolite). VTEM, downhole EM and ground EM all produced near identical modelled plates.

Geological mapping at VT2 revealed no evidence of a sulphide-bearing alteration system at surface and confirmed the VT2 target as a completely blind sulphide system. Drilling confirmed that mineralisation is hosted exclusively within amphibolite and represents a different mineralisation style than the carbonate-hosted disseminated sulphide mineralisation within the Oonagalabi Formation in the Oonagalabi Main Zone. Modelling and mapping show that the conductor cross-cuts stratigraphy and indicates that mineralisation is structurally-controlled and/or hosted within an amphibolite sill that cross-cuts stratigraphy. Only 10% of the conductor strike has been drill-tested and reasonable potential exists to define high-grade sulphides at the prospect.

Most of the VTEM conductors are coincident with, or spatially-related to magnetic anomalies that are most likely caused by magnetite-bearing amphibolites (**Figure 15**). Pyrrhotite is common within the sulphide assemblages in VT1 and VT2 and it is interpreted that some of the magnetic anomalies may relate to pyrrhotite-bearing Cu-Zn-Ag-Au mineralisation. Drone magnetic modelling shows that the magnetic anomalies in the northeast of the Oonagalabi domain (e.g. near conductors VT4, VT6, VT17) are vertically extensive (+900m). Given that VTEM has effective depth visibility to 300m, significant exploration potential is interpreted to exist at depth in this part of the project. Geophysics planned in the 2026 field season will utilize deep-seeking tools to test this hypothesis (e.g. MT, gravity).

The two priority conductors within the overlying Irindina rocks (VT3, VT5) are less well-developed than in the Aileron basement and are most likely related to Virginia-type, structurally-controlled epigenetic copper mineralisation.

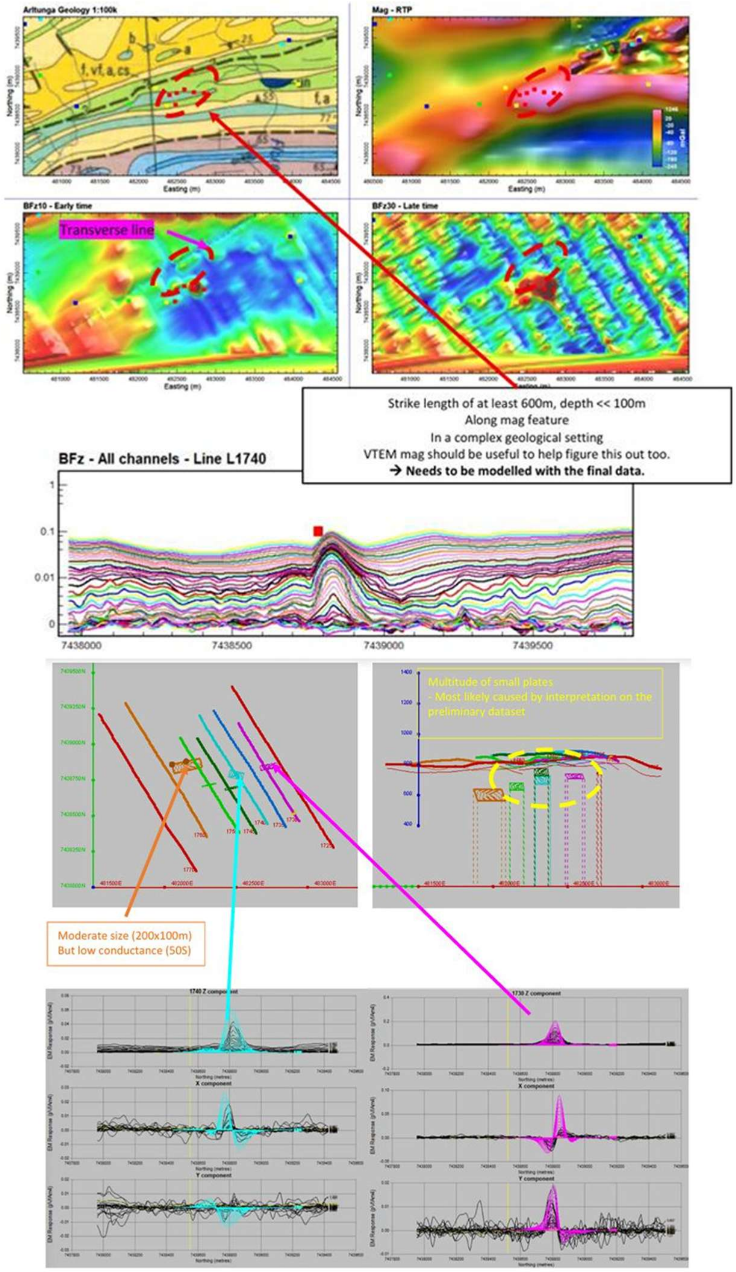

Figure 111. *VT1 plate modelling of the VTEM data showing six small but high conductance modelled plates.*

