TRAFFORD
RESOURCES LTD

PACE DRILLING 2012
DPY7-30
OXY'S BORE

EXPLORATION LICENCE
EL4421

FINAL DRILLING TECHNICAL REPORT

TIM JAMES

NOVEMBER 2013

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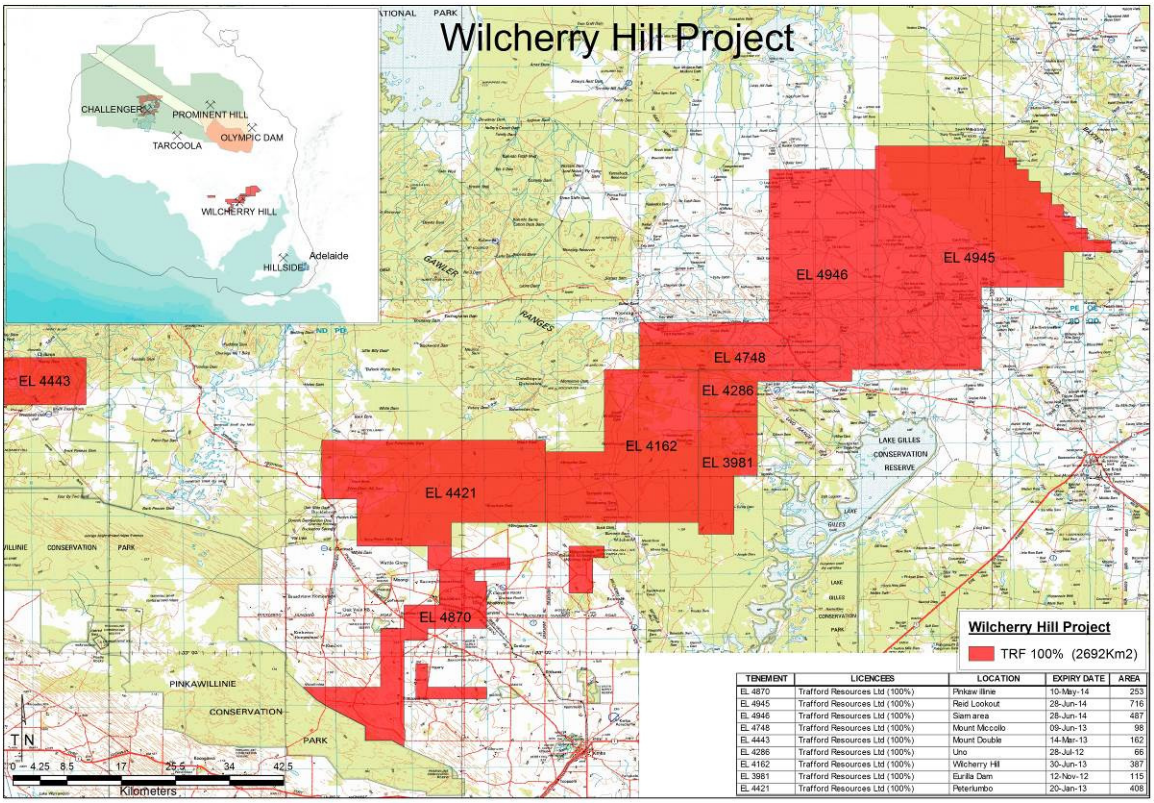
1 INTRODUCTION

The Peterlumbo Exploration Licence 4421, forms part of the overall Trafford/Ironclad mining Wilcherry Hill Project area. Peterlumbo is the western most tenement and it abuts the recent Investigator Resources green field Paris Discovery (Ag-Pb-Au-Cu-Zn). The entire tenement area has been lightly explored for many commodities by various large, mid cap and junior exploration companies since the 1970's.

Since Trafford acquired the tenements in 2005, Trafford's associated company, Ironclad Mining, has focused on exploring and developing iron ore mines. Ironclad Mining has recently obtained PEPR approval from the South Australian Government for the mining go ahead for its coarse grained magnetite deposit at Wilcherry Hill.

Meanwhile Trafford Resources has focused its efforts on exploring the tenements for precious and base metal deposits. Several drill programmes have been carried out over the Weednanna Au and Telephone Dam Pb-Zn-Ag projects and other greenfields targets. These drill programmes have returned economic Au and Pb-Zn-Ag intersections.

Ongoing technical reviews of historical data continues to highlight new Au, Cu-Au, Pb-Zn-Ag and manganese prospects within the Wilcherry Hill tenements that require follow up exploration programmes. Exploration activities by competitor companies surrounding Trafford's Wilcherry Hill tenement block continues to highlight the prospectivity of the tenements; e.g. Terramin at Menninnie Dam to the north, (Pb-Zn-Ag), Lincoln Minerals at Uno to the east (Mn), Monax JV to the south (Mn) and the new exciting Paris green fields discovery immediately to the west of the Peterlumbo tenement. The recent Paris green fields discovery has excited the exploration industry and demonstrates that there are more ore bodies to be discovered under shallow cover.



TENEMENT	LICENCEES	LOCATION	EXPIRY DATE	AREA
EL 4870	Trafford Resources Ltd (100%)	Pinkawillinie	10-May-14	253
EL 4945	Trafford Resources Ltd (100%)	Reid Lookout	28-Jun-14	716
EL 4946	Trafford Resources Ltd (100%)	Siam area	28-Jun-14	487
EL 4748	Trafford Resources Ltd (100%)	Mount Mccollo	09-Jun-13	98
EL 4443	Trafford Resources Ltd (100%)	Mount Double	14-Mar-13	162
EL 4286	Trafford Resources Ltd (100%)	Uno	28-Jul-12	66
EL 4162	Trafford Resources Ltd (100%)	Wilcherry Hill	30-Jun-13	387
EL 3981	Trafford Resources Ltd (100%)	Eurilla Dam	12-Nov-12	115
EL 4421	Trafford Resources Ltd (100%)	Peterlumbo	20-Jan-13	408

Figure 1: Wilcherry Hill Project location, South Australia.

2 GEOLOGY

Local Geology

The project area is dominated by metasediments of the Palaeoproterozoic Hutchison Group sediments which unconformably overly early Palaeoproterozoic Miltalie Gneiss and Achaean granulites and gneisses of the Sleaford Complex. The Hutchison Group consists of metamorphosed clastic marine sediments, iron formations, carbonates and mafic volcanics. Deformation and metamorphism occurred during the Kimban Orogeny (1850-1700 Ma) and was accompanied by the syntectonic intrusion of the Moody Suite granites. The result is a northwest trending igneous - metamorphic complex of metasedimentary rocks, amphibolite, schist, gneiss and granite. Palaeoproterozoic units are overlain by the younger Gawler Range Volcanics and are intruded by the contemporaneous Hiltaba Suite Granites. Figure 2 and Table 1 show the local geology. The Hiltaba Suite/Gawler Range magmatic event (1595-1575 Ma) represents a major Mesoproterozoic tectonic/tectonothermal event which affected much of the Gawler Craton; it is this event which is believed to have been responsible for widespread gold, uranium and base metal mineralisation. Widespread surficial cover obscures much of the bedrock whilst weathering has produced a regolith of kaolinised saprolite to an average depth of between 40 - 100m. The ground water is saline and there is strong geochemical depletion in the regolith throughout the area. Pedogenic calcrete is well developed in the soils and upper regolith.

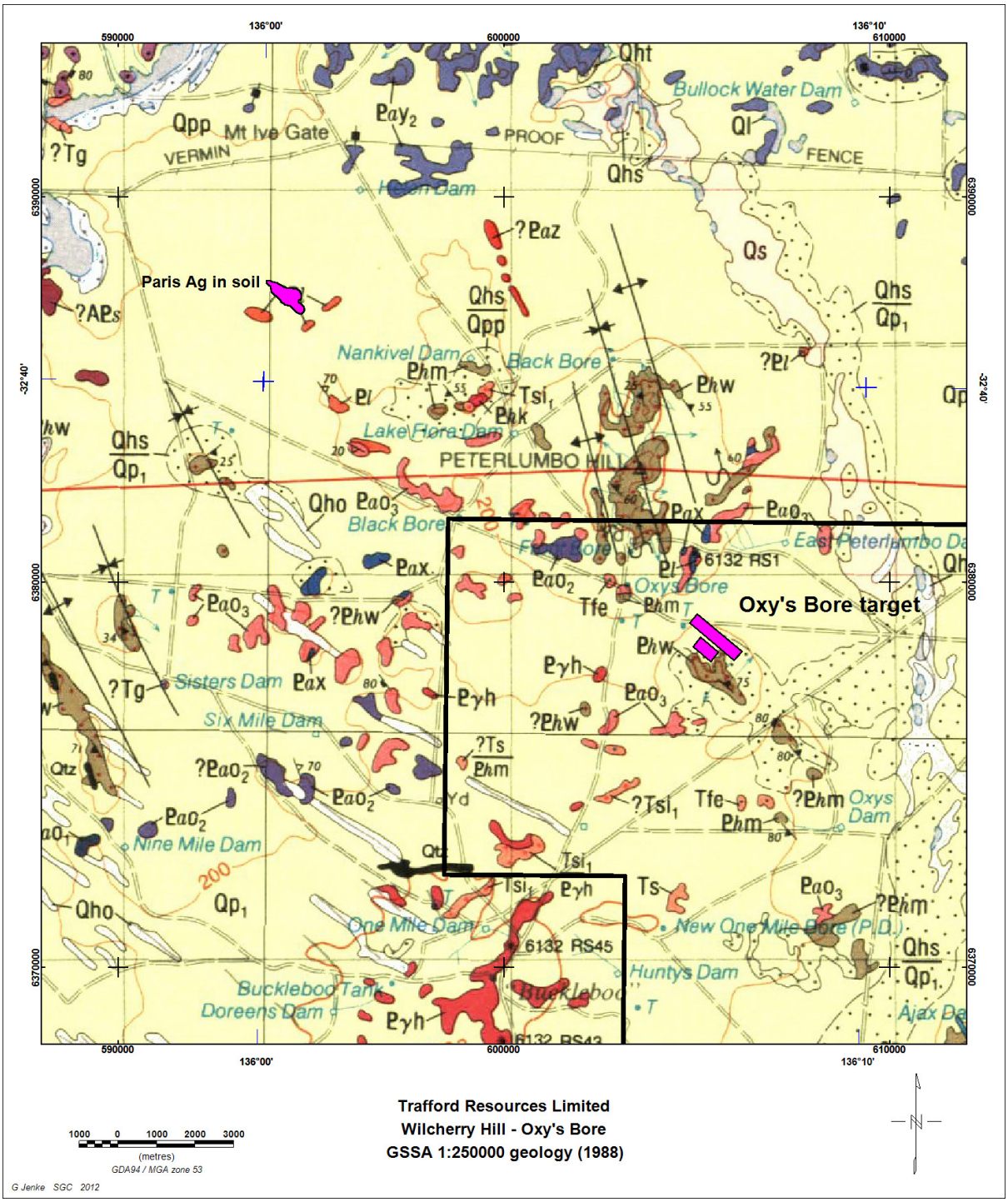


Figure 2: GSSA 1:250K regional Geology with Oxy's Bore prospect location

Table 1: 1:250000 geology descriptions

Code	Description
Qp2	Deep reddish-brown ferruginous sands, clayey grit and sandy clay with fragments of hematite-cemented gritty sand. Rounded hematitic and goethitic ''buckshot'' gravels in places. Some rounded fragments of iron-stained silcrete. Possibly related in part to the CALLA-BONNA CLAY.
Tfe	Cavernous and rubbly hematitic, limonitic and goethitic laterite up to 1m thick, capping ferruginous gravels, sands and silts. Pisolitic hematite and goethite in quartz grit in places. Fragments of quartz, dacite and silcrete up to 3cm across in hematitic matrix on W shore of Lake Acraman.
Tsi1	''Terrazzo'' – type silcrete, generally less than 1m thick, with angular fragments of quartz in a cryptocrystalline siliceous matrix. Forms capping to GAWLER RANGE VOLCANICS W of Lake Acraman and E of Lake Gairdner, on ?LINCOLN COMPLEX NW of Mt Sturt, and on silici-fied, fine-grained, arkosic sand, grit and silt overlying WARROW QUARTZITE and gneiss of the SLEAFORD COMPLEX S of the Gawler Ranges.
Pjh	HILTABA SUITE Pink to pale reddish, fine- to coarse-grained, leucocratic graphic granite and adamellite with veins of microgranite, aplite and pegmatite. Accessory zircon, allanite and in-terstitial fluorite. Radiometric age: (Rb-Sr) 1478±38 Ma (Hiltaba-Minnipa area) and 1477±34 Ma (Buckleboo area); (U-Pb) 1514±16 Ma (Hiltaba area).
Paz	Porphyritic rhyodacite 5km NW of Peterlumbo Hill. Prob-ably NNW – trending dyke.
Pay2	EUCARRO DACITE: Massive porphyritic dacite grading to rhyodacite with scattered spherical quartz phenocrysts. Brown and cream-coloured phenocrysts of plagioclase about 5mm across, minor K-feldspar, and clinopyroxene altered to chlorite and epidote are set in a mottled reddish-brown and dark green, finely-granular or grano–phyric matrix of K-feldspar and quartz with irregular patch-es of chlorite. Dark grey, densely-welded dacite occurs at or near the base NW of Narlaby Well and NW of Waulkinna Hill.
Pax	Unnamed highly-porphyritic dacite (Pax) at Mt Sturt and in surrounding area; dykes intruded into ?Pγk 14km E of Mt Sturt, into BITTALI RHYOLITE 10km SW of Peterlumbo Hill, into BITTALI RHYOLITE and ?P/ 3km SE of Peter-lumbo Hill (possibly feeder dykes to EUCARRO DACITE or YARDEA DACITE).
Pao3	BITTALI RHYOLITE: Variable assemblage of pale yellowish-brown weathered, grey, pale green, pale brown and cream-coloured rhyolitic to rhyodacitic lavas, intrusive feeder dykes and welded ash flows with flow-banding, fiamme´ and pumiceous streaks. Texture ranges from fine-grained to porphyritic with phenocrysts of K-feldspar, plagioclase and round quartz. Lines of siliceous geodes occur parallel with layering 1km SE of Victory Dam (SW of ''Nonning'').

Pao2	WAGANNY DACITE: Reddish-brown porphyritic dacite to rhyodacite, with phenocrysts of plagioclase and minor K-feldspar up to 2mm across, in an aphanitic or micro-granular matrix. Assemblage includes dark greenish-grey, sparsely-porphyritic dacite and andesite 8km NW of "Buckleboo". Radiometric age of WAGANNY DACITE equivalent (Toondulya Bluff, STREAKY BAY 1:250 000 Sheet): 1591± 3 Ma (U-Pb).
Phm	Phk – Garnetiferous diopside (+ tremolite) marble near Ultima Dam, and massive, white to pale grey marble (possibly equivalent to the KATUNGA DOLOMITE). Usually silicified and brecciated at the surface (e.g. W of Peterlumbo Hill).
Phk	Phk – Garnetiferous diopside (+ tremolite) marble near Ultima Dam, and massive, white to pale grey marble (possibly equivalent to the KATUNGA DOLOMITE). Usually silicified and brecciated at the surface (e.g. W of Peterlumbo Hill).
Phw	WARROW QUARTZITE: Pale yellowish-brown weathered, massive and foliated, white, pale grey and cream-coloured, medium- to coarse-grained quartzite, locally with glassy or milky quartz matrix. Pods and veins of milky quartz occur along fracture planes.

Brecciation, fracturing and alteration accompanied the intrusion of the Hiltaba Suite granites into the older Palaeoproterozoic metasediments and granites. This is the major gold and gold-copper-uranium-iron mineralising event in the Gawler Craton. The central Gawler Craton hosts Dominion Mining Ltd's rich Challenger gold mine and other significant gold deposits and prospects located at Tarcoola, Glenloth, Tunkillia and Barns.

Weak magnetic signatures over much of the Wilcherry Hill tenement EL4162 and in the southeast corner of EL4421 suggest underlying granitic bodies are present at relatively shallow depths; a magnetic alteration imprint developed from fluid and thermal interaction with the surrounding country rock (Thorne, 2004). The lack of a gravity signature in these areas supports this theory. A geochemical analysis of nearby Hiltaba Suite Granites shows a geochemical correlation with these granites located at Wilcherry Hill, allowing for the possibility that the fluids that drove substantial mineralisation at Olympic Dam, and elsewhere on the Gawler Craton, may have played a major part in the mineralisation found at Wilcherry Hill.

The blind Paris discovery is the most significant and closest known economic mineralisation to Trafford's Oxy's Bore target area. Its discovery history is briefly discussed in the geochemistry section of this proposal. From a regional geological point of view, the Paris Discovery is a new type of geological environment not generally common to the Gawler Range volcanic domain. Because of the high silver content, alteration assemblages and brecciated felsic host rocks, Investigator have identified the Paris mineralisation as a carbonate replacement in an epithermal sub volcanic environment. Investigator are also considering a nearby porphyry environment further to the south e.g. Oxy's Bore and Peterlumbo grandodioritic intrusive complexes. Refer to Figure 3.

It may be that the epithermal style of mineralisation we are currently starting to see is a high level type of epithermal mineralisation associated with deeper porphyry systems. Investigators latest diamond drill core has intersected a felsic hydrothermal polymict breccia intrusive unit within the Paris mineralised centre. This style of hydrothermal brecciation could also be occurring at Trafford's Oxy's Bore target area. Other examples of epithermal style mineralisation are also known of within the Gawler Range volcanics, e.g. Tasman's Parkinson Dam Project.

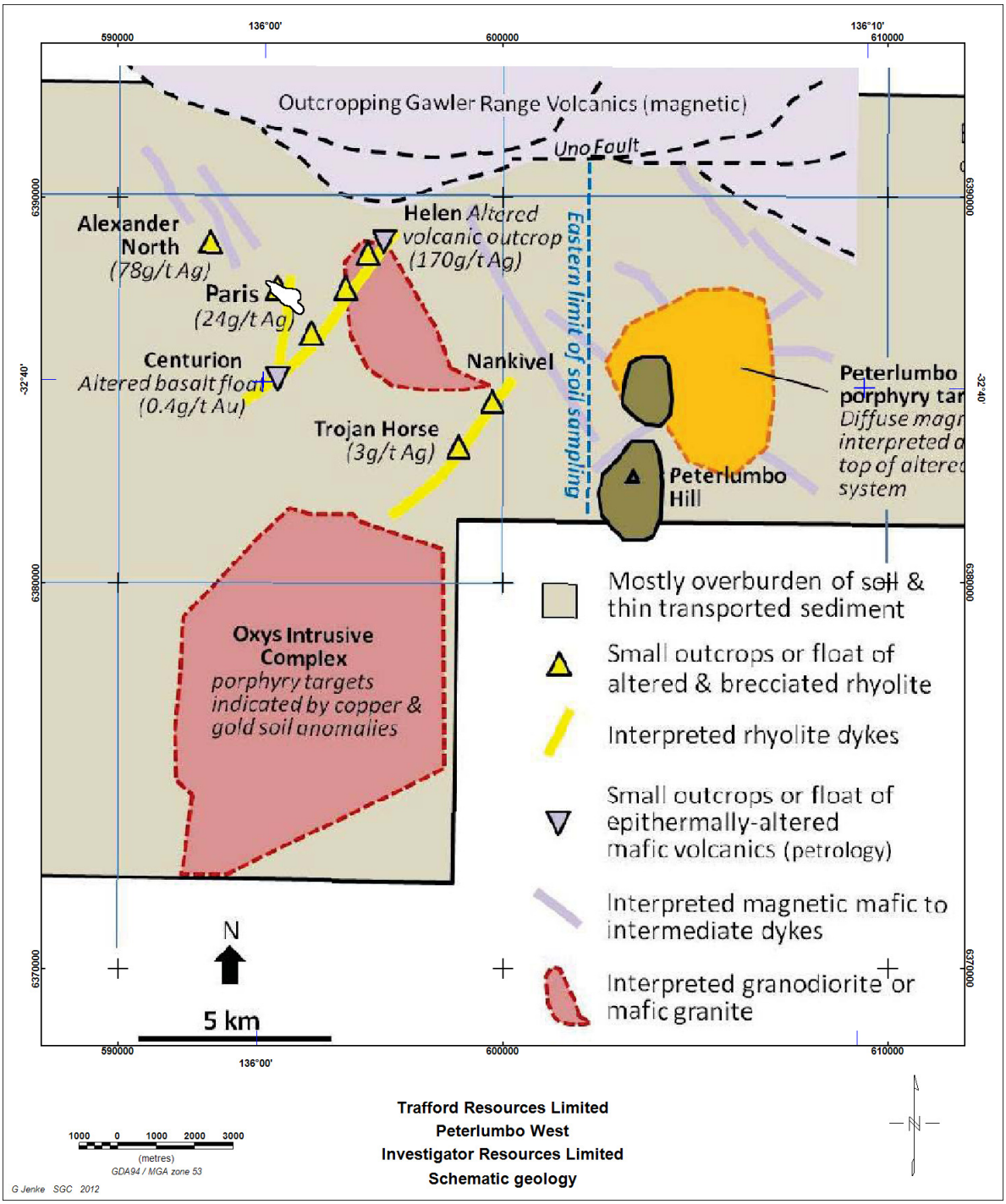


Figure 3: Investigator Resources schematic Geology

Geophysics

A detailed low level aeromagnetic/radiometric survey was flown over the Peterlumbo EL4421 by South Australian based airborne contractor Daishsat Aerosystems in the latter part of 2011. Refer to Figure 4 which shows the area flown.

