# FOURTH ANNUAL REPORT

#### GR461 - EXPLORATION LICENCES EL 25566 & 31383

Titleholder: Gempart (NT) Pty Ltd

## FOR THE PERIOD 23/08/2019 to 22/08/2020

by

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## **CONTENTS**

LIST	OF	TAE	BLES	2
LIST	OF	FIG	URES	2
LIST	OF	API	PENDICES	3
ABS	TRA	CT.		4
1.	IN	ΓRO	DUCTION	4
1	.1	L	OCATION AND ACCESS	4
2.	TE	NUI	RE	7
2	.1	٨	/INERAL TITLE	7
2	.2	L	AND TITLE	7
3.	GE	OLO	DGY	8
3	.1	REC	GIONAL GEOLOGY	8
3	.2	GE	OLGY WITHIN THE TENEMENT AREA	9
3	.3	ECC	DNOMIC MINERAL POTENTIAL	9
4.	PR	EVI	OUS EXPLORATION	. 11
5.	EX	PLO	RATION COMPLETED	. 11
5	.1	Ε	XPLORATION RATIONALE	. 11
5	.2	Ε	XPLORATION COMPLETED FROM AUGUST 2016 TO AUGUST 2019	. 11
5	.3	Ε	XPLORATION COMPLETED FROM AUGUST 2019 TO AUGUST 2020	. 13
	5.3	3.1	Acquisition and interpretation of gravity data at "Mag Anomaly #1"	. 13
	5.3	3.2	Acquisition and interpretation of gravity data at "SGC" prospect	. 17
	5.3	3.3	Review of all prospects	. 20
6.	СО	NC	LUSIONS	. 22
7	RF	FFR	FNCFS	23

## **LIST OF TABLES**

Tal	ole 1	Expl	loration	Tenure.
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Table 2 Summary of prospects and recommendations.

## **LIST OF FIGURES**

Figure 1:	Regional location Map of EL25566 and EL31383	5
Figure 2:	Tenement location Map of EL25566 and EL31383	6
Figure 3.	1:250 000 scale Outcrop Geology.	.10
Figure 4.	New data acquired 2017-2019	.12
Figure 5.	New data acquired 2019-2020	.14
Figure 6.	Mag Anomaly #1 prospect. Bouguer gravity contours on RTP aeromagnetics	.15
•	Mag Anomaly #1 prospect. Geological interpretation from gravity & netics	.16
	Gravity and aeromagnetic response of SGC prospect	
•	SGC prospect Updated Interpretation of gravity and magnetics on section	.19
	Prospect Location Map	

## **LIST OF APPENDICES**

- 1. Gravity survey "Mag Anomaly #1" 2020 Data and Contractors Report.
- 2. Interpretation Report "Mag Anomaly #1" Gravity Survey.
- 3. Gravity Survey "SGC Prospect" 2020 Data and Contractors Report.
- 4. Interpretation Report "SGC Prospect Update" Gravity Survey.
- 5. Review of all prospects including work completed and recommendations.

### **ABSTRACT**

Gempart's Musgraves Project is located in the Musgraves Province in the extreme southwest corner of the Northern Territory. Tenement comprised four granted titles EL25566, EL27912, EL27913 and EL31383 with group reporting status GR461. EL27912 and EL27913 were surrendered in July 2019. This document reports on exploration undertaken in the fourth year of tenure for EL25566 and EL31383.

Primary commodities sought are gold, base metals, nickel, PGE's, and REE's. Little modern exploration data exists from government information or past explorers. There are no prospects, mineral occurrences or drillholes within the relinquished area. The geology appears to be predominantly granitoid rocks of the Mesoproterozoic Umutju Granite Suite.

In the current year acquisition and assessment of ground gravity data has upgraded the prospectivity of two gravity/magnetic anomalies at "Mag Anomaly #1" (396 readings) and "SGC" (57 readings) prospects. Interpreted mineralisation models include skarn deposits and sulphides in ultramafics. Ground EM surveys are proposed to define potential drill targets.

#### 1. INTRODUCTION

### 1.1 LOCATION AND ACCESS

The Musgrave Ranges Project area is located approximately 500km WSW of Alice Springs and adjacent the Surveyor Generals Corner at the junction of NT/WA/SA. Refer Figure 1. Other than the rare aboriginal outstation there are no populated settlements.

Vehicular access is via the unsealed road from Ayers Rock to Docker River, thence various unsealed roads connecting outstations.

Drainage comprises minor creeks mostly in the eastern part of the tenement area. Typically, these watercourses flow after rains but may be dry for most of the year.

Topographically it is flat. Elevation varies only 100 metres across most of the tenement area, from 620 to 700 metres. Outcropping granitoids form isolated hills to 750 metres height in the central part of the area, rising to a maximum of 950 metres at Mount Samuel in the eastern part.

