Goldfields Consolidated Pty Ltd

Shangri Lah Project

Annual Technical Report
for the Period 18th July 2018 to 17th July 2019
P 80/1849

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COMPANY / OPERATOR:	Consolidated Goldfields Pty Ltd
PROJECT:	Shangri Lah Base Metal Project
TENEMENT:	P 80/1849
REPORTING PERIOD:	18th July 2018 to 17th July 2019
AUTHOR:	T. Reddicliffe
DUE DATE:	13th September 2019
STATE:	Western Australia
LATITUDE:	S15.7765°
LONGITUDE:	E128.5698°
DATUM:	GDA94 zone 50
1:250,000 SHEET:	Cambridge Gulf, SD52-14
MINERAL FIELD:	80
MINERAL DISTRICT:	East Kimberley
COMMODITY:	Copper, Gold, Lead, Silver, Zinc

Abstract

Location: The Shangri La project is situated approximately 18 km west of Kununurra, within the Kununurra (4666) 1:100 000 map sheet area of the Cambridge Gulf (SD52-14) 1:250 000 sheet.

Geology: The project area is underlain by Hart Dolerite, which intrudes the sedimentary rocks of the Speewah Group. Quartz veins host Pb–Zn–Cu–Ag–Au mineralisation at the Shangri La mine.

Work Done: Exploration activities undertaken during the reporting year comprised data review to assess the remaining potential of the project area.

Results: Numerous rock-chip sampling campaigns at the Shangri La mine have returned best results of 22 g/t Au, 622.75 g/t Ag, 5.35% Cu, 27% Pb and 24.8% Zn. Highly anomalous arsenic and antimony have also been recorded. The only drilling program in recent times failed to intersect mineralisation, having being drilled into the footwall of the mineralised vein. Where present, mineralisation is disseminated or patchy.

It is unknown how much, if any, of the historical estimated 'reserve' of 34,500 t at 7.6% Pb, 301.69 g/t Ag and 5.6 g/t Au remains.

Conclusion: Mapping of the project area may lead to the identification of fold hinges and flexures in faults, where veins may be mineralised. Electromagnetic surveys have been successfully used in the area to identify mineralised veins and may prove useful for drill targeting at Shangri La.

1.0 INTRODUCTION

This report outlines the mineral exploration activities undertaken for the Shangri Lah project tenement P80/1849 during the year ending 17 July 20198. Exploration activities undertaken during the reporting year comprised continued data review to assess the potential of the project. In addition a forward program was planned to further investigate the area hosting the Shangri La polymetallic vein-hosted deposit, which has been exploited via a shallow pit.

2.0 LOCATION AND ACCESS

The Shangri Lah project area is located on the northern side of the Victoria Highway, approximately 18 km west of Kununurra, in the east Kimberley region of Western Australia (Figure 1). The project area is within the Kununurra (4666) 1:100 000 map sheet area of the Cambridge Gulf (SD52-14) 1:250 000 sheet and straddles the Ivanhoe (N050034) pastoral lease and reserved land buffering the main road. The tenement is located on a rise in a valley.

