APPENDIX 11

GOLD FIELDS AUSTRALASIA PTY LTD - EXPLORATION REPORT JUNE 2001

GOLD FIELDS

EXPLORATION AUSTRALASIA LTD

SOLITAIRE JV PROJECT

NORTHERN TERRITORY

EXPLORATION REPORT

JULY to DECEMBER 2000

TENEMENTS:	EL 10216, EL 10217, EL 10398 & EL 10399
TITLE HOLDER:	TANAMI GOLD NL
OPERATOR:	GOLD FIELDS AUSTRALASIA PTY LTD
1:250,000 MAP:	MT SOLITAIRE SF 52-4, MT THEO SF 52-8
COMMODITY:	GOLD

D.R. Lovett, N.P. Bryce & A.L. McPherson

March 2001

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1. SUMMARY

This report covers work completed by Gold Fields Australasia on the Solitaire Project, a gold anomalous area in the Tanami Region of the Northern Territory. The project is a joint venture with title-holder, Tanami Gold. This report details gold exploration for the first half-year of the joint venture in which a total of 769 RAB and aircore drill holes were drilled for a total of 28,640m and 7,686 composite samples. The objectives of the drilling were firstly to follow up unresolved geochemical anomalies discovered by the previous explorer, Sons of Gwalia and subsequently reconnaissance exploration of areas not been targeted by SOG

The project area lies within the Palaeoproterozoic Willowra Domain of the North Arunta Block and straddles the Trans-Tanami Structural Corridor, a large regional northwest trending high strain zone. This structure is clearly evident from regional magnetic data and extends east to at least the Arltunga Goldfield and west of the Dead Bullock Soak Goldfield ultimately forming the northern margin of the Paleozoic Canning Basin.

To improve the magnetic definition of the project area, an airborne magnetic survey was completed and spliced into an earlier completed survey. This new data identified several low amplitude short-strike features, but added little further detail to the existing geological interpretation to substantially improve targeting.

Rock-types of the project area are dominated by massive granitoids. Amphibolites intrude a belt of metasediments and minor granitoids in the southeast sector. The northern part of the project area exhibits localised metasediments, which probably represent roof remnants to the granitoids.

The infill component of the drilling campaign returned similar background gold values from weakly altered amphibolites and tonalites. No bedrock or cover mineralisation was identified. The conclusion from this drilling is that there is little possibility of the discovery of an open pitable resource in the areas drilled.

No significant gold mineralisation was discovered from the reconnaissance drilling. The discovery of buried bedrock mineralisation under paleodrainage sediments cannot be discounted but the economics of a probable Titania-style discovery buried under at least 20m of cover is questionable.

2. INTRODUCTION

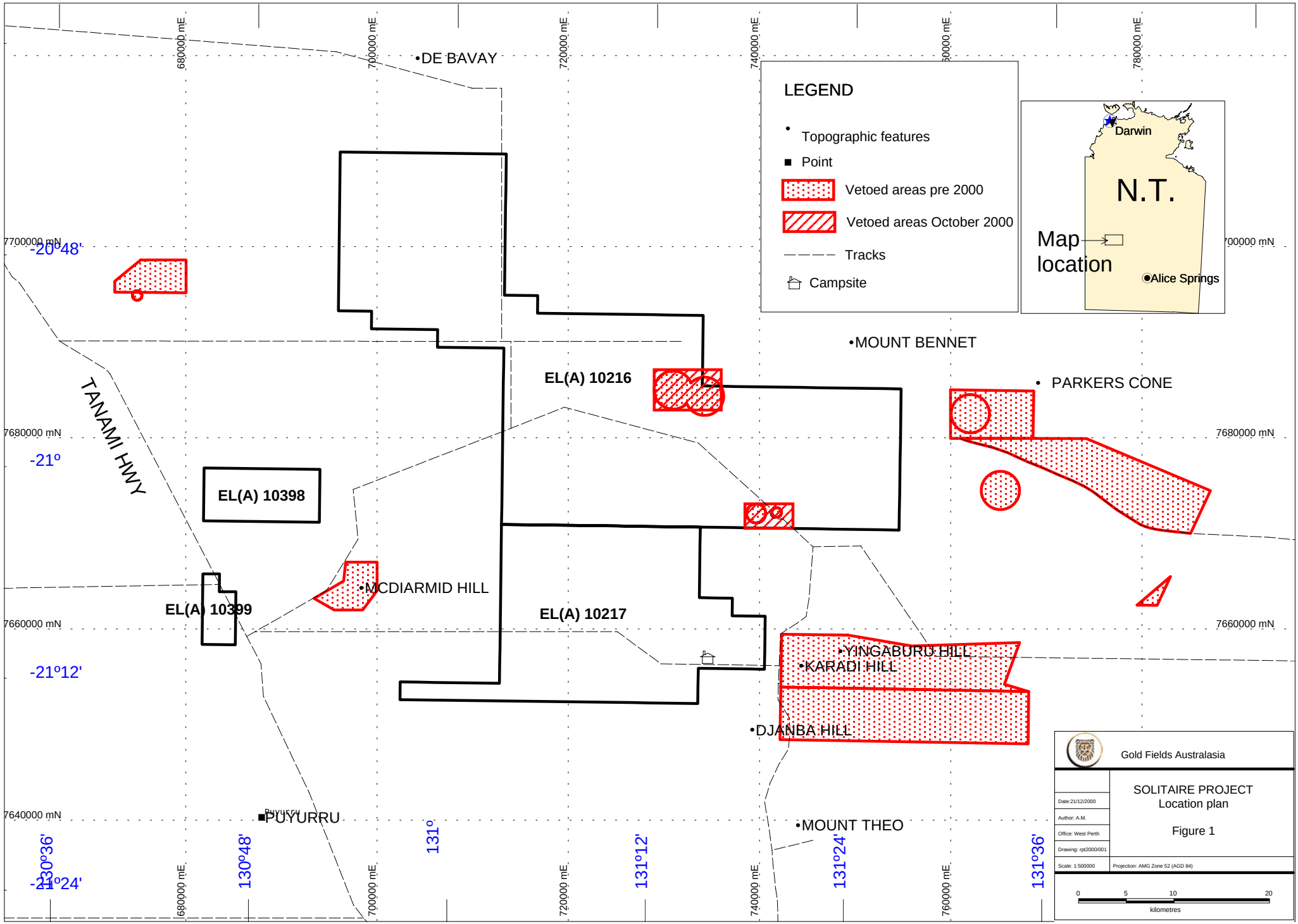
The Solitaire Project is centered approximately 430km northwest of Alice Springs and 150km southeast of The Granites Gold Mine in the Tanami Region, Northern Territory (Figure 1). The project is a farm in by Gold Fields Australasia Pty Ltd (GFA) on four exploration licences: EL 10216, EL 10217, EL 10398 and EL 10399, held by Tanami Gold NL (Tanami Gold). The Joint Venture agreement was signed on 10 April 2000 with GFA as manager.

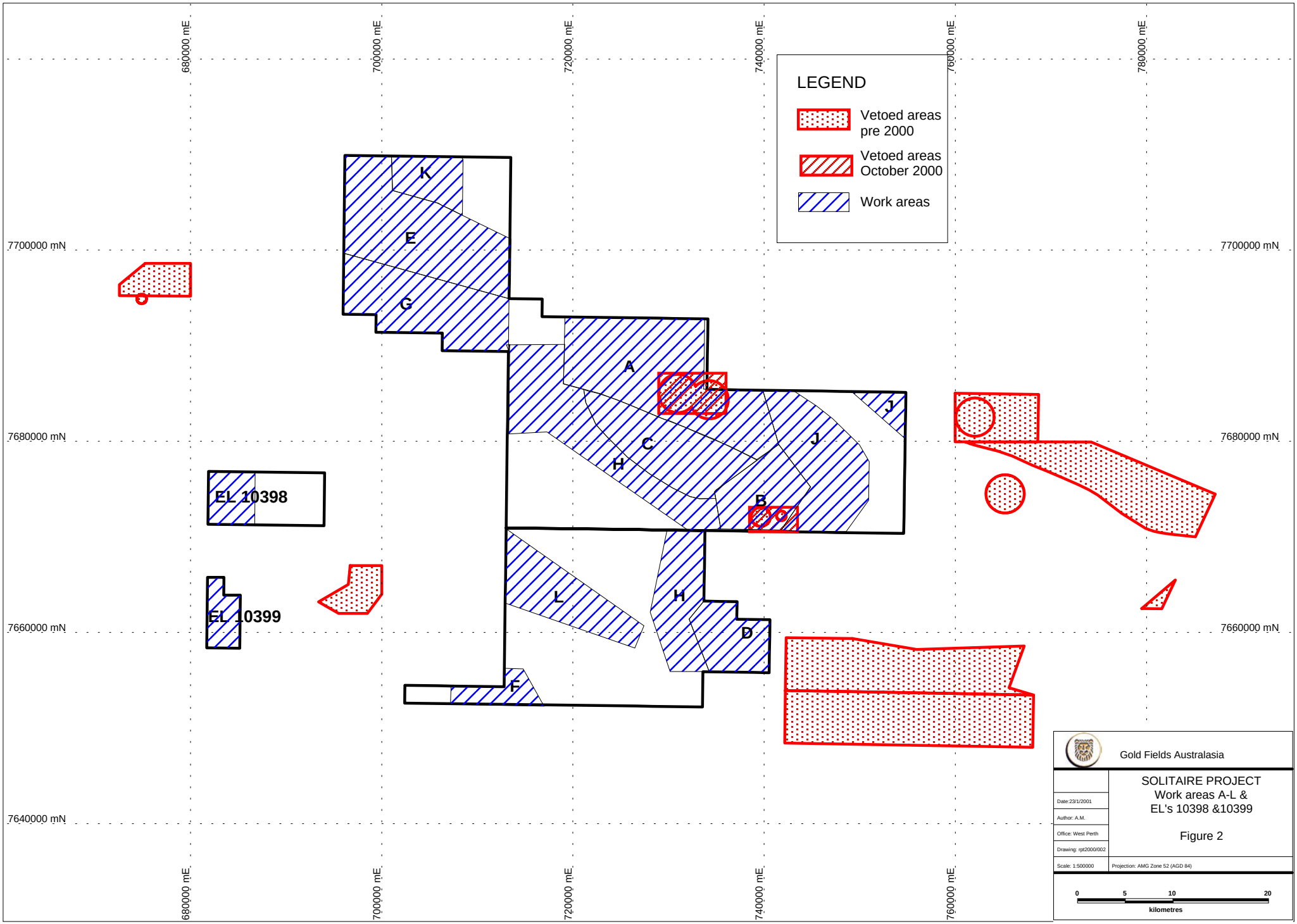
The tenements lie on Aboriginal Land within the Central Desert Land Trust area. An agreement between Tanami Gold and the Central Land Council (CLC) on conducting exploration terms and conditions of compensation for the Aboriginal custodians of the area was signed in September 2000 and title was granted for the tenements on September 27 2000. Approval of the proposed fieldwork by the CLC was progressively provided during the course of the field programme based on work areas shown in Figure 2.

Road access to the project area is via the dry weather-serviceable Tanami Highway. Access to the project is by one track leading east from the highway about 48km northwest from the Mt Theo turnoff and another leading northeast from the same point on the highway (Figure 1). A series of variable quality tracks, developed by the previous tenement holder, were utilised but one was unsuccessfully upgraded.

The terrain is almost flat and 40% of the area is occupied by Tertiary to Recent paleodrainage up to 20km wide (Figure 3). Aeolian sand blankets the surface, leaving rare outcrops of lateritic capping, metasediments and occasional quartz blows to provide the only low hills in the project area.

Equipped with 14-ply tyres, access was adequate for light 4WD vehicles but taxing for the drill rig and support trucks. Later in the work period, precursor diurnal storms to the approaching “Wet” interrupted the drilling, with 20 ml of downpour equating to a half day loss of fieldwork.


LEGEND
Topographic features
Point
Vetoed areas pre 2000
Vetoed areas October 2000
Tracks
Campsite
Darwin
N.T.
Map location
Alice Springs
•DE BAVAY
•MOUNT BENNET
• PARKERS CONE
EL(A) 10216
EL(A) 10398
EL(A) 10399
EL(A) 10217
TANAMI HWY
•MCDIARMID HILL
•YINGABURU HILL
•KARADI HILL
•DJANBA HILL
•MOUNT THEO
PUYURRU
680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
-20°48'
-21°
-21°12'
-21°24'
130°36'
130°48'
131°
131°12'
131°24'
131°36'
Gold Fields Australasia
SOLITAIRE PROJECT
Location plan
Figure 1
Date:21/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt2000/001
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres


680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
Work areas
K
E
G
A
I
C
H
J
B
EL 10398
EL 10399
L
H
D
F
Gold Fields Australasia
SOLITAIRE PROJECT
Work areas A-L &
EL's 10398 &10399
Figure 2
Date:23/1/2001
Author: A.M.
Office: West Perth
Drawing: rpt2000/002
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres

3. TENURE

Under the terms and conditions of the Solitaire Joint Venture, GFA is required to spend a minimum of AUS$1million during the first year of the tenure of the last granted licence.

Exploration expenditures for the work program summarised in this report total $1,029,701 (See Appendix 1).

Tenement	Granted	Blocks	Area (sq. km)	DME Covenant
EL 10216	27.9.2000	34	110	$80,000
EL 10217	27.9.2000	140	448	$47,000
EL 10398	27.9.2000	21	67	$15,000
EL 10399	27.9.2000	7	22	$8,0000
TOTAL		**512**	**1641**	**$150,000**

Table 1. Solitaire Project Tenements

4. PREVIOUS WORK

The project area was mapped by the BMR as part of the Mt Theo and Mt Solitaire 1:250,000 geological sheets (Stewart, 1976; Offe & Kennewell, 1978). The BMR also carried out regional gravity surveys in the late 1960's (Flavelle, 1965; Whitworth, 1970) and a regional airborne aeromagnetics and radiometric survey in 1994 (Brodie 1994).

An airborne magnetic survey with 400m line spacing was completed by AGSO in 1993 over the Mt Solitaire and Mt Theo sheets as part of a larger survey that included the Highland Rocks sheet to the immediate west. The results of the survey identified the southeast strike extension of the Trans-Tanami Structure (or G3 Gravity Lineament as it was then known) within the project area. At the time, this structure was emerging in significance as an important continental scale feature traversing close to the recently discovered The Granites and Dead Bullock Soak (DBS) gold deposits.

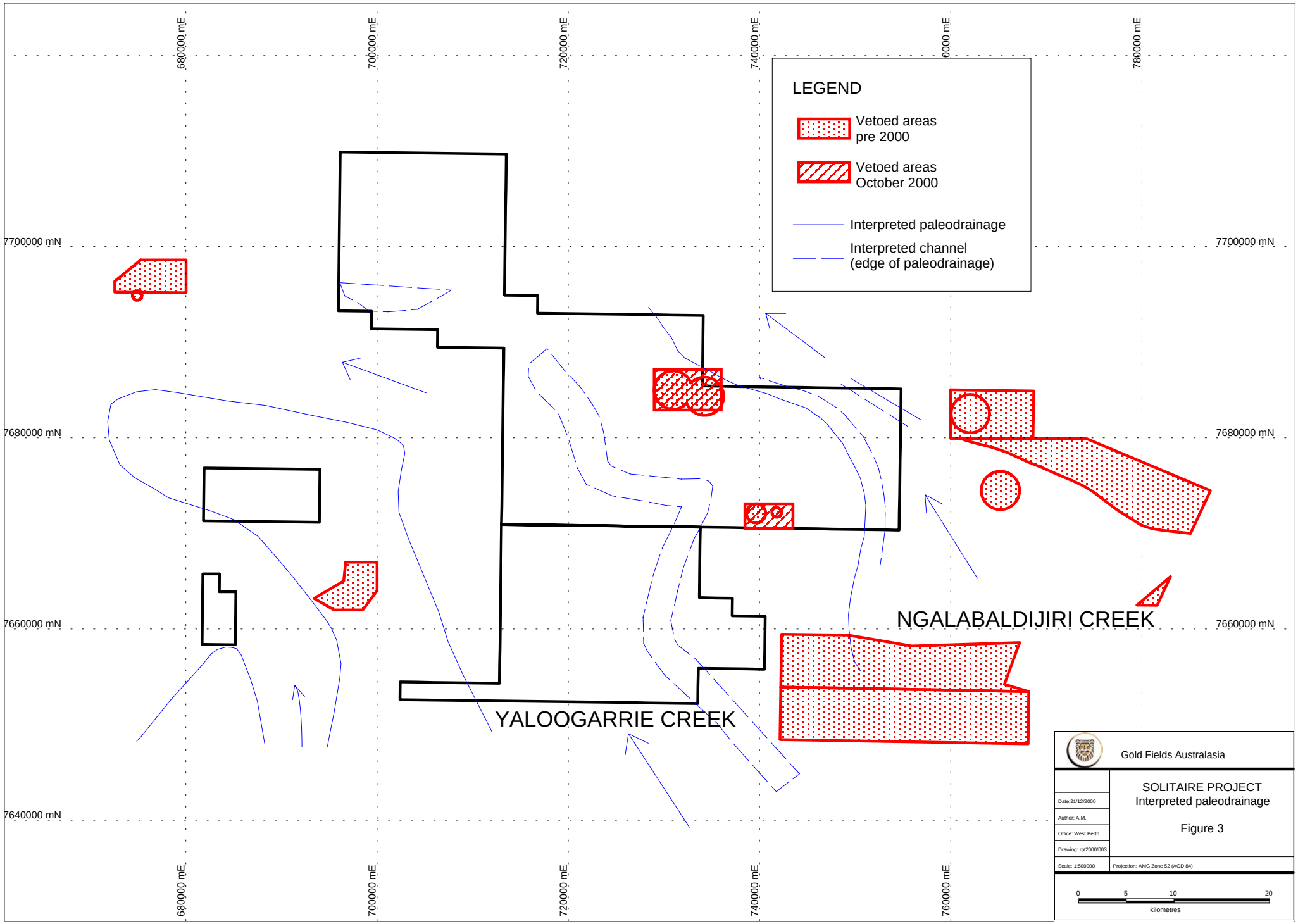
In 1994 Sons of Gwalia (SOG) used this rationale for the acquisition of about 5,000 km^2 of exploration licences. SOG applied the aeromagnetic data to direct surface sampling and drilling, specifically targeting magnetic domains. The exploration premise was an apparent coincidence of magnetic highs with The Granites and DBS gold deposits to the northwest.