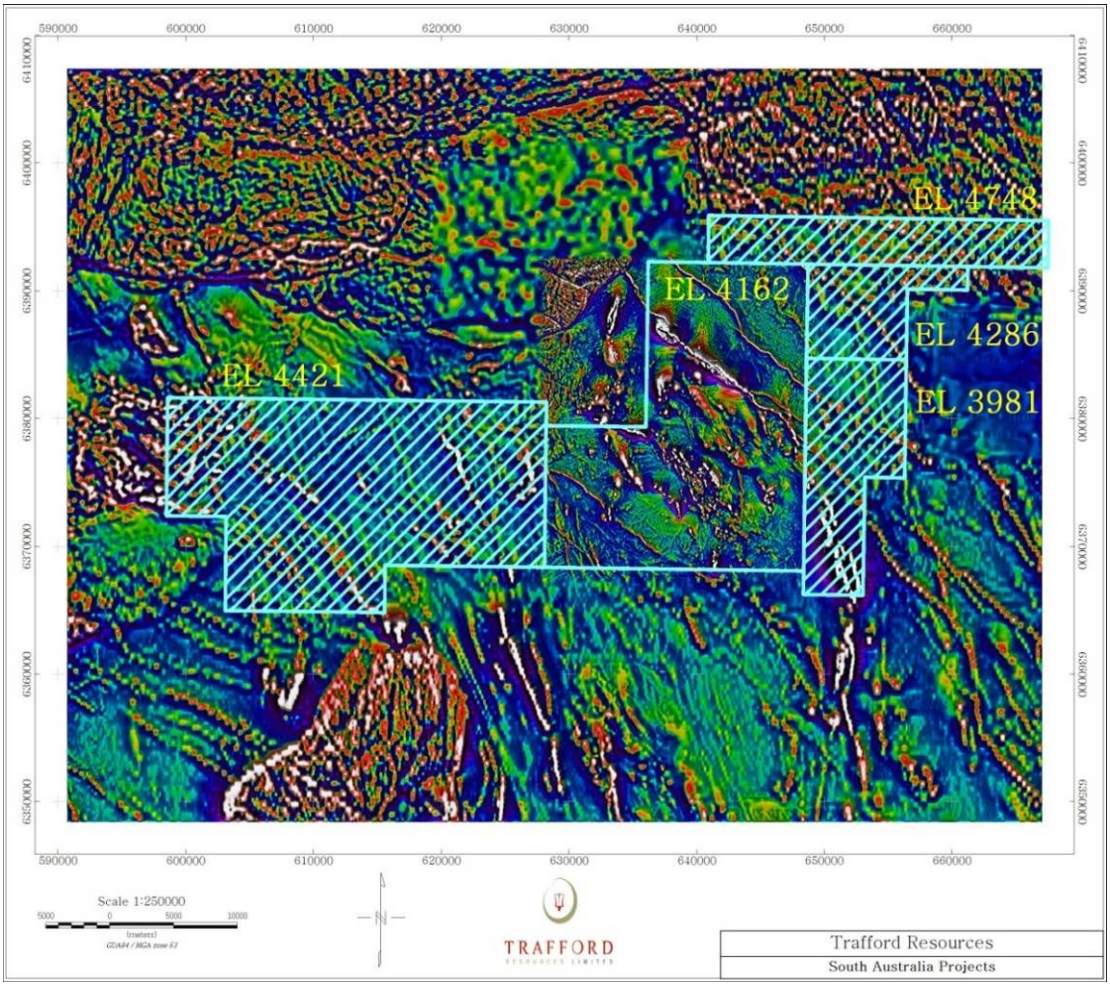


Figure 4: Trafford Resources tenements, survey area as hatch pattern.

Surrounding aeromagnetic survey data was also obtained from other sources and stitched together to provide a larger regional over view of the magnetics and the regional structural settings. Refer to Figure 5.

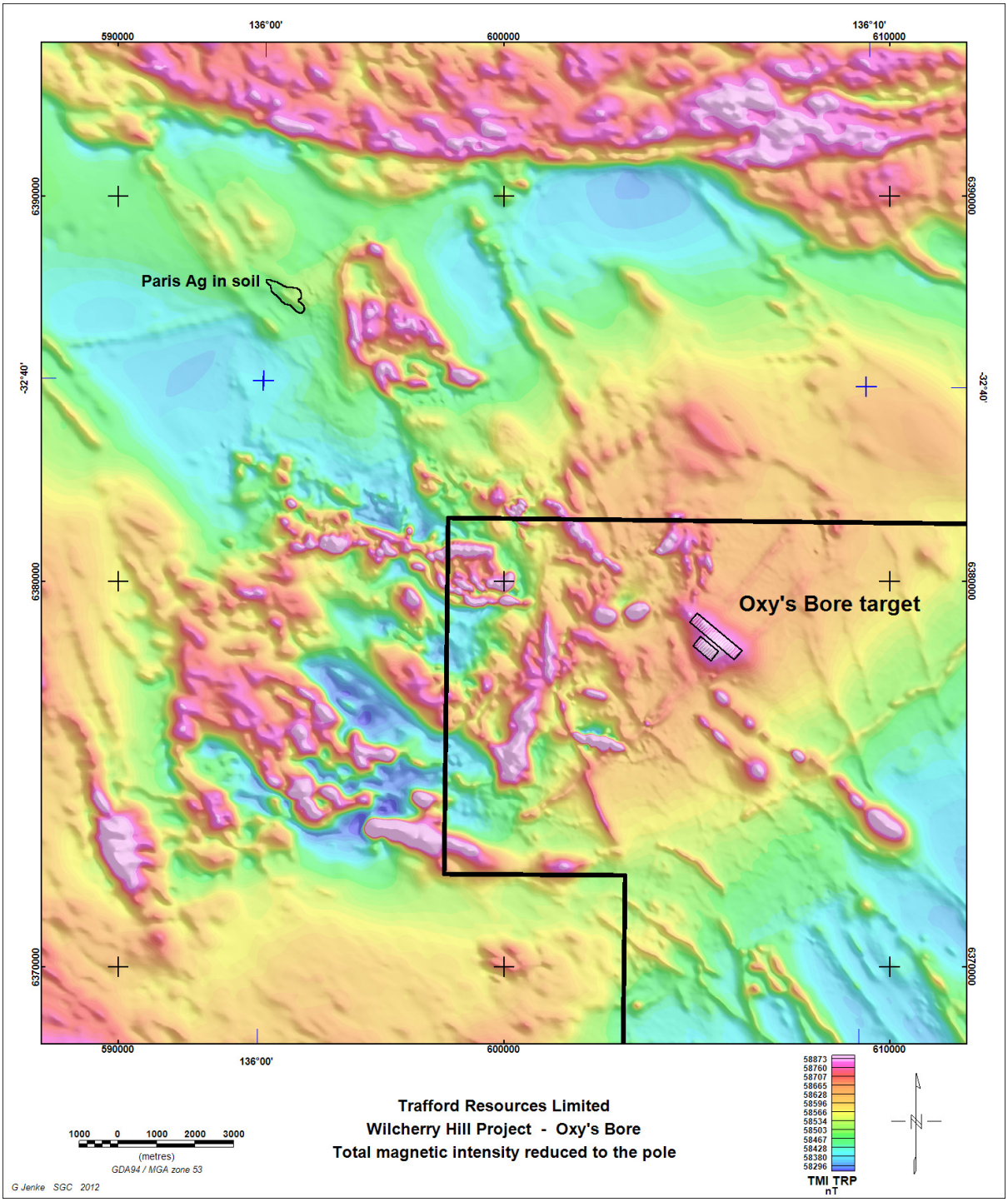


Figure 5: Regional total magnetic intensity reduced to the pole (TMI RTP)

The aim of the detailed aeromagnetic /radiometric survey was to better define the structural settings and the nature of the lithologies and their alteration patterns under cover. Of particular interest was the prominent NNW structural corridor that contains the Paris mineralised centre and its projection further to the SSE into the contiguous Trafford Peterlumbo tenement.

All the aeromagnetic data has been processed and Graham Jenke, Consultant geophysicist at Southern Geoscience Consultants has commenced interpreting the data.

Interpretation of the data has defined a major circular intrusive magnetic feature near the intersection of the major NNW trending structural corridor with another NNE trending structural corridor, see Figure 6.

The Paris mineralised centre is located within the NNW trending structural corridor and is approximately 15 kilometres to the NNW of Trafford's recently identified circular intrusive feature. It is postulated that this structurally controlled circular intrusive body could be a Cu-Au breccia pipe similar in style to Oz Minerals Carrapateena deposit. Alternatively it may be a breccia pipe associated with a much larger and deeper IOCGU mineralised system.

Geophysical modelling of the circular intrusive body indicates that it is 300m in diameter, 600-800m deep, is sub vertical and the top of the intrusive is approximately 300m below the surface. The location of the planned inclined pre collared 600m long NQ diamond hole designed to intersect the target body at approximately 300m below the surface is shown in figure 7. The consultant's full report on the geophysical setting and modelling parameters of the intrusive target is included as Appendix 1.

No prospect scale gravity surveys have previously been conducted across the Oxy's Bore prospect area. Regional Government organised gravity surveys have been carried out over the entire general area but are too coarse to be of any significance in modelling the target area. Figure 8 shows the regional Bouger gravity in the Paris-Oxy's Bore project area whilst Figure 9 shows the semi regional Bouger anomaly in the Oxy's Bore Prospect area.

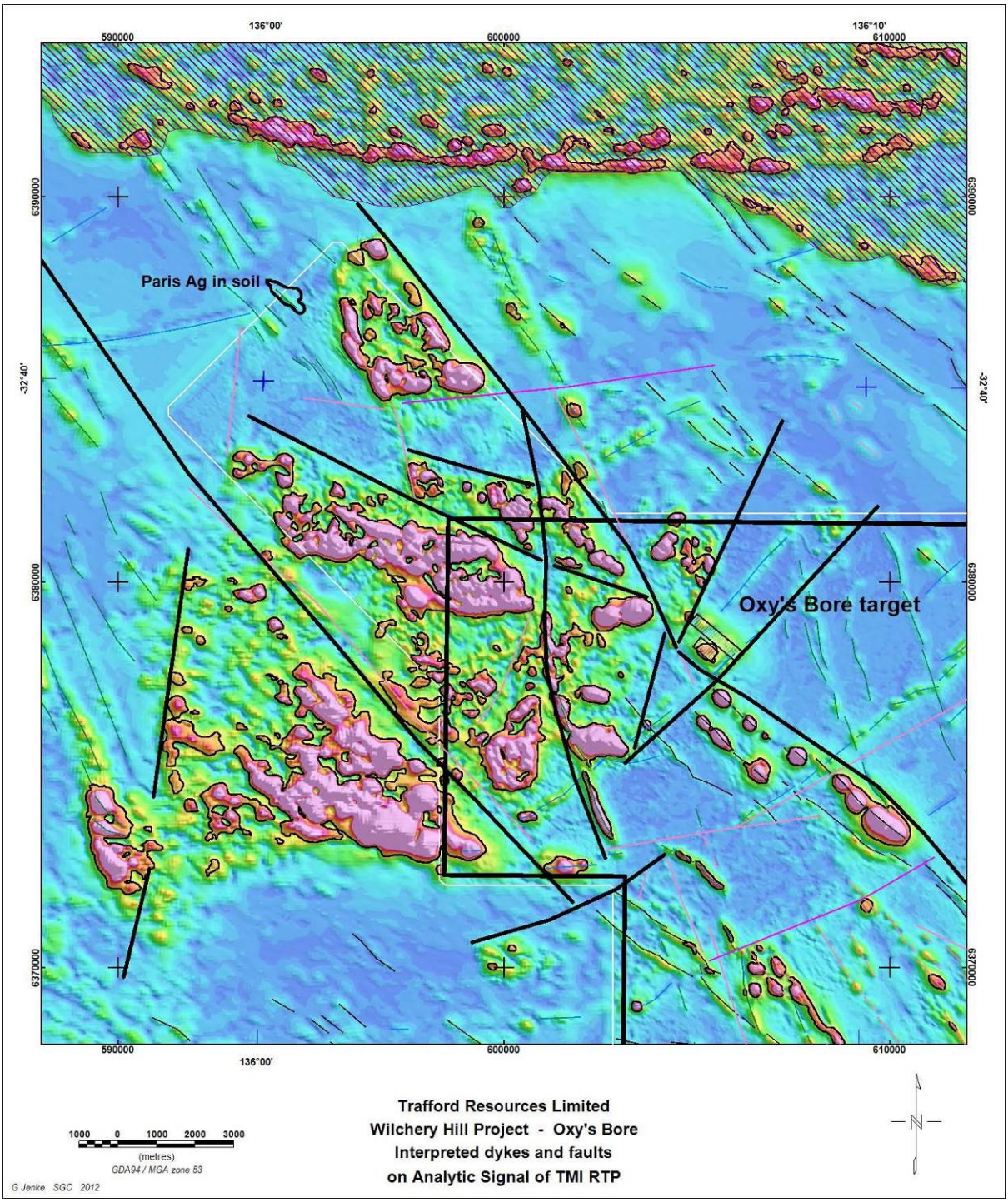


Figure 6: Interpreted dykes and faults on analytical signal

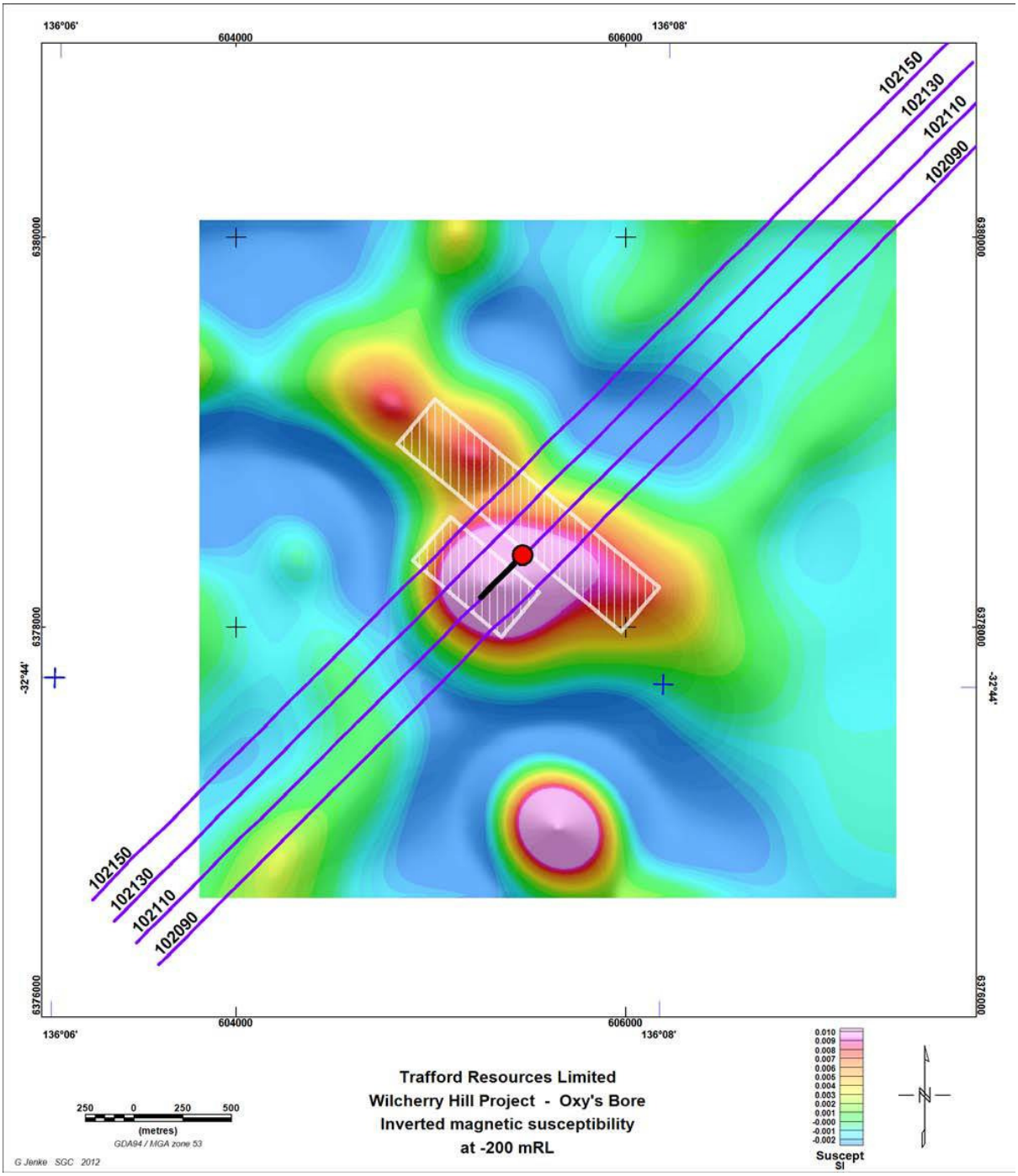


Figure 7: Oxy's Bore inverted magnetic susceptibility at 200mRL with planned drill hole.