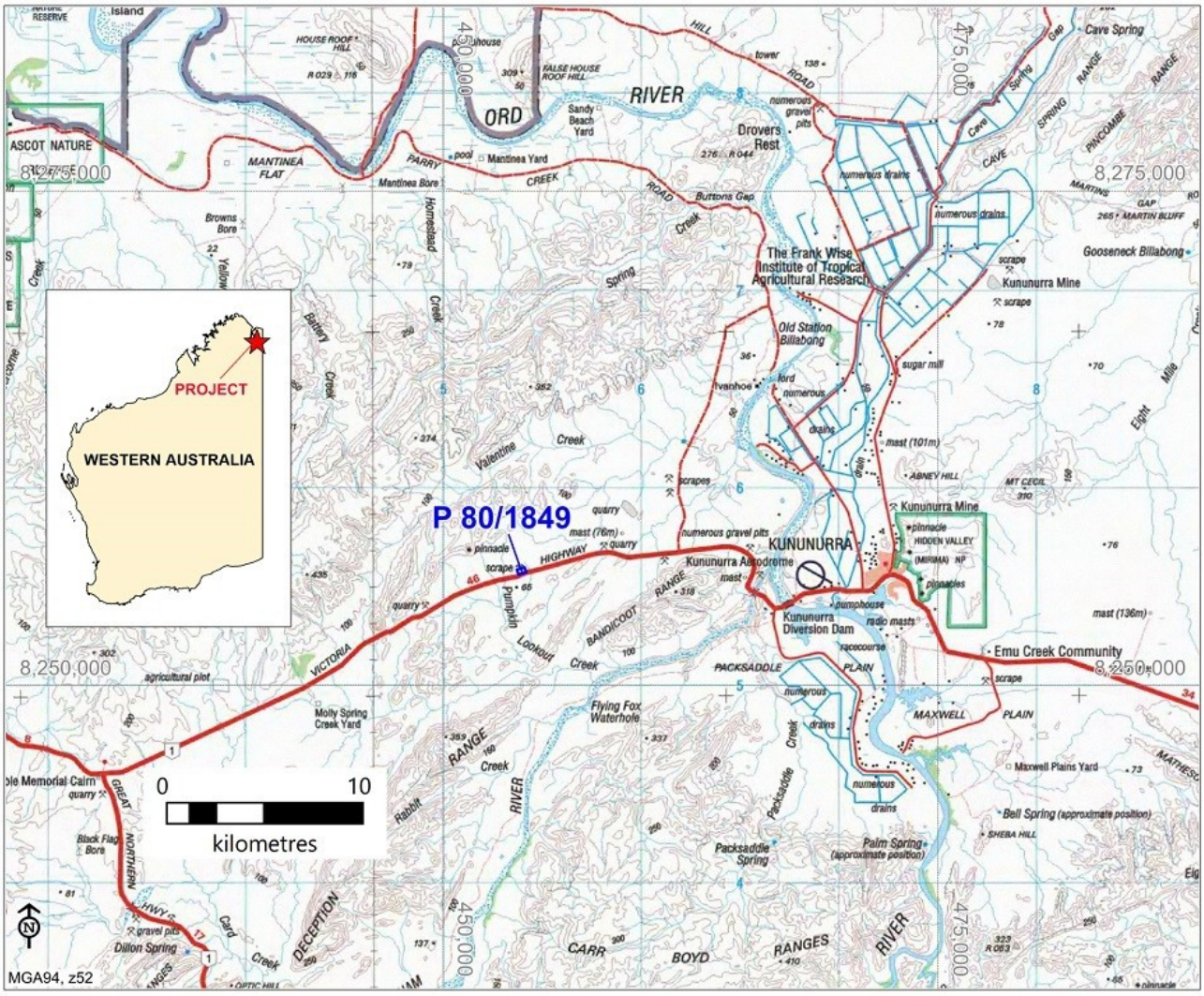

Figure 1. Tenement location.

3.0 TENEMENT DETAILS

Table 1: Tenement Details

Tenement	Grant Date	Expiry Date	Holder	Expenditure ($)	Area Size (KM^2)	Area Size (BLK)
P80/1849	18/07/2017	17/07/2021	GOLDFIELDS CONSOLIDATED PTY LTD	2000	0.1	0

The Shangri La Project is located within the Kimberley Mineral Field and comprises one Prospecting Licence (P80/1849) covering 10 hectares. The tenement is registered to Goldfields Consolidated Pty Ltd.

4.0 GEOLOGY

4.1 Regional Geology

The project area is located in a portion of the Paleoproterozoic Halls Creek Orogen intruded by voluminous sills (Figure 4). The orogen developed as a result of suturing of the Kimberley and North Australian Cratons and comprises the crystalline rocks of the Lamboo Province and unconformably overlying siliciclastic Kimberley Basin. The basin contains the fluvial – shallow marine facies of the Speewah and overlying Kimberley Group. From oldest to youngest, the formations of the Speewah Group are O'Donnell Formation, Tunganary Formation, Valentine Siltstone, Lansdown Arkose, Luman Siltstone and Bedford Sandstone. In the Halls Creek Orogen, the Kimberley Group comprises King Leopold Sandstone, Carson Volcanics, Warton Sandstone, Elgee Siltstone and Pentecost Sandstone.