From this constrained target generation strategy, SOG explored eighteen areas and drilled a total of 2361 reconnaissance vacuum and 420 follow up RAB holes within the Solitaire Project Area (Figure 4). The drilling identified five areas of low-order anomalous gold, four of which lie within the Solitaire Project area (Figure 5).

One of these areas is located within Area A, where a vacuum hole returned a peak gold value of 36ppb Au. Adjacent to Area D a weak gold anomaly was located 2km west of Karadi Hill. Drilling returned 8ppb and 13ppb Au from shallow depths. Follow up drilling of this anomaly returned similar gold values, with a singular result of 72ppb Au sourced several kilometres to the west within Area D. The anomalous gold is confined within or along the often sheared margins of amphibolite bodies adjacent to granites. SOG interpreted such a setting as being of the Halls Creek style with low tonnage potential, which downgraded the economic significance. About 8km northwest of these results (and still within Area D), a value of 11ppb Au was detected within biotite schist. An arsenic anomaly located approximately 10km west of Karadi Hill is associated with a brecciated chert outcrop within metasediments and biotite schists. SOG concluded linear magnetic features such as identified at Area D, are indicative of amphibolites (Edwards and Westaway, 1997). Broader zones of composite magnetic horizons reveal early stage magnetite-bearing granites, magnetic aureoles and later felsic intrusions (eg Areas A and C). Areas of subdued magnetics often represent underlying metasediments and late stage Coomarie Suite granites.

The Abrolhos Prospect (Figure 2) is situated approximately 10 km west of the southern part of EL 10217 and was discovered during the follow up of a single point 100ppm arsenic surface lag (laterite) assay adjacent to a northwest trending magnetic feature. A nearby RAB hole sampled the upper saprolite and returned 11ppb Au. Further RAB drilling revealed three linear mineralised horizons within a broad northwest trending gold-arsenic anomaly 5km long by 1.6km wide. The host rocks include quartz-veined metapelites isolated within massive granite intrusives. Abrolhos was the most encouraging prospect discovered by SOG during their exploration of their large tenement holding but comprises gold mineralisation averaging about 0.5g/t. in several small discontinuous bodies.

SOG ceased exploration in 1997 and surrendered their exploration licences in 1998 after failing to attract joint venture partners. Tanami Gold, along with several other companies applied for parts of these surrendered tenements. Consequently, EL's 10216, 10217, 10398 and 10399 were granted to Tanami Gold in September 2000 after the "Consent to Explore" agreement with the CLC was approved. (See Appendix 4 for Pre-Existing Environmental Disturbance Record).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7680000 mN
7660000 mN
7640000 mN
760000 mE
LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
Interpreted paleodrainage
Interpreted channel (edge of paleodrainage)
NGALABALDIJIRI CREEK
YALOOGARRIE CREEK
Gold Fields Australasia
SOLITAIRE PROJECT
Interpreted paleodrainage
Figure 3
Date:21/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt2000/003
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres


LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
RAB ended in cover
Aircore ended in bedrock
Aircore ended in cover
RAB ended in bedrock
Vacuum ended in bedrock
Vacuum ended in cover
680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
Gold Fields Australasia
SOLITAIRE PROJECT
SOG drill hole plan
Figure 4
Date:20/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt2000/004
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres

5. REGIONAL GEOLOGY

The regional setting of the Solitaire Project is interpreted as lying within the North Province of the Palaeoproterozoic Arunta Block (Stewart et al, 1984 and Hendrick et al 2000) which abuts the Tanami Inlier to the north.

Gold mineralisation within the Tanami Region is preferentially hosted by fine grained, generally ferruginous, carbonaceous sediments or mafic rocks of the Tanami Group (eg. Dead Bullock Formation), McFarlane Peak Group and Mt Charles Formation (Hendrickx et al, 2000). High-grade mineralisation is spatially related to younger ovoid shaped I-type granitoid intrusions. Mineralisation is introduced with quartz-carbonate veins and chloritic alteration and is associated with shears, dilation zones and hosted in chemically reactive fine-grained metasediments.

6. LOCAL GEOLOGY

The gravity and magnetic data indicates the area can be divided into three separate geophysical and geological domains:

1. Southern

- A strong east-west trending gravity anomaly, east-west trending magnetic anomalies and rootless folds dominate the southern domain.
- The northern east trending boundary of this domain is strongly evident in both magnetic and gravity data and corresponds with the Arunta sequence.

2. Intermediate (transitional)

- Comprises a moderate gravity anomaly with subtle trends, more akin to the northern domain.
- Magnetic anomalies are irregular and east-west trending, more akin to the southern domain.
- Interpreted as a block of Archaean thrust over Proterozoic sequences.
- To the northwest, the Arunta Block abuts the Palaeoproterozoic Granites/Tanami Inlier.

This structure is clearly evident from regional magnetic data and extends east to at least the Arltunga Goldfield and west of the Dead Bullock Soak Goldfield ultimately forming the northern margin of the Paleozoic Canning Basin.

The project area straddles the boundary of the northern domain of the Arunta Block and the intermediate domain. The WNW-NW trending Trans-Tanami Structural Corridor traverses this boundary and the project area. The Willowra Gravity Ridge is a 20km wide east-west trending feature that is unusual for the granite terrane seen elsewhere across the central part of EL 10216 and suggests deep basement close to the surface. This ridge is interpreted as an extended thrust zone of Archaean over Proterozoic sequences.

Magnetic lineations indicate that the general bedrock strike direction of the project area is northwest to southeast with a major flexure identified at the necking of EL 10216 boundaries. The interpreted northeast trending magnetic linear perturbations show little evidence of displacement.

Distal pediplains and floodplains with a Quaternary aeolian sand cover denote the landform of the project area. Extensive flood-plains relic of the ancient Yaloogarie and Ngalabaldjiri paleodrainage systems traverse a large part of the project area, adding difficulty to defining and sampling the bedrock lithologies (Figure 3).

Depositional plains separated by long, gentle gradients dominate the topography. Many of these gradients are broadly convex with duricrust stripped crests, which commonly reach 10-20m above the surroundings.

Felsic intrusives dominate the bedrock geology accompanied by small inliers of quartzo-feldspathic wackes, siltstones and minor arenites. These metasediments have been interpreted as Palaeoproterozoic Lander Rock Beds (LRB) of the Arunta Block, which are regarded as being contemporaneous with the Tanami Group.

Apparent zones of more mafic to intermediate lithologies have been recognised. Such rock units include diorites, tonalites and amphibolites; and appear to be confined within Trans-Tanami Structural Corridor. Similar blocks have been recognised within the Tanami Inlier and can be correlated, in the north, to Normandy's Cashel, East Ptilotus, Hordern Hills, Twin Bonanza prospects and The Granites, Dead Bullock Soak, Windy Hill and Titania gold deposits.

Petrologic studies commissioned by SOG of rocks within and proximal to the project area indicate upper greenschist to lower amphibolite facies metamorphism. There is also evidence of high temperature metamorphism as high as amphibolite-granulite facies not related to thermal contact events as at Abrolhos. This is not common and is mapped as an elongate narrow configuration, which define corridors of probable structural control. Likewise and to a similar restricted extent, several of the granitoids in Areas B and C exhibit weak to strong foliation (described as felsic gneisses). The SOG drill coverage of these greenschist/amphibolite facies corridors has been sufficient to identify the occurrence of alteration associated with mineralisation.

7. OBJECTIVES AND PLANNED WORK PROGRAMME

The work programme for the 2000 field season was planned to:

- infill and deeper test the vacuum drilling anomalies identified by SOG which had produced incomplete sampling and had often been terminated in cover or unrecognisable bedrock.
- complete 200m spaced aeromagnetic and radiometric coverage conducted by Tanami Gold in 1999 to assist drill targeting.
- undertake wide spaced reconnaissance drilling in areas not previously drilled that were considered structurally favourable and/or magnetically anomalous and where the depth of cover was not in excess of 50m.

The drilling component of the planned work involved approximately 46,000m in 1200 holes comprising 27,000m of infill drilling and 19,000m of reconnaissance scale drilling. It was anticipated that the agreement with the CLC would be in place, the tenements granted and work programme approved to permit fieldwork to commence in late July 2000.

The rationale of the drilling programme was:

- many of the SOG anomalies were vacuum drill derived from cover or were possibly collected from the depletion zone. These anomalies needed deeper testing.
- some of the SOG drill lines that contained anomalous gold were 800m apart and needed infill drilling.
- the negative components of dipole anomalies associated with the northwest trending Trans Tanami Structural Corridor had not been drilled but were clearly warranted since they may represent hydrothermally depleted demagnetised zones.
- some structurally favourable targets under the margins of the paleodrainages remained untested.

Drilling target areas were defined on the basis of geology, geophysics, structure and previous exploration results, the rationale and targets of which, are discussed below.

7.1 EL 10216

7.1.1 Area A

Rationale

The dominant magnetic feature in this area is an elongated granite intrusive. A series of magnetic discontinuities disrupt the magnetic domains and are interpreted as structural splays and jogs. The SOG drilling returned low order gold and copper anomalies along the northern margin and arsenic (without gold) anomalies along the southern margin. However, hydrothermal alteration of significance was not noted. SOG undertook an infill vacuum sampling survey of the gold anomaly on the northern margin, halving the drill lines to 400m spacing, but failed to repeat the initial anomaly.

Targets

- the non-magnetic sector north of the SOG follow up drilling, which had been not tested.
- coverage of a northeast striking magnetic perturbation coincident with a broad arsenic anomaly - an SRK Consulting (SRK) interpreted Leichhardt transfer fault.
- a narrow carbonaceous sequence in the turbidite package; possibly a correlative to the Killi Killi Formation of the Tanami Group discovered by SOG drilling.

- opportunity of investigating reactive sediments analogous to those hosting the Titania style mineralisation.
- testing a multiple linear magnetic anomaly associated with an extended 8000m by 500m arsenic anomaly.
- determine the bedrock source of low gold (20ppb) in a restricted alluvial occurrence.

7.1.2 Areas B and C

Rationale

SOG have completed extensive drilling over these areas and received weakly anomalous gold in the southern part of Area C. However SOG did not target the northwest trending non-magnetic zone as it id not conform to their exploration rationale.

Targets

- investigate the northwest striking non-magnetic zone, interpreted by SRK to define the northern margin of the Trans-Tanami Structural Corridor.
- assess conditional evidence of fractionated granites from the geochemical presence of arsenic and occurrence of muscovite/biotite (and rare tourmaline).
- coverage of magnetic interpreted shear zones, particularly those that show magnetic depletion.
- complete geochemical coverage of drill indicated mafic intrusives and biotite schists.
- investigate a granite contact aureole indicated by an associated radiometric anomaly.
- sample east-west to west northwest striking quartz-(haematite) veins.

7.1.3 Area E

Rationale

This area comprises a coincident gravity and domal magnetic high.

Target

- aircore test the coincident gravity and magnetic high under the Ngalabaldjiri paleodrainage.

7.1.4 Area G

Rationale

SOG drilling focused on the high amplitude magnetic domains, which were revealed as granitoids, without considering the favoured Tanami Group host units. An east-west trending magnetic unit was interpreted by GFA as possibly being McFarlane Peak Group, which include reactive carbonaceous shales and volcanics.

Targets

- test the contact aureole of an interpreted Inningarra Suite Batholith, which in part defines the southern extent of the Tanami Inlier.
- investigate a magnetic target interpreted to be MacFarlane Peak Group sediments located west of the SOG drill coverage.
- follow up a SOG interpreted 10km strike length metasediment package corresponding to a northeast striking magnetic discontinuity, including a single bedrock value of 5ppb Au.

7.1.5 Area H

Rationale

SOG had completed drilling over only a small part of this area.

Target

- test two linear magnetic horizons of similar magnetic response to Dead Bullock Formation, within the Yaloogarie Creek paleodrainage. One magnetic feature is interpreted to bound a late non-magnetic granite.

7.1.6 Area K

Rationale

SOG completed vacuum drilling but most holes failed to reach bedrock. A northwest trending linear magnetic feature is evident over the central part of this area and had returned weakly anomalous arsenic values.

Targets

- assess the northwest trending weakly anomalous linear magnetic feature.

7.2 EL 10217

7.2.1 Area D

Rationale

SOG completed reconnaissance drill coverage (800 by 160-80m) in the southeast of EL 10217, which returned low level gold, arsenic and copper generally associated with amphibolite.

Targets

- assess mafic dykes emplaced within felsic intrusives.
- arsenic anomaly (a peak of 225ppm) with a strike length of 500m associated with multiple “chert” horizons and low magnetic signatures.

7.2.2 Area F

Rationale

The eastern part of this area was not drill tested by SOG and is interpreted to lie on the edge of a paleodrainage.

Target

- test beneath the Yaloogarie Creek paleodrainage.

7.2.3 Area L

Rationale

SOG drilled four holes but received no encouragement to extend drilling coverage.

Targets

- test beneath the shallow margins of the paleodrainage, where previous drilling indicated a depth in excess of 100m in the central part.
- assess a discontinuous magnetic feature parallel to and 25km east of the similar amplitude magnetic linear adjacent to the Abrolhos Prospect.

7.3 EL 10398

Rationale

The western half of the tenement comprises the eastern part of a north flowing paleodrainage, the depth of which was not determined by SOG. Shallow vacuum drilling had been completed by SOG over the eastern two thirds of this tenement. Most of the drilling reached bedrock and no anomalous gold was detected.

Targets

- test the bedrock in the western part of the tenement if the cover is less than 50m.
- achieve deeper bedrock intersections along the southern and northern margins of the tenement.

7.4 EL 10399

Rationale

This tenement had not previously been explored as it lies completely within a paleodrainage system, is not magnetically anomalous and encompasses a small area.

Targets

- determine the bedrock lithology and any anomalous gold mineralisation by 1000m by 1000m spaced drilling.

Follow-up Drill Targets:	*Define anomalies and demonstrate a bedrock source with bracketing 400mx80m drill traverses.*
Unexplored Magnetic Targets:	*Determine anomalous magnetic association with a 800mx100m drill pattern.*
Regional Coverage:	*Achieve geochemical coverage varying from 1000mx500m to 2000mx1000m.*

Table 2. Summary of GFA Drilling Objectives

8. WORK COMPLETED

Work summaries are shown in Tables 3 to 5 and analytical details are shown in Table 6 and Appendices 2 and 3.

8.1 Aeromagnetic, Radiometric and Digital Elevation Survey

In mid August 2000 an aeromagnetic, radiometric and digital elevation survey was flown to complete required coverage of the project area. This survey covered most of EL 10216 and 10217 (Figure 6).

The survey was conducted by UTS Geophysics of Perth using a single engine; Lycoming fixed wing aircraft with a 25m ground clearance for a total of 5772 line kilometres. North-south lines spaced at 200m were flown over EL's 10216 and 10217 and the results stitched into a previous survey commissioned by Tanami Gold in 1999.

The radiometric survey was processed for K, U and Th. Further details on the specifications and logistics of this survey can be found in the logistics report (UTS, 2000).

8.2 Track Clearing and Development

No new tracks were established, but an existing east-west track from the Tanami Highway to the northern part of EL 10216 was cleared of vegetation (Figure 1). This track had deteriorated and is still only passable with difficulty by light 4WD vehicles.

Two campsites were occupied during the work programme (Figure1). The first was located 200m north of the east-west access track into Area D and was used for about one month for exploration of Area D. A second camp was established about 200m northwest of a SOG water bore in Area H and was where most of the work programme was conducted from. Coordinates for the campsites are shown in Appendix 5. (Also see Appendix 6 for the Environmental Register – Land Status Record).

8.3 Surface Sampling

It became apparent soon after the commencement of fieldwork that there were significant areas of lag and smaller areas of float and outcrop that had not previously been sampled. Whilst some of the lag was clearly ferruginous pisolitic suggesting that it may have been transported, a lot was quartz vein rich and therefore a desirable sample medium.

A helicopter surface sampling program was undertaken during October 2000 to quickly complete comprehensive lag and rock chip sampling of EL's 10216 and 10217. EL 10398 and EL 10299 were not surveyed as there was no lag or rock chip material evident. Arafura Helicopters Pty Ltd of Darwin were contracted and a Bell 47 helicopter was used for the survey.

Figure 7 shows the flight areas for the survey but sampling was only conducted within the tenement area. The survey was flown on 1000 m north-south line spacing for a total of 1114 line km over a period of 4 days. Where suitable material was available, +3mm samples were collected at intervals of no less than 500m.

Where large areas of lag was present (eg Area D and Area B adjacent to the vetoed areas) the location was recorded and closer spaced sampling was completed by vehicle.

A total of 333 lag and 33 rock chip samples were collected from the project area (Table 6 and Appendices 2 and 3). The samples were submitted to Australian Laboratory Services (ALS) in Alice Springs and analysed in Perth and Brisbane for Au by the ZARG method, and Cu, Pb, Zn, As, Ag, Bi, Sb, Mn, Fe, Ni and Co by ICPMS and Sn, W and Ti by XRF (Table 5).

8.4 Drilling

A dual purpose RAB and aircore rig (250PSI/600CFM) operated by Bostech Drilling Services of Perth was used to complete the drilling. A total of 769 holes were drilled as illustrated in Figure 8. Holes were drilled to a designed depth of 50 m or until drilling intersected approximately 12m of bedrock.

A total of 381 infill RAB drill holes were completed at a spacing of 80m to conform with the spacing of the SOG programme and on lines which were either parallel or perpendicular to the magnetic strike depending on the targeting criteria of the holes. Since the magnetic dip of the project area is to the north, each hole was drilled with a declination of 60° to the south or southwest.

A total of 279 reconnaissance inclined and vertical holes were drilled which were both RAB and aircore conditional on the likely presence of intersected water. They were drilled at a spacing of 500m, 1000m or 2,000m depending on the target and thickness of cover. A significant number of planned reconnaissance holes were not drilled because the cover was in excess of 50m (Areas G, H and L and the western half of EL 10399).

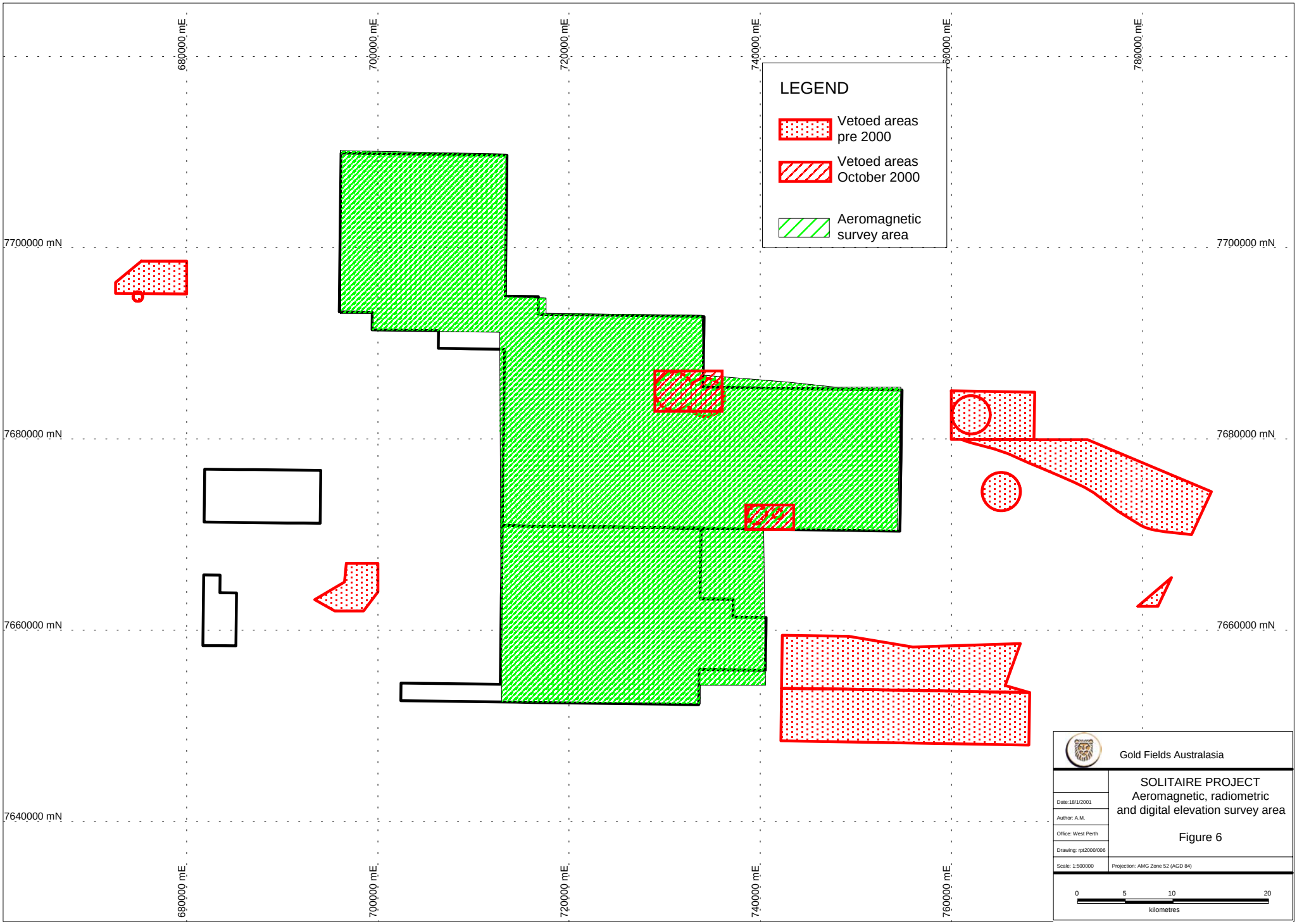
8.5 Drill Hole Sampling

Samples from infill holes were collected from the rig cyclone in one metre intervals. Speared samples from each one metre were composited into three metre samples to make up samples of 1kg to 2kg.

When drilling in the deep transported cover in or adjacent to the paleodrainages (most of the reconnaissance holes) composite samples were generally not collected until saprolite was recognised. In some cases a representative sample from a favourable cover horizon such as hardpan was sampled. In holes that terminated in cover at 50m or deeper, the last 6m was composite sampled.

Samples were submitted to Amdel Laboratories Ltd (Amdel) in Alice Springs where they were prepared before being sent to their laboratory in Adelaide for analysis of Au, Cu and As (Table 6 and Appendices 6 and 7).

Commercially prepared sample standards of 50ppb gold were purchased and substituted for a drill sample at each sample number which ended in ‘30’. Each number which ended in ‘60’ was a duplicate of the previous sample and a sample of a blank (Tanami dune sand) was inserted at each number ending in ‘90’. Some of these checks were not submitted exactly on the planned number but were submitted adjacent to the planned delegated numbers.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780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
Aeromagnetic survey area
Gold Fields Australasia
SOLITAIRE PROJECT
Aeromagnetic, radiometric and digital elevation survey area
Figure 6
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Author: A.M.
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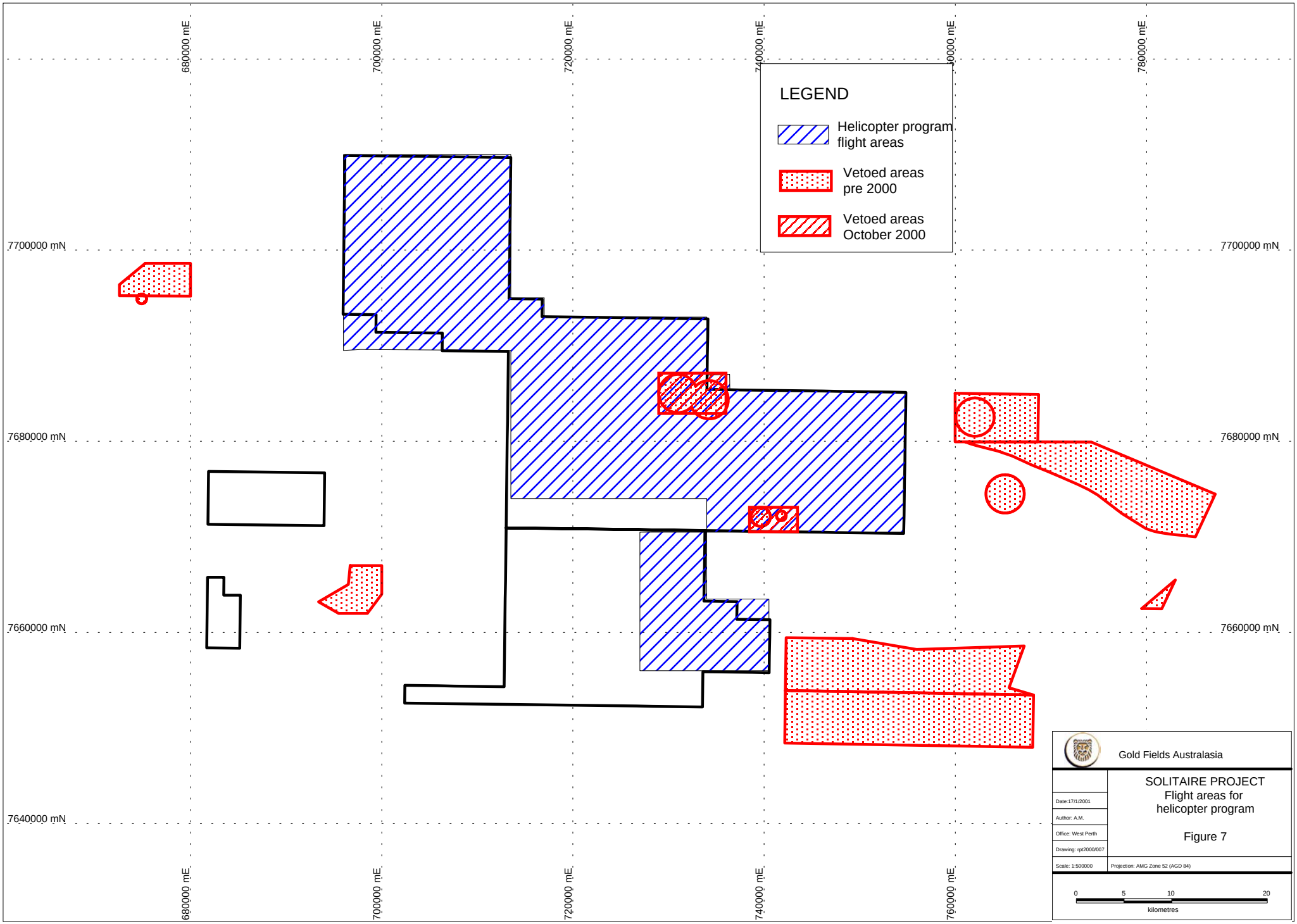
Drawing: rpt2000/006
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres


680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Helicopter program flight areas
Vetoed areas pre 2000
Vetoed areas October 2000
Gold Fields Australasia
SOLITAIRE PROJECT
Flight areas for helicopter program
Figure 7
Date:17/1/2001
Author: A.M.
Office: West Perth
Drawing: rpt2000/007
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres

In addition to the three metre composite sampling, near surface BLEG and lag samples were collected from each of the widely spaced reconnaissance holes and from the 80m spaced infill holes at a spacing of about 500m. The samples were generally collected near the top of each hole beneath the aeolian sand cover. The lag represented +3mm material and the BLEG samples weighed approximately 2kg of –40# material. The drill derived lag samples were processed in the same manner as the surface lags samples.

The BLEG samples were processed by ALS using the following method:

- weigh sample.
- remove a 200gm split for future reference.
- remaining sample weighed and then leached (static) using 0.5% cyanide solution.
- simple inversion after 8 and 16 hours (consists of inverting sealed container end over end once).
- solution organically extracted and read by a Zeemans furnace.
- analysed for Au with a detection limit of 0.1ppb.

The lag and BLEG mediums provided additional geochemical information to the composite samples. Both were assayed with a lower level of detection for gold (0.1ppb). The BLEG medium and method of processing enables low levels of hydromorphically distributed gold to be detected which would not be detected by the composite sampling. Since the lag samples are often vein quartz rich they are positively biased and may have detected gold from a nearby source, which was not intersected by the reconnaissance drilling.

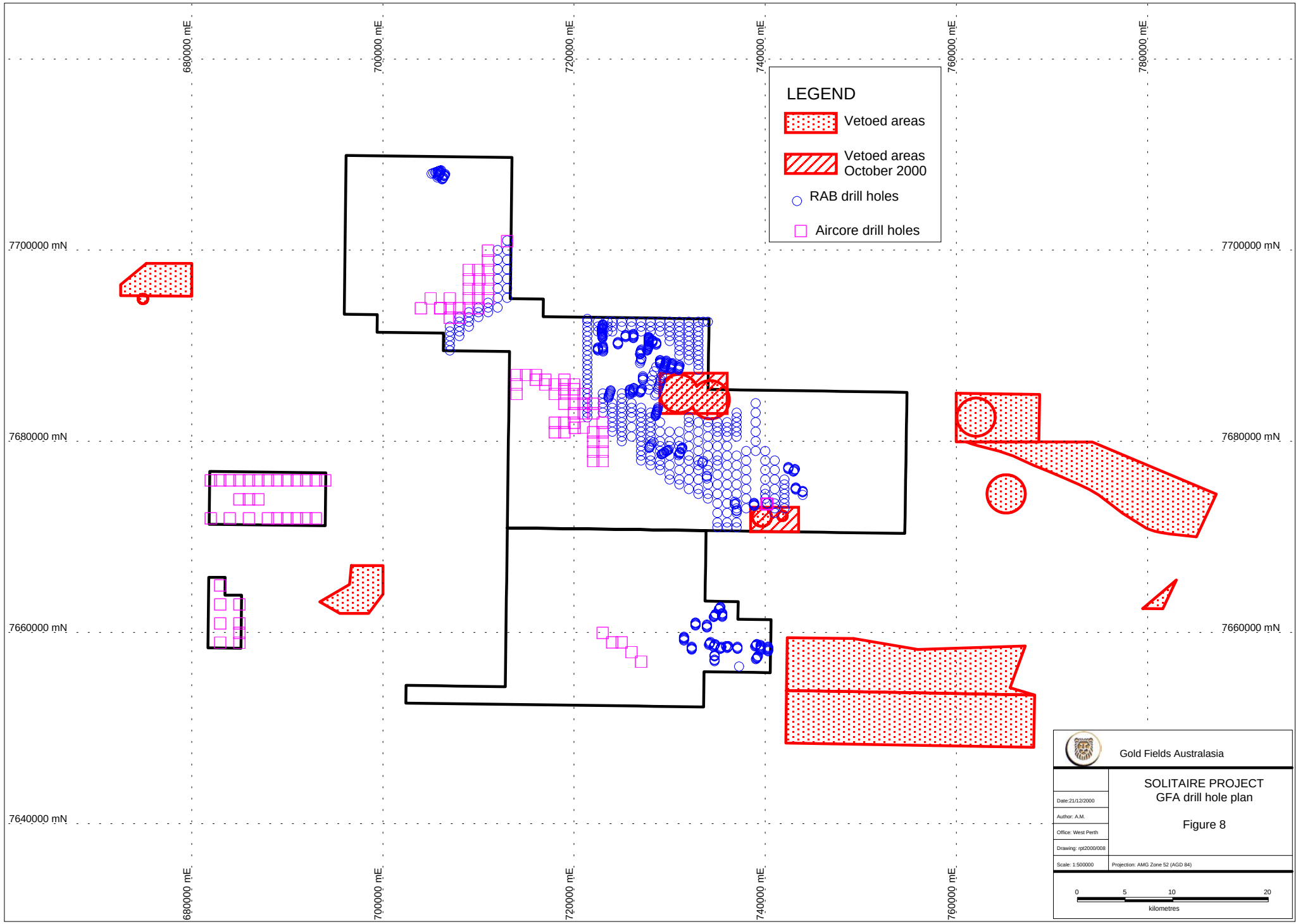
The purpose of collecting the drill derived lag and BLEG samples from infill drill holes (where two phases of drilling had been completed) was to provide anomaly calibration for the results of the samples collected from the reconnaissance drill holes.

Analytical batch details and analytical results are tabulated in Appendices 2 and 3.

8.6 Drill Hole and Surface Sampling Summaries

	RAB	AIRCORE	TOTAL
Metres	24036	4607	28643
Holes	661	108	769
Days	40	9	49
Samples	7110	576	7686
Average			
M/day	601	512	585
M/hole	36	43	37
H/day	17	12	16
S/day	178	64	157
S/hole	11	5	10

Table 3. Summary of Total Drilling


680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas
Vetoed areas October 2000
RAB drill holes
Aircore drill holes
Gold Fields Australasia
SOLITAIRE PROJECT
GFA drill hole plan
Figure 8
Date:21/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt2000/008
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres

PROGRAM	EL	RAB		AIRCORE	
		Holes	**m**	**Holes**	**m**
Infill	10216	293	11855		
	10217	95	4130		
Reconnaissance	10216	273	8051	70	2869
	10217			5	295
	10398			25	1038
	10399			8	405
TOTAL	**660**	**24036**	**4607**	**108**	**4607**

Table 4. Summary of Drilling by Type

Rock chip	33
Surface lag	333
Drill derived lag	389
Drill derived BLEG	414
Composite drill derived	7686
Total:	**8,855**

Table 5. Summary of Samples Collected

Sample Type	Lab	Method Code	Method	Detection Limit
RAB, A/C, Rock	Amdel	AA9	50g, AR/DIBK, C finish, AAS	1ppb Au 2ppm As 1ppm Cu
Lag	ALS	PM 225	50g, AR/DIBK, C finish, Zeeman AAS	0.1ppb Au
		IC 225	Cu, Pb, Zn, As, Co, Ni Ag Fe Mn Bi, Sb	1ppb 0.2 ppm 0.01% 5 ppm 2 ppm
		XRF1	Sn W, Ti	5 ppm 10 ppm
BLEG	ALS	PM 227	0.5% CN, static leach, DIBK, Zeeman AAS	0.1ppb Au

Table 6. Analytical Details

9. RESULTS AND DISCUSSION

9.1 Aeromagnetic, Radiometric and Digital Elevation Survey

The new survey identified several low amplitude short-strike magnetic features and gave better definition of magnetic linears lying beneath the paleodrainage systems. In general however it added little detail to the existing geological interpretation to substantially improve targeting (Figure 9).