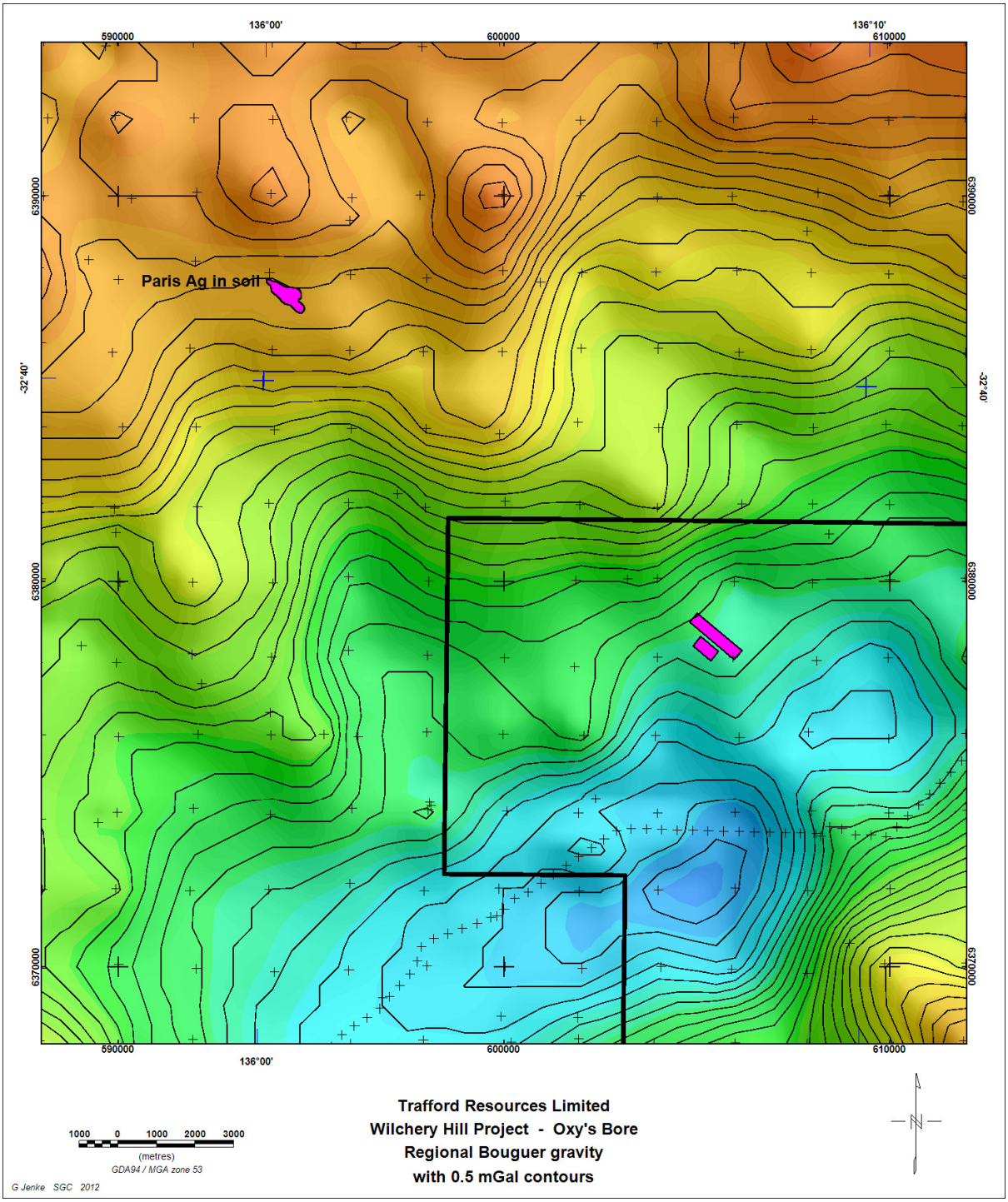


Figure 8: Regional Bouger gravity in the Paris-Oxy's Bore project area

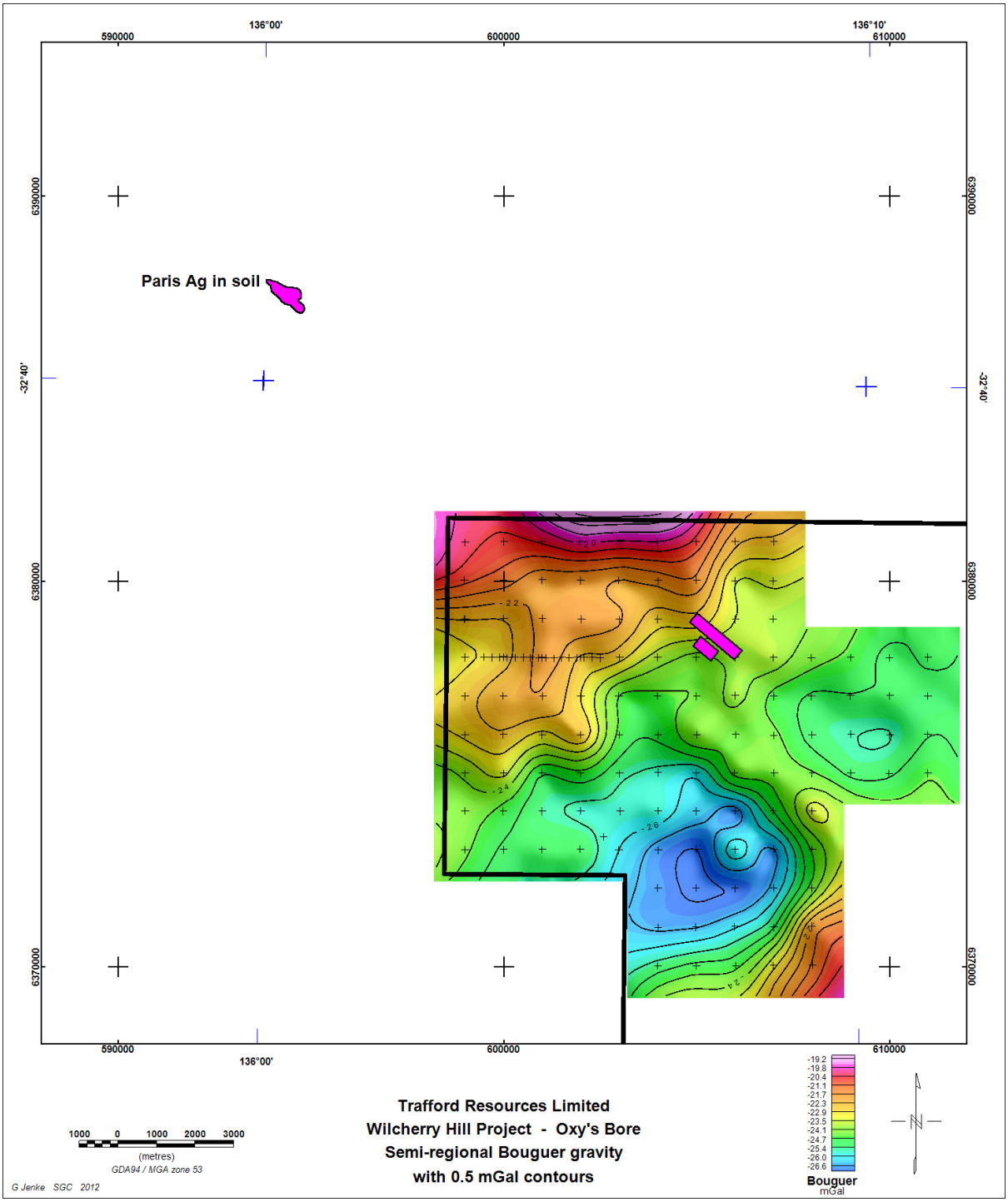


Figure 9: Semi-regional Bouger anomaly in the Oxy's Bore Prospect area

Geochemistry

Numerous historic geochemical surveys have been conducted across the Wilcherry Hill Project tenements. The regional calcrete sampling surveys have been the most successful to date. Most of the currently known major prospects within the Wilcherry Hill project tenements have been discovered using this sampling technique; e.g. Telephone Dam, Wilcherry Hill, Weednanna, Mawson, Death Adder, Seven Mile Dam etc.

There also exist numerous lower order multi commodity anomalies that have not been followed up until now. The regional calcrete sampling survey did traverse the general circular intrusive target area but no anomalies were returned. Investigator Resources have recently used the Ionic Leach soil sampling /analytical technique (ppb detection limits) to discover several poly metallic soil anomalies within the regional Moonta structural corridor. The new Paris discovery area resulted from this low level detection soil sampling programme. Most of the Paris discovery area is covered by sand, a calcrete horizon and then into a saprolite horizon anywhere between 3-24m depth. There are some sparse small isolated out crops and float of altered, deformed and mineralised rhyolite breccia and some mafic volcanics.

Infill ionic leach soil sampling carried out by Investigator delineated an 800m long x 400m wide silver anomaly as defined by the 200 ppb silver contour interval. Subsequent drilling (RAB, air core, reverse circulation and 5 diamond drill holes) have returned shallow high grade economic intersections of Ag-Pb-Au-Cu-Zn, both in the oxide and primary zones. Early indications suggest that an economic deposit has been discovered under relatively shallow cover adjacent to Trafford's Peterlumbo tenement boundary.

As a result of the Paris discovery, Trafford has completed a low detection ionic leach sampling programme across the NW section of the Peterlumbo El4421. Refer to Figure 10. The first pass sampling interval is on a 400m x 400m pattern across the strike of the regional geology and the interpreted aeromagnetic strike trends. Infill sampling on a 100m x 100m pattern has also been carried out across known favourable structural settings. This includes the NNW trending structural corridor that contains the Paris mineralised centre and also includes the structurally controlled circular magnetic intrusive body. Approximately 4000 samples were collected in field during the latter part of 2011 and were submitted to Genalysis Laboratories for low detection multi commodity analysis. All the anomalies generated will be contoured and interpreted prior to conducting further 100m x 100m infill soil sampling. The soil geochemical targets will then be priority rated prior to first pass drill testing.

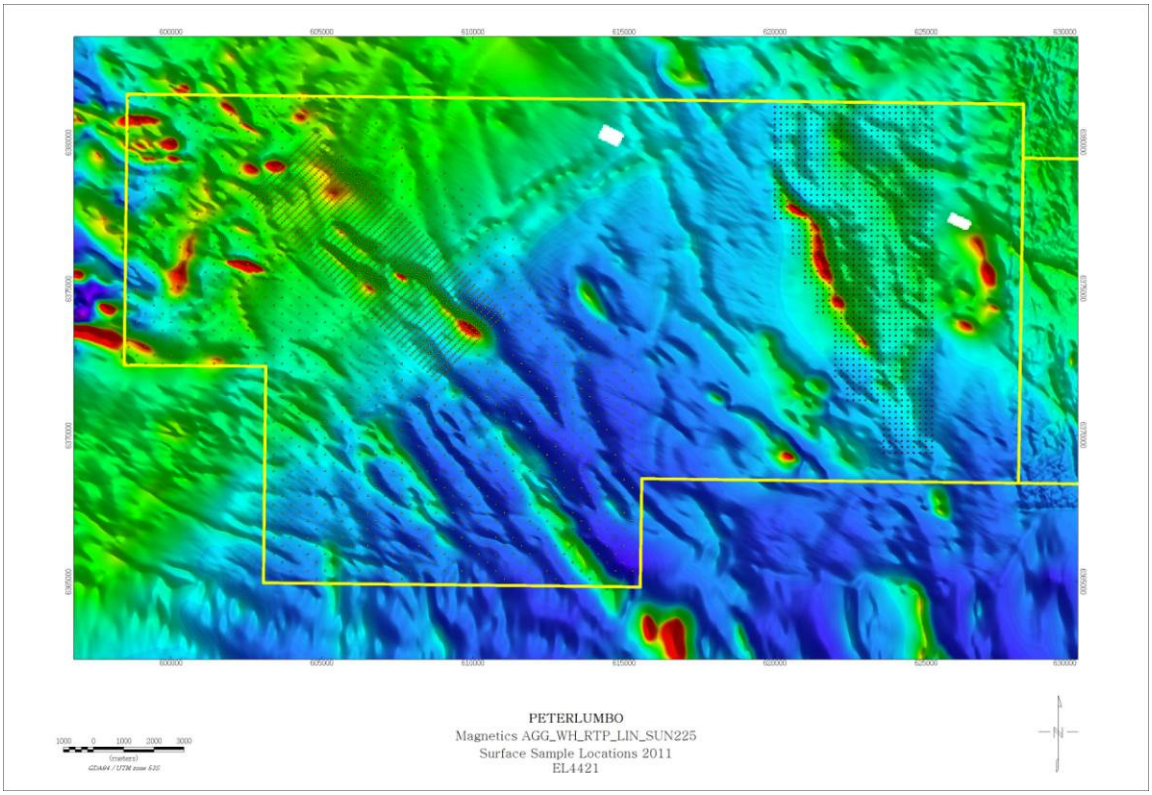


Figure 10: EL4421 with soil geochemistry sites from 2011 survey

Target surface expression

The surface projection area of the Oxy's Bore target area was prospected in the field. No outcrop, sub outcrop or rubble was seen on the surface; just sand. However a traverse across the target area did reveal a pronounced circular /elliptical depression/topographic low which can be seen in Figure 11.

The vegetation in this depression was much denser and generally of a different type to the surrounding vegetation. This could be significant but the overall modelled depth to the top of the target may preclude any mineralisation from being detected by ionic sampling technique at this depth, i.e. approximately 250 metres.

Figure 12 shows the Digital Terrain Model (DTM) in the general Paris-Oxy's Bore project area. Both prospects occur in topographic lows compared to the surrounding more elevated topography.

Figure 11: Circular vegetation and topographic low anomaly at Oxy's Bore

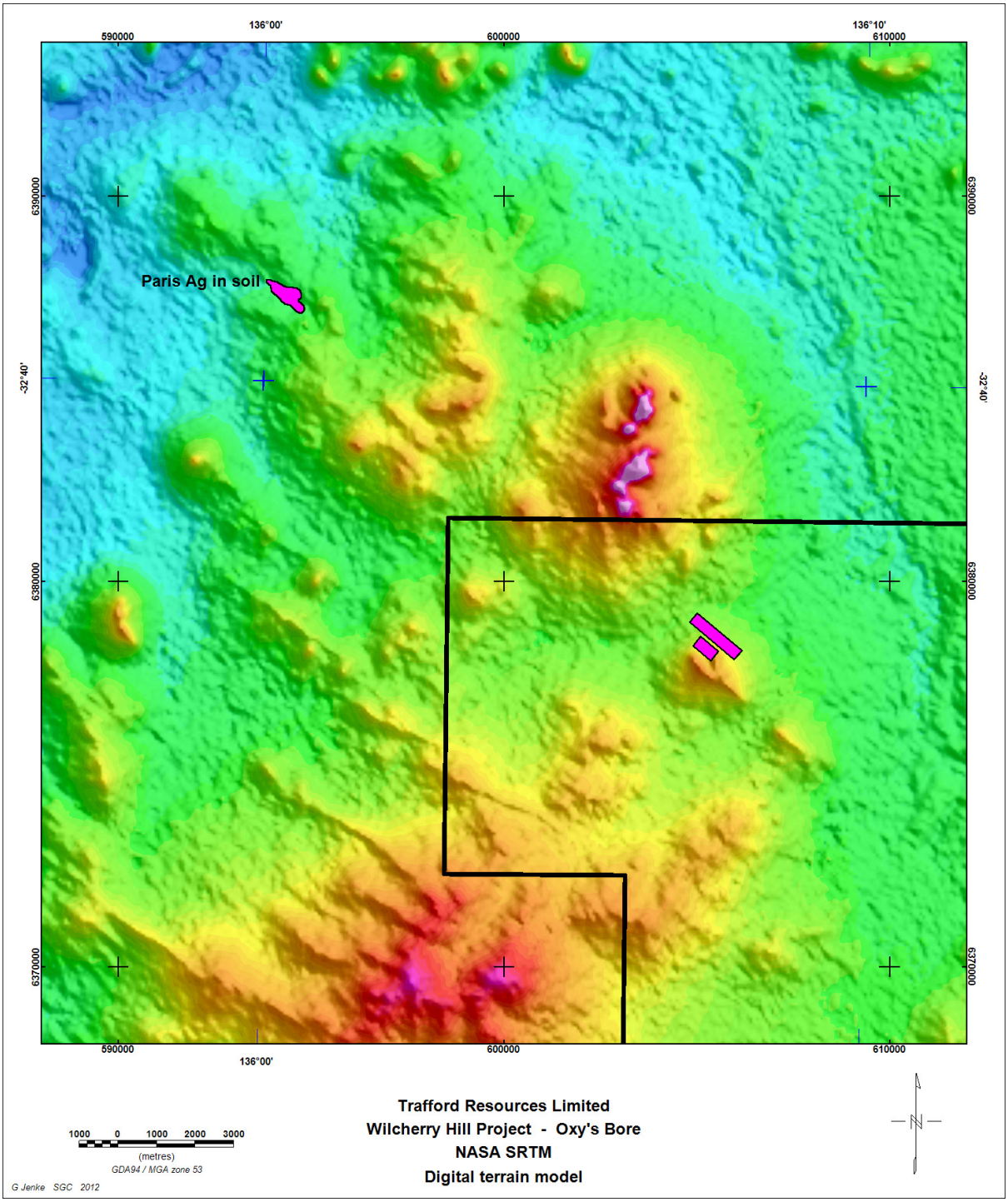


Figure 12: DTM of Oxy's Bore area

3 PREVIOUS EXPLORATION

During the 1980's, the Peterlumbo tenement area was originally held by Stockdale prospecting as part of their Gawler Ranges Project, and in 1983 a JV with the Shell Company of Australia commenced. In 1987 a JV was negotiated between Billiton Australia, and Western Mining

Corporation with a view to finding base metals with WMC as managers. Stockdale retained their rights to diamond exploration until 1988 when they relinquished their interest in the area.

Aberfoyle Resources took over the project area in 1989 as part of their search for stratiform base metal deposits on the Eyre Peninsula. The tenements were renewed in 1994 and MIM Exploration farmed in to a JV in 1995 which they hastily pulled out of in 1996. In 1997 the licence was added to the Wilcherry Hill Joint Venture between Aberfoyle Resources Ltd and Acacia Metals Ltd with Acacia as managers.

In October 1998 Western Metals Resources Limited assumed control of Aberfoyle Resources Ltd following a successful takeover bid for the company. On the 23rd December 1999, AngloGold Australasia Limited acquired 100% ownership of Acacia Resources and maintained the managers' role of the Wilcherry Hill Joint Venture. The Peterlumbo licence was granted to the Wilcherry Hill Joint Venture on 31st August 1999, over the current area of 408 km^2. In April 2002, Aquila Resources Limited acquired from AngloGold a 100% ownership of the Wilcherry Hill Project inclusive of the Peterlumbo tenement.

The past exploration on Peterlumbo has produced several exciting and underexplored prospects for Trafford to expand on;
Death Adder is a huge 10km long and 2-3km wide target with highly anomalous base and precious metals in soil geochemistry, grab samples and historic RAB drilling. Initial interpretations from recent geophysics are also looking promising and creating new targets within the prospect.
Black Hill, Oxy's Dam and 7 Mile Dam are all located along a North-West/South-East structural corridor that has given investigator resources exciting epithermal-style prospects. Black Hill has up to 4g/t Silver in historic RAB holes. Oxy's Dam and 7 Mile Dam have anomalous Gold in historic RAB holes up to 0.69g/t. Refer to Figure 13 for locations.