The Kimberley Group has been intruded by the c. 1800 Ma Hart Dolerite of the Carson–Hart Large Igneous Province. The Hart Dolerite may be the product of crustal thinning and mantle upwelling during post-collisional, extensional uplift.

Rocks of the Kimberley Basin are conformably overlain by those of the Mesoproterozoic Bastion Basin and unconformably overlain by those of the Carr Boyd Basin. Paleozoic sedimentary and volcanic rocks are present on the east side of the major Ivanhoe Fault.

4.2 Local Geology

The project area is entirely underlain by the Hart Dolerite (WAMEX Report A20337), which is described by Acmex Holdings Ltd (1969) as being "hard fresh crystalline rock varying from fine to medium grained" and "in the vicinity of the lead lodes it is completely sheared and altered to a soft chloritic mass". As shown in Figure 2, the project area is close to, or within, the fold hinge of an anticline and is less than four kilometres from the major Ivanhoe Fault.

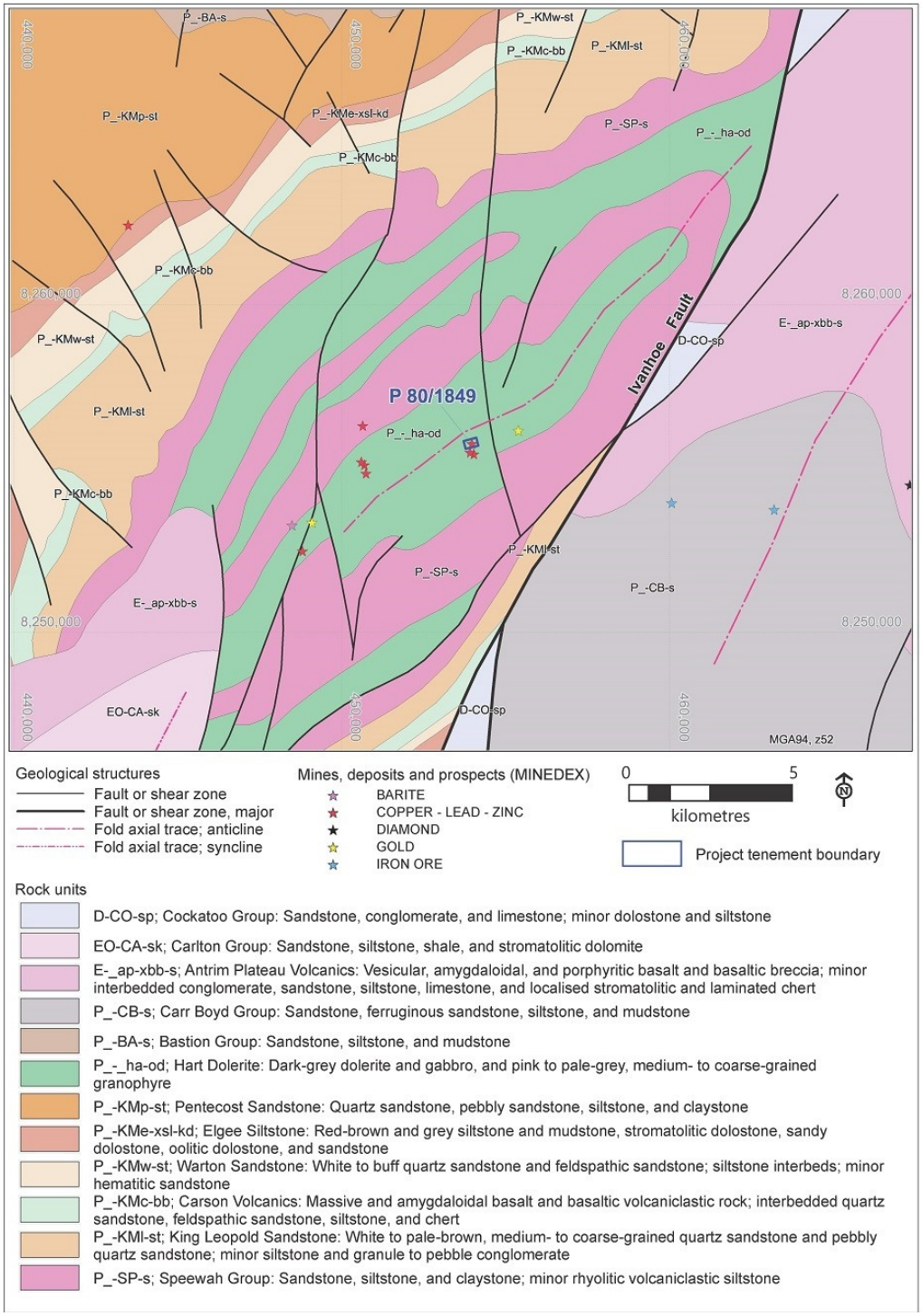

Figure 2. GSWA 1:500 000 interpreted geology for the project area and surrounds (GSWA, 2016).

Blockley (1971) notes that six mineralised veins have been mined or tested at the Shangri Lah mine. The veins are in an en echelon arrangement and strike west to northwest within a 300 m long zone striking west-northwest. The veins dip 10 to 35 degrees to the north.

A large proportion of the surface of the project area has been disturbed because of excavation of the Shangri Lah pit.

5.0 PREVIOUS EXPLORATION

Previous exploration in the project area has focused on the vein-hosted polymetallic mineralisation, as summarised in Table 2. The Shangri La deposit was discovered in 1962 by Peter Costeo, and worked by Conwest–Acmex–Acmin–Geotechnics during 1968 to 1972 under agreement with P. Costeo. Recent mining has taken place, although there is no documentation of this in open-file mineral exploration reports. Previous exploration activities are discussed in the Data Review section of this report.

5.1 Historic

Table 2. Previous reported exploration.

Duration	Lease ID	Project	Company	Work done	WAMEX Report (A-no.)