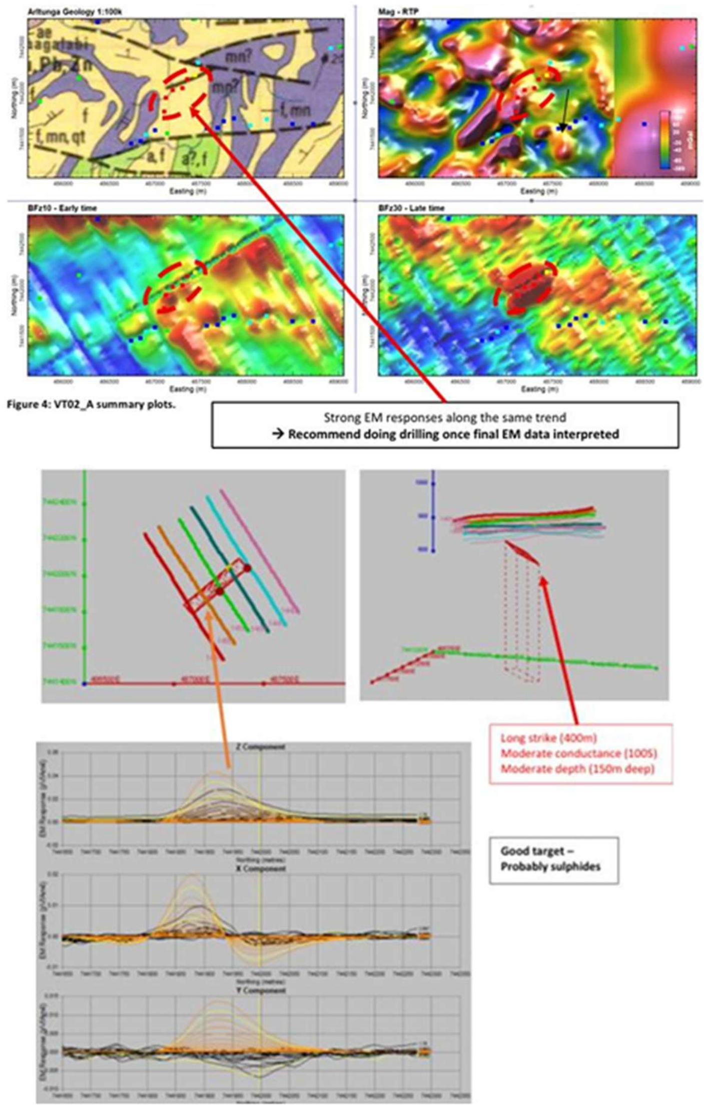

Figure 12. *VT2 plate modelling of the VTEM data showing a laterally extensive (+400m) conductor of moderate conductance (100S) starting at 150m below surface.*