The climate is arid. The rainfall is erratic and punctuates extended dry spells.

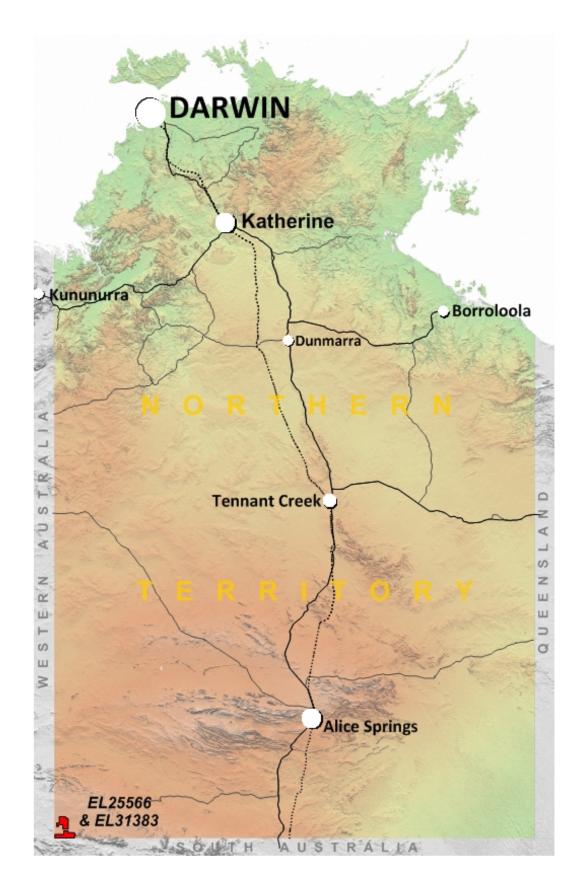


Figure 1: Regional location Map of EL25566 and EL31383.

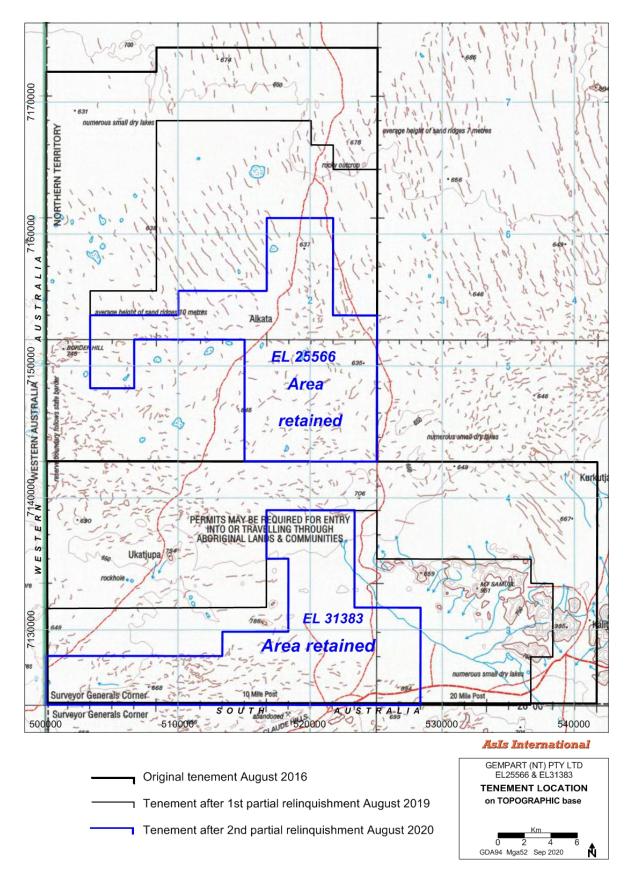


Figure 2: Tenement location Map of EL25566 and EL31383.

### 2. TENURE

### 2.1 MINERAL TITLE

EL25566 and EL31383 were granted for a period of six years on 23rd August 2016 to Gempart (NT) Pty Ltd. These two EL's, in conjunction with EL27912 and EL27913, have group reporting status as GR461. EL27912 and EL27913 were surrendered in 2019.

An application for Waiver of Reduction was accepted after the first two years of tenure. A 50% reduction was applied on 22nd June 2019, and second reduction in September 2020.