1968 -1974	TR70/4717, MC80/38, MC80/87	East Kimberley Goldfield	Conwest (Aust.) NL; Acmex Holdings Pty Ltd; Acmin Exploration NL; Geotechnics Aust. Pty Ltd	Airborne radiometric survey, electromagnetic surveys, geological mapping, rock-chip sampling, soil sampling, mining	565, 1086, 2107
1984 -1987	P80/507	Ivanhoe	H.F. and E. M. Moder	Rock-chip sampling, costeaning, geological mapping	17708, 20337
1994 - 2007	M80/392	–	P. Costeo	–	None available
2008 - 2016	P80/1650	Shangri Lah	Arc Ltd, Esperance Minerals Ltd, Shangri Lah Metals Pty Ltd	Data review, rock-chip sampling, IP survey, RC drilling	88971, 93039, 96176, 98283, 100406, 104333

5.2 Exploration 2017 - 2018

During the reporting year 2017 to 2018, exploration activities for the Shangri Lah project comprised data review for the entire project area, which involved searching for open-file mineral exploration reports relevant to the project area and summarising information relating to the polymetallic vein- hosted mineralisation in the project area and surrounds. The information was collated to use in assessing the mineral potential of the tenement area.

6.0 CURRENT EXPLORATION

During the current reporting period collation and review of the available data was continued and a forward exploration program was planned.

6.1 Review of Data

The Shangri Lah deposit was discovered in 1962 by Peter Costeo, and worked by Conwest–Acmex–Acmin–Geotechnics from 1968 to 1972 under agreement with P. Costeo. The exploration is poorly documented, but includes reconnaissance soil geochemistry, electromagnetic surveying, airborne radiometric surveying, rock-chip sampling and percussion drilling.

Base and precious metal anomalism in soils and rock-chip samples was noted to coincide with quartz veins in north-northeasterly trending faults and the axis of a roughly easterly trending anticline (WAMEX Report A2107) in the Hart Dolerite. Mineralised rock-chip samples returned up to 2.2% Cu, 27% Pb and 24.8% Zn (WAMEX Report A2107). Macleod (2012) states that drilling is reported to have intersected mineralisation to a depth of 80 m, although there is no record of this in the progress report for the Temporary Reserve.