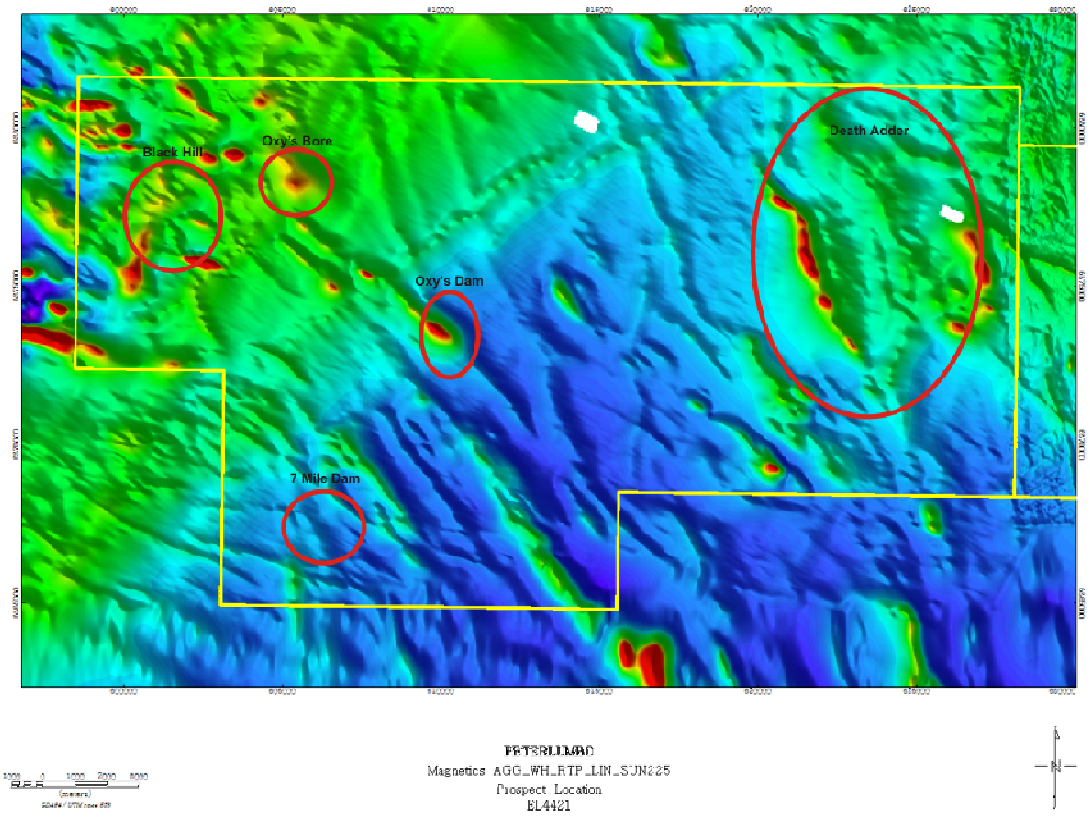


Figure 13: EL4421 with prospect locations

4 DRILLHOLE 13OBDH001 (DPY7-30)

Discussion

Drilling commenced on the 10/7/2013 and was completed to a total depth of 539.6m on 3/9/2013. Drilling was carried out by Australian Mineral and Waterwell Drilling (AMWD) in two stages as a RC pre-collar to 143m and a NQ diamond tail to the end of hole. Drilling conditions were difficult for about 360m through highly fractured and weathered quartzite causing significant core loss and the program to run over budget and time.

The first 406m of the hole was fractured, weathered and, in some intervals, slightly altered quartzite. The quartzite is interpreted to be Warrow Quartzite, which is part of the Hutchinson group of metasediments found in the area.

At 406m a medium grained, magnetite rich skarn was intersected. This also represented the boundary from a highly fractured and moderately to highly weathered profile to the fresh rock profile in the space of a few meters. Present in the 3-4m prior to intersecting of the fresh skarn, was a transition zone with semi weathered magnetite, magnetite clays and goethite clays along with massive, possibly secondary, sulphides (up to 10cm in length and pyrite dominated). The magnetite rich skarn unit continued to 427.5m. The skarn showed classic Wilcherry Hill type features including quartz, fluorite and carbonate veining with minor pyrite association (some veins showed alteration halos), multiple mineralisation phases, calc silicates present, actinolitic alteration and minor faulting (Figure 14 & 15). The assay results from samples of this skarn

mineralisation returned 20m at 31% Fe. Significantly within this skarn zone was elevated gold, up to 0.16g/t, copper, up to 0.10%, zinc, up to 1.34%, tin, up to 0.49%, and tungsten, up to 0.68%.
427.5 to 433m represented a contact zone with a mafic. Intense shearing was evident within the mafic, almost glassy in some areas on the initial contact with minor swarm like quartz veining with minor alteration associated and one 3-4cm wide orange-yellow sphalerite vein (Figure 16). No other base metal mineralisation was observed.
From 433m to EOH was a mafic-calc silicate unit. The unit showed various deformation events, quartz and carbonate veining with associated minor pyrite mineralisation, actinolitic, botitic, and siliceous alteration. Two zones within the unit demonstrated epithermal-like properties with carbonate/dolomitic textures and associated pyrite and amethyst (Figure 17). From 508-513m a brick red iron flooded / replacement zone was evident. This was not a classic IOCG style hematitic alteration style scenario, however pyrite was present in small amounts (Figure 18).

The University of Adelaide's down hole logging contractor (Endeavour Geophysics) has completed various down hole logging surveys as part of a University funded program. Survey tools included were Gyroscope, MST (resistivity, temperature, deviation, spontaneous potential and gamma radiation), Full Wave Sonic, Acoustic Televiewer, MIG (Magnetic susceptibility and conductivity) and Dual Density calliper, which will assist in analysis of the hole as well as potentially indicate further targets for follow up drilling by Trafford. This is a collaborative program between DMITRE and the South Australian Centre for Geothermal Energy Research (SACGER) at the University of Adelaide, and is funded by AuScope through their Australian Geophysical Observing System (AGOS) project. Trafford understands that the collected data, report and interpretation will be publically available from the group.

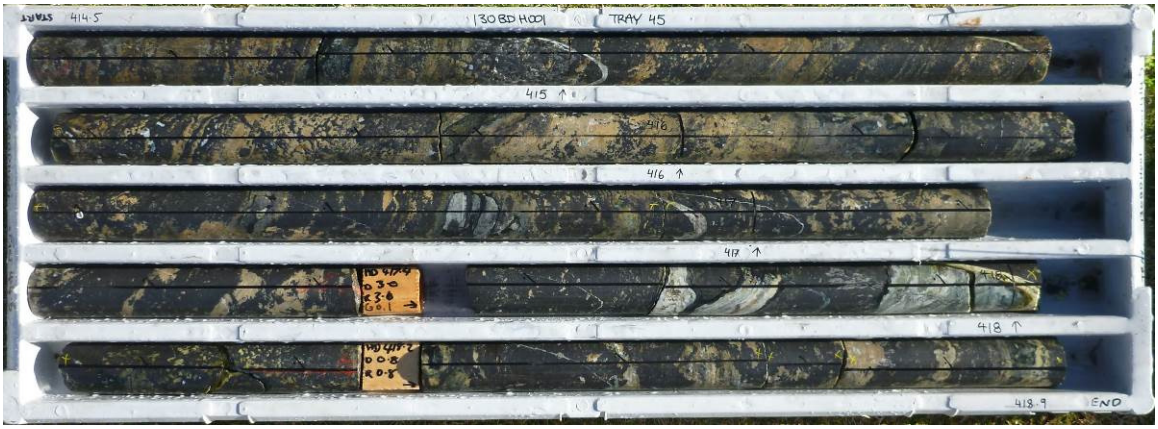


Figure 14: Example of skarn system with magnetite alteration

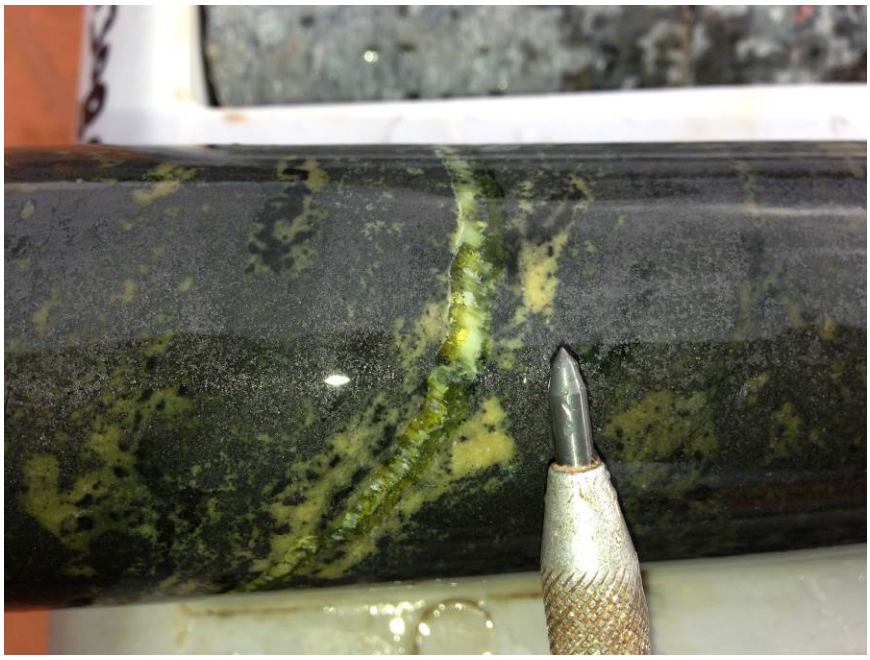


Figure 15: Example of green Fluorite veining

Figure 16: Orange-yellow Sphalerite vein

Figure 17: Example of mineralised carbonate veining from 503.4-504.4m

Figure 18: Example of mineralised iron flooding or alteration from 508-513m

Conclusions

No IOCG related breccia pipe or intrusive was seen in the drilling. Geophysical modelling of the magnetite rich intersection (406-428m) adequately explained the targeted aeromagnetic anomaly target zone. The drilling certainly showed very encouraging geology, particularly the skarn and related alteration, carbonate veining and the iron rich alteration or flooding. It provided a rare and valuable insight to the geology in the area, as there are very few deep holes or diamond holes in the region. The assay results are encouraging for mineralisation in the immediate vicinity, unfortunately no economic grades were returned from assays, and therefore no follow up drilling is planned currently.

5 REHABILITATION

To minimise the environmental impact of exploration activities associated with drilling of hole 13OBDH001, guidelines developed by Trafford Resources and IronClad Mining (Exploration Drilling Environmental Procedures) in conjunction with DMITRE (Environmental Guidelines for Mineral Exploration Activities in South Australia M33) were followed.
Rehabilitation was expected to be completed before November 2013, however the local contractor has not been available to carry out the required earthworks. Final rehabilitation will be completed in conjunction with rehabilitation of recent and ongoing drilling at the Wilcherry Hill Project. The rehabilitation is expected to commence in the first quarter of the 2014 calendar year.

6 APPENDICIES

1. Geophysical Interpretation and modelling – Grahame Jenke

[TRAFFORD RESOURCES LIMITED
WILCHERRY HILL PROJECT
ASSESSMENT OF GEOPHYSICAL DATA
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JANUARY, 2012

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Title: Assessment of geophysical data, Oxy's Bore, Peterlumbo Area		
Client: Trafford Resources Limited	**Project(s):** Wilcherry Hill	
Report Number: SGC 2331	**Author:** G. Jenke	**Consultant:** **G. Jenke**
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Commodity: Gold		
Province / State, Country: South Australia		
1:100,000 map sheet(s): Cacuppa 6032 Buckleboo 6132		
1:250,000 map sheet(s): Yardea SI5303		

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1 Introduction

A detailed airborne magnetic and radiometric survey was completed over a significant part of the tenements in the Wilcherry Hill project in October 2011.

This report discusses the data in the north western of the survey where a deep, discrete target was identified in a structurally interesting position near mapped outcrop of Hiltaba Granite, and about 14km SE of the Paris silver discovery announced by Investigator Resources Limited in 2011.

Figure 1 shows the location of the area of study and the boundary of EL 4421..

2 Regional Overview

Figure 2 shows the regional geological map published by the Geological Survey of South Australia in 1988. Descriptions taken from the geological legend for the lithologies present in the area of interest are shown in Table 2. Although basement outcrop is sparse, two occurrences of Hiltaba granite are noted.

Figure 3 shows the digital terrain model, and Figure 4 shows the magnetic data after reduction to the pole. The boundary of the recent detailed survey (terrain clearance of 40m on NE-SW lines 80m apart) is shown by the thin white line. The data beyond that is from a survey flown by Stockdale Prospecting in 1981 (terrain clearance of 70m on NE-SW lines 250m apart).

A discrete response from a relatively deep source has been selected as the Oxy's bore target.

The regional gravity survey data available from Geoscience Australia is shown in Figure 5. Station spacings over the general area are 2km. Trafford Resources has collected data on 1km centres within part of the tenement (Figure 6). Both data set show a weakly elevated area coincident with the response of interest, but the data are two widely spaced to derive any meaningful interpretation of geometry.

The detailed radiometric data of Figure 7 shows that the target is in an area of cover. High (white) responses are associated with outcropping granitic lithologies, and the area high in thorium (green) correspond to residual weathering surfaces.

3 Interpretation of magnetic data

The linear magnetic features in the magnetic data corresponding to dykes and thin stratigraphic units were picked from enhanced images of the magnetic data (Figure 8 and Figure 9) along with the smaller scale faults. An analytic signal image was used to define the extents of the more magnetic and shallow sources, and to define the larger faults (Figure 10).

A collation of the interpreted features is shown in Figure 11. The response near Oxy's Bore lies adjacent to a major NW trending structure where it is intersected by NE trending dykes and faults.

4 Modelling of magnetic data

Four flight lines were chosen for modelling on the magnetic response at Oxy's Bore with discrete rectangular prisms of constant magnetic susceptibility. Figure 12 shows the location of the flight lines (102090 to 102150) and the plan position of the tops of the prisms with an image and contours of the DTM. Figure 13 shows the lines and prisms on the magnetic data.

The modelling results are shown as profiles and sections in Appendix A, and the parameters of the prisms are included in Table 1.

Table 1 Magnetic prism models

ID	MGA mE	MGA mN	RL	Strike	Susc(SI)	Width	Strike length	Depth extent	Dip
1	605500	6378572	-45	-50	0.019	300	1500	2400	85
3	605231	6378258	6	-50	0.032	300	600	2400	85

The magnetic data were also inverted to magnetic susceptibilies with an upper depth constraint equal to 050m RL, the approximate position of the top of the shallowest prism model. The inversion results are shown as depth slices at RLs o 0m, -100m and -200m in Figure 14, Figure 15 and Figure 16.

Figure 17 shows a section through the inverted data with a drill hole designed to test the source of the magnetic response.

5 Conclusions

Interpretation of the data from a detailed airborne magnetic survey over EL 4421 has identified a discrete magnetic source at depth adjacent to the intersection of NW and NE structures.

The area is covered, and the estimated depth to the top of the source is just over 200m below ground level.

The closest mapped outcrop is the Warrow Quartzite, and Hiltaba Granite is recorded to the west. The source of the magnetic response is unknown.

6 Recommendations

The magnetic response could be tested with a single drill hole with a collar, azimuth and inclination as follows.