**Table 1: Exploration tenure** 

Tenement	Name	Event	Area (Sq km)	Blocks	Date
ELA25566					
and	Border Hill	Application	924	300	23-Aug-06
EL31383	Mount Cockburn	Application	1540	500	04-Jul-06
ELA25442	Widuit Cockbuili				
		Revised			
ELA27912	Mount Cockburn	application	1021	333	30-Nov-15
EL25566	Border Hill	Grant	774	250	23-Aug-16
EL31383	Mount Cockburn	Grant	764	250	23-Aug-16
EL25566	Border Hill	Waiver of	774	250	23-Aug-18
EL31383	Mount Cockburn	Reduction	764	250	23-Aug-18
EL25566	Border Hill	Partial	388	125	22-Jun-19
EL31383	Mount Cockburn	relinquishment	383	125	22-Jun-19
EL25566	Border Hill	Partial	195	63	02-Sep-20
EL31383	Mount Cockburn	relinquishment	190	63	02-Sep-20

## 2.2 LAND TITLE

The project area is located entirely within Freehold land of the Petermann Aboriginal Land Trust. They are subject to a Mining and Exploration Deed signed on behalf of Traditional Owners by CLC and Gempart (NT)P/L under terms and conditions set out in the 1976 Land Rights Act (ALRA) which remain confidential for the duration of the Agreement.

### 3. GEOLOGY

The following description is largely derived from the published explanatory notes for the Petermann Ranges 1:250,000 sheet [2]<sup>1</sup>.

#### 3.1 REGIONAL GEOLOGY

The project area is within the Mesoproterozoic Musgrave Province, a crystalline basement terrain extending across common borders of SA, WA and NT covering a total of 120, 000 km<sup>2</sup>.

During the Musgravian Orogeny (1220-1120Ma), large volumes of felsic magma were intruded and assigned to the Pitjantjatjara Supersuite. This was followed by the 1085-1040Ma Giles Event which included the variably deformed mafic-ultramafic layered intrusions of the Giles Complex and the associated bimodal volcanics and rift sequences of the Tjauwata Group.

The 560-530Ma Petermann Orogeny was a major intracratonic event resulting in reactivation of several crustal scale east-west trending shears/faults/thrusts, and the development of widespread mylonitic shear fabrics resulting in the final exhumation of Musgrave Province from beneath Centralian Superbasin.

The Musgrave Province underwent at least one phase of intense deep weathering and erosion prior to deposition of Mesozoic clastic sediments along its eastern margin. Intense chemical weathering of sediments and basement has resulted in a deep weathering profile persisting up to 90 metres below the present day surface. The typically composite weathering profile is characterised by kaolinisation, and mottled, pallid, ferruginous or siliceous zones.

During the Quaternary, the onset of aridity with episodes of alluvial and aeolian activity resulted in the present landscape of alluvial plains, sand plains, aeolian dunes and dunefields.

Figure 3 shows the published mapped geology.

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<sup>&</sup>lt;sup>1</sup> Numbers in brackets refer to references.

#### 3.2 GEOLOGY WITHIN THE TENEMENT AREA

The dominant outcrop within the relinquished tenement area is granitoids of the Umutju Granite Suite, comprising mostly Walytjatjata Granite (Pguw) with minor Mantapayika Granite (Pgum) in the north.

The Walytjatjata Granite is a porphyritic granite comprising coarsely porphyritic clinopyroxene —bearing granite with distinctive large round blue grey phenocrysts of K-feldspar constituting up to 40% of the rock. Mafic minerals can make up to 20% of rock forming elongated aggregates. The primary igneous mineral assemblage contains clinopyroxene and ilmenite largely consumed by a secondary mineral assemblage associated with development of mylonitic fabrics. A granite with coarse grey blue phenocrysts near Mt Cockburn returned a Pb-Pb zircon age of 1175Ma.

The Mantapayika Granite occurs as scattered outcrops north of Mann Ranges ranging from undeformed granite to migmatite. It is typically porphyritic with rounded blue grey K-feldspar and/or plagioclase phenocrysts. Mafic mineralogy comprises hornblende,garnet,ilmenite and biotite forming discrete clusters. It has a Pb-Pb age of 1120Ma.

Discrete zones of Mantapayika Granite have undergone partial melting during high strain forming migmatite containing gneissic layering.

Giles Complex rocks outcrop immediately south of the southern margin of EL31383. These comprise a suite of massive layered mafic to ultramafic intrusions emplaced within granulite terrain. On EL31383 a medium to coarse grain pyroxenite with minor gabbro crops out on a hill on the South Australian border forming the north east extension of the Claude Hills peridotite-gabbro intrusion, currently hosting 33 million tonnes averaging 0.81%Ni,0.07%Co and 39% Fe2O3 of nickeliferous ochre.

#### 3.3 ECONOMIC MINERAL POTENTIAL

The Musgraves Block is a relatively complex metamorphic region that may contain base metals, gold, cobalt, copper, lead, silver, nickel, platinum, thorium, bismuth, lithium, tin, tungsten, molybdenum and rare earths.

Within the area being relinquished, no mineral occurrences are documented; however very little exploration has been conducted in the area.