Veins transecting both the Hart Dolerite and sediments assigned to the Lansdowne Arkose of the Speewah Group were found to only be mineralised in the Hart Dolerite (WAMEX Report A565). However, mineralisation was noted in the Valentine Siltstone (A2107). Gold and silver were found to be enriched near the surface and very low at or near the water table (A565). A later study of the mineral assemblages of the Shangri Lah deposit by Downes et al. (2011) identified secondary silver-bearing sulphides, but no native silver.

The Costeo–Conwest–Acmex–Acmin–Geotechnics JV reportedly calculated an estimated reserve of 34,500 t at 7.6% Pb, 301.69 g/t Ag and
5.6 g/t Au for three vein shoots (Blockley, 1971). Two open cuts, plus pits and trenches, were developed. Production was not recorded. A progress report compiled in 1985 for H. F. and E. M. Moder (WAMEX Report A17708) notes that "between 1967 and 1980 small parcels of high grade ore were removed from the Shangri La mine". A current mine plan in that same report shows a maximum depth of approximately 5 m (Figure 3), and it was considered that only about 10% of the estimated reserve had been removed and that mineralisation was likely to extend well below the level of the pit.

The area was worked by H.F. and E. M. Moder during the mid-1980s. The two reports available mention rock-chip sampling, costeaning and geological mapping. Mapping of a trench in the Shangri La openpit depicts the mineralised veins as very steeply dipping (Figure 4). The best rock-chip assay results recorded on the mine plan include 14.5% Pb, 3.8% Zn, 1.4% Cu, 7.51 g/t Au and 420 ppm Ag and 460 ppm As.

The ground was held by P. Costeo until 2008, when the Mining Lease (M 80/392) was forfeited and the ground was acquired by ARC Ltd. Arc, Esperance Minerals Ltd and Shangri Lah Metals Pty Ltd continued to explore the area as P 80/1650 until 2016, at which point the tenement was forfeited. Work undertaken included data review, rock-chip sampling, a gradient-array induced polarisation (IP) survey and reverse circulation (RC) drilling. Maximum assays from rock-chip sampling of stockpiles included 18.43 g/t Au (sample SL117), 622.75 g/t Ag (SL116), 5.35% Cu (SL109), 11.76% Pb (SL125) and 5.14% Zn (SL118). Highly anomalous arsenic and antimony assays in excess of 1000 ppm were also recorded.

No significant chargeability or apparent resistivity anomalies were identified, and it was concluded that any mineralised zones might be too dispersed to create an IP anomaly.

The only recent drilling was undertaken by Esperance Minerals Ltd in October 2012 (A98283; Wasse and Voermans, 2013). Two inclined RC holes, KU-11 and KU-12, were drilled to a depth of 78 m and 60 m, respectively. Selected samples were chosen by a geologist for base- metal analysis. Drilling intersected quartz veining within the first 7 m in both holes. The remainder of each hole consisted of barren, unaltered dolerite. No visible mineralization was intersected. Maximum assay results were 1.167 ppm Au, 12.7 ppm Ag, 917 ppm Cu, 9900 ppm Pb, 8325 ppm Zn,

105.73 ppm Sb and 89.9 ppm As.

Wasse and Voermans (2013) note that the zone of mineralised quartz veining originally mined in the open pit appears to be dipping to the east at a very shallow angle, and that the drill pads were situated below the target horizon, meaning the holes were drilled directly into the unaltered footwall. It was also noted that the mineralized quartz vein in the pit is discontinuous along strike, with an easterly trending, northerly dipping fault near hole KU-11 truncating the mineralization. Mineralised quartz veins reappear 30–40 m to the north. Base metal anomalism in the first 12 m of the holes was considered to be indicative of a very shallowly dipping mineralised horizon that has already been removed during past mining operations.

Wasse and Voermans (2013) have recommended the drilling of two additional holes at roughly 190 degrees azimuth from outside of the pit in order to gauge the pre-opencut thickness of the mineralised horizon at depth. A single hole to test some of the east west structures observed inside the pit has also been recommended.

In addition to open-file mineral exploration reports, several other sources of detailed information were found for the Shangri Lah polymetallic vein-hosted deposit, including GSWA reports, the GSWA Minedex database and Mindat website, the latter of which is managed by the Hudson Institute of Mineralogy. The Mindat entry has been prompted by the diverse and unusual mineral assemblage of the deposit, which is of interest to mineral collectors, and its convenient location beside the main road. The Western Australian Museum houses specimens from the deposit.