605470 mE MGA Zone 53
6378370 mN
221m RL
-60^{o} towards 225^{o} MGA
EOH 600m

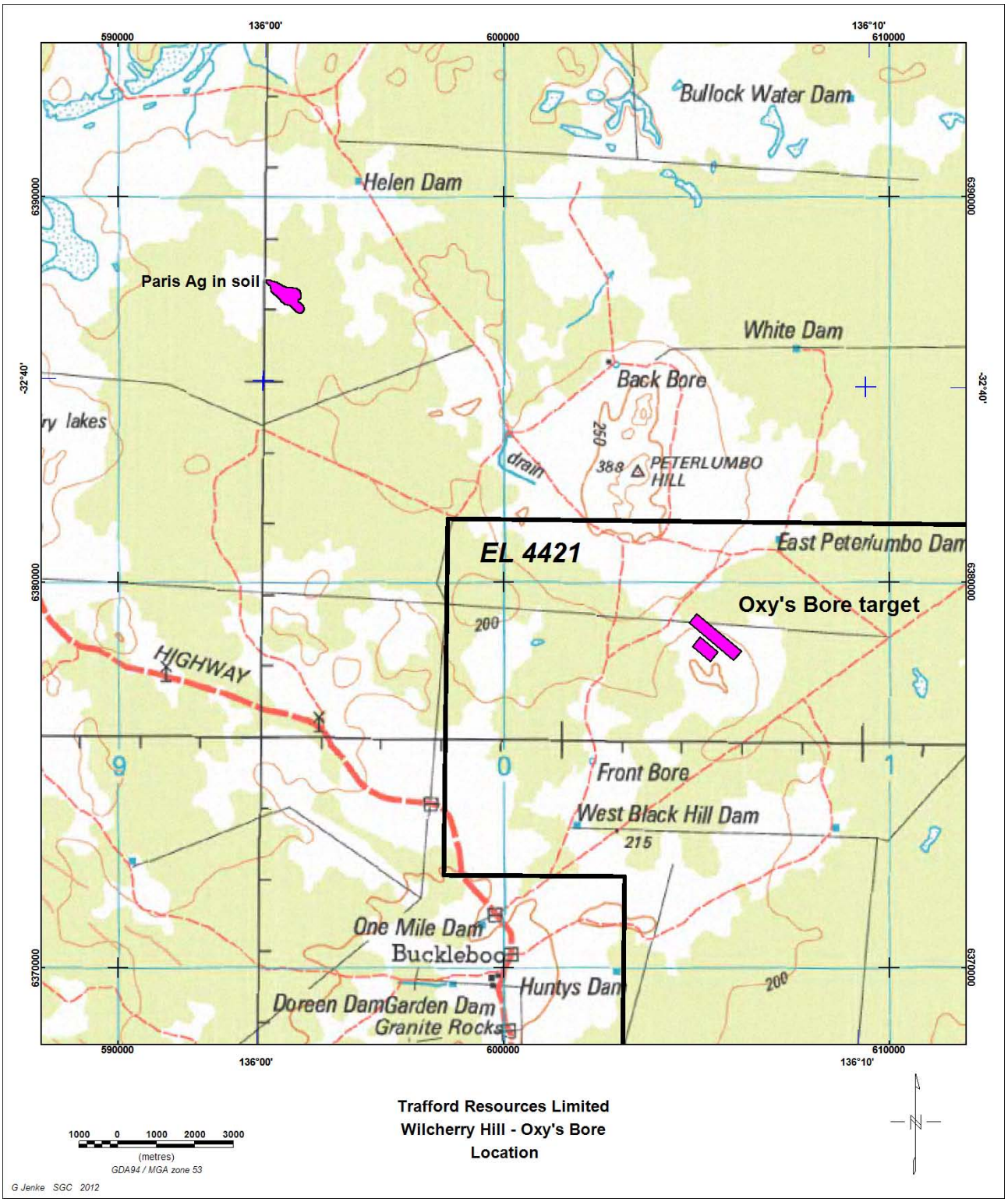


Figure 1 Location

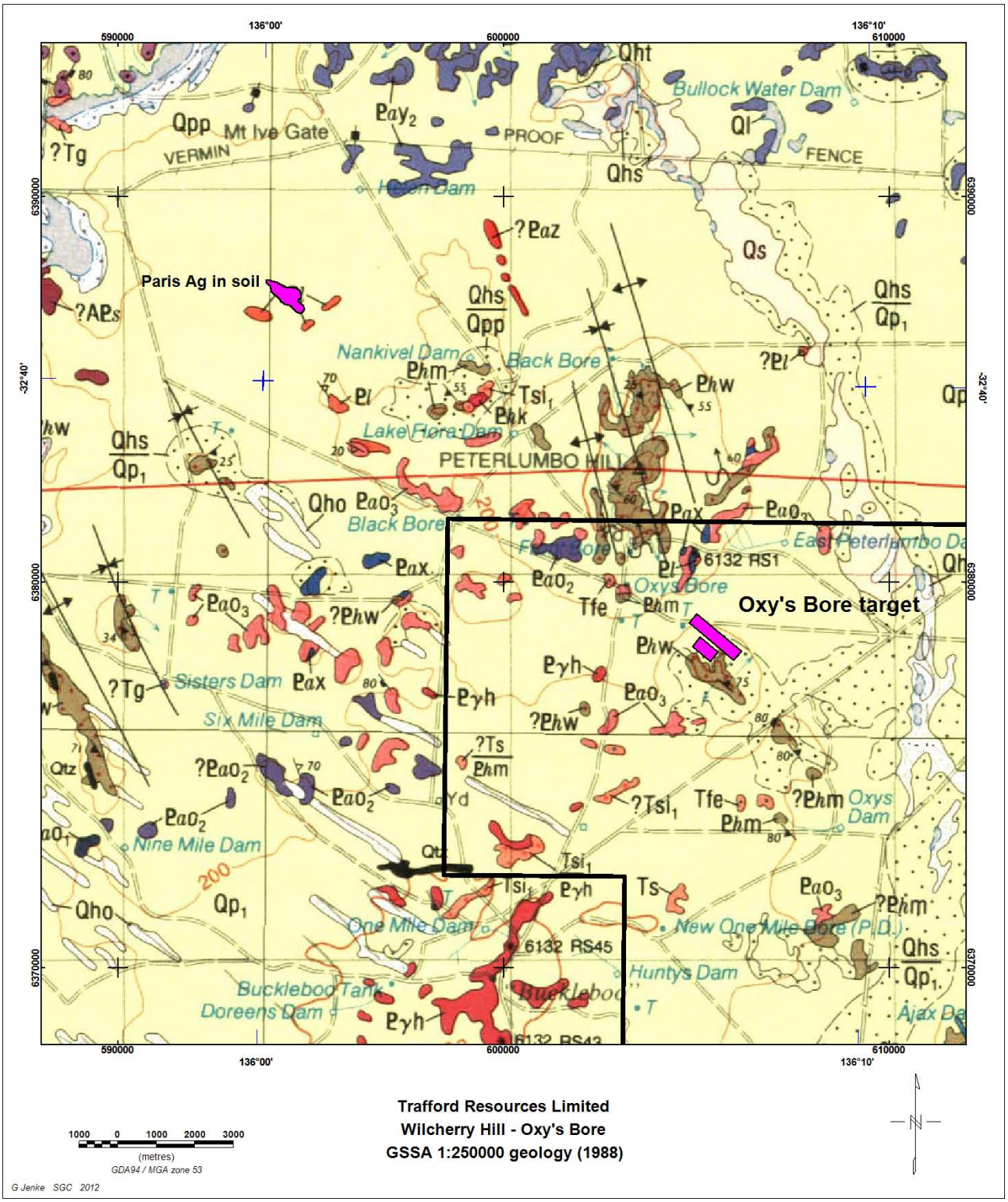


Figure 2 GSSA 1:250000 regional geology

Table 2 1:250000 geology descriptions

Code	Description
Qp_2	Deep reddish-brown ferruginous sands, clayey grit and sandy clay with fragments of hematite-cemented gritty sand. Rounded hematitic and goethitic ''buckshot'' gravels in places. Some rounded fragments of iron-stained silcrete. Possibly related in part to the CALLA-BONNA CLAY.
Tfe	Cavernous and rubbly hematitic, limonitic and goethitic laterite up to 1m thick, capping ferruginous gravels, sands and silts. Pisolitic hematite and goethite in quartz grit in places. Fragments of quartz, dacite and silcrete up to 3cm across in hematitic matrix on W shore of Lake Acraman.
Tsi_1	''Terrazzo'' – type silcrete, generally less than 1m thick, with angular fragments of quartz in a cryptocrystalline siliceous matrix. Forms capping to GAWLER RANGE VOLCANICS W of Lake Acraman and E of Lake Gairdner, on ?LINCOLN COMPLEX NW of Mt Sturt, and on silici-fied, fine-grained, arkosic sand, grit and silt overlying WARROW QUARTZITE and gneiss of the SLEAFORD COMPLEX S of the Gawler Ranges.
Pjh	HILTABA SUITE Pink to pale reddish, fine- to coarse-grained, leucocratic graphic granite and adamellite with veins of microgranite, aplite and pegmatite. Accessory zircon, allanite and in-terstitial fluorite. Radiometric age: (Rb-Sr) 1478±38 Ma (Hiltaba-Minnipa area) and 1477±34 Ma (Buckleboo area); (U-Pb) 1514±16 Ma (Hiltaba area).
Paz	Porphyritic rhyodacite 5km NW of Peterlumbo Hill. Prob-ably NNW – trending dyke.
Pay_2	EUCARRO DACITE: Massive porphyritic dacite grading to rhyodacite with scattered spherical quartz phenocrysts. Brown and cream-coloured phenocrysts of plagioclase about 5mm across, minor K-feldspar, and clinopyroxene altered to chlorite and epidote are set in a mottled reddish-brown and dark green, finely-granular or grano–phyric matrix of K-feldspar and quartz with irregular patch-es of chlorite. Dark grey, densely-welded dacite occurs at or near the base NW of Narlaby Well and NW of Waulkinna Hill.
Pax	Unnamed highly-porphyritic dacite (Pax) at Mt Sturt and in surrounding area; dykes intruded into ?Pγk 14km E of Mt Sturt, into BITTALI RHYOLITE 10km SW of Peterlumbo Hill, into BITTALI RHYOLITE and ?P/ 3km SE of Peter-lumbo Hill (possibly feeder dykes to EUCARRO DACITE or YARDEA DACITE).

Pao$_3$	BITTALI RHYOLITE: Variable assemblage of pale yellowish-brown weathered, grey, pale green, pale brown and cream-coloured rhyolitic to rhyodacitic lavas, intrusive feeder dykes and welded ash flows with flow-banding, fiamme´ and pumiceous streaks. Texture ranges from fine-grained to porphyritic with phenocrysts of K-feldspar, plagioclase and round quartz. Lines of siliceous geodes occur parallel with layering 1km SE of Victory Dam (SW of ''Nonning'').
Pao$_2$	WAGANNY DACITE: Reddish-brown porphyritic dacite to rhyodacite, with phenocrysts of plagioclase and minor K-feldspar up to 2mm across, in an aphanitic or micro-granular matrix. Assemblage includes dark greenish-grey, sparsely-porphyritic dacite and andesite 8km NW of ''Buckleboo''. Radiometric age of WAGANNY DACITE equivalent (Toondulya Bluff, STREAKY BAY 1:250 000 Sheet): 1591± 3 Ma (U-Pb).
Phm	P*h*k – Garnetiferous diopside (+ tremolite) marble near Ultima Dam, and massive, white to pale grey marble (possibly equivalent to the KATUNGA DOLOMITE). Usually silicified and brecciated at the surface (e.g. W of Peterlumbo Hill).
Phk	P*h*k – Garnetiferous diopside (+ tremolite) marble near Ultima Dam, and massive, white to pale grey marble (possibly equivalent to the KATUNGA DOLOMITE). Usually silicified and brecciated at the surface (e.g. W of Peterlumbo Hill).
Phw	WARROW QUARTZITE: Pale yellowish-brown weathered, massive and foliated, white, pale grey and cream-coloured, medium- to coarse-grained quartzite, locally with glassy or milky quartz matrix. Pods and veins of milky quartz occur along fracture planes.

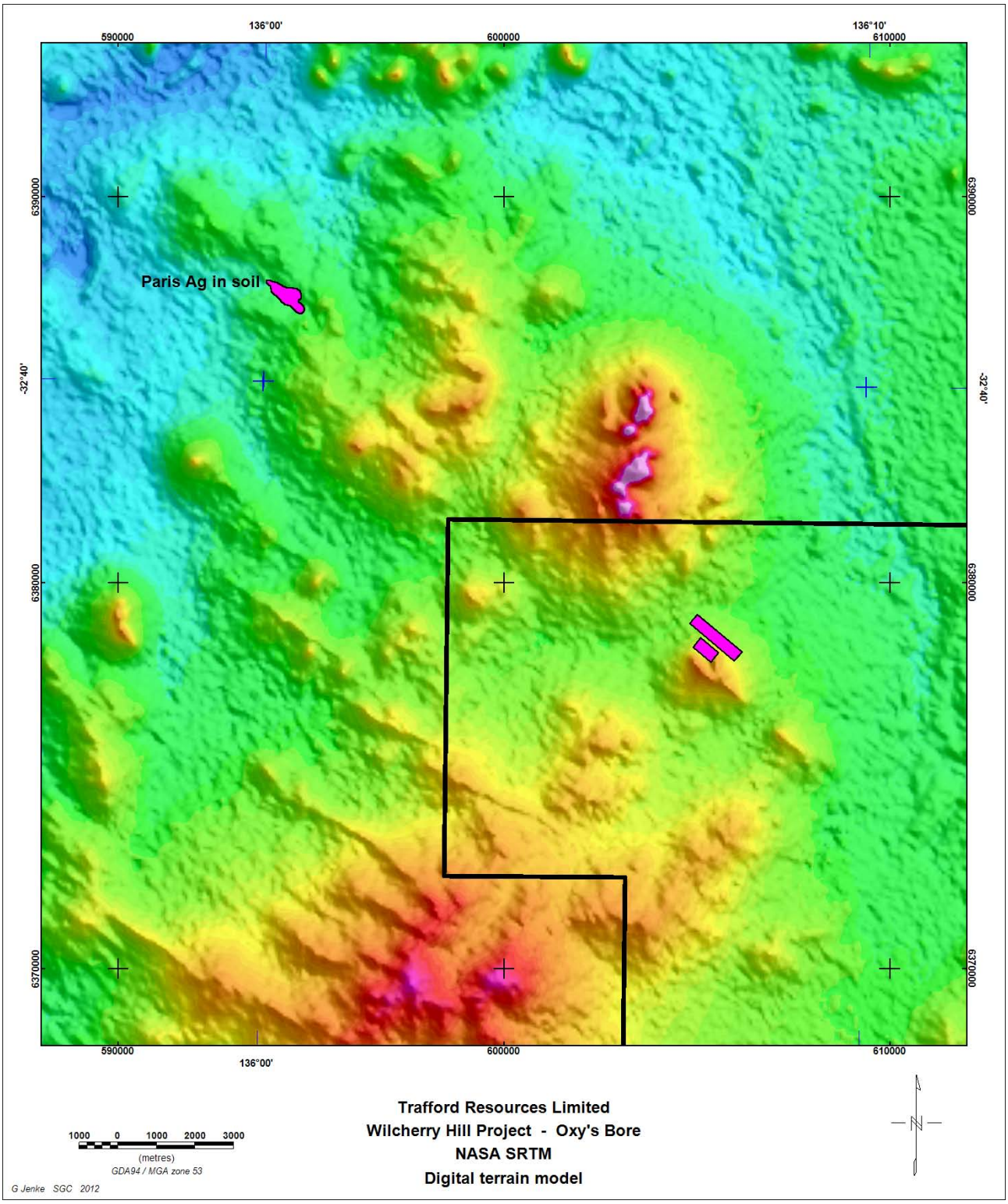


Figure 3 Digital terrain model

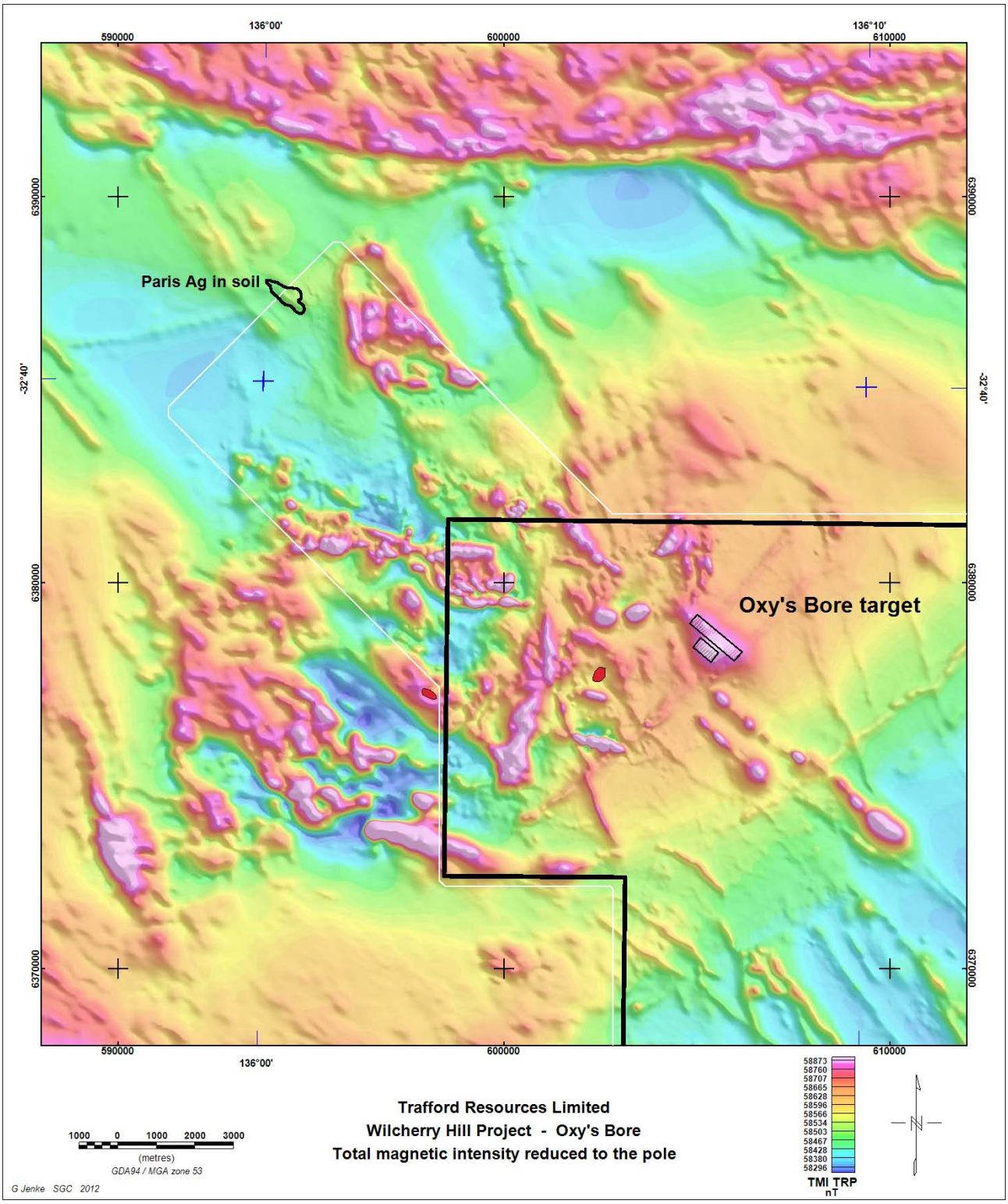


Figure 4 Regional total magnetic intensity reduced to the pole (TMI RTP)