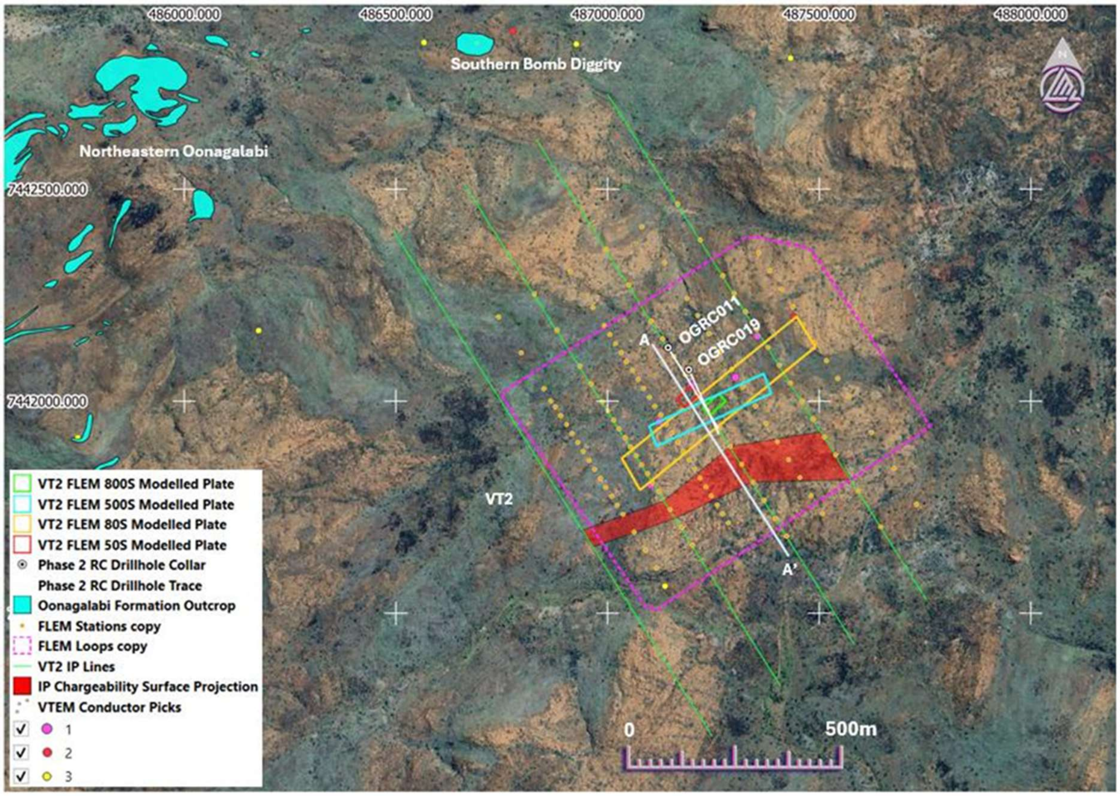

Figure 13. *Google satellite image of the VT2 prospect showing ground EM modelled plates and IP chargeability clearly cross-cutting both the felsic gneiss (tan/light brown) and amphibolite (green/grey) host rocks that strongly indicate a structural control on mineralisation. VT2 is a completely blind prospect with no surface evidence alteration or mineralisation.*

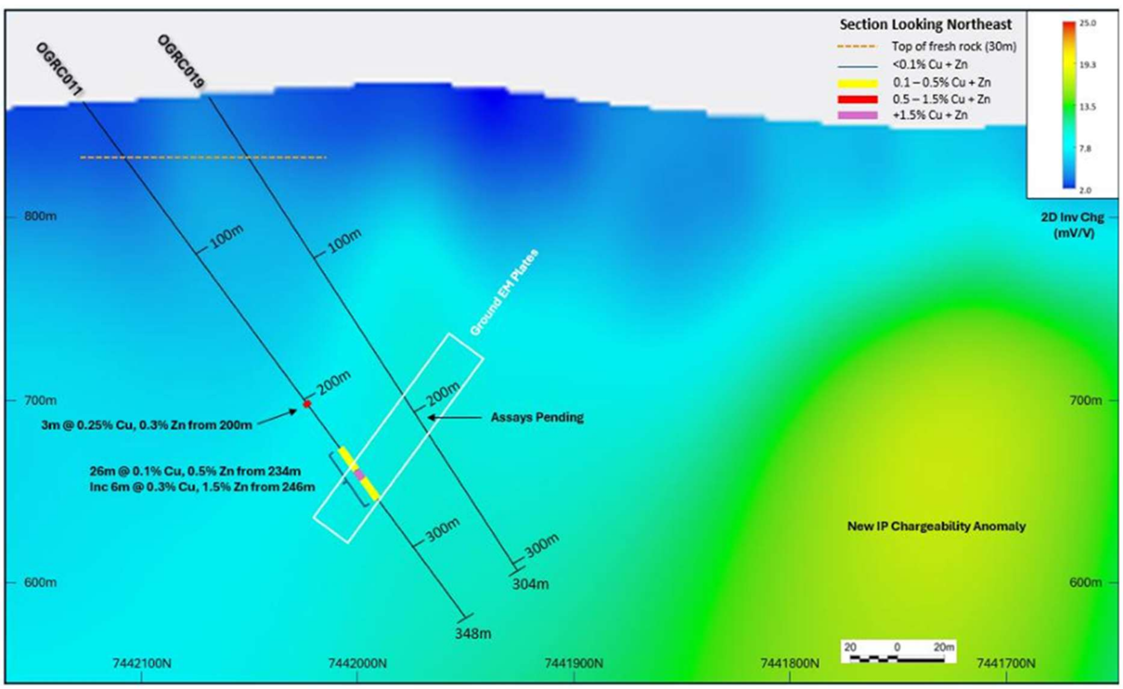

Figure 14. *VT2 IP chargeability 2D inversion section (96925E) showing the newly identified +15mV/V anomaly approximately 135m to the southeast of the modelled ground EM plates and the two main sulphide intercepts in OGRC011 and OGRC019.*