The Mindat webpage notes the presence of 36 minerals at Shangri Lah, many of which encrust quartz and bindheimite ($Pb_2Sb_2O_6O$). The MINEDEX database records 46 minerals noted at the deposit, with galena and sphalerite listed as the most-dominant ore minerals, followed by chalcopyrite, bornite and tetrahedrite. Gangue minerals include calcite, dolomite, goethite, kaolin and illite. Brecciation is noted in the discordant veins.

Downes et al. (2011) note that the oxidised zone of the deposit contains a diverse assemblage of secondary minerals, including malachite, azurite, rosasite, aurichalcite, otavite, cerussite, smithsonite, bindheimite, osarizawaite, beaverite, beudantite, anglesite, antlerite, brochantite, linarite, vanadinite, mottramite–descloizite and hemimorphite. Downes et al. (2011) consider that the oxidation of magnetite in the Hart Dolerite host rock is the probable source of vanadium for the vanadate minerals, and the dolerite may have also provided other metals for the deposit.

Sofoulis (1967) and Blockley (1971) note that the ore minerals have no well-defined distribution within the quartz reefs, being either disseminated or forming irregular bands or patches, with the richest ore crystallized in vugs. Gold and silver were thought to be associated with copper rather than lead minerals (Blockley, 1971; WAMEX Report A565). Downes et al. (2011) note the presence of gold grains and secondary silver sulphides associated with bindheimite–malachite boxworks.

To gain a better understanding of the mineralisation style at Shangri Lah, information for neighbouring prospects was collated. The prospects are shown in Figure 5 and summarised in Table 3. It is noted that the Shangri Lah is much more Pb-rich than the neighbouring prospects.

6.2 Forward Exploration

A forward exploration program is planned for the latter half of 2019 and will involve

- Check sampling of reported high assays from outcrops
- Soil sampling over interpreted extensions to the mineralisation which are under soil cover.
- Ground EM surveys to locate conductive targets.
- Follow-up deeper targeted EM in selected areas