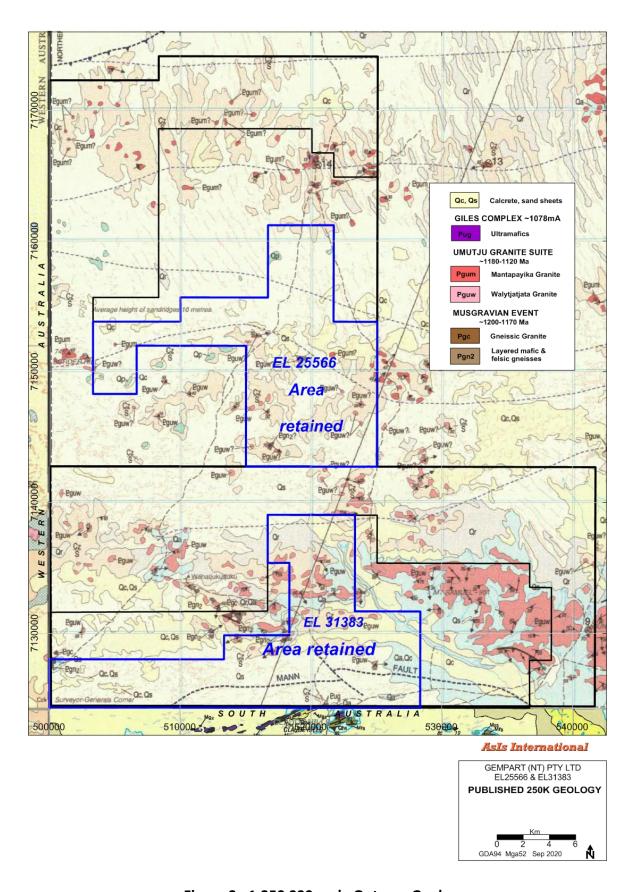


Figure 3. 1:250 000 scale Outcrop Geology.

### 4. PREVIOUS EXPLORATION

The tenement areas have been subject of very little previous exploration. There are no historical mineral exploration titles, and other than regional gravity observations carried out by the BMR in 1962 there is no record in the Northern Territory Geological Service public domain databases of on-ground exploration of any kind.

#### 5. EXPLORATION COMPLETED

#### 5.1 EXPLORATION RATIONALE

This is a greenfields exploration project. The area has been subject of very little historical and no modern exploration, hence the scope of current investigations for deposits of possible commercial value is a blank canvas. There is potential for a host of mineralization types including gold, base metals and REE's within the Mesoproterozoic rocks of the Musgrave Province, including nickel and PGE's within ultramafics of the Giles Complex.

#### 5.2 EXPLORATION COMPLETED FROM AUGUST 2016 TO AUGUST 2019

Following is an itemised summary of work completed in the first three years of tenure. Refer Figure 4 for survey locations.

Work completed in the first year of tenure to August 2017 comprised:

- 1. Commissioning of an exploration potential review.
- 2. Acquisition of ground gravity on 1,000x500m grid, plus infill, on EL25566.
- 3. Acquisition of airborne EM (VTEM) data at 500m line spacing over two areas, one on EL25566 and one on EL31383.

Work completed in the second year of tenure to August 2018 comprised:

- 1. Delivery of Musgrave and Petermann Ranges Project Review by consultant geologist.
- 2. Interpretation of the ground gravity data acquired in 2017 on EL25566, and review of regional gravity data.
- 3. Interpretation of the VTEM data acquired in 2017 on EL25566 and EL31383.
- 4. Field reconnaissance including pXRF readings.

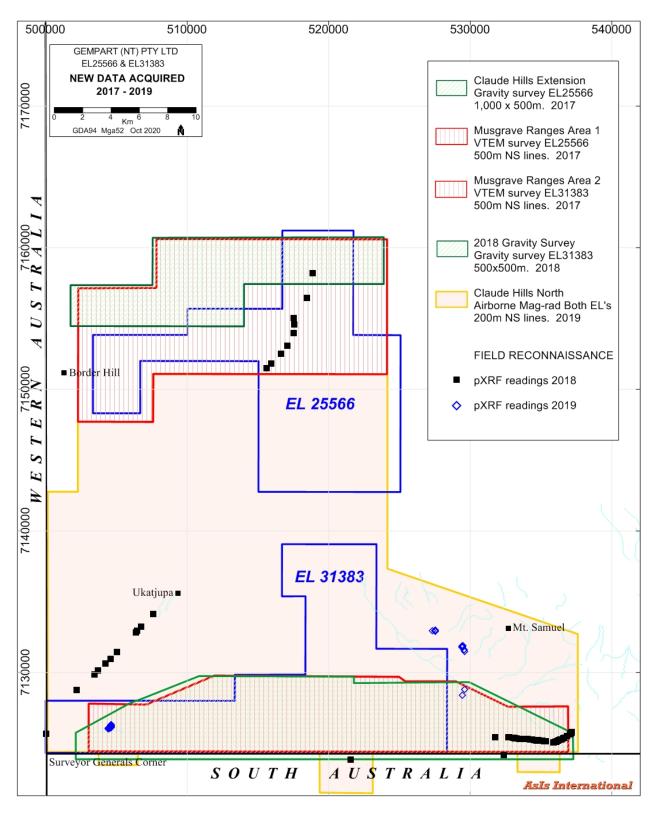


Figure 4. New data acquired 2017-2019

Exploration work completed in the third year of tenure to August 2019 comprised:

- 1. Acquisition and interpretation of ground gravity on a nominal 500 x500m grid, on EL31383.
- 2. Acquisition and interpretation of helicopter-borne magnetics and radiometrics data over a substantial part of both EL's.
- 3. Further field reconnaissance including pXRF readings.

## 5.3 EXPLORATION COMPLETED FROM AUGUST 2019 TO AUGUST 2020

In the current and fourth year of tenure from August 2019 to August 2020 work comprised:

- 1. Acquisition and interpretation of a detailed ground gravity survey at prospect "Mag Anomaly #1" on EL25566.
- 2. Acquisition of infill gravity at "SGC" prospect on EL31383.
- 3. Review of all prospects with recommendations for further work and selection of areas for relinquishment.

Refer Figure 5 for survey locations.

## 5.3.1 Acquisition and interpretation of gravity data at "Mag Anomaly #1"

The airborne survey flown in 2019 identified a distinct magnetic anomaly of 1,700 nT amplitude as recorded on helicopter-borne traverses at 60 metres altitude. Located in the south-west of EL25566, it is about 500 x 800 metres in extent, elongate in the WNW direction. There is no response in any of the radiometric channels. Rare outcrop in the general area comprises Mesoproterozoic granitoids and felsic/mafic gneiss. A detailed ground gravity survey comprising 396 observations was completed over the magnetic anomaly in February 2020 revealing a coincident two milliGal high. Modelling of both datasets indicates a source with density up to 3.4 gm/cc and magnetite concentration up to 15% occurs at shallow depth in lithologies possibly associated with Musgravian Event rocks. The source abuts an interpreted major thrust fault. Contours of the Bouguer gravity and geological interpretation are shown at Figures 6 and 7 respectively.

The interpreted anomaly source may well represent e.g. a skarn type of deposit, with potential for various commodities including copper, gold, lead, zinc, molybdenum and tungsten.

The gravity survey data is included as Appendix 1 "GR461\_2020\_GA\_02\_App1\_Gravity\_A.zip", and a detailed interpretation report included as Appendix 2 "GR461\_2020\_GA\_03\_App2\_GravityInterp\_A.pdf".