An arcuate magnetic feature bounding an oval shaped magnetic low (interpreted as a magnetic granite batholith) located in H south of the northern camp was aircore tested. Holes targeting the western extent of this feature intersected in excess of 50m of cover and failed to reach bedrock, but no significant gold values were recorded within cover to suggest bedrock mineralisation. Several holes targeting the eastern extent of this feature intersected tonalite but returned no anomalous assay results.

A northwest trending magnetic feature was identified in Area L but was interpreted to be lying under excessive cover. The southeastern extent was aircore tested, but holes were still in cover at 50m with no anomalous gold values to provide any encouragement for further testing under such deep cover.

The radiometric component of the survey did assist in interpretation of the regolith. A broad east-west trending potassium anomaly was highlighted though Area C and drilling in this area returned potassic altered granite and tonalite with no significant mineralisation. (Figure 10).

A digital elevation survey plan is illustrated in Figure 11. This shows subtle hills over the eastern part of EL 10216 and an east-west trending 0.5m high lateritic breakaway.

9.2 Surface Sampling

Figure 12 shows gold results from the surface lag and rock chip sampling program. The maximum lag gold value received was 12ppb from the northwest corner of EL 10217 (Area K) but this result could not be confirmed with subsequent re-sampling.

Rock chip assay results were not encouraging with the highest values being 6 ppb Au and 84 ppm Cu from a large east-west trending quartz vein near the eastern tenement boundary of Area D. There were no significant multi-element assay results from either the lag or rock chip samples.

9.3 Drilling

Figure 13 shows depth of cover and Figures 14-17 show maximum gold and arsenic assay values from the drilling for both cover and bedrock. Figure 18 shows bottom of hole geology.

9.3.1 EL 10216 and EL 10217

Area A

The shallow cover permitted a rapid and thorough follow up RAB drill program but failed to repeat the anomalous results obtained by SOG. The drill coverage included testing several interpreted structural dilation zones and magnetic highs considered to represent alteration margins to granites. However, the only favourable result returned was a single gold anomaly (20ppb Au) within alluvium.

A narrow, 2km wide aureole of biotite facies metasediment along the northern margin of an elongate granite was mapped from drill chips. Intruded by dolerite, this metapelitic package included thin carbonaceous interbeds.

Area B & C

Targeting of linear magnetic features proved to be metasediments and tonalite. Minor dolerite dykes and pegmatites surrounded by granite exhibiting low magnetic signatures were also encountered.

An east southeast trending quartz vein with minor ferruginous open texture was targeted with five RAB holes (~ 740200E 7673500N). The holes intersected veining (with minor manganese alteration in part), biotite schist, dolerite and granite. Assay results were disappointing with a maximum gold result of 25ppb Au within dolerite.

Area D

This area is dominated by low grade metasediments intruded by narrow amphibolites. Along the southern margin, a chert breccia ridge defines a west northwest trending fault zone. Infill drilling failed to upgrade the gold results recorded by SOG.

There are similarities in the geological setting to the dolerite dykes of the subeconomic gold prospects of Sabre and Troutbeck (Normandy) located approximately 250 km to the southeast. However the quartz veining and chloritic alteration of the contact margin at these prospects is absent in Area D.

Areas E and F

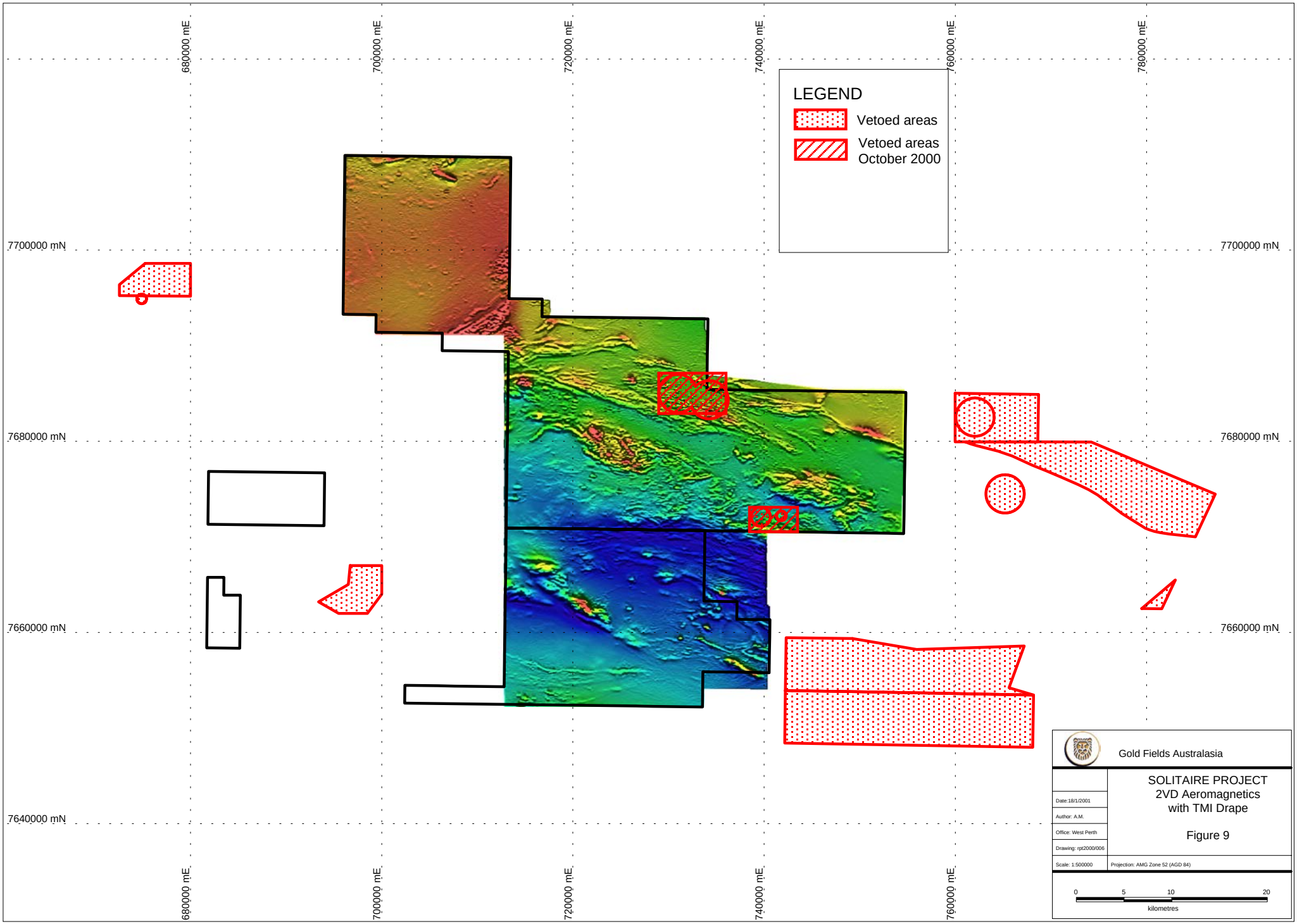
These areas were not drilled due to wet weather delays near the end of the field season delays and a reinterpretation suggested that the Area F possessed gneissic basement.

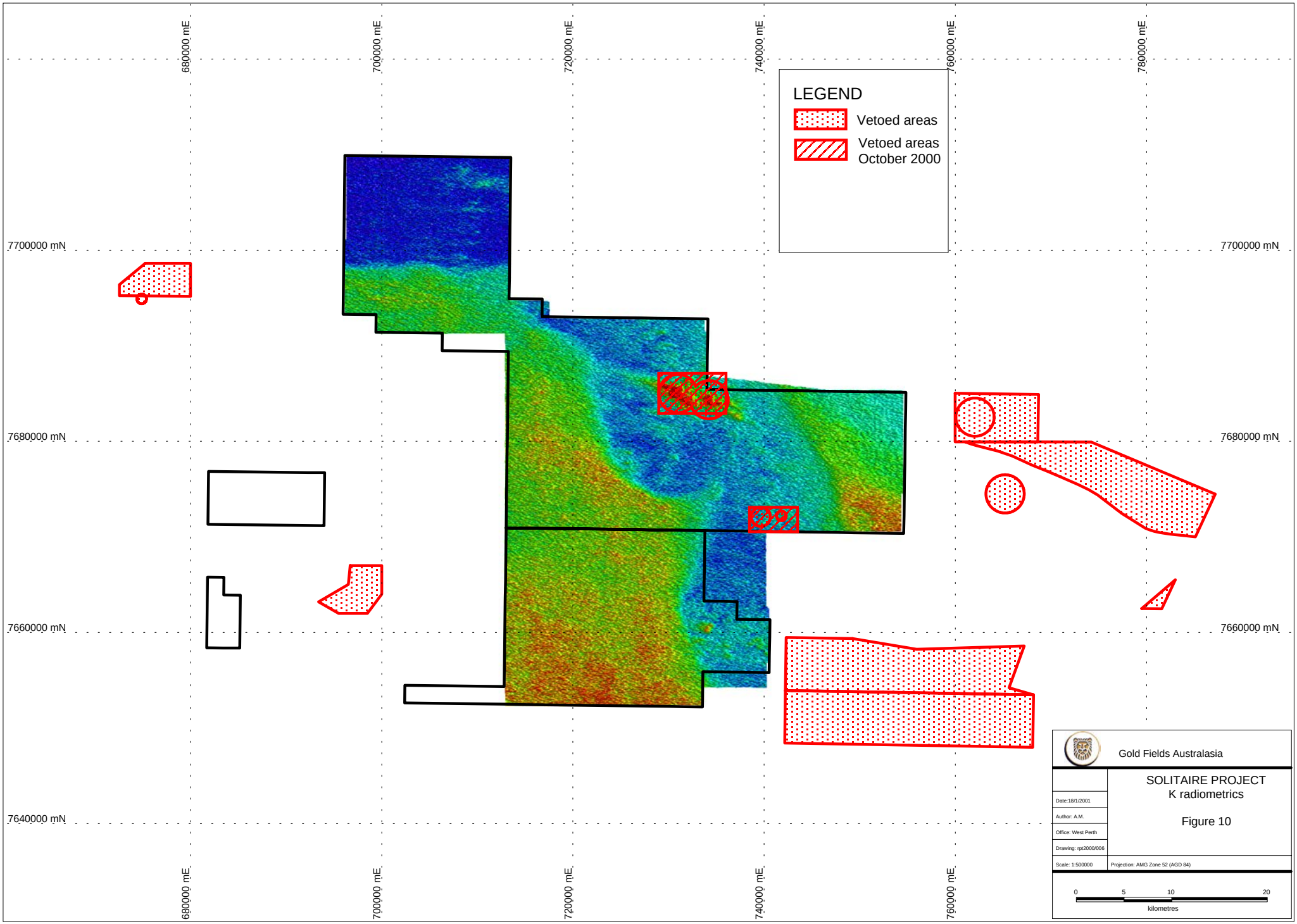
Area G

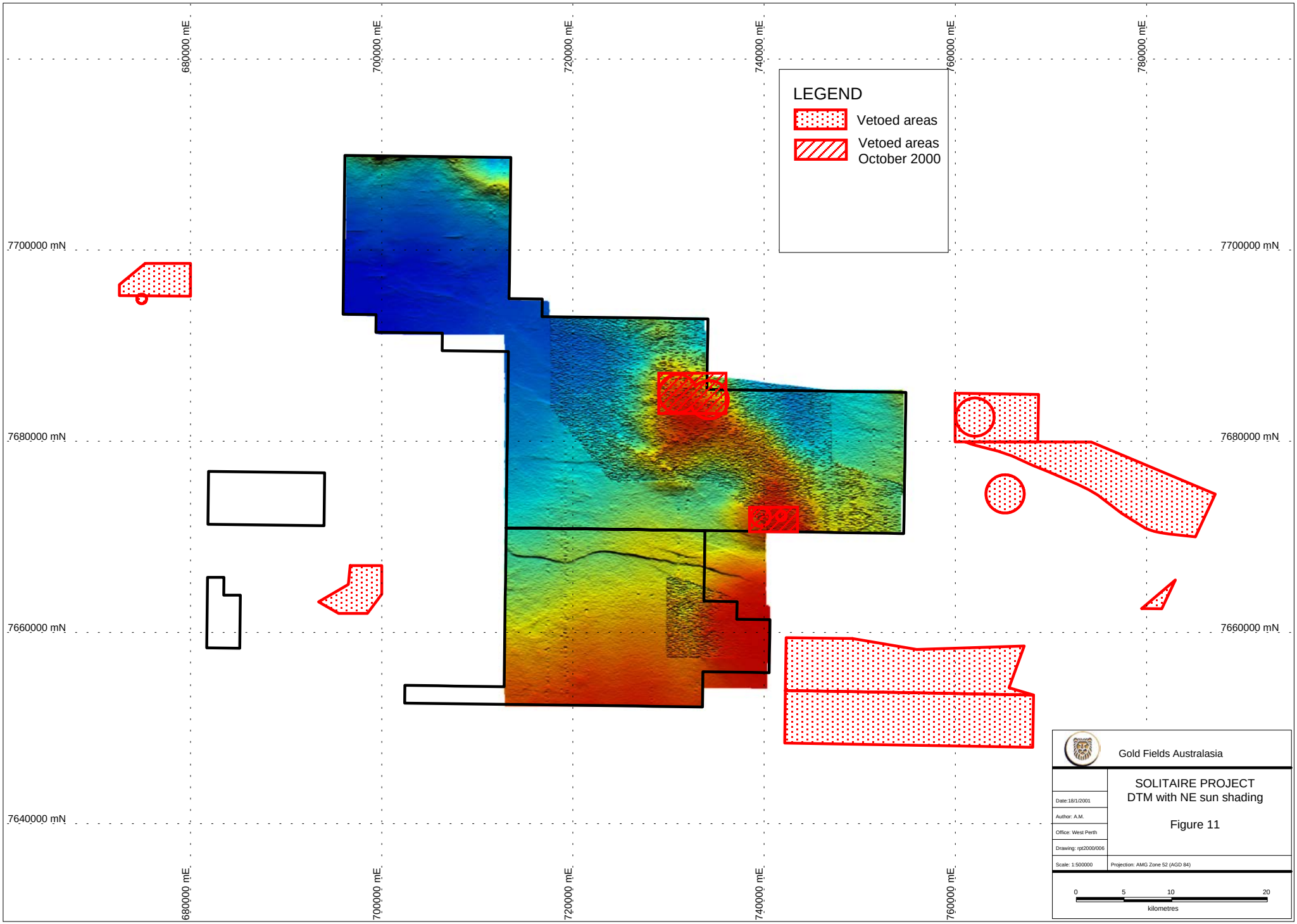
The dominant rock-type was granite and pegmatites, with sizeable rafts of metasediments revealed along the margin of the two magnetic domains. The alluvial cover shallows to the north.