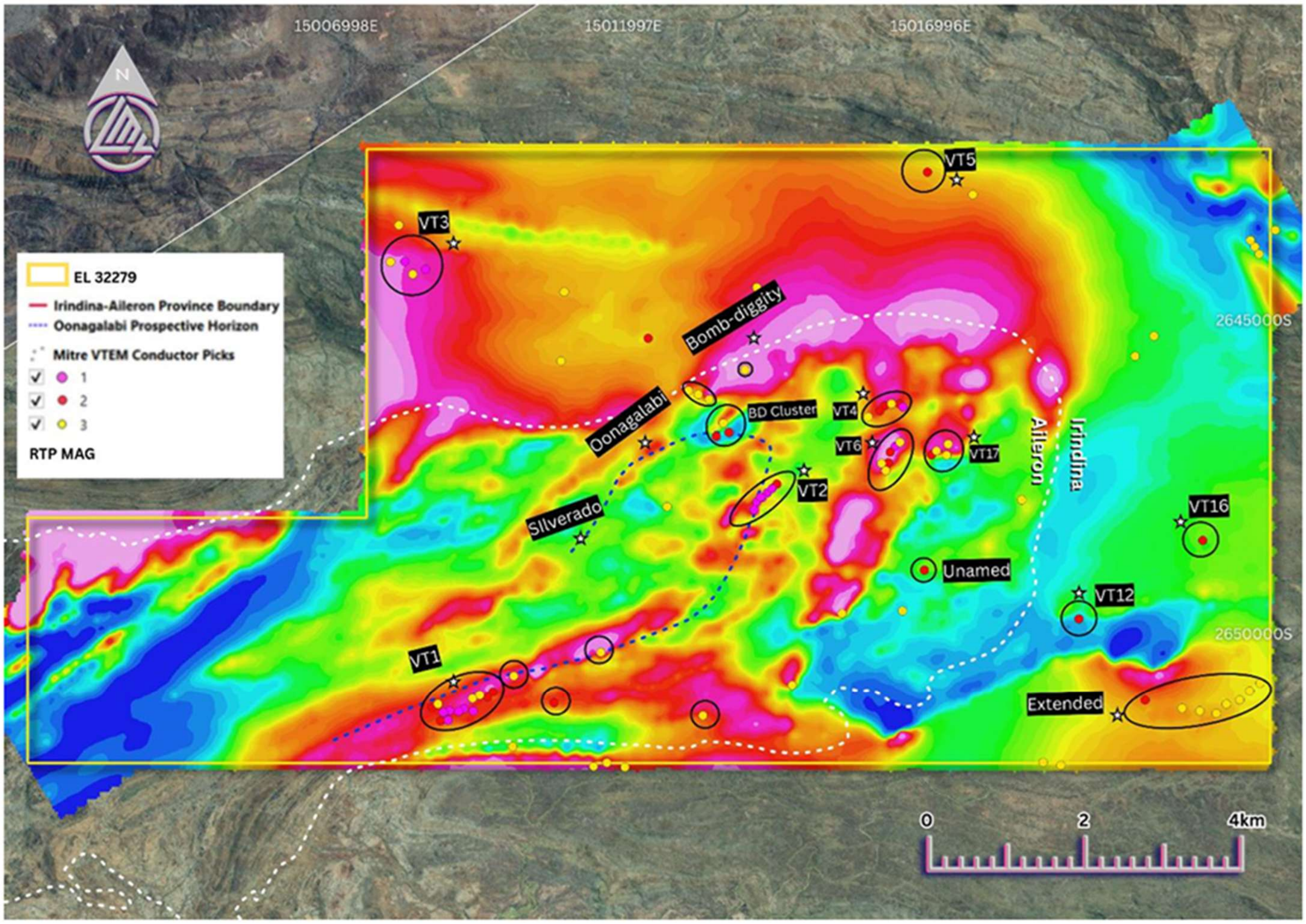

Figure 15. *Drone magnetics TMI RTP image of EL32279 showing the main prospects and VTEM targets.*

7. Conclusion

The designed VTEM survey was completed successfully and resulted in the acquisition of a high quality EM dataset over all of EL32279. The survey defined multiple late-time basement conductors throughout the project in positions that make sense geologically in the context of the known mineralisation zones. Drilling of VT2 confirmed the presence of semi-massive to massive sulphides within metres of the modelled VTEM conductor plates confirming both the validity of VTEM as a direct detection tool for Oonagalabi-type amphibolite-hosted sulphide mineralisation and confirming the high quality nature of the raw dataset and subsequent modelling. Drilling at VT1 is still required to confirm the source and nature of the intensely conductive modelled plates (to 3,000S), however, mineralisation observed in OGRC012 and modelling of ground EM plates indicate a strong likelihood that semi-massive to massive sulphides exist up-dip from the OGRC012 disseminated sulphide intercept. VTEM conductors at VT4, VT6 and VT17 are coincident with depth extensive magnetic anomalies, have little surface evidence of alteration / mineralisation and represent high priority blind exploration targets. VTEM has successfully scanned EL32279 down to approximately 300m below surface. Litchfield now intends to complete deep-seeking geophysical surveys in the 2026 field season (MT, gravity) to test the depth extent of the known conductor zones.

8.References

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