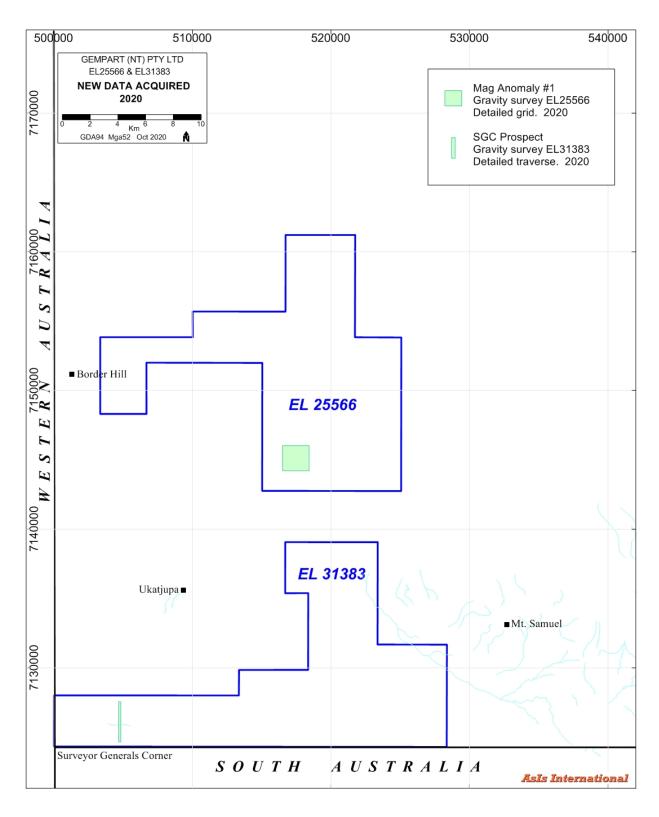


Figure 5. New data acquired 2019-2020

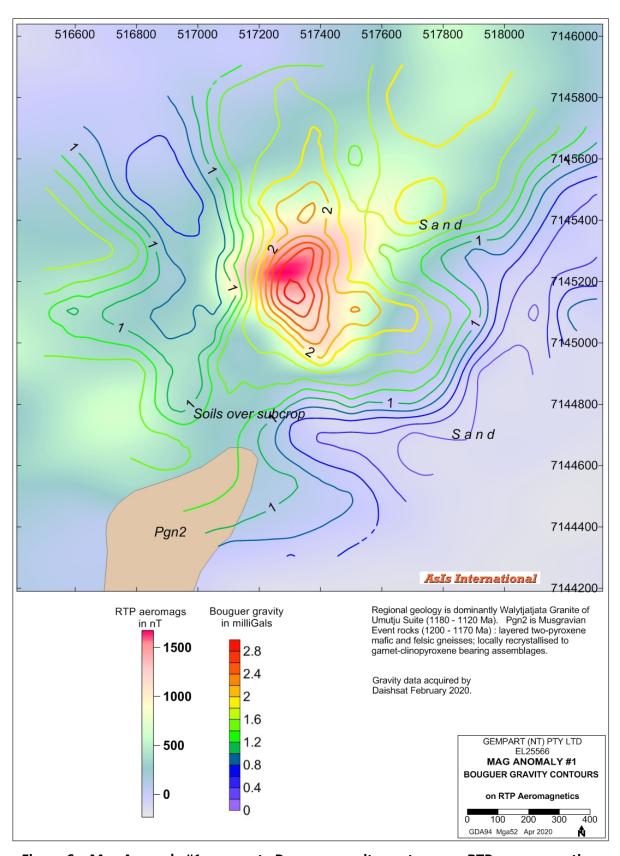


Figure 6. Mag Anomaly #1 prospect. Bouguer gravity contours on RTP aeromagnetics.

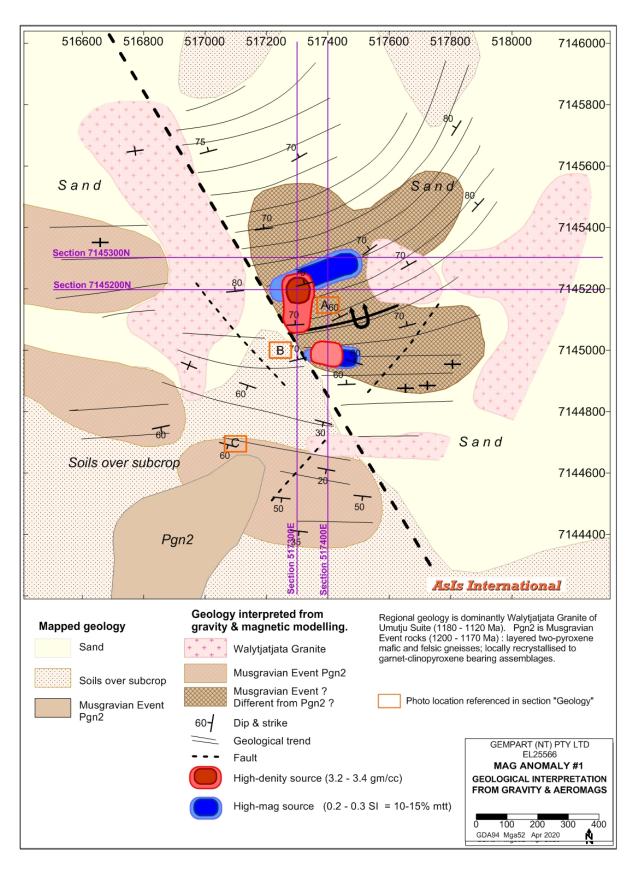


Figure 7. Mag Anomaly #1 prospect. Geological interpretation from gravity & aeromagnetics.

#### 5.3.2 Acquisition and interpretation of gravity data at "SGC" prospect

The SGC prospect is located in the southwest part of EL31383 and was identified from the ground gravity survey completed in 2018. The prospect comprises an isolated seven milliGal gravity anomaly coincident with a 1,200 nT aeromagnetic anomaly about 1.5 kilometres long striking east-west. Using data recorded on the original survey grid of 250x250m, the source of the gravity anomaly was interpreted to be a distinct geological unit 250 metres wide at very shallow depth, and density up to 3.4 gm/cc.

In 2020 one detailed gravity traverse comprising 57 observations was completed to confirm the shape and amplitude of the anomaly. Gravity observations points are shown in Figure 8. These new data confirmed the model is valid, and further enhanced the maximum amplitude from a previously reported five milliGals to seven milliGals. The updated interpretation section is shown at Figure 9.