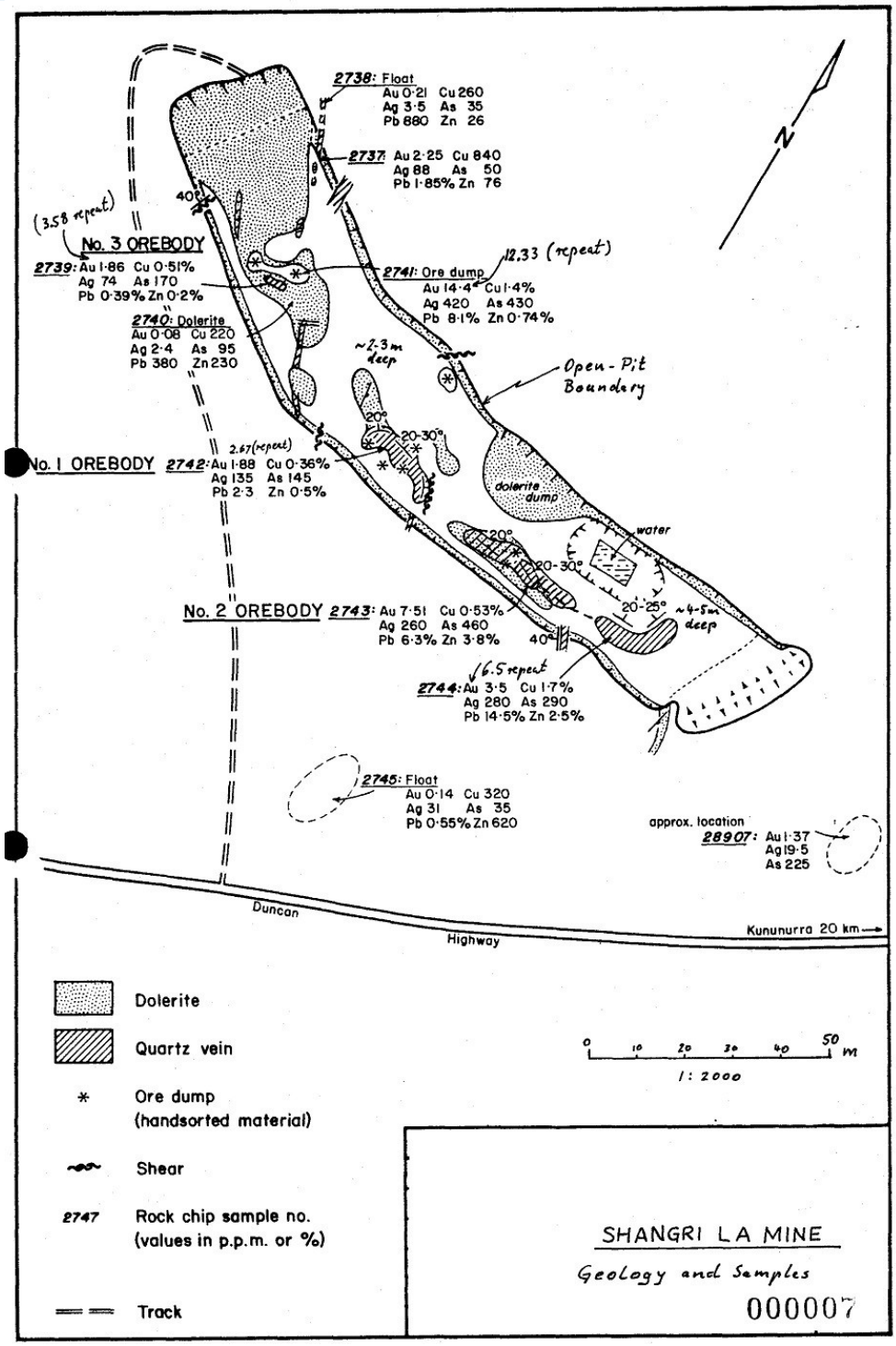

Figure 3. Shangri La mine plan and sampling results (A17708).

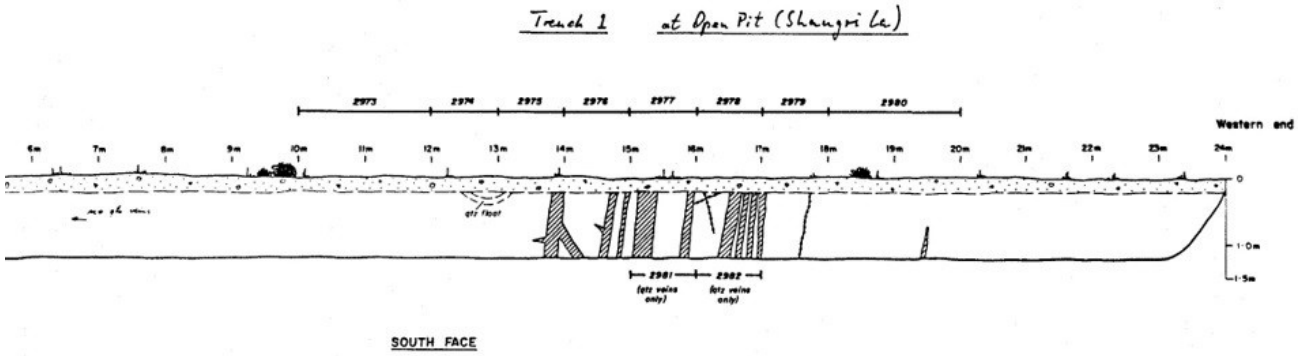

Figure 4. Map of trench in the Shangri La open pit (A20337).