Hiltaba granite outcrop is shown in red

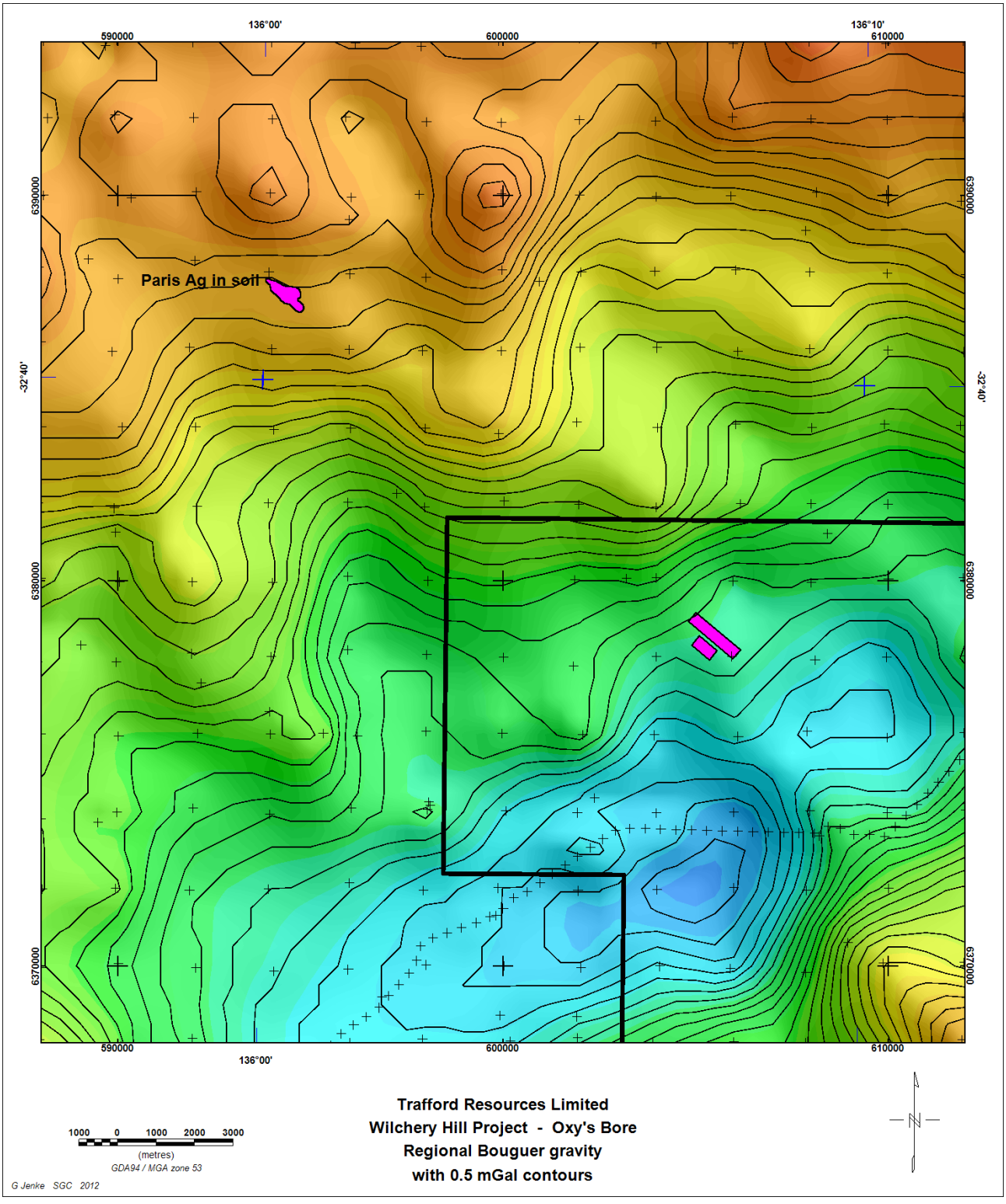


Figure 5 Regional Bouguer gravity

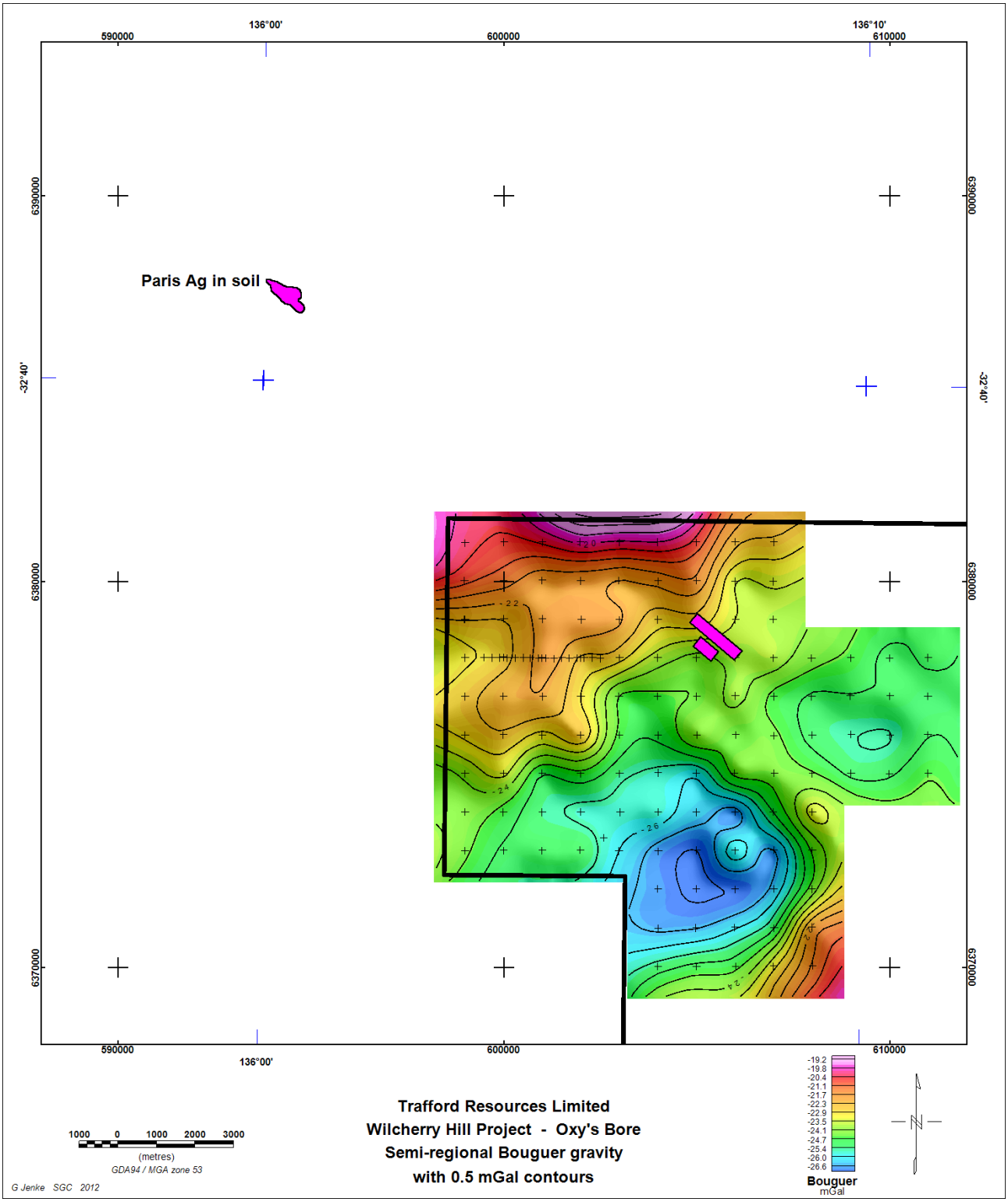


Figure 6 Detailed Bouguer gravity

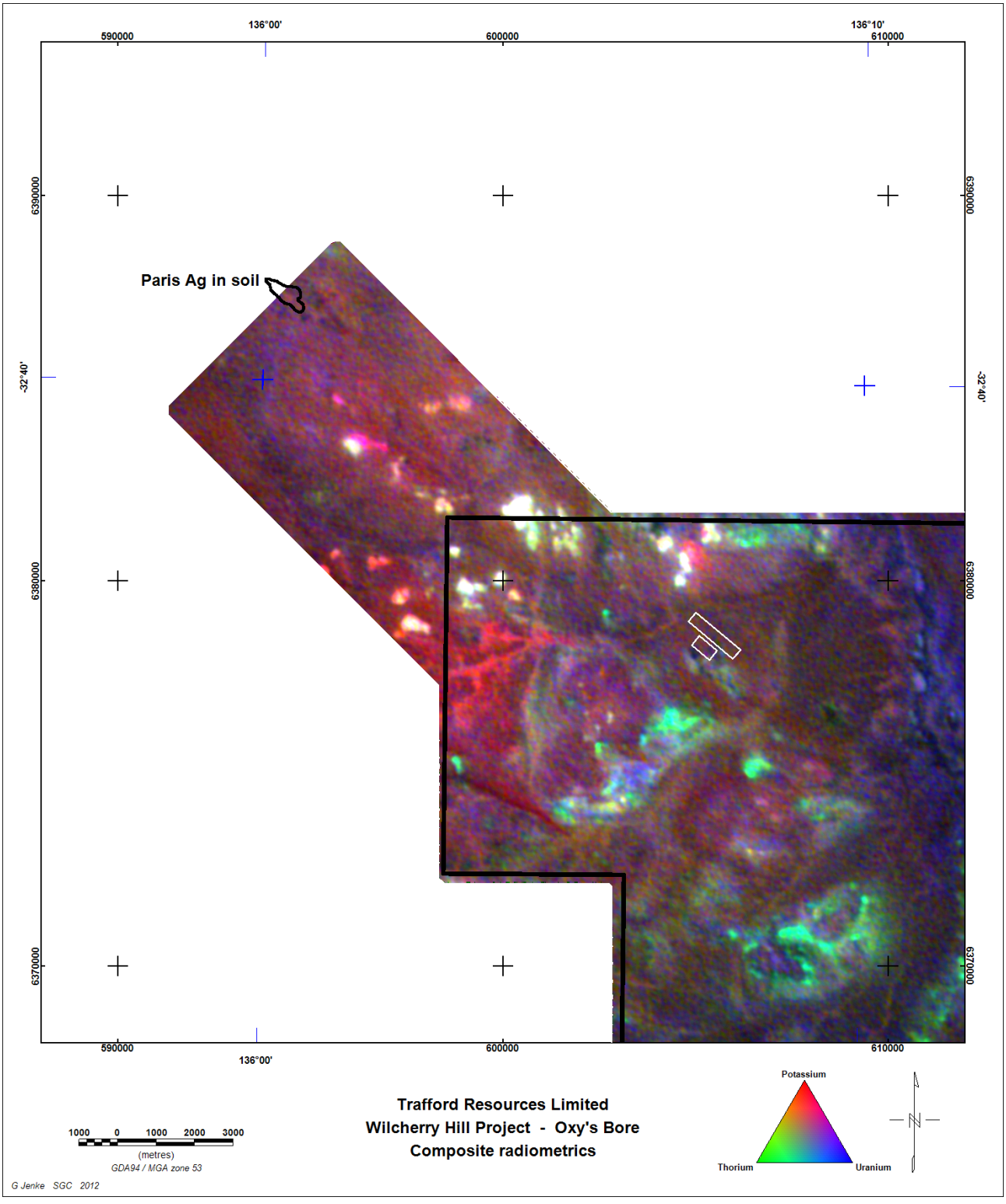


Figure 7 Composite radiometrics

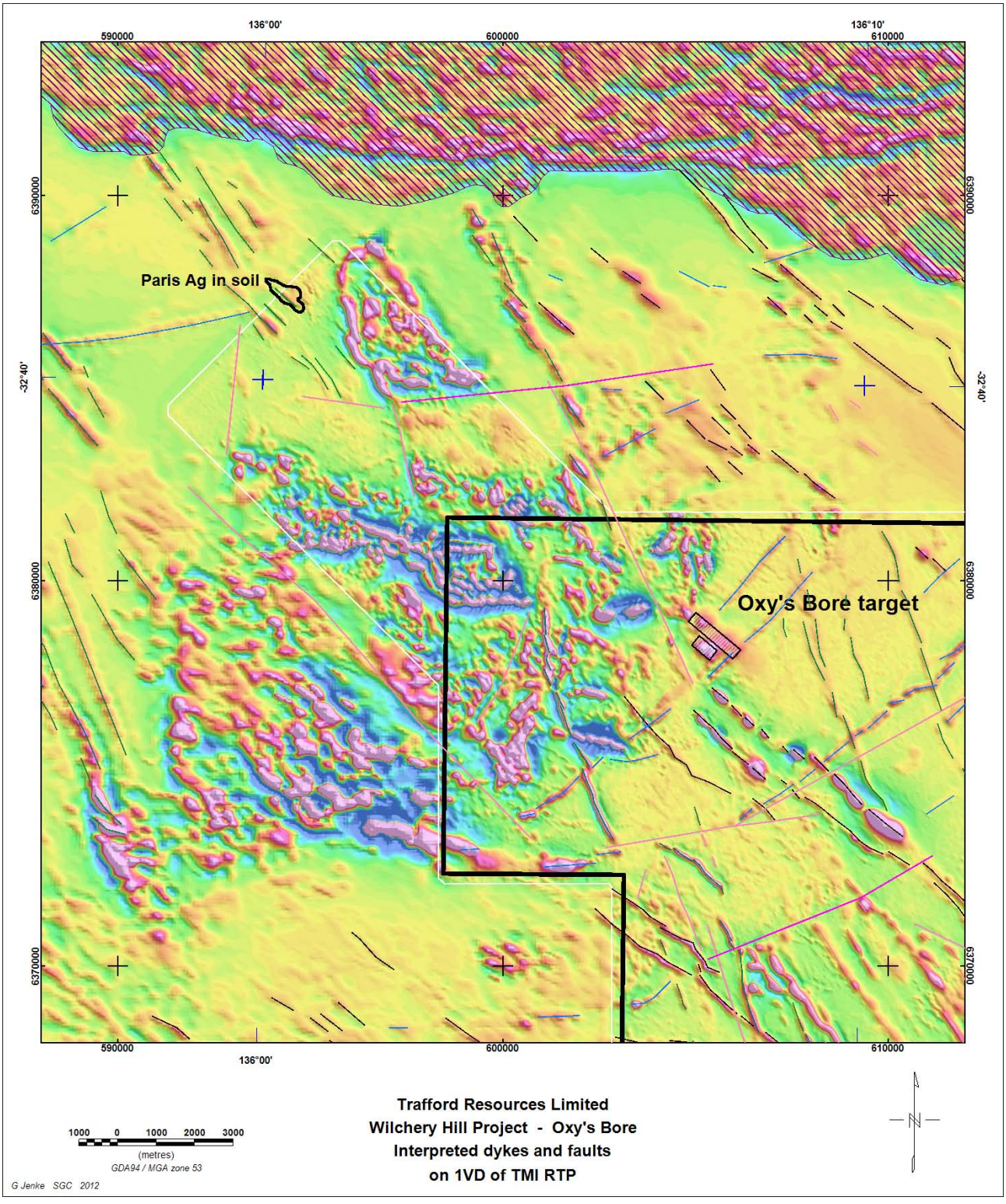


Figure 8 Interpreted dykes and faults on first vertical derivative of TMI RTP

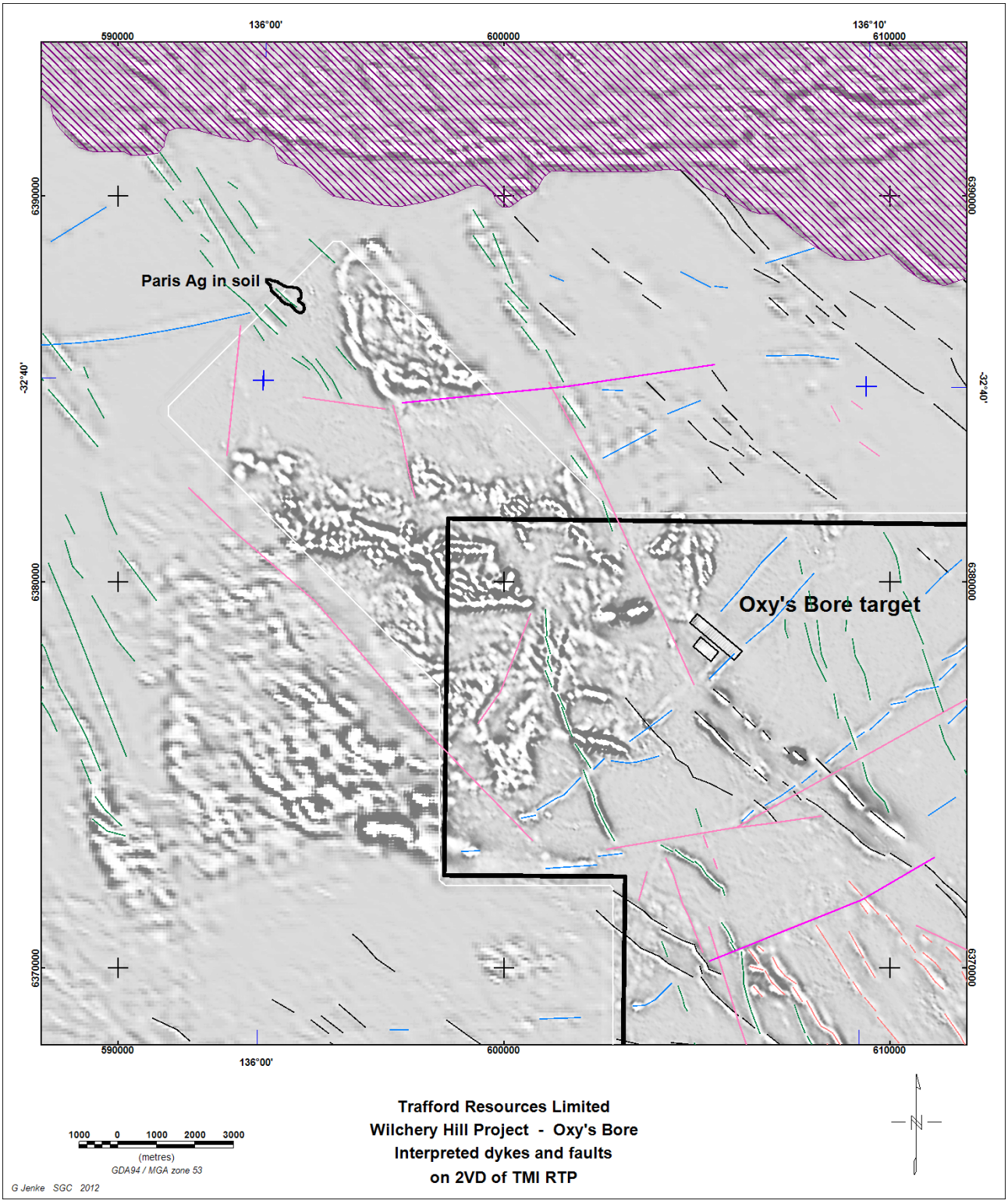


Figure 9 Interpreted dykes and faults on second vertical derivative of TMI RTP

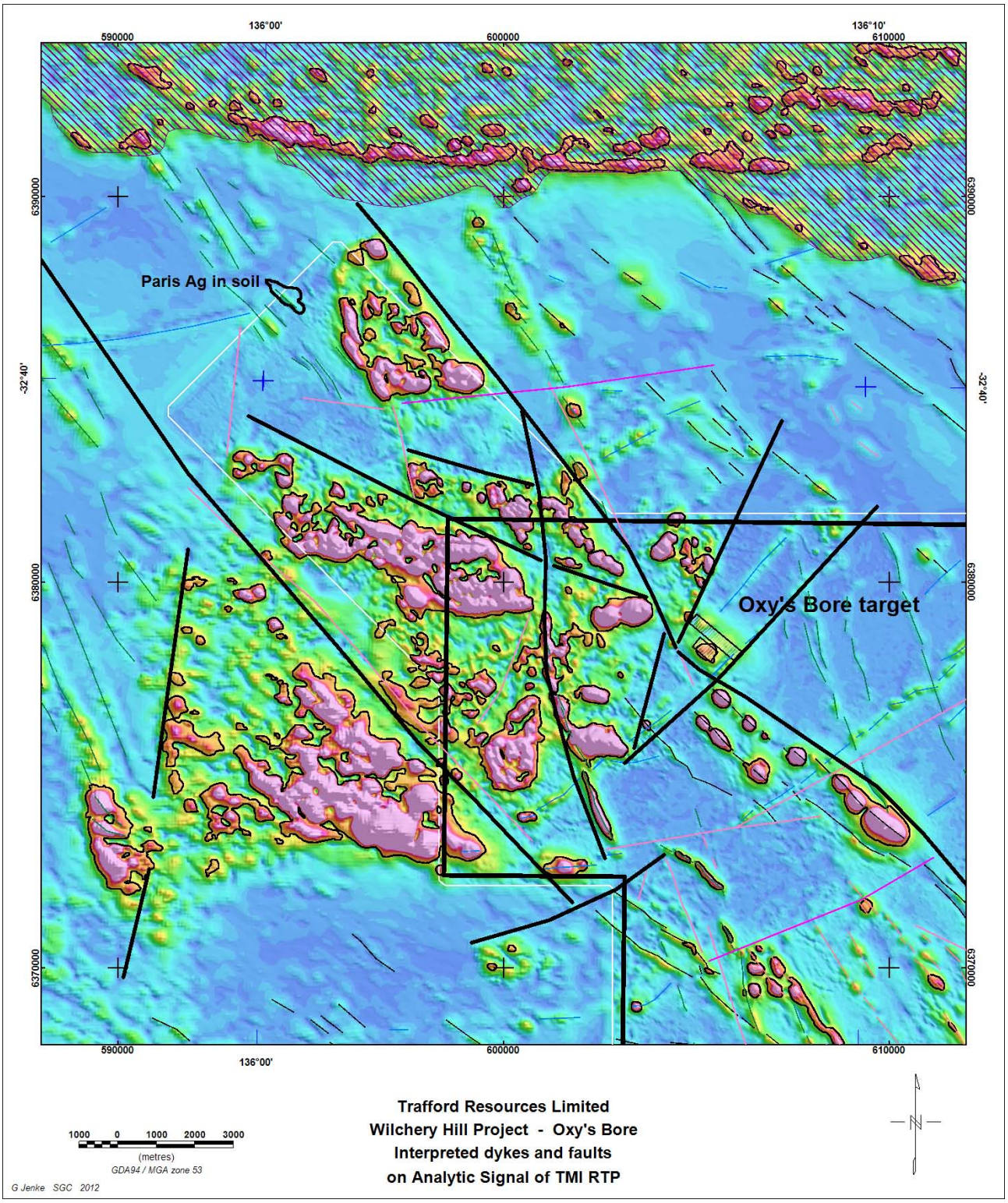


Figure 10 Interpreted dykes and faults on analytic signal