There is no outcrop, and the lithology of the high-density source is unknown. The source is consistent with an ultramafic body in Giles Complex. Current geological understanding suggests no Giles Complex rocks occur north of the Mann Fault, the locus of which is not well defined but believed to be well south of the prospect. If this is correct then it opens up a raft of possible causative rock-types and mineralisation models.

This is a standout gravity anomaly in terms of amplitude and should be further investigated with ground EM, and drilled to test the nature of the gravity source and any possible conductors.

The gravity survey data for the single traverse is included as Appendix 3 "GR461\_2020\_GA\_04\_App3\_Gravity\_B.zip". An interpretation report using the original survey data was included as Appendix 2 in the Third Annual Technical report, and a brief update of that report incorporating the new data is included with this report as Appendix 4 "GR461\_2020\_GA\_05\_App4\_GravityInterp\_B.pdf".

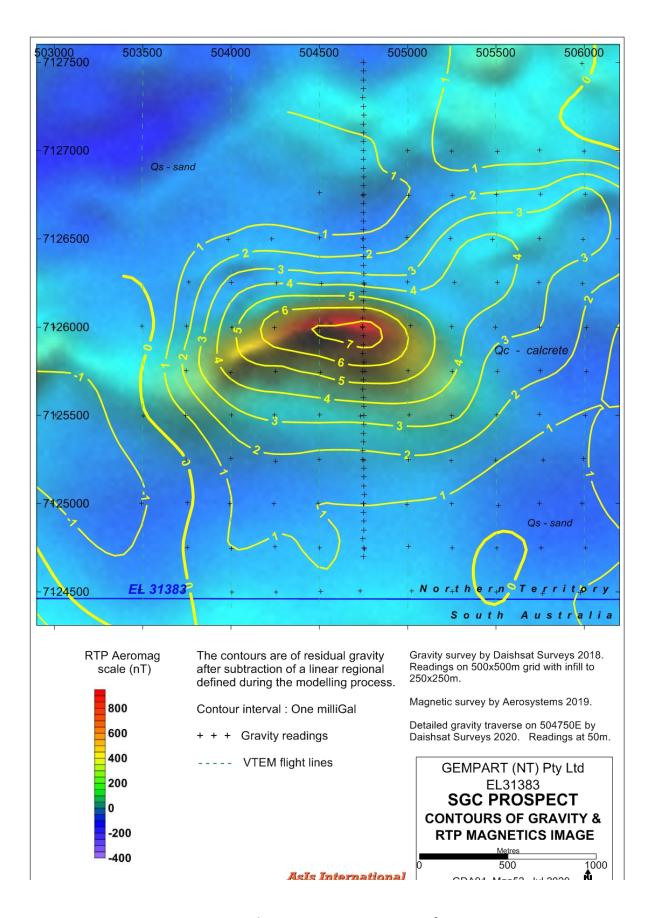


Figure 8. Gravity and aeromagnetic response of SGC prospect.

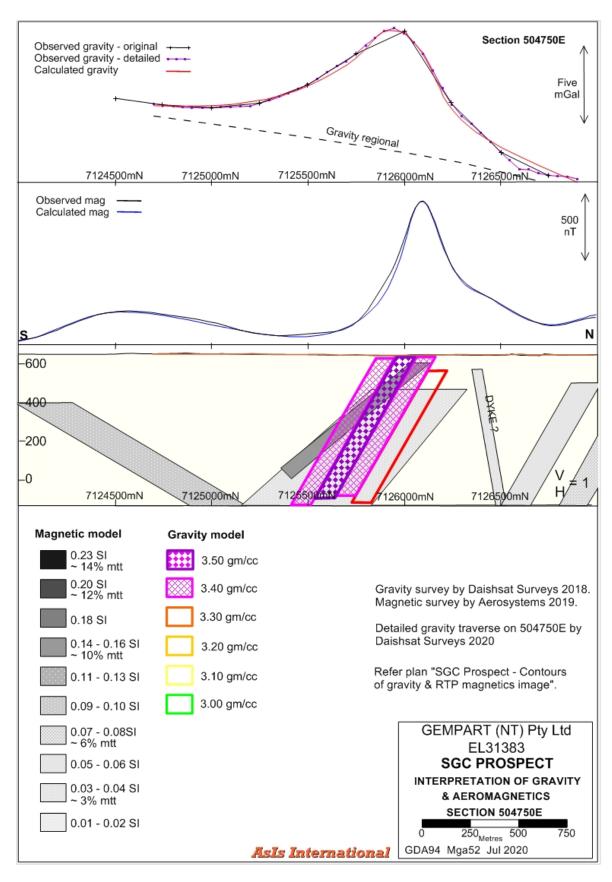


Figure 9. SGC prospect Updated Interpretation of gravity and magnetics on section 504750E.