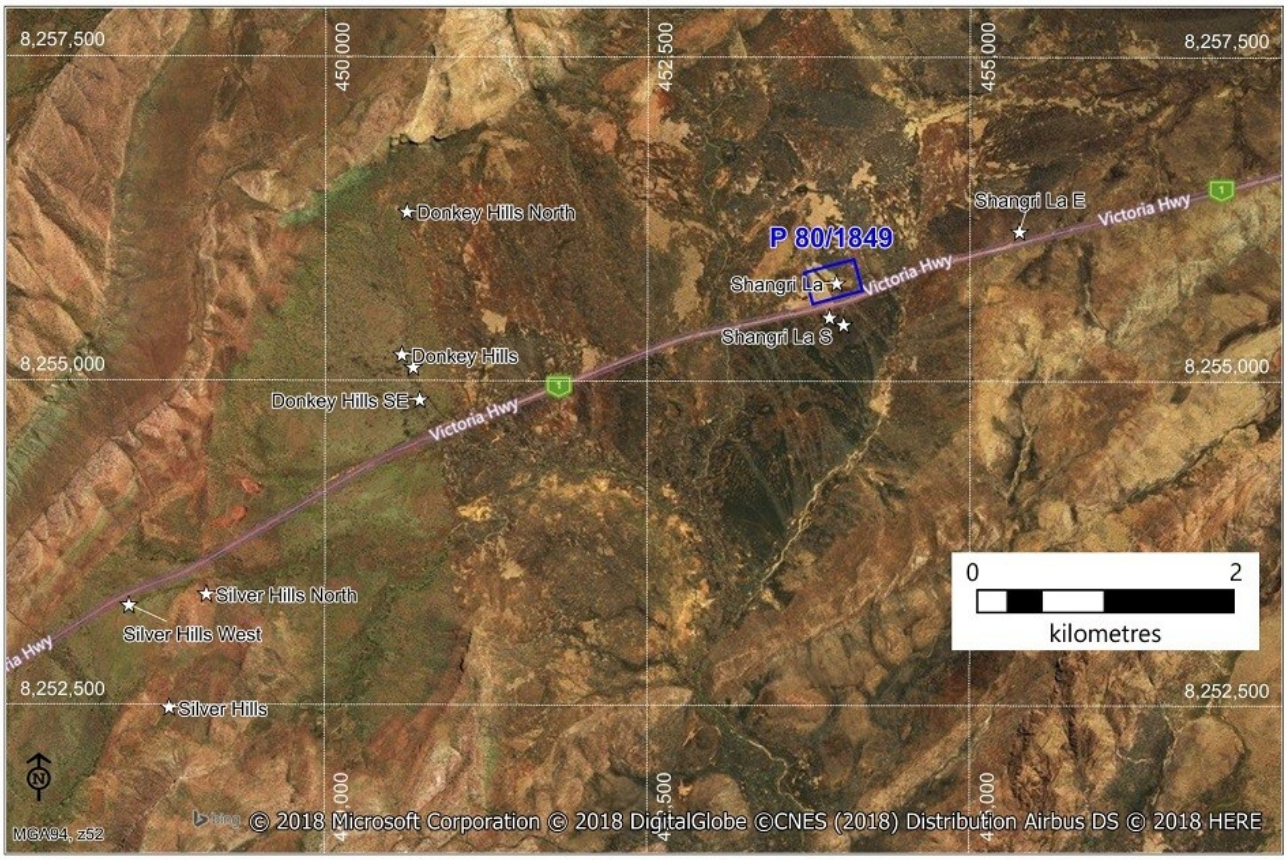

Figure 5. Vein-hosted polymetallic mineralisation sites near the Shangri La project.

7.0 CONCLUSIONS

Numerous rock-chip sampling campaigns at the Shangri Lah mine have returned best results of 22 g/t Au, 622.75 g/t Ag, 5.35% Cu, 27% Pb and 24.8% Zn. Highly anomalous arsenic and antimony have also been recorded. Most ore at the deposit is Pb rich.

The only drilling program in recent times failed to intersect mineralisation, having being drilled into the footwall of the mineralised vein. Due to conflicting reports, it is not known how much, if any, of the historical estimated 'reserve' of 34,500 t at 7.6% Pb, 301.69 g/t Ag and 5.6 g/t Au remains.

Where present, mineralisation is disseminated or patchy. Electromagnetic surveys have been successfully used in the area to identify mineralised veins and may prove useful for drill targeting at Shangri Lah, particularly as sphalerite is generally a very minor ore component. Mapping of the project area may lead to the identification of fold hinges and flexures in faults, where veins may be mineralised.

The forward exploration program will aim to identify drill targets through the use of soil sampling and geophysics.

8.0 REFERENCES

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