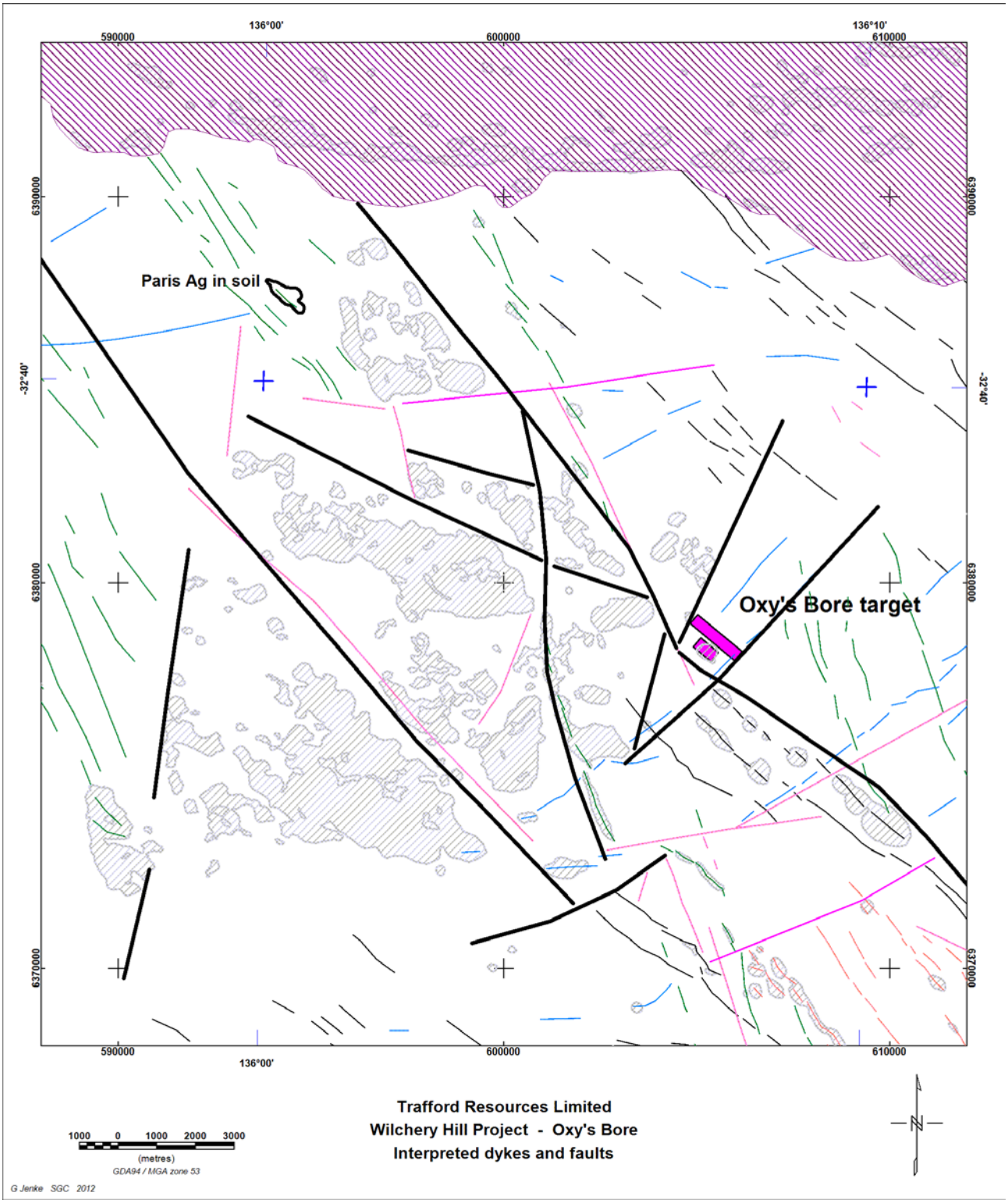


Figure 11 Interpretation of magnetic structure

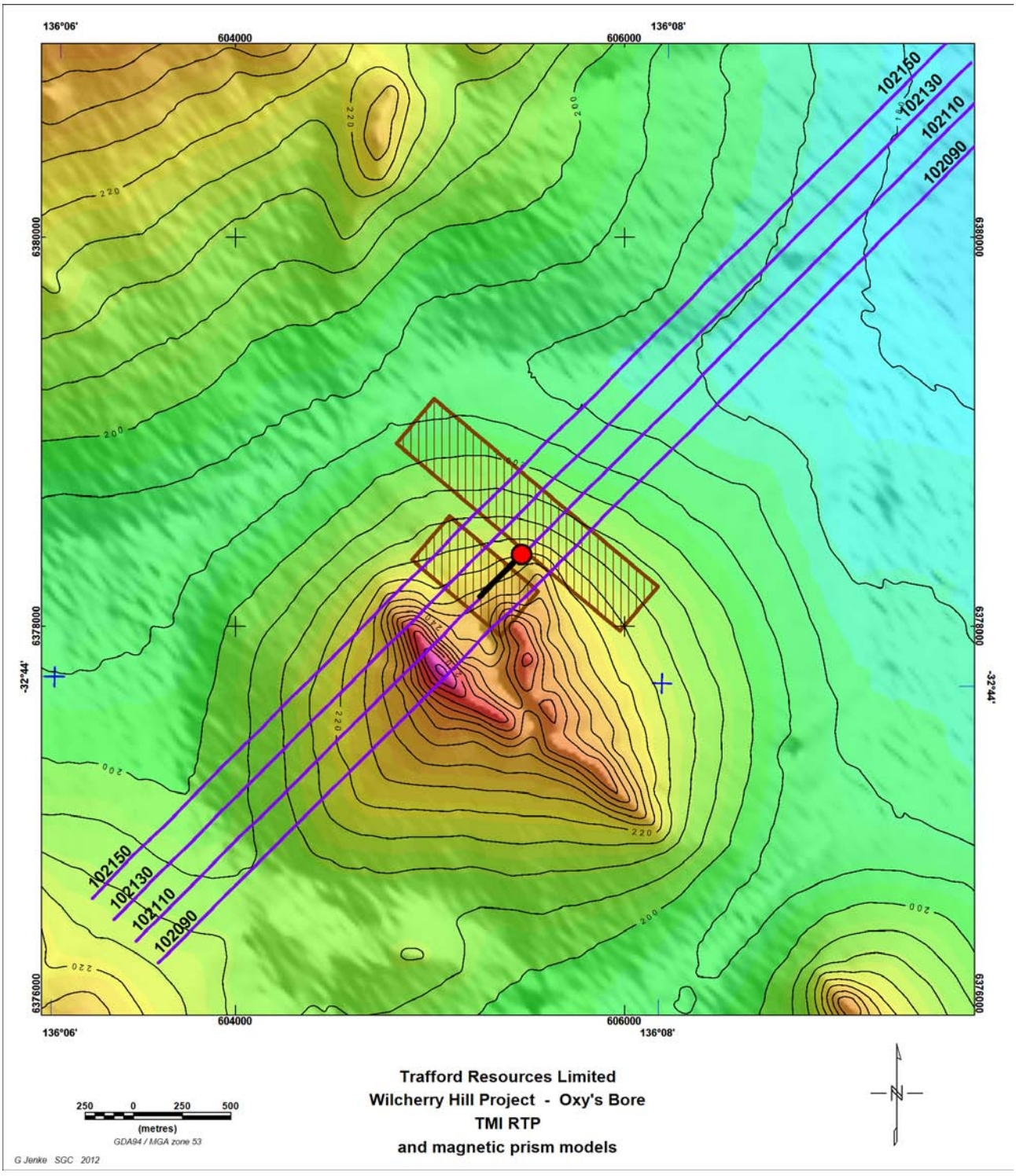


Figure 12 Oxy's Bore DTM

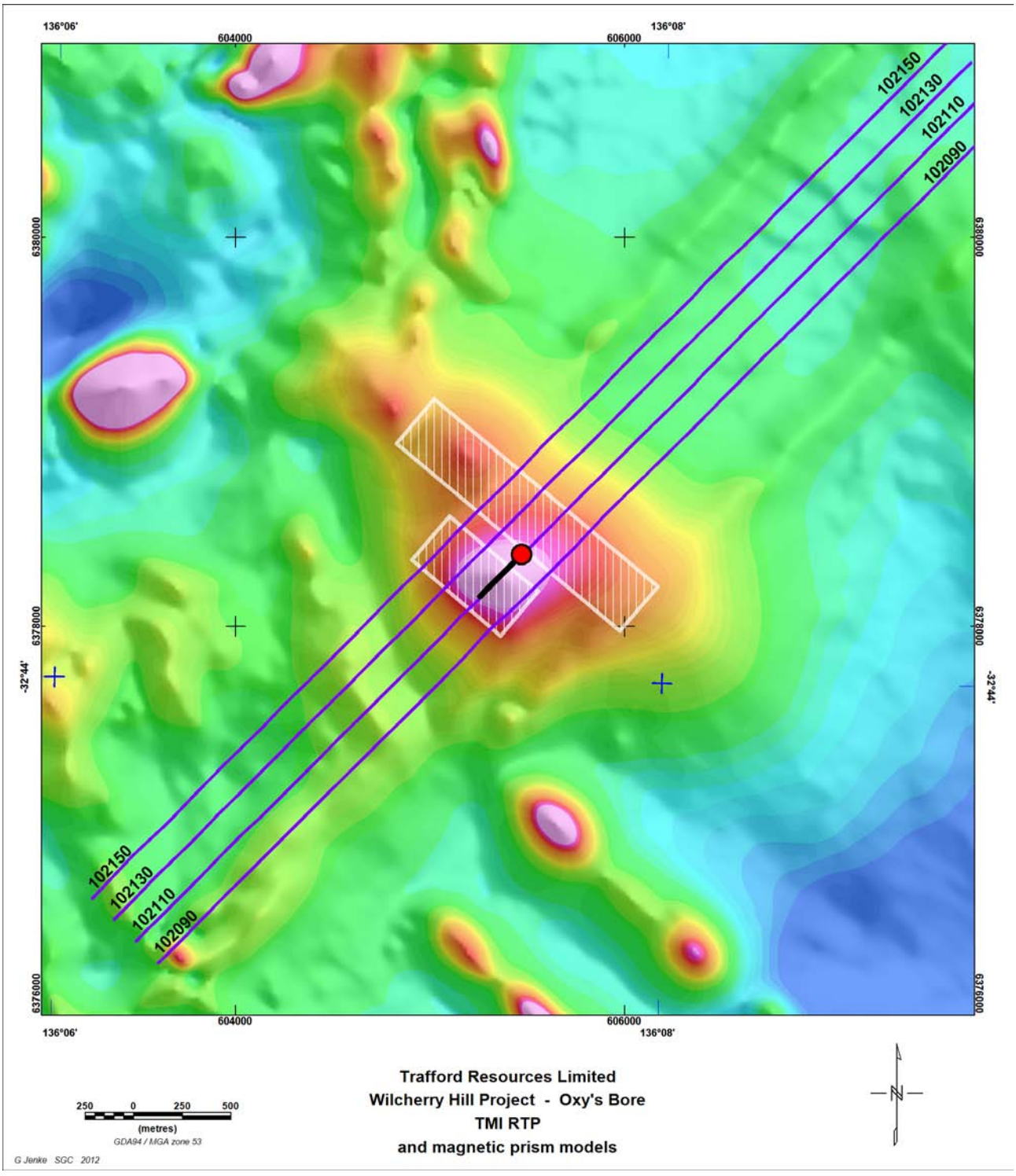


Figure 13 Oxy's Bore total magnetic susceptibility reduced to the pole

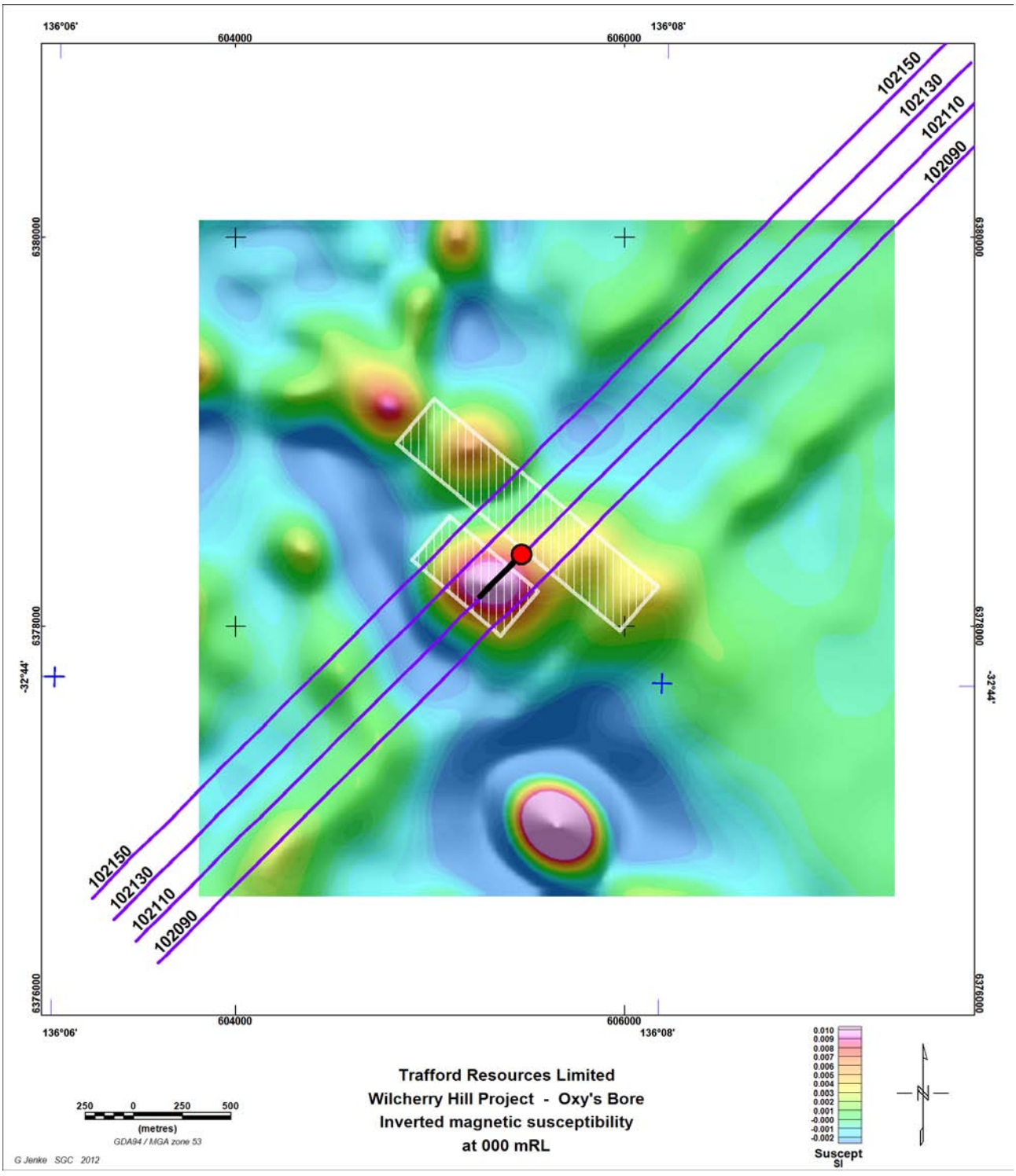


Figure 14 Oxy's Bore inverted magnetic susceptibility at 000 mRL

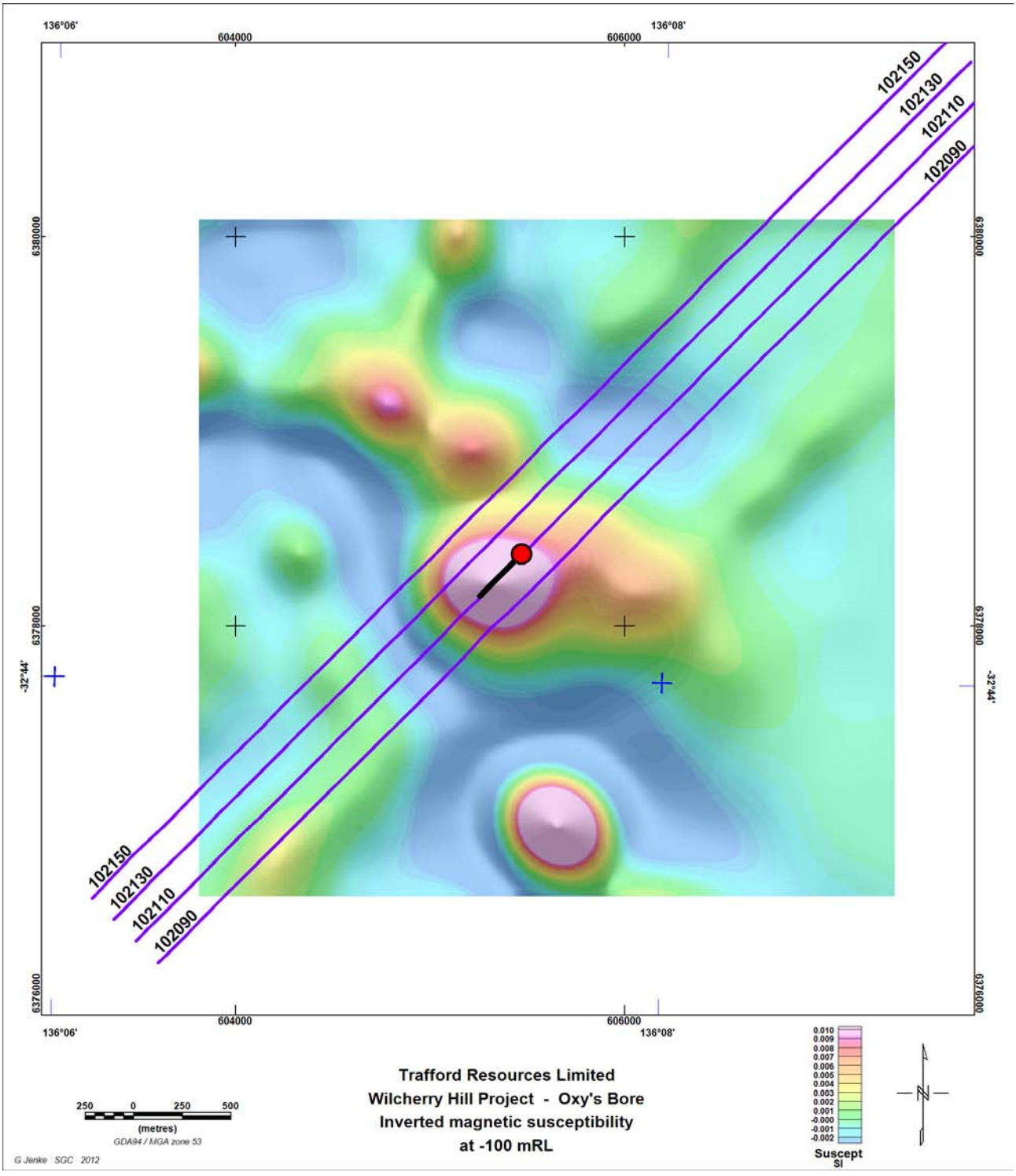


Figure 15 Oxy's Bore inverted magnetic susceptibility at -100 mRL

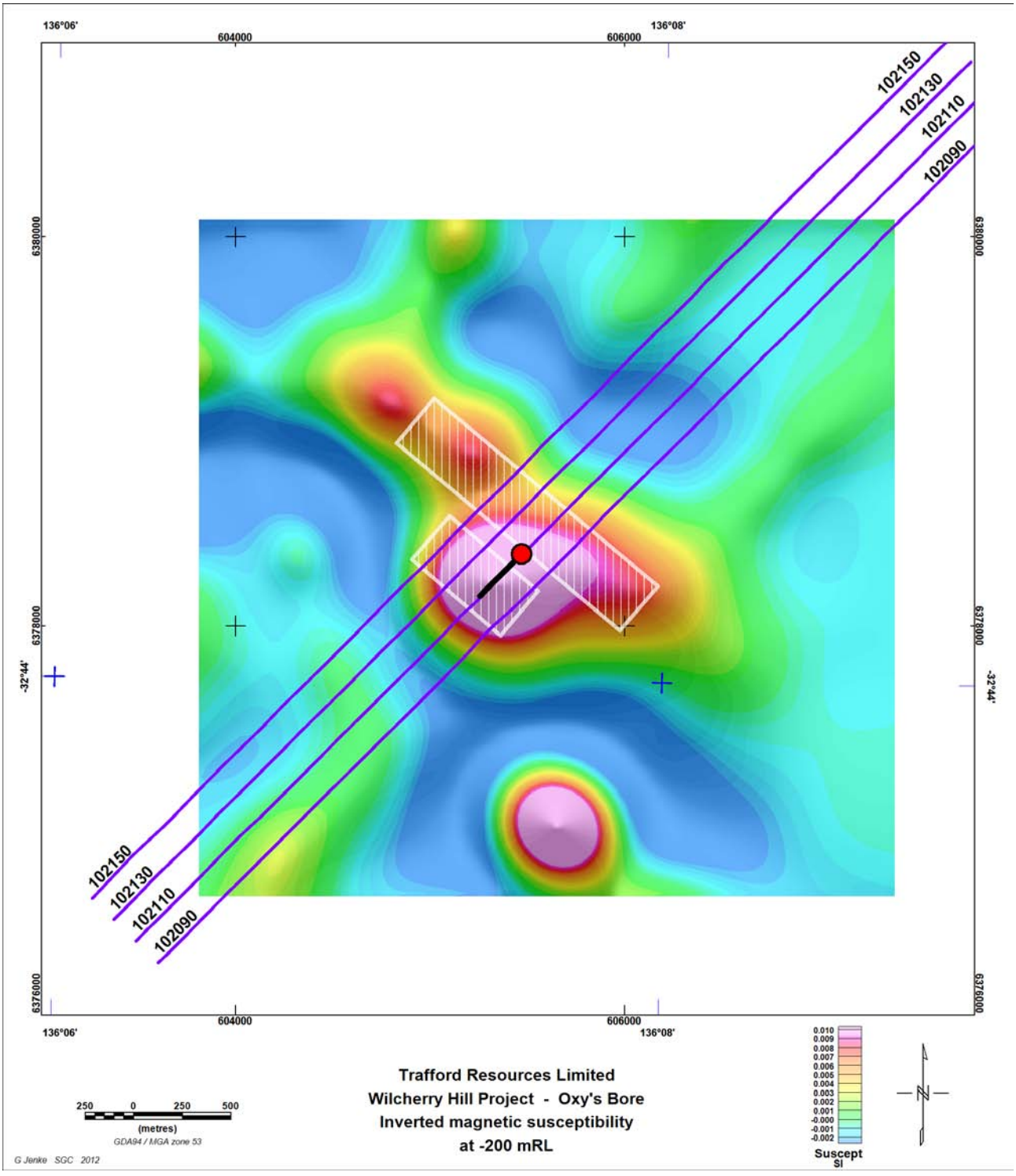


Figure 16 Oxy's Bore inverted magnetic susceptibility at -200 mRL

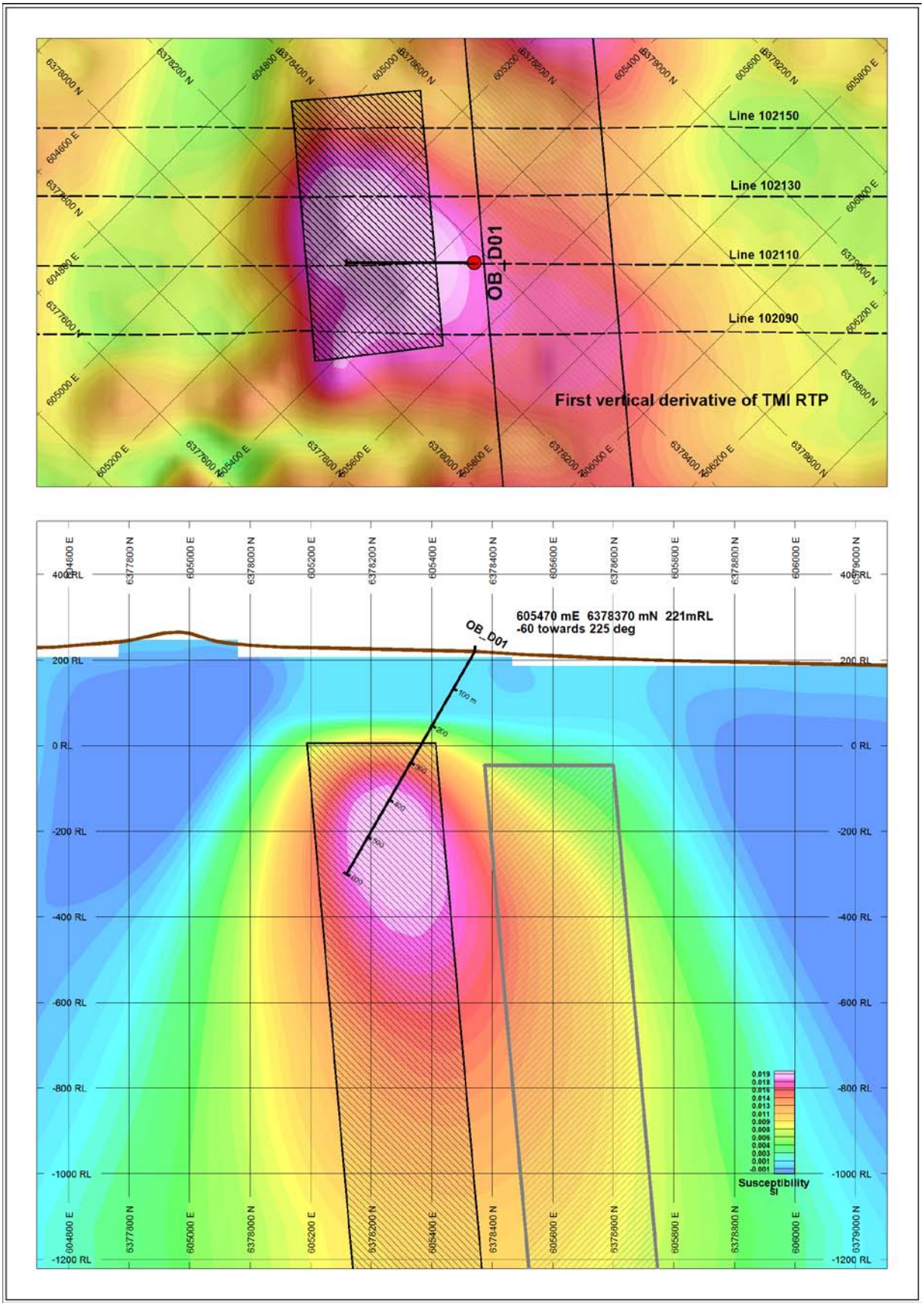
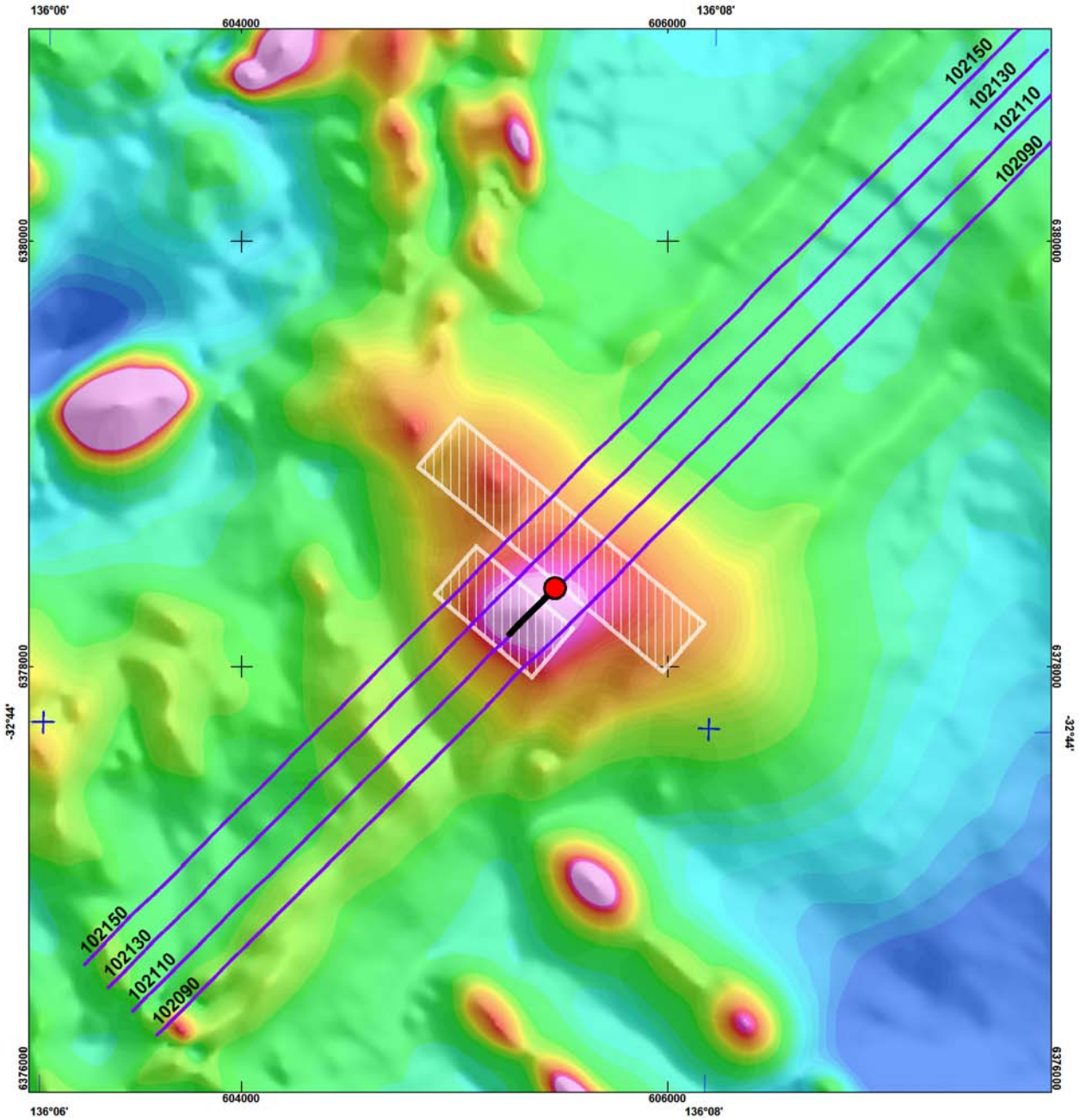


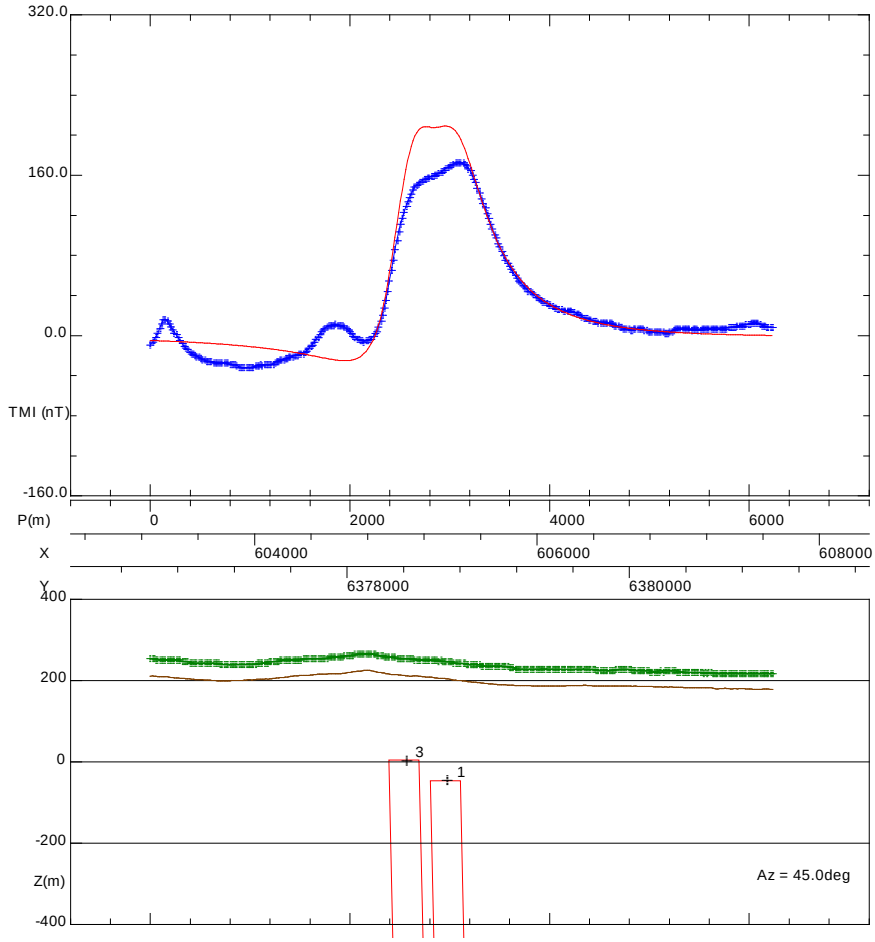
Figure 17 Oxy's Bore planned drill section

The top panel shows the first vertical derivative of TMI RTP in plan view
The bottom panel shows inverted magnetic susceptibility in section view

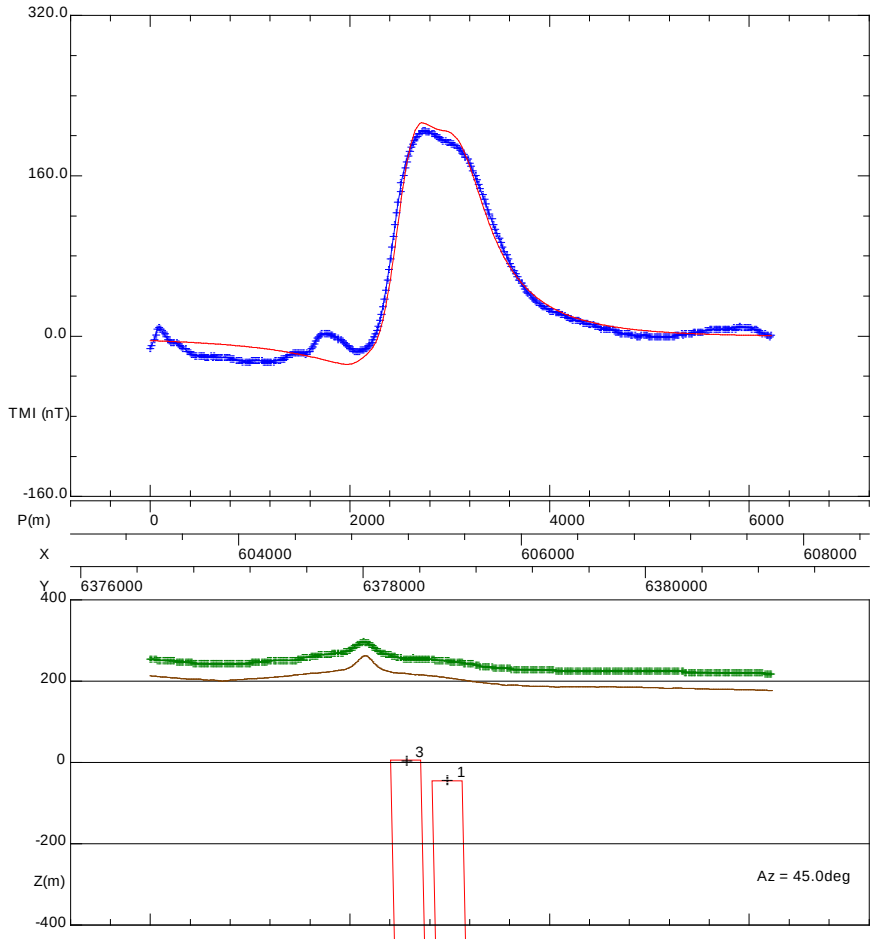
APPENDIX A:

PROFILE MODELLING USING PRISMS





Line **102150** (NW)



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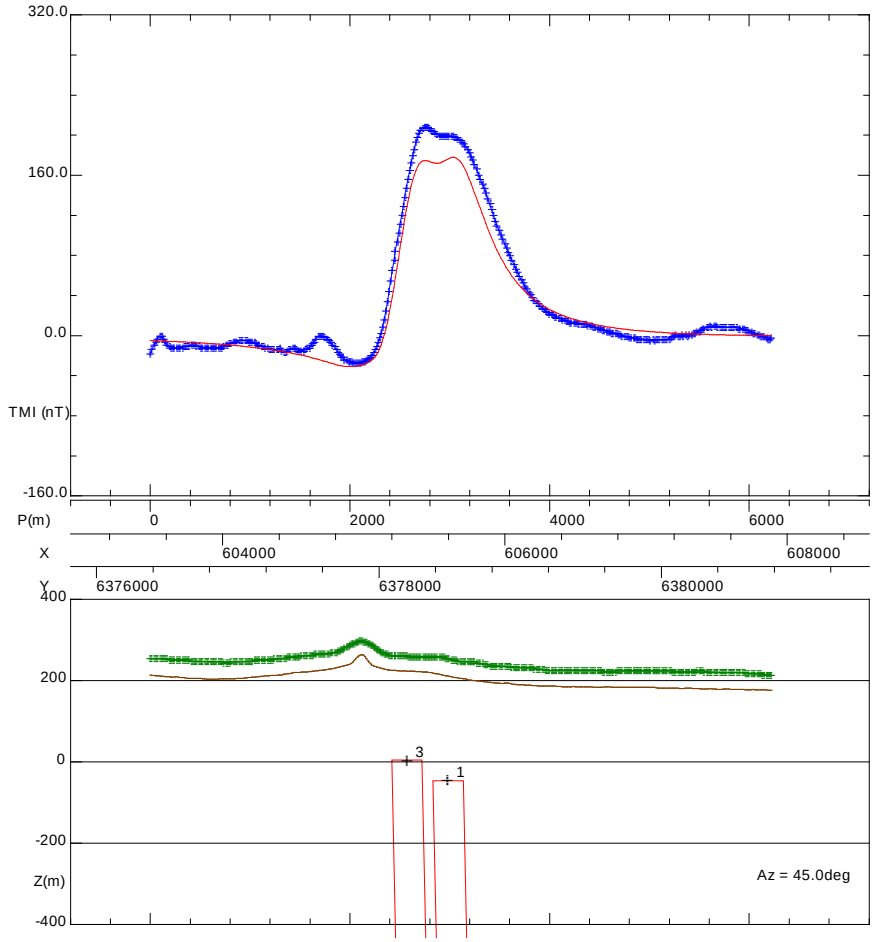

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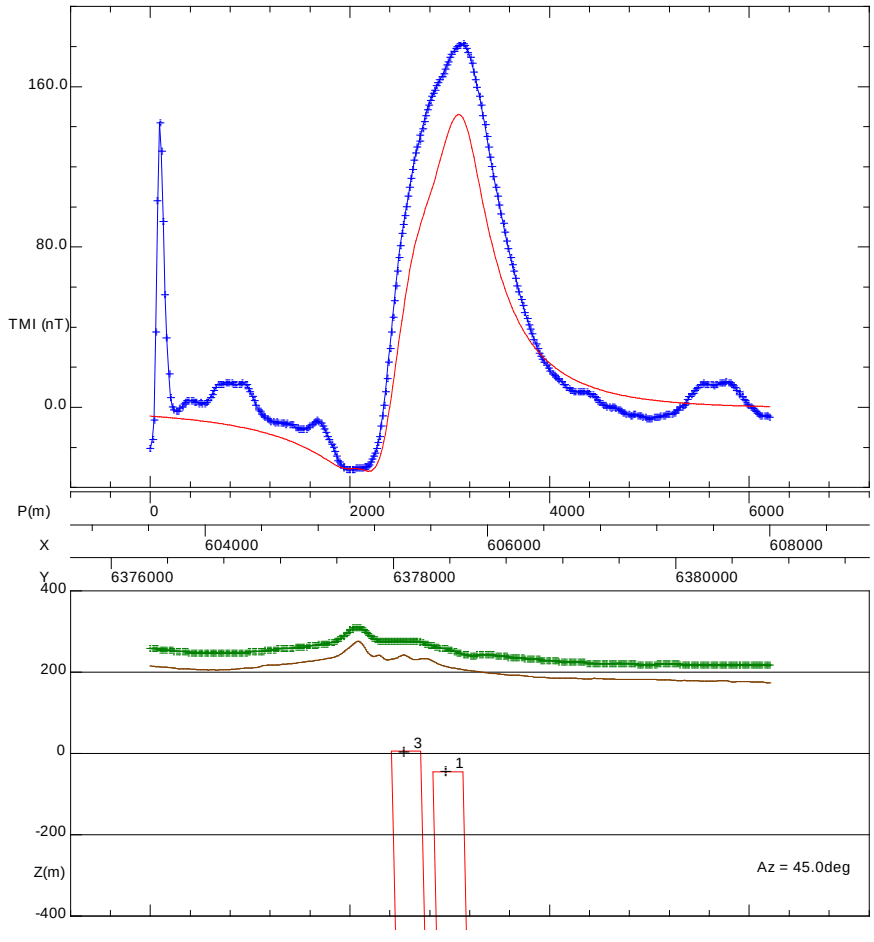

Line **102090** (SE)