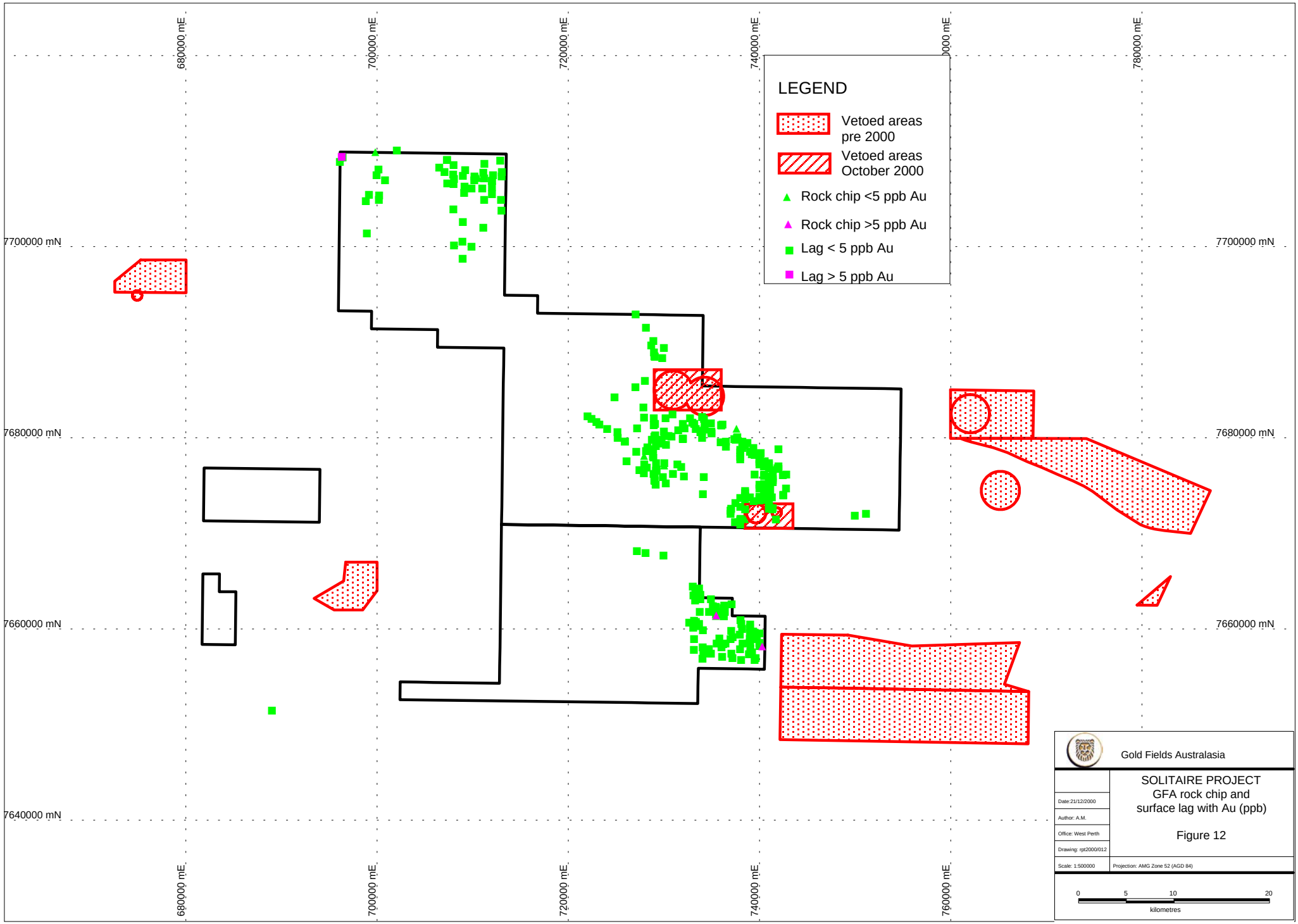
Area H

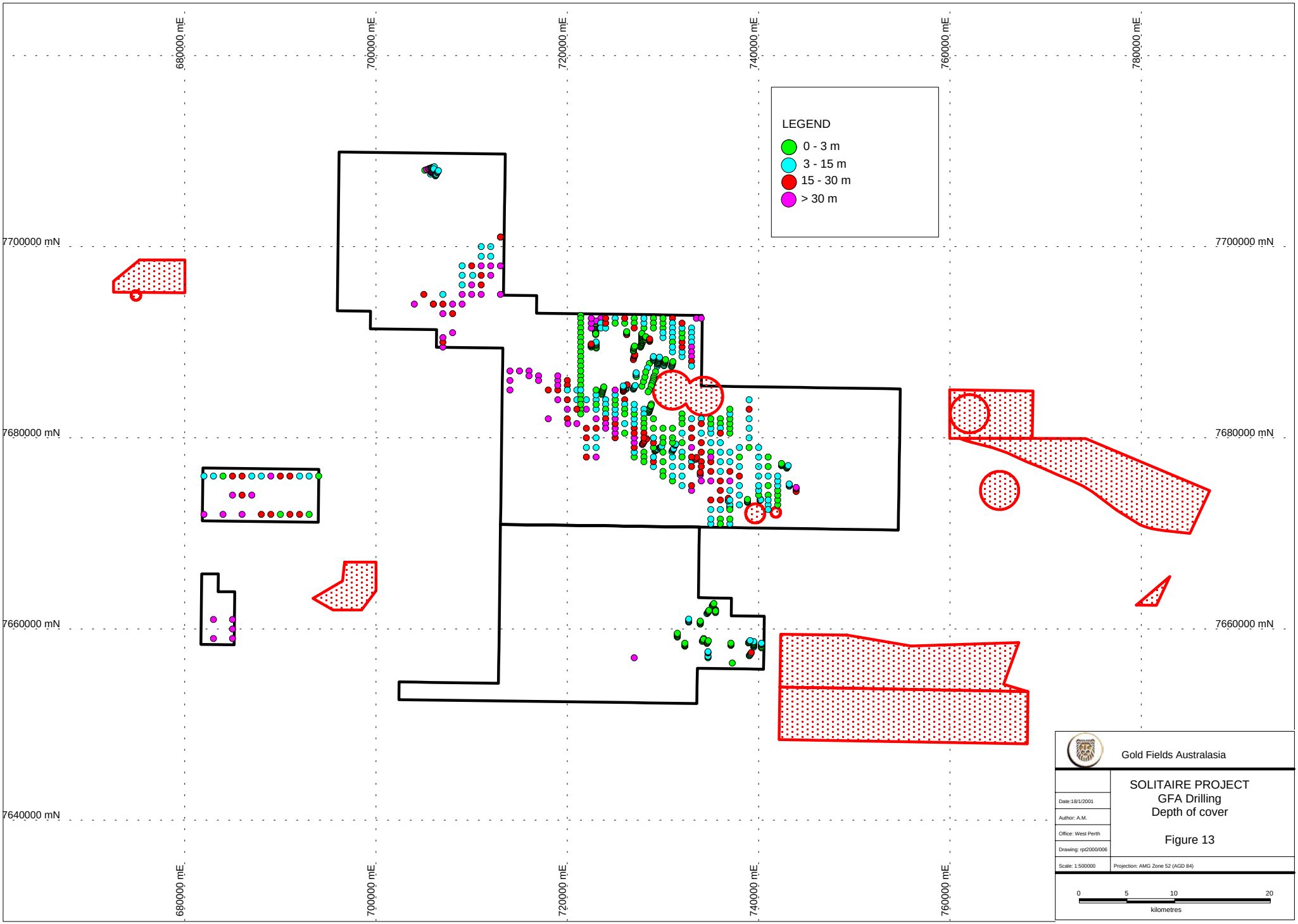
Two magnetic domains were identified. Drilling indicated these to be a later stage tonalite intruding a magnetic granite. The tonalite dominates the southern sector and the contact defines a narrow high amplitude magnetic aureole. A restricted raft of metapelite within the granites occurs along the eastern margin of the relic drainage system.

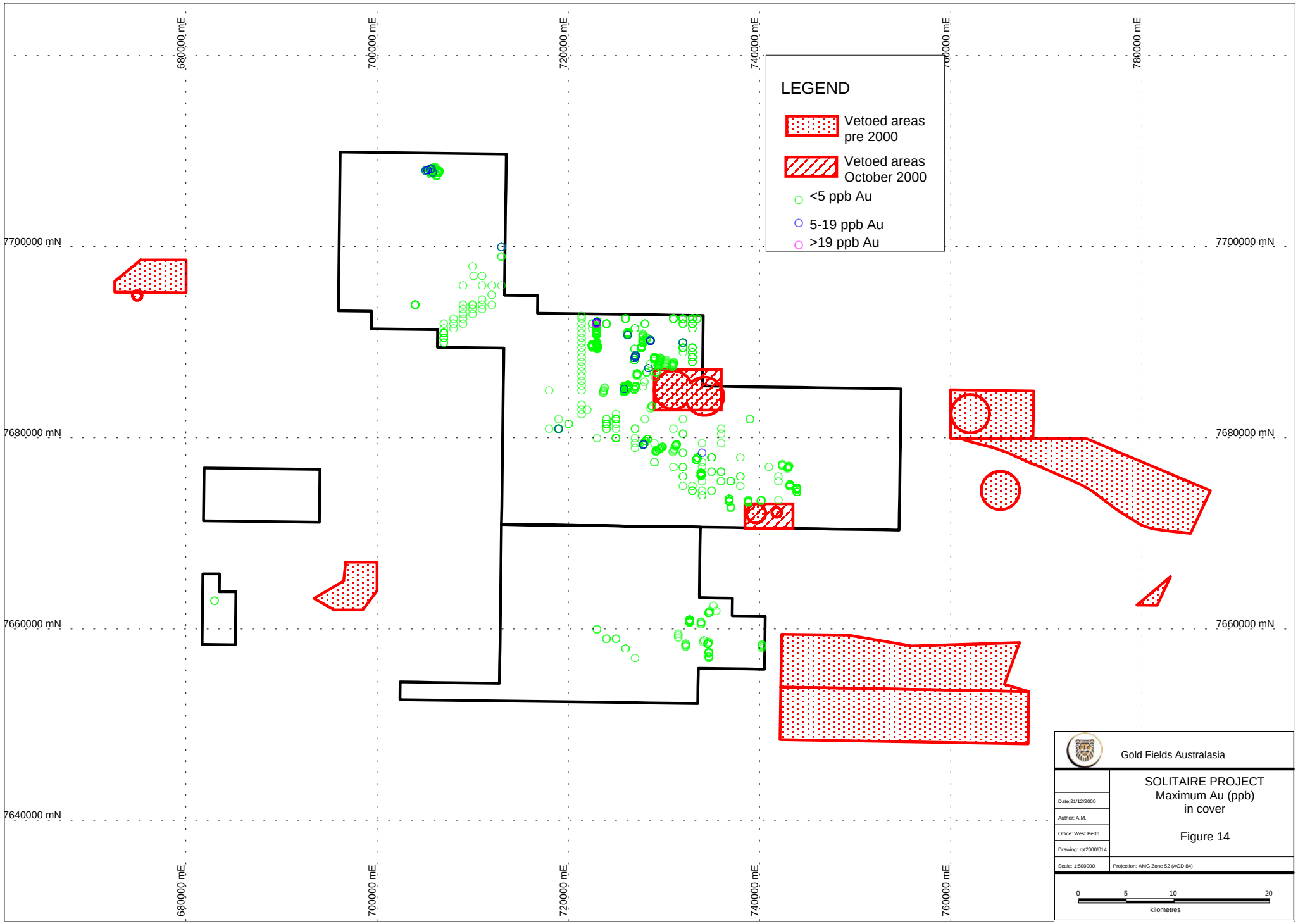

680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas
Vetoed areas October 2000
Gold Fields Australasia
SOLITAIRE PROJECT
2VD Aeromagnetics with TMI Drape
Figure 9
Date:18/1/2001
Author: A.M.
Office: West Perth
Drawing: rpt2000/006
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres

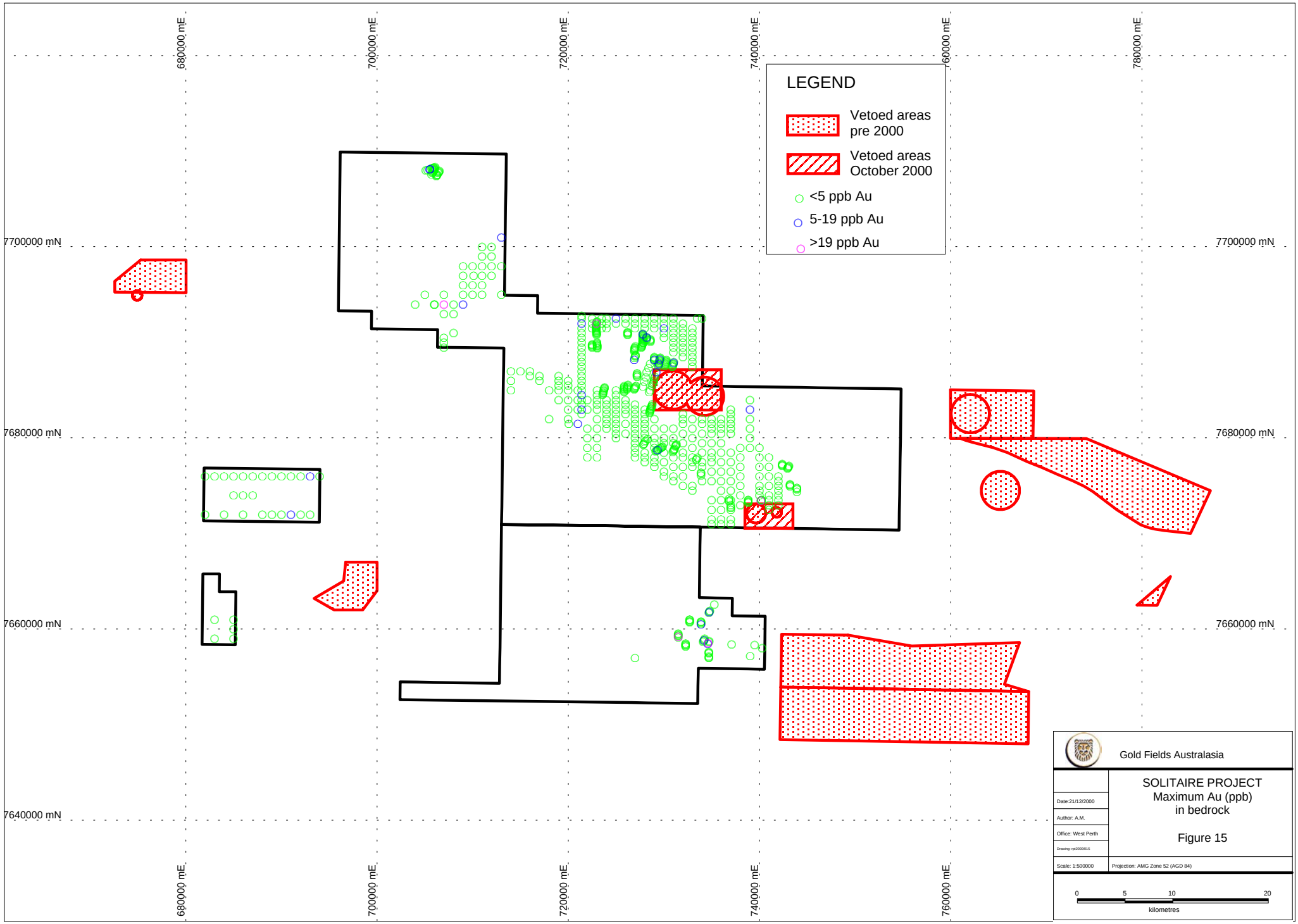

680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas
Vetoed areas October 2000
Gold Fields Australasia
SOLITAIRE PROJECT
K radiometrics
Figure 10
Date:18/1/2001
Author: A.M.
Office: West Perth
Drawing: rpt2000/006
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0
5
10
20
kilometres

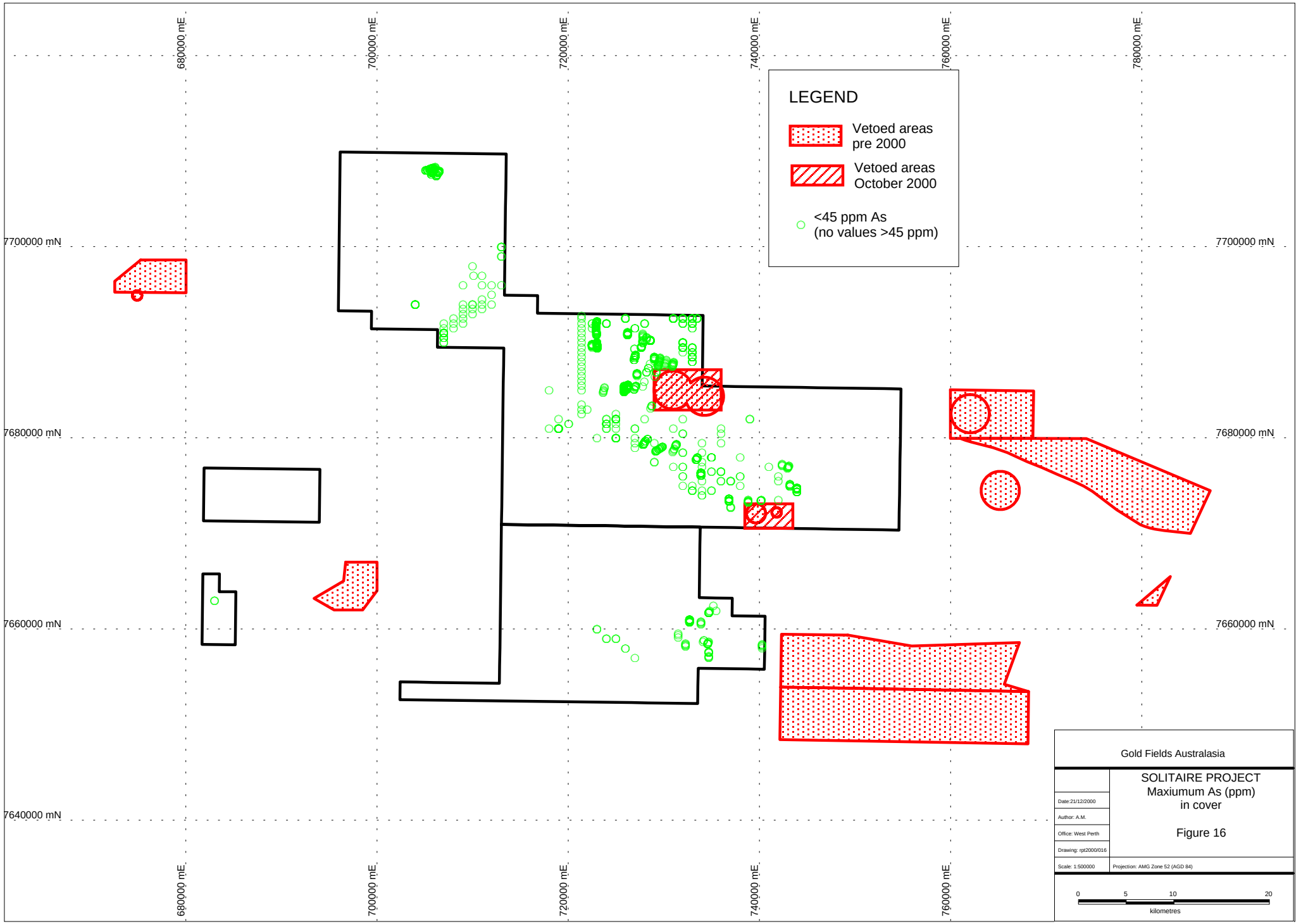

680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas
Vetoed areas
October 2000
Gold Fields Australasia
SOLITAIRE PROJECT
DTM with NE sun shading
Figure 11
Date:18/1/2001
Author: A.M.
Office: West Perth
Drawing: rpt2000/006
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0
5
10
20
kilometres

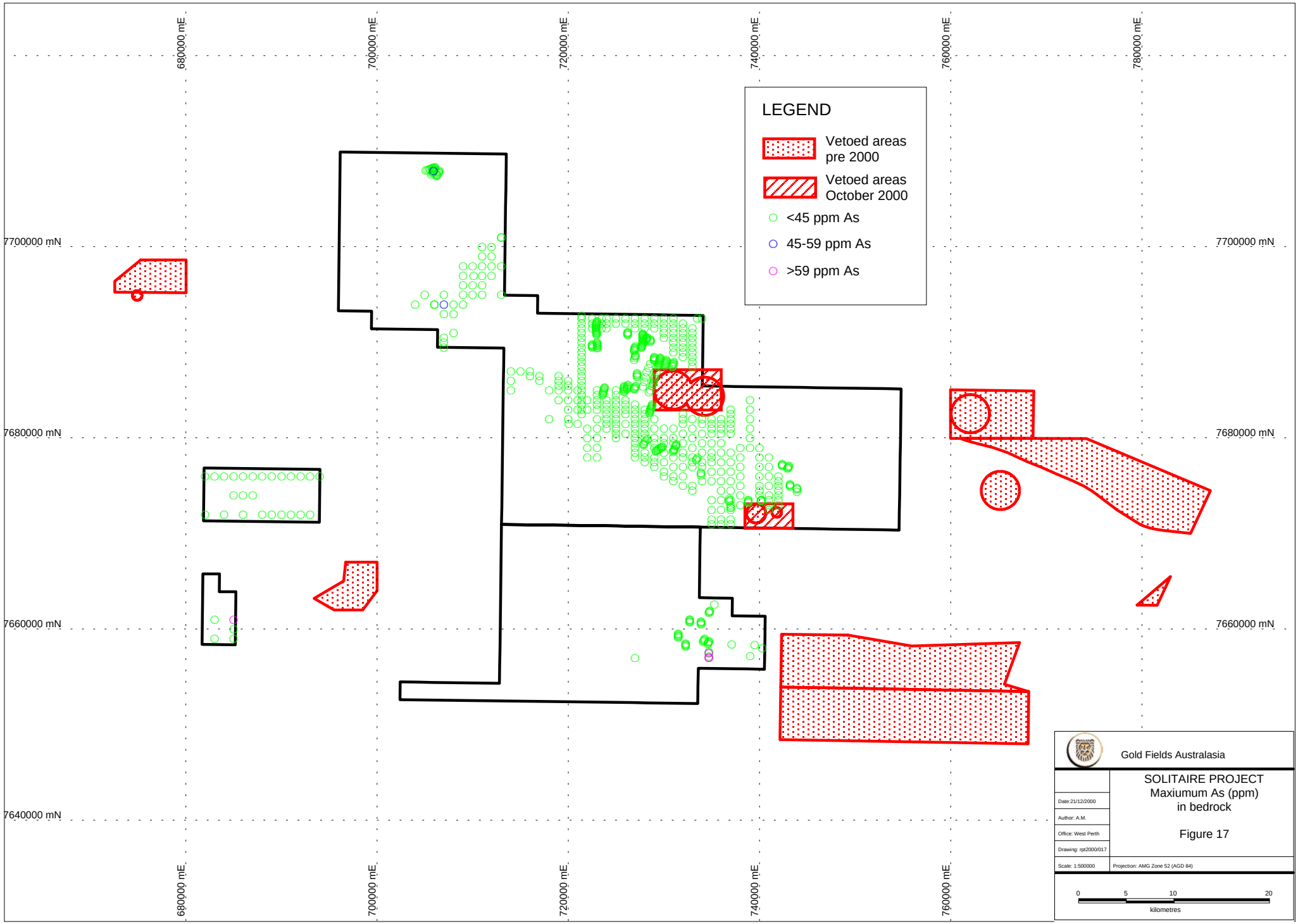

680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
Rock chip <5 ppb Au
Rock chip >5 ppb Au
Lag < 5 ppb Au
Lag > 5 ppb Au
Gold Fields Australasia
SOLITAIRE PROJECT
GFA rock chip and surface lag with Au (ppb)
Figure 12
Date:21/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt2000/012
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres


680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
0 - 3 m
3 - 15 m
15 - 30 m
> 30 m
Gold Fields Australasia
SOLITAIRE PROJECT
GFA Drilling
Depth of cover
Figure 13
Date:18/1/2001
Author: A.M.
Office: West Perth
Drawing: rpt2000/006
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0
5
10
20
kilometres


680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
<5 ppb Au
5-19 ppb Au
>19 ppb Au
Gold Fields Australasia
SOLITAIRE PROJECT
Maximum Au (ppb)
in cover
Figure 14
Date:21/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt2000/014
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0
5
10
20
kilometres


680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
<5 ppb Au
5-19 ppb Au
>19 ppb Au
Gold Fields Australasia
SOLITAIRE PROJECT
Maximum Au (ppb)
in bedrock
Figure 15
Date:21/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt20000015
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0
5
10
20
kilometres


680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
<45 ppm As (no values >45 ppm)
Gold Fields Australasia
SOLITAIRE PROJECT
Maxiumum As (ppm) in cover
Figure 16
Date:21/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt2000/016
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres


680000 mE
700000 mE
720000 mE
740000 mE
760000 mE
780000 mE
7700000 mN
7680000 mN
7660000 mN
7640000 mN
LEGEND
Vetoed areas pre 2000
Vetoed areas October 2000
<45 ppm As
45-59 ppm As
>59 ppm As
Gold Fields Australasia
SOLITAIRE PROJECT
Maxiumum As (ppm) in bedrock
Figure 17
Date:21/12/2000
Author: A.M.
Office: West Perth
Drawing: rpt2000/017
Scale: 1:500000
Projection: AMG Zone 52 (AGD 84)
0 5 10 20
kilometres

680000 mE
690000 mE
700000 mE
710000 mE
720000 mE
730000 mE
740000 mE
750000 mE
760000 mE
770000 mE

7700000 mN
7690000 mN
7680000 mN
7670000 mN
7660000 mN
7650000 mN

Cover
Granite
K altered granite
Pegmatite
Tonalite
K altered tonalite
Sediment
Mica schist
Amphibolite/dolerite
Mafic schist

Gold Fields Australasia

SOLITAIRE PROJECT
GFA bottom of hole geology

Figure 18

Date:23/1/2001
Author: A.M.
Office: West Perth
Drawing: rpt2000/018
Scale: 1:250000
Projection: AMG Zone 52 (AGD 84)

0 2.5 5 10
kilometres

Area K

Three RAB hole traverses targeted this magnetic feature and intersected tonalite, minor quartz-sericite schist and surrounding granite, in part potassically altered. Geochemical results were not significant.

Area L

The follow up RAB drilling confirmed the low level gold and arsenic geochemistry but closer spaced sampling failed to expand the anomalous areas. As expected the area was found to be underlain by deep cover varying from about 30m in the southeast part (drainage margin) to in excess of 60m in the most northwesterly drill hole. Deeply weathered in-situ felsic derived clays and sand lies beneath the cover.

9.3.2 EL 10398

Aircore drilling indicated that the Tertiary cover of this area is in excess of 60m. The bedrock geology was dominated by medium grained felsics with minor areas of mica schist and rare dolerite in the northeastern part. A 15m interval of fine grained, silicified, laminated shale and probable chert with minor biotite schist was intersected in one hole (SLAC 107). This lithology has similarities to the Dead Bullock Formation. The maximum gold assay from drilling of this tenement was 5ppb.

9.3.3 EL 10399

Drilling revealed deeply weathered felsics and rare mica schist overlain by transported cover varying from 33m-60m in thickness. The western half of the tenement was not drilled as the cover was interpreted to be greater than 60m in depth coupled with no aeromagnetic evidence to suggest higher prospectivity. The maximum gold assay was 1ppb.

9.3.4 BLEG Sampling

The maximum gold result for the drill derived BLEG samples was 2.2ppb with 15 other samples in excess of 0.9ppb, which is regarded as a Tanami Region anomaly threshold. Whilst these values are considered as weakly anomalous, most are point anomalies and none are considered significant.

9.3.5 Lag Sampling

The maximum gold result for the drill derived lag samples was 0.9ppb, which is not regarded as anomalous.

9.3.6 Assaying of Standards, Duplicates and Blanks (See Appendix 3)

Standards (samples ending in 30)

- standards were commercially prepared material with a stated gold concentration of 51ppb
- assay results from the laboratories ranged from 1 to 54ppb Au
- 94% returned between 28-45ppb Au
- 4 returned 1ppb indicating a laboratory error, but in the context of the drilling programme these errors have had an immaterial impact on the results.

Duplicates (samples ending in 60)

- given the low level of gold encountered in the samples there was good correlation between original and duplicate samples.

Blanks (samples ending in 90)

- the material was fine aeolian sand from a dune north of The Granites.
- 18 samples of a bulk sample were assayed and returned values of 0.1 to 0.4ppb Au.
- 93% returned ≤1ppb Au.
- 7% returned between 2 and 4 ppb Au.
- these results are consistent with the precision of a 1ppb limit of detection analytical method.

9.3.7 Water Resources

Groundwater was commonly encountered during drilling and is predominantly of low salinity and is potentially potable. Holes containing groundwater drilled on the margins of the paleodrainages had the capacity to yield in excess of 100 kilolitres per day (>1litre/sec). Two new bores were drilled during the field season for camp and drilling water and co-ordinates are shown in Appendix 5. The northern camp bore was located 200m northeast of an existing SOG bore and provided a potentially potable resource.

10. GEOLOGY SUMMARY

10.1 Regolith and Landforms

A pervasive and variable thickness (up to 4m) veneer of aeolian quartz sandplain blankets most of the project area. In most areas, this typically overlies several metres of Cainozoic alluvial clays and sands.

Alluvial outwash plains are widespread and account for more than a third of the drilled area. This alluvial cover in part conceals earlier depositional regimes, which consist of partly calcareous, clay-rich materials confined to palaeochannels and floodplains. Calcareous clay loams (with a thickness of 0.3-3m) are common at the near surface of alluvial sediments (for example Area G). The distribution of carbonate is probably a result of laterally moving shallow waters eroding in situ weathered bedrock.

Palaeochannels deeply incise the basement to a depth more than 100m in all tenements except EL 10398. Interestingly, in this sector of the Tertiary drainages, drilling has revealed that the younger deposition areas have buried carbonate-rich horizons. Palaeochannels are common and are characterised by a variable thickness of alluvium (over 100m), which have buried channels cut into saprolite. The weathering of the basement is deepest beneath the palaeodrainage system, and shallows with increasing distance from the palaeochannels. The greater depth of weathering is attributed to a combination of factors, including incision along a structural weakness, salinity of groundwater and saturation of the cover sediments after deposition.

A mega-mottled sequence is characteristic of palaeochannel infill sediments, with increased bleaching forming variably pisolitic green clays with depth. Beneath this sequence, perched channels of silcrete and quartz gravels were identified in Area G. Drilling at Area G & H and the work of SOG at Abrolhos attests to the substantial stripping of the old land surface. Red soil development is confined to these drainage environments.

The drilling of the lateritic capping suggests downslope sheet wash and it is probable that the upper part of the lateritic nodules have a transported component. The erosion of the duricrust is very advanced and where present, lateritic nodules and gravelly colluvium directly overlie saprolite. The lateritic duricrust occupying the interfluve between the Yaloogarrie and Ngalabaldjiri Creek drainage areas (Senior et al, 1994) in the central part of EL 10216 and in Area D has been substantially eroded. However, there are several remnants forming low ridges and steppes north of Karadi Hill, in the eastern sector of EL 10216 and EL 10217.

Erosional regimes comprising partly weathered rock exposures now occupy less than 10% of the landscape. Hardpan is best developed in the transported overburden, where it reaches a maximum profile within 2m of the surface and a maximum depth of 10m.

A later ferruginous overprinting of the saprolite by hardpan (possibly contemporaneous to the Tennant Creek Hardpan) has lead to previous explorers interpreting the preservation of the mottled horizon. Hardpan colluvium that formed in transported sediments had been interpreted as residual lateritic duricrusts. This had a serious implication for the confidence of shallow geochemical sampling and the applicability of the SOG vacuum drilling results.

In the weathering profile, the thickness of saprolite varies according to rock-type and depth of alluvial burial. The saprolite horizon varies from 5-20m over felsic bedrock to a maximum of 50-70m over mafic bedrock. In some areas, a ferruginous saprolite is thinly

developed or absent. However it is usually 10-15m in thickness and in turn overlies a saprolite zone devoid of a mottled horizon.

Where not truncated, the upper half of the saprolite is characterised by:

- iron enrichment replacement bodies localised by later developed regolith breccias,
- preferential weathering of rock-types and structural surfaces such as jointing and bedding.

The lower half of the saprolite is generally represented by a massive bleached kaolinite-?smectite-rich unit.

The regolith-landform relationship compares with the description reported below of the Lawlers-Wiluna district (Anand, 1996).

REGOLITH	SOLITAIRE	WILUNA
Rainfall	200-250mm	~200mm
Vegetation	Spinifex, Desert scrub	Grass, Low Mulga
Landform	Infilled relic relief, Peneplained	Gently undulating, Low relief
Thickness of *in situ* profiles	Shallow (rises) to Deep (plains)	Moderate (rises) to Deep (plains)
Calcareous clays	Trace	Trace
Pedogenic carbonates	Localised	Trace
Red clays	Trace	Trace
Aeolian quartz	Abundant	Common
Colluvium/Alluvium	Shallow to deep	Shallow to deep
Red brown hardpan	Shallow	Deep
Lateritic duricrust, lateritic gravels	Sparse	Extensive (buried), Discontinuous
Palaeochannels	Common	Rare
Fe-segregations in saprolite	Common	Abundant
Geochemical sampling media	Fe-saprolite	Lateritic residuum, Fe-saprolite

Table 7. Salient regolith, landform and vegetation features in the Solitaire Project and Wiluna region (after Anand 1996).

10.2 Bedrock Geology

Felsic/intermediate intrusives are the most extensive rock type in the project area and are of a similar distribution identified by Zapopan to the north in the Mt Solitaire and Mt Davidson areas, (Rovira, 1995 and Clewet, 1995). Within the granitoids, northwest fault zones are usually silicified with narrow fractured quartz veins. However, there is no indication of repeated silicification as identified in epithermal quartz veins to the north in the Mt Solitaire area.

Felsic gneisses were intersected in parts of Areas B & C exhibiting weak to strong foliation suggestive of high temperature metamorphism not related at thermal contact events as described at Abrolhos. Lithology is described as follows:

Quartz Rich Granite

- the most common felsic recorded from drilling by SOG and GFA.
- medium to coarse grained.
- quartz rich, with clear to yellow quartz, predominantly plagioclase ±K-feldspar.
- capping is sometimes ferruginised but more commonly comprises silicified kaolin and quartz.
- exhibits potassic alteration in parts of Areas K, A and C-B, particularly of note is a north northwest elongate radiometric anomaly in Area A.
- correlating with the magnetic data, it is postulated that this suite represents late intrusives
- includes magnetic and non-magnetic bodies.
- based on the similarity of the magnetic signature, it is our interpretation that these granites correlate to the Inningarra Suite (1840 Ma) which intrude along the southern boundary of the Tanami Inlier.
- a highly magnetic ovoid granite of small diameter exists adjacent to Area A at the northern tenement boundary. This is interpreted to have affinity to the Frederick Suite (~1830-1810 Ma).
- at Area G, the weakly magnetic batholith is interpreted as Coomarie Suite which dominates the intrusives of the Tanami Region (~1830-1810 Ma).

Pegmatite

- coarse to very coarse grained.
- plagioclase-quartz-muscovite mineralogy.
- muscovite flakes up to 2 cm in part.
- occasional dusting of haematite within muscovite (±plagioclase) in some areas (probably primary).
- interpreted as dykes, but also some laterally extensive larger bodies (Area A and western part of Area C).
- usually only 1 to 2 m thick.

Veining

- clear to milky quartz veins, with manganese or haematite in part.
- quartz-tourmaline veins associated with greisen at the northern boundary of EL 10216 (Area K).
- quartz-plagioclase±K feldspar veins up to 5 mm in tonalite (Areas C and B) and wackes (Area G).
- very rare occurrences of quartz-carbonate veinlets (up to 2mm) seen in metawackes of Areas G, C and B and within tonalite in Areas C and B
- bucky quartz reefs of variable strike length of up to about 300m, predominantly east-west to northwest orientation and some with a poorly developed ferruginous breccia texture (Area B)
- no temporal constraint evident.

Tonalite

- fine to medium grained
- plagioclase-biotite (hornblende)-quartz±K feldspar mineralogy
- generally unstrained with well developed plagioclase phenocrysts

- sometimes foliated and where strained, it has affected the crystal growth and transformed the biotite flakes to a fine-grained, equidimensional (hornblende?) habit
- exhibits potassic alteration in several sectors of Areas C and B
- restricted spatial distribution of tonalite seen in Areas K, C and B and the northern sector of Area A, which are weak to moderately magnetic. This distribution is postulated as part of the Inningarra Suite, which defines the southern boundary of the Tanami Inlier.

Amphibolite/Dolerite

- fine grained.
- bodies are narrow (<200m) as demonstrated by drilling and magnetic profiling and are interpreted as dykes or sills.
- not laterally extensive (cf. pegmatites seen in parts of Area C).
- two generations identified.
- amphibolite.
- common in Area D (interpreted as Arunta Block).
- amphibole-plagioclase.
- generally foliated.
- 2-3 km strike length, predominantly west northwest linear strike orientation, interpreted as late stage.
- unmetamorphosed dolerite.
- isolated dykes, rare in EL 10216 (Area C and eastern part of Area A).
- pyroxene-plagioclase.
- <500 m strike length, appear to have a west northwest linear strike orientation.
- age relationships not determined as there are multiple dolerite intrusions recorded in the Tanami Region (Hendrickx et al., 2000).

Metasediments

- part of a turbidite sequence, comprising siltstones, shales and quartz wackes or arenites.
- very fine to fine grained.
- no evidence of Bouma Sequence textures (hard to see in RAB or aircore chips).
- rare coarse grained mica books up to 2mm seen wrapped around quartz grains in western part of Area C, suggesting high strain, low temperature metamorphism.
- predominantly seen in Areas A; jasper unit in Area D (interpreted as McFarlane Peak Group).
- siltstones are more common in Area A, which may reflect the composition of the constituent minerals and that they were more resistant to the regional metamorphic event. During the regional metamorphic event, it is our interpretation that siltstones were confined to narrow structural corridors (< 2 km wide) re Valenta and Wyborn (1993).
- shales contain minor carbonaceous packages in Area A.
- interbedded sedimentary package of shales and siltstones.
- package limited in width (<1m) and spatially package could be 150m thick and could have about 5km strike length.
- the turbidite sequence seen in Area A has affinity to the Killi Killi Formation based on the presence of the carbonaceous units (pers. comm. N. Bryce) as recorded at the Titania Deposit while the sequence seen at Area D is interpreted as LRB (Young et al, 1995).
- empirical evidence suggests that the lack of a reactive component within the package, (such as carbonaceous members), precludes significant gold mineralisation opportunities.

Metamorphic Schists

- fine grained.
- sparse distribution (in part of Areas A, B and C) suggesting:
  - confined to strain corridors;
  - not confirming a regional greenschist metamorphic event, and
  - distinct lack of shearing in Areas A, B and C which straddle the non-magnetic NW feature suggests that there was little opportunity for the introduction of mineralising fluids.
- mineralogy reflects original composition and consists of mica-feldspar±quartz in the form of biotite or sericite, ie. biotite retrograding to sericite.
- original arenaceous sediments exhibit detrital muscovite and less clay minerals as seen in Area A.
- evidence of microscopic folding and rare weak crenulations seen in quartz-mica schists in Area A.
- schists in Area A appear to have a spatial association with granite contact aureoles as indicated from the drilling density.
- if the amphibolite recorded in Area D is correctly identified, then its is indicative of a higher metamorphic grade which is consistent with Arunta Block rocks.
- petrological studies of drill material from the Abrolhos Prospect suggest a granulite facies metamorphic grade.

10.3 Hydrothermal Alteration

The granites in the project area are enriched in U-Th-K indicating the likelihood of a long-lived thermal structure from radioactive heating. A petrology report by Pontifex (1997) infers the cooling history of the metamorphic event could be very long lived; approximately 30Ma. Voluminous high heat production granites of 1820-1780 Ma in the northern Arunta Inlier are all anomalously radioactive and would have created fluid flow systems that persisted for up to 30 Ma (Pontifex, 1997).

The lack of alteration observed during the drilling programme is interpreted to be due to the presence of high temperature fluids. High temperature fluid rock interaction is more likely to be the site of metal leaching, rather than metal deposition (Pontifex, 1997). In contrast to the Reynolds Range area 300km to the southeast, the interface between the high temperature magmatic rocks and the surrounding lower-temperature sequences at the Solitaire Project is unaffected by alteration associated with mineralisation. The prospectivity of the project area is diminished, as pervasive alteration at the edges of the thermal anomalies is not evident.

10.4 Haematite Alteration

Australian Proterozoic granites are among the most radioactive in the world and have the ability to sustain fluid flow for long periods of time even if buried beneath a shallow pile of sediment (Pontifex, 1997). Such a setting would maximise the potential to scavenge gold and other metals from the rock mass. In the Gawler Craton and Mt. Isa Inlier, hematite alteration is commonly associated with mineralisation, (Stuart-Smith, 1993). Parts of Areas A, C and G exhibit substantial hematite alteration in the granites and tonalites and, at a minimum, a pervasive dusting of the micas in the pegmatites.

In the Tanami Inlier, there is empirical evidence of a link between gold content and sulphide mineralisation hosted in chlorite-bearing assemblages. This suggests hematite alteration is not a good indicator of gold mineralisation, since the fluids would have been relatively oxidised and the metals unable to be transported.

Regionally, the eastern continuity of the interpreted west northwest thrust faults within the Tanami Group of The Granites/Dead Bullock Soak deposits is of interest. Iron rich members of the footwall Dead Bullock Formation appears to be the preferred host rock and the shear zones the pathway for mineralising lower-temperature fluids. However, extensive drilling of the Solitaire Project tenements failed to intersect the Dead Bullock Formation.

11. ENVIRONMENTAL

11.1 Camps

Two camps were established during the course of the field season with only one being established at any one time. Rubbish from the southern one was disposed of at The Granites Gold Mine rubbish dump (because the camp was only occupied for a short time) and rubbish from the northern camp was disposed of in an excavated hole. The rubbish in this pit was progressively covered to prevent it from being blown away or distributed by animals.

Campsites were cleaned up after being vacated and everything was either removed or buried in the rubbish pit and then covered. Minor oil spills associated with the power generator at each camp were dug up and buried.

11.2 Access Tracks

Several access tracks into the project area were part of a network constructed by SOG during their exploration of their larger land holding. These were all used during the field program and the east-west access track from the Tanami Highway into the northern part of EL 10216 was cleared of vegetation regrowth by a loader. However because the track crossed deep, fine grained aeolian sand, it was still only marginally trafficable and was not used. The other tracks were in reasonable condition.

11.3 Drilling

Custom concrete hole plugs made from pot plant moulds were used to plug drill holes. They were inserted at the completion of each hole prior to the rig moving to the next drill site. They were bedded into position in the drill holes with a shovel handle and then covered with soil and/or drill cuttings to form a low mound to allow for compaction following rain and to prevent water pooling above the hole.

A representative number of holes will need to be inspected prior to the surrender/relinquishment of the tenements to ensure that the plugging has been effective and has withstood a wet season. About 30 plugged holes were still sealed when inspected after about 50mm of rainfall during the course of the drilling programme. Approximately another hundred holes scattered throughout the project area should be inspected (and rectified if required) after the end of the summer rain (after March 2001).

12. CONCLUSIONS

Outside the drainage systems, sample coverage completed to date, suggests the possibility of a discovery of an open pitable gold resource is negligible. Two successive phases of drilling and comprehensive lag and BLEG sampling have produced no significant gold mineralisation. All the known Tanami Region gold deposits would have easily been found with such comprehensive sampling and drilling programmes.

The geology observed from the drilling is also not prospective. The dominant lithologies are intrusive felsics and significant hydrothermal alteration, areas of reactive sediment, or substantial sulphide development is absent.

Beneath the drainage sediments, significant structural corridors are interpreted to bracket several areas and buried bedrock mineralisation cannot be discounted. However, currently there is no evidence to suggest this. The economics of an open pitable deposit beneath wet unconsolidated lacustrine sediment in excess of 50m thick are unfavorable. Such a deposit would also probably lie beneath a gold depleted lower saprolite zone.

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APPENDIX 1

SUMMARY OF EXPLORATION EXPENDITURE

GOLD FIELDS AUSTRALASIA PTY LTD
AS AT MARCH 30, 2001
SOLITAIRE J.V.
EL'S 10216, 10217, 10398, 10399

	Total Expenditure
FIELD	
Analysis	81,186
Data Acquisition / Processing	12,655
Drafting	2,025
Drilling – Aircore	71,335
Drilling – RAB	222,982
Field Supplies	24,778
Freight	10,794
Geophysical Survey	45,300
Helicopter	14,841
TOTAL Exploration:	**485,896**
EQUIPMENT HIRE	
Equipment Hire	9,478
TOTAL Exploration:	**9,478**
LABOUR	
Contract - Field Assistant	62,918
Contract - Geologist	177,760
Consultant – Geologist	16,000
Consultant – Geophysics	9,125
TOTAL Labour:	**265,803**
MOTOR VEHICLES	
Motor Vehicle Hire	24,221
Motor Vehicle – Costs	5,827
TOTAL Motor Vehicles:	**30,048**
TENEMENTS	
Central Land Council	33,704
Legal	3,901
TOTAL Tenements:	**37,605**
TRAVEL & ACCOM.	
Accom/Travel	9,061
Travel - Air Fares	23,606
Camp	46,746
TOTAL Travel & Accom:	**79,413**
PROJECT ADMINISTRATION	
Overheads 12%	106,608
Bank Charges	1,552
Communications	9,251
Consumables Office	4,047
TOTAL Project Administration:	**121,458**
TOTAL PROJECT EXPENDITURE:	**1,029,701**

APPENDIX 2

ANALYTICAL BATCH DETAILS

AMDEL (3M RAB AND AIRCORE COMPOSITES)

GFA O/N	LAB REF.	SAMPLE NUMBERS	
		From	*To*
1501	1003	102001	102220
	(rock chips)	100001	100003
1502	1005	102221	102440
		102451	102510
1503	1020	102441	102450
		102511	102940
1504	1027	102941	103600
1505	1028	103601	104430
1506	1043	104431	105130
1507	1045	105131	105630
1508	1054	106271	106840
1509	1063	106841	107643
1514	1107	107644	107840
1515	1118	107841	108341
1518	1127	108342	109180
1521	1131	109181	109230
1522	1134	109231	109477
1523	1135	109477	109686

APPENDIX 3

ANALYTICAL RESULTS OF BLANKS AND STANDARDS

ANALYTICAL RESULTS- BLANKS

Sample	Au (ppb)	As (ppm)	Cu (ppm)	Lab No.	Sample	Au (ppb)	As (ppm)	Cu (ppm)	Lab No.
102090	2	-5	4	0AS1003	105990	<1	<2	7	0AS1054
102190	-1	-5	10		106090	<1	<2	26	
102290	-1	-2	9	0AS1005	106190	<1	<2	3	
102390	2	-2	4		106290	<1	<2	1	
102490	-1	-2	7		106390	<1	<2	7	
102590	-1	-2	7	0AS1020	106490	<1	<2	8	
102690	-1	-2	10		106590	<1	<2	11	
102790	3	-2	7		106690	<1	<2	11	
102890	-1	-2	9		106790	1	<2	5	
102990	<1	<2	5	0AS1027	106900	<1	<2	7	0AS1063
103090	<1	<2	5		106990	<1	<2	21	
103190	<1	<2	3		107090	<1	<2	7	
103290	<1	<2	3		107193	<1	<2	31	
103390	<1	<2	4		107290	<1	<2	1	
103490	4	<2	9		107390	<1	<2	7	
103590	<1	<2	9		107490	<1	<2	13	
103690	<1	<2	3	0AS1028	107590	<1	<2	5	
103790	<1	<2	4		107690	<1	<2	4	0AS1107
103890	<1	<2	1		107790	<1	2	11	
103990	<1	2	10		107890	<1	<2	6	0AS1118
104090	<1	2	4		107990	<1	<2	10	
104190	<1	<2	7		108090	<1	<2	7	
104290	<1	<2	4		108190	<1	<2	7	
104390	<1	<2	8		108490	38	54	99	0AS1127
104490	<1	<2	1	0AS1043	108590	<1	<2	4	
104590	<1	<2	1		108690	<1	<2	4	
104691	<1	<2	<1		108790	<1	<2	5	
104790	<1	<2	1		108890	<1	<2	4	
104890	<1	<2	<1		108990	<1	2	3	
104991	<1	<2	1		109090	<1	<2	4	
105090	<1	<2	1		109190	<1	<2	3	0AS1133
105190	<1	<2	6	0AS1045	109290	<1	<2	3	0AS1134
105290	<1	<2	2		109390	<1	<2	5	
105390	1	<2	6		109490	<1	<2	8	0AS1135
105490	<1	<2	2		109590	<1	<2	4	
105590	<1	<2	5						
105690	<1	<2	9	0AS1054					
105790	<1	<2	6						
105890	<1	<2	9						

ANALYTICAL RESULTS– STANDARDS

Sample	Au (ppb)	As (ppm)	Cu (ppm)	Sample	Au (ppb)	As (ppm)	Cu (ppm)
102030	0	55	95	105930	43	50	93
102130	30	50	91	106032	31	54	110
102230	36	51	91	106130	36	54	110
102330	36	59	100	106230	34	56	110
102430	28	53	100	106330	38	55	100
102530	40	54	99	106430	34	61	105
102630	54	54	98	106530	1	54	88
102730	39	51	88	106630	44	58	105
102830	35	48	85	106730	39	60	105
102930	32	48	86	106830	40	61	105
103031	38	56	100	106930	38	52	110
103130	33	61	115	107030	37	61	100
103230	1	68	11	107131	35	55	100
103330	32	56	105	107230	33	62	110
103530	33	57	100	107330	37	56	105
103630	39	46	84	107430	32	65	100
103730	36	55	95	107535	37	50	83
103831	38	58	100	107630	38	58	110
103932	34	55	115	107730	35	66	94
104030	36	55	110	107830	35	59	100
104130	34	60	120	107930	41	58	100
104130	34	60	120	108033	45	57	125
104230	36	50	91	108130	34	49	92
104330	37	61	110	108230	31	52	93
104430	35	50	94	108330	38	54	98
104531	39	56	105	108430	40	60	110
104630	38	55	99	108530	1	2	4
104730	34	58	105	108630	43	59	100
104830	40	59	105	108730	39	58	105
104930	40	52	94	108830	38	57	105
105030	37	62	110	108930	42	48	94
105130	40	60	100	109030	43	55	100
105230	40	60	115	109130	42	55	105
105330	34	56	115	109230	35	56	105
105430	39	45	90	109330	39	52	84
105530	37	64	100	109430	43	55	100
105630	36	56	92	109530	39	62	115
105730	34	54	95	109630	36	57	105
105830	36	54	95				

APPENDIX 4

ENVIRONMENTAL REGISTER - PRE-EXISTING ENVIRONMENTAL DISTURBANCE RECORD

TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER

PRE-EXISTING ENVIRONMENTAL DISTURBANCE RECORD

Tenements:	EL 10216 EL 10217 EL 10398 EL 10399
Exploration Activity Area:	Solitaire Joint Venture
Shafts / Dumps / Pits:	None
Tracks / Access:	East-west track from Tanami Highway into southern part of EL 10217 Northeast track from Tanami Highway into central part of EL 10216. East-west track from Tanami Highway into northern part of EL 10216
Line Clearing:	None apparent
Costeaning:	None
Drill Sites:	Numerous well rehabilitated SOG RAB and aircore holes
Other:	Old SOG Camp Site and cased water bore at 714,300E 7,656,700E in central part of EL 10216. The north east corner of EL 10399 straddles the Tanami Highway.
Location Data:	See Location Plan
Compiled By / Date:	Dean Lovett - 6 January 2001

APPENDIX 5

ENVIRONMENTAL REGISTER - ENVIRONMENTAL IMPACT RECORD

TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER

ENVIRONMENTAL IMPACT RECORD

Tenements:	EL 10216 EL 10217 EL 10398 EL 10399
Exploration Activities:	RAB and aircore drilling on uncleared lines. Lag and rock chip sampling by 4WD vehicle and helicopter
Grids and Traverses:	None constructed or cleared.
Costeans / Pits:	One rubbish pit dug and covered near northern camp
Drilling:	769 RAB and aircore holes for 28,643m
Drill Traverses:	None cleared.
Drill Pads:	Accessed via existing tracks. No pads mechanically cleared.
Ground Geophysics:	None
Access Tracks:	Northern east west track cleared of regrowth, all others used as is.
Camps:	Existing SOG campsite used at 714,300E 7,656,700N in the central western part of EL 10216 and new bore drilled nearby. Southern camp was set up at approximately 734,500E 7,657,000N in the southeastern part of EL 10217 and a new bore drilled at 733500E, 7656350N
Other:	During August and September 2000 large bush fires swept through the tenements from the north and west.
Compiled By / Date:	Dean Lovett – 6 January 2001

APPENDIX 6

ENVIRONMENTAL REGISTER - LAND STATUS RECORD

TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER

LAND STATUS RECORD

Project:	Solitaire Joint Venture
Tenements:	EL 10216 EL 10217 EL 10398 EL 10399
Registered Holders	Tanami Gold NL
Date Granted:	27.09.2000 **Term:** 6 years **Area:** 1641 km^2
Bond / Security:	None
JV Partners:	Goldfields Australasia Pty Ltd **Operators:** Goldfields Australasia Pty Ltd
Land Classification:	Inalienable Aboriginal Freehold
Land Holder Occupier:	Administered by the Central Land Council on behalf of the Central Desert Aboriginal Land Trust.
Address:	33 Stuart Highway, Alice Springs NT 0870 **Tel:** 08 89516247
Contacted By:	Deed negotiated by Tanami Gold NL **Date:** September 2000
Pastoral Notes:	No history of pastoral activity
Environmental Notes:	No known environmental sensitivity. Subject to bushfires
Groundwater:	Both saline and potentially potable groundwater found throughout the project area at 10m to 40m depth.
Aboriginal Notes:	Four sacred site exclusion zones surveyed
Historic Relics:	None
Previous Activity:	Exploration drilling by Sons of Gwalia 1994-1997. Exploration drilling by Gold Fields Australasia Pty Ltd on behalf of the Solitaire Joint Venture 2000.
Compiled By / Date:	Dean Lovett – 6 January 2001

APPENDIX 7

LOGISTICS REPORT FOR AEROMAGNETIC, RADIOMETRIC AND DIGITAL ELEVATION SURVEY

Logistics Report

for a

DETAILED AIRBORNE MAGNETIC, RADIOMETRIC AND DIGITAL ELEVATION SURVEY

for the

SOLITAIRE PROJECTS

carried out on behalf of

GOLDFIELDS AUSTRALASIA PTY LTD

by

UTS GEOPHYSICS

(UTS Job #A398)

VALENTINE ROAD, PERTH AIRPORT
PO BOX 126, BELMONT WA 6104
Telephone +61 8 9479 4232 Facsimile +61 8 9479 7361
A.B.N. 31 058 054 603

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1 GENERAL SURVEY INFORMATION

In August 2000, UTS Geophysics conducted a low level airborne geophysical survey approximately 100km south-east of the Granites Mine for Goldfields Australasia Pty Ltd.

This report summarises the logistics, survey parameters and processing details of the survey.

The survey commenced on the 14th August 2000 and was completed on the 23rd August 2000.

UTS Geophysics provided the described survey for the following company:

Goldfields Australasia Pty Ltd
PO Box 628
WEST PERTH WA 6872

2 SURVEY LOCATION

The area surveyed was approximately 100km south-east of the Granites Mine in the Northern Territory. A survey location map is provided in Appendix C of this report.

The survey was flown using the AMG84 coordinate system (a Universal Transverse Mercator projection) derived from the Australian Geodetic Datum and was contained within zone 52 with a central meridian of 129 degrees. Details of the datum and projection system are provided in Appendix B of this report.

3 AIRCRAFT AND SURVEY EQUIPMENT

The UTS navigation flight control computer, data acquisition system and geophysical sensors were installed into a specialised geophysical survey aircraft.

The list of geophysical and navigation equipment used for the survey is as follows:

General Survey Equipment

? FU24-954 fixed wing survey aircraft.
? UTS proprietory flight planning and survey navigation system.
? UTS proprietory high speed digital data acquisition system.
? Novatel 3951R, 12 channel precision navigation GPS.
? Satellite transmitted differential GPS correction receiver.
? UTS LCD pilot navigation display and external track guidance display.
? UTS post mission data verification and processing system.
? Bendix King KRA-405 radar altimeter.

Magnetic Data Acquisition Equipment

? UTS tail stinger magnetometer installation.
? Scintrex Cesium Vapour CS-2 total field magnetometer.
? Fluxgate three component vector magnetometer.
? RMS Aeromagnetic Automatic Digital Compensator (AADC II).
? Diurnal monitoring magnetometer (Scintrex Envimag).

Radiometric Data Acquisition Equipment

? Exploranium GR-820 gamma ray spectrometer.
? Exploranium gamma ray detectors.
? Barometric altimeter (height and pressure measurements).
? Temperature and humidity sensor.

3.1 Survey Aircraft

The aircraft used was a FU24-954 fixed wing survey aircraft owned by UTS Geophysics, registration VH-CYU.

Power Plant

- Engine Type Single engine, Lycoming, IO-720
- Brake Horse Power 400 bhp
- Fuel Type AV-GAS

Performance

- Cruise speed 105 Kn
- Survey speed 100 Kn
- Stall speed 45 Kn
- Range 970 Km
- Endurance (no reserves) 5 hours
- Fuel tank capacity 490 litres

3.2 Data Positioning and Flight Navigation

Survey data positioning and flight line navigation was derived using real-time differential GPS (Global Positioning System).

Navigation was provided through a UTS designed and built electronic pilot navigation system providing computer controlled digital navigation instrumentation mounted in the cockpit as well as an externally mounted track guidance system.

GPS derived positions were used to provide both aircraft navigation and survey data location information.

The GPS systems used for the survey were:

- Aircraft GPS Model Novatel 3951R
- GPS satellite tracking channels 12 parallel
- Typical differentially corrected accuracy 2-3 metres (horizontal)
- Real-time differential service RACAL Landstar

3.3 UTS Data Acquisition System and Digital Recording

All geophysical sensor data and positional information measured during the survey was recorded using a UTS developed, high speed, precision data acquisition system. Survey data was downloaded onto magnetic tape on completion of each survey flight.

Instrument synchronisation times were measured and removed in real-time by the UTS data acquisition system.

3.4 Altitude Readings

Accurate survey heights above the terrain were measured using a King radar altimeter installed in the aircraft. The height of each survey data point was measured by the radar altimeter and stored by the UTS data acquisition system.

- Radar altimeter model — King KRA-405, twin antenna altimeter
- Accuracy — 0.3 metres
- Resolution — 0.1 metres
- Range — 0 - 500 metres
- Sample rate — 0.1 Seconds (10Hz)

3.5 UTS Stinger Mounted Magnetometer System

The installation platform used for the acquisition of magnetic data was a tail mounted stinger. This proprietory stinger system was constructed of carbon fibre and designed for maximum rigidity and stability.

Both the total field magnetometer and three component vector magnetometer were located within the tail stinger.

3.6 Total Field Magnetometer

Total field magnetic data readings for the survey were made using a Scintrex Cesium Vapour CS-2 Magnetometer. This precision sensor has the following specifications:

- Model — Scintrex Cesium Vapour CS-2 Magnetometer
- Sample Rate — 0.1 seconds (10Hz)
- Resolution — 0.001nT
- Operating Range — 15,000nT to 100,000nT
- Temperature Range — -20^{o}C to +50^{o}C

3.7 Aircraft Magnetic Compensation

At the start of the survey, the system was calibrated for reduction of magnetic heading error. The heading and manoeuvre effects of the aircraft on the magnetic data was removed using an RMS Automatic Airborne Digital Compensator (AADC II).

Calibration of the aircraft heading effects were measured by flying a series of pitch, roll and yaw manoeuvres at high altitude while monitoring changes in the three axis magnetometer and the effect on total field readings. A 26 term model of the aircraft magnetic noise covering permanent, induced and eddy current fields was determined. These coefficients were then applied to the data collected during the survey in real-time.

UTS static compensation techniques were also employed to reduce the initial magnetic effects of the aircraft upon the survey data.

3.8 Diurnal Monitoring Magnetometer

A base station magnetometer was located in a low gradient area beyond the region of influence by any man made interference to monitor diurnal variations during the survey.

The specifications for the magnetometer used are as follows:

- Model Scintrex Envimag
- Resolution 0.1 nT
- Sample interval 10 seconds (0.1Hz)
- Operating range 20,000nT to 90,000nT
- Temperature -20°C to +50°C

3.9 Barometric Altitude

An Air DB barometric altimeter was installed in the aircraft so as to record and monitor barometric height and pressure. The data was recorded at 0.33 second intervals and is used for the reduction of the radiometric data.

- Model Air DB barometric altimeter
- Accuracy 2 metres
- Height resolution 0.1 metres
- Height range 0 - 3500 metres
- Maximum operating pressure: 1,300 mb
- Pressure resolution: 0.01 mb
- Sample rate 3 Hz

3.10 Temperature and Humidity

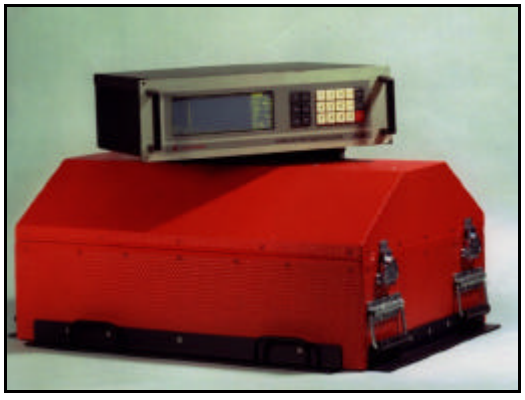
Temperature and humidity measurements were made during the survey at a sample rate of 10Hz. Ambient temperature was measured with a resolution of 0.1 degree Celsius and ambient humidity to a resolution of 0.1 percent.

3.11 Radiometric Data Acquisition

The gamma ray spectrometer used for the survey was capable of recording 256 channels and was self stabilising in order to minimise spectral drift. The detectors used contain thallium activated sodium iodide crystals.

Thorium, cesium and uranium source measurements were made each survey day to monitor system resolution and sensitivity. A calibration line was also flown at the start and end of each survey day to monitor ground moisture levels and system performance.

- Spectrometer model Exploranium GR820
- Detector volume 33 litres



4 PERSONNEL

4.1 Field Operations

UTS Geophysics operator and data processor	Tomas Steyer
UTS Geophysics Survey Pilot	Mike Officer

4.2 Project Management

Goldfields Australasia Pty Ltd	Steve Massey
UTS Geophysics Perth Office	Neil Goodey

5 SURVEY PARAMETERS

The survey data acquisition specifications for each area flown are specified in the following table:

PROJECT NAME	LINE SPACING	LINE DIRECTION	TIE LINE SPACING	TIE LINE DIRECTION	SENSOR HEIGHT	TOTAL LINE KM
Solitaire project 1	200m	000-180	2000m	090-270	25m	5,311
Solitaire project 2	200m	000-180	2000m	090-270	25m	461
TOTAL						**5,772**

The total number of line kilometres of survey data collected over the survey areas specified in the above table was 5,772.

The specified sensor height for the magnetic samples is as stated in the above table. This sensor height may be varied where topographic relief or laws pertaining to built up areas do not allow this altitude to be maintained, or where the safety of the aircraft and equipment is endangered.

The coordinate boundaries for the survey area flown is detailed in Appendix C.

6 SURVEY LOGISTICS

The base location used for operating the aircraft and performing in-field quality control and data processing of the survey data was the Granites Mine in the Northern Territory. The aircraft was operated from the Granites Mine Airstrip.

6.1 Survey Flight Summary

The following table summarises the flight logs for the survey area flown:

Flight Date	Area No	Flight No	Area Name / Survey Details	Lines Flown	Line Km Flown
13/09/99			Mobilisation to The Granites		
14/08/00	02	01	Solitaire 1 – Traverse Lines 200010-200100	10	33
	04	T1	Solitaire 2 – Tie Lines 400010-400050	5	30
	04	01	Solitaire 2 – Traverse Lines 400430-400010	43	404
15/08/00	02	02	Solitaire 1 – Traverse Lines 202080-202230	16	252
	-	-	No afternoon flight due to bad weather		
16/08/00	-	-	No morning flight - maintenance		
	02	03	Solitaire 1 – Traverse Lines 200110-200680	58	530
17/08/00	-	-	No flying due to maintenance		
18/08/00	-	-	No flying due to maintenance		
19/08/00	02	04	Solitaire 1 – Traverse Lines 202070-201960	12	223
	02	05	Solitaire 1 – Traverse Lines 201930-201950	3	56
	03	01	Solitaire 1 – Traverse Lines 300530-300010	53	548
20/08/00	02	06	Solitaire 1 – Traverse Lines 201920-201530	40	746
	02	07	Solitaire 1 – Traverse Lines 201520-201300	23	727
21/08/00	02	08	Solitaire 1 – Traverse Lines 201290-201120	32	731
	02	09	Solitaire 1 – Traverse Lines 201110-200860	86	712
22/08/00	02	10	Solitaire 1 – Traverse Lines 200850-200770	13	213
	02	11	Solitaire 1 – Traverse Lines 200760-200690	8	188
	01	T1	Solitaire 1 – Tie Lines 100010-100290	29	476
23/08/00	02	12	Solitaire 1 – Reflys Lines - 200650-200680	4	
TOTAL					**5,772**

A complete survey kilometre report is contained in Appendix G of this report.

6.2 Diurnal Magnetometer Locations

The following table contains the approximate locations where the diurnal base station magnetometer was located for each survey area.

Area Name	Period	Base Station ID	Location
Granites Mine	14/08/00-23/08/00	31	2km from the Granites Airstrip

6.3 Spectrometer Calibration Results

Appendix E of this report contains the results of the daily spectrometer resolution and sensitivity tests performed during the survey.

7 DATA PROCESSING PROCEDURES

7.1 Magnetic Data Processing

The raw magnetic survey data was loaded from the field tapes and the recorded data trimmed to the correct survey boundary extents. Lines subsequently reflown were removed from the data. System parallax was removed from the raw data using corrections measured by the acquisition system.

The diurnal base station data was loaded, checked and suitably filtered for correction of the aircraft magnetic data. The filtered diurnal measurements were subtracted from the diurnal base field and the residual corrections applied to the survey data by synchronising the diurnal data time and the aircraft survey time.

The regional magnetic gradient was subtracted from the survey data by application of the IGRF model extrapolated to the date of the survey and interpolated on the survey position.

The data was then corrected to remove any residual parallax errors. Tie line levelling was applied to the parallax corrected data by measuring tie line crossover points with the survey traverse line data.

Final microlevelling techniques were then applied to the tie line leveled data to remove minor residual variations in profile intensities.

Located and gridded data were generated from the final processed magnetic data.

7.2 Radiometric Data Processing

The raw radiometric survey data was loaded from the field tapes and the recorded data trimmed to the correct survey boundary extents. Lines subsequently reflown were removed from the data. System parallax was removed from the raw data using corrections measured by the acquisition system.

Statistical noise reduction of the 256 channel data was performed using the Maximum Noise Fraction (MNF) method described by Dickson and Taylor (1998). This method constructs a noise covariance model from the survey data, which is then decorrelated and re-scaled so that the model has unit variance and no channel-to-channel correlation.

A principal component transformation of the noise-whitened data is performed, and the number of components to be saved is determined by ranking the eigenvectors by signal-to-noise ratio. The signal-rich components are retained, and the spectral data

reconstructed without the noise fraction. Typically, 32-42 MNF components are retained during this process.
Channels 30-250 only are noise-cleaned, as these contain the regions of interest and are not dominated by the lower end of the Compton continuum. The energy spectrum between the potassium and thorium peaks was recalibrated from the noise-cleaned 256 channel measurements.

The 256 channel data was then windowed to the 5 primary channels of total count, potassium, uranium, thorium and low-energy uranium. Dead time corrections were then applied to the data.

Cosmic and aircraft background corrections were applied. Radon background removal was performed using the Minty Spectral Ratio method (1992). Spectral stripping was then applied to the windowed data.

The radar altimeter data was corrected to standard temperature and pressure. Height corrections based on the STP radar altimeter were then performed to remove any altitude variation effects from the data (refer to Appendix E for stripping ratios and equations).

The corrected count rate data was then converted to ground concentrations for potassium, uranium and thorium. Final microlevelling of the total count, potassium, uranium and thorium data was then applied to remove minor residual variations in profile intensities.

For further information concerning the survey flown, please contact the following office:

Head Office Address:

UTS Geophysics
Valentine Road, Perth Airport
REDCLIFFE WA 6104

Tel: +61 8 9479 4232
Fax: +61 8 9479 7361

Postal Address:

UTS Geophysics
P.O. Box 126
BELMONT WA 6104

Quoting reference number: A398

APPENDIX A - LOCATED DATA FORMATS

MAGNETIC LOCATED DATA

FIELD	FORMAT	DESCRIPTION	UNITS
1	I6	LINE NUMBER	
2	I5	FLIGHT/AREA NUMBER	AAFF (Area/Flight)
3	I8	DATE	YYMMDD
4	F11.1	TIME	sec
5	I8	FIDUCIAL NUMBER	
6	I3	UTM/AMG ZONE	
7	F10.2	EASTING (AMG84)	metres
8	F11.2	NORTHING (AMG84)	metres
9	F13.7	LATITUDE (GDA94)	degrees
10	F13.7	LONGITUDE (GDA94)	degrees
11	F10.2	EASTING (MGA94)	metres
12	F11.2	NORTHING (MGA94)	metres
13	F7.1	RADAR ALTIMETER HEIGHT	metres
14	F7.1	GPS HEIGHT (WGS84)	metres
15	F7.1	TERRAIN HEIGHT (CORRECTED)	metres
16	F10.2	RAW MAGNETIC INTENSITY	nT
17	F10.2	DIURNAL CORRECTION	nT
18	F10.2	LEVELLED MAGNETIC INTENSITY	nT
19	F10.2	IGRF CORRECTION	nT
20	F10.2	LEVELLED, IGRF CORRECTED	nT

RADIOMETRIC LOCATED DATA

FIELD	FORMAT	DESCRIPTION	UNITS
1	I6	LINE NUMBER	
2	I5	FLIGHT/AREA NUMBER	AAFF (Area/Flight)
3	I8	DATE	YYMMDD
4	F11.1	TIME	sec
5	I8	FIDUCIAL NUMBER	
6	I3	UTM/AMG ZONE	
7	F10.2	EASTING (AMG84)	metres
8	F11.2	NORTHING (AMG84)	metres
9	F13.7	LATITUDE (WGS84)	degrees
10	F13.7	LONGITUDE (WGS84)	degrees
11	F10.2	EASTING (MGA94)	metres
12	F11.2	NORTHING (MGA94)	metres
13	F7.1	RADAR ALTIMETER HEIGHT	metres
14	F7.1	GPS HEIGHT (WGS84)	metres
15	I5	LIVE TIME	milli sec
16	F7.1	PRESSURE	hPa
17	F5.1	TEMPERATURE	Degrees Celcius
18	F8.1	TOTAL COUNT (RAW)	Counts/sec
19	F7.1	POTASSIUM (RAW)	Counts/sec
20	F7.1	URANIUM (RAW)	Counts/sec
21	F7.1	THORIUM (RAW)	Counts/sec
22	F7.1	COSMIC (RAW)	Counts/sec
23	F7.1	URANIUM LOW (RAW)	Counts/sec
24	F8.1	TOTAL COUNT (CORRECTED)	Counts/sec
25	F7.1	POTASSIUM (CORRECTED)	Counts/sec

26	F7.1	URANIUM (CORRECTED)	Counts/sec
27	F7.1	THORIUM (CORRECTED)	Counts/sec
28	F7.3	POTASSIUM GRND CONCENTRATION	%
29	F7.3	URANIUM GRND CONCENTRATION	ppm
30	F7.3	THORIUM GRND CONCENTRATION	ppm

DIGITAL TERRAIN MODEL LOCATED DATA

FIELD	FORMAT	DESCRIPTION	UNITS
1	I6	LINE NUMBER	
2	I8	FIDUCIAL NUMBER	
3	I3	UTM/AMG ZONE	
4	F10.2	EASTING (AMG84)	metres
5	F11.2	NORTHING (AMG84)	metres
6	F13.7	LATITUDE (GDA94)	degrees
7	F13.7	LONGITUDE (GDA94)	degrees
8	F10.2	EASTING (MGA94)	metres
9	F11.2	NORTHING (MGA94)	metres
10	F7.1	RADAR ALTIMETER HEIGHT	metres
11	F7.1	GPS HEIGHT (WGS84)	metres
12	F7.1	TERRAIN HEIGHT (CORRECTED)	metres

GRIDDED DATASET FORMATS