## **5.3.3** Review of all prospects

A review was completed of all data on Gempart's EL25566 and EL31383, including VTEM, aeromagnetics, ground gravity surveys and field observations. This update describes the status of all prospects generated since grant of title, with recommendations for the next phase of exploration, all involving ground geophysical surveys. Refer Table 2 for prospect status and Figure 10 for prospect locations.

**Table 2. Summary of Prospects & Priorities** 

Priority	Prospect	Work completed	Further work	Status
	Mag Anomaly #1	Magintary & Cravity	Ground EM	Active -
1	aka "SGC" prospect	Mag interp & Gravity		Advanced
				Active -
1	Mag Anomaly #4	Mag interp & Gravity	Ground EM	Advanced
1	VTEM1400-1410	AEM interp - Good	Ground EM	Active
2	VTEM1060	AEM interp	Ground EM	Active
2	VTEM1190-1200	AEM interp	Ground EM	Active
2	Mag Anomaly #6	Interp of aeromags	Ground mag	Active
3	VTEM2260	AEM interp - formational?	Ground EM	Active
3	VTEM2440	AEM interp - formational?	Ground EM	Active
			Nothing at this	
4	Mag Anomaly #5	Nil	stage	Inactive
		Gravity	Nothing at this	Inactive
4	Gravity low	Gravity	stage	
	Mag Anomaly #3	Interp of aeromags; field	Nil	Relinquished
		inspection		
	Gravity high			
	EL31383 East	Gravity	Nil	Relinquished
	Mag Anomaly #2	Nil	Nil	Relinquished
	Rad "A"	Field inspection	Nil	Relinquished
	Rad "B"	Field inspection	Nil	Relinquished
	Rad "C"	Nil	Nil	Relinquished
	Rad "D"	Nil	Nil	Relinquished

The complete prospect review is included as Appendix 5

<sup>&</sup>quot;GR461\_2020\_GA\_06\_App5\_ProspectReview.pdf".

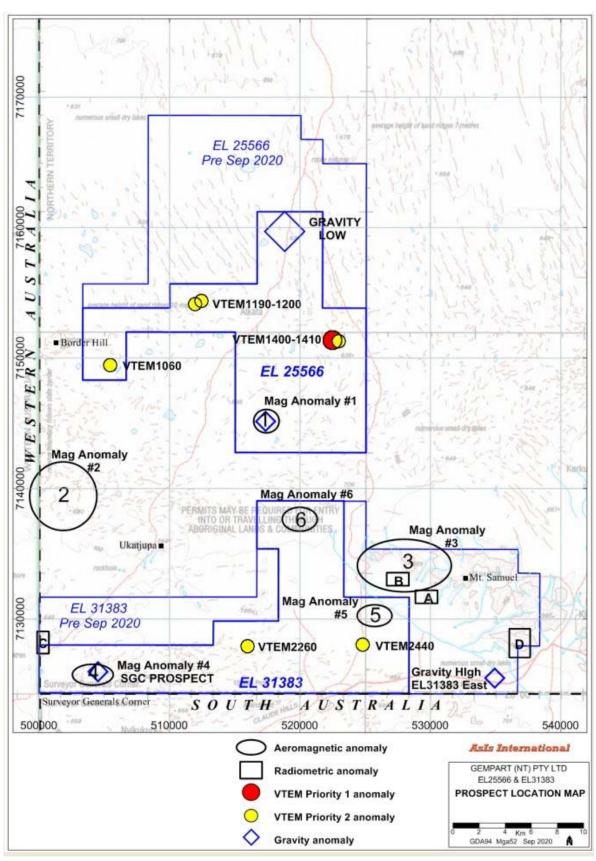


Figure 10. Prospect Location Map

### 6. CONCLUSIONS

Acquisition of detailed gravity at "Mag Anomaly #1" prospect has defined an anomaly coincident with a distinct aeromagnetic anomaly. Interpretation has identified a high-density high-magnetic susceptibility source consistent with a skarn type deposit. At "SGC" prospect infill gravity has confirmed a significant seven milliGal anomaly generally coincident with a weakly magnetic source. The source is consistent with an ultramafic body in Giles Complex. Current geological understanding suggests no Giles Complex rocks occur in this area, which opens up a raft of possible causative rock-types and mineralisation models.

It is recommended that ground EM data be acquired and interpreted to define possible target conductors which may be associated with economic mineralisation.

A review of all work since grant of title prioritised prospects and anomalies to retain for further work (pending land access conditions), and identified redundant areas for relinquishment.

### 7. REFERENCES

- Bubner, G.J., and Mackie, A.W., 2019. Round 11 Geophysics and drilling collaboration final report. Claude Hills North helicopter-borne magnetics and radiometrics survey. GR461 Exploration licences EL 25566 and 31383. Northern Territory Geological Survey Company report CR2019-0220.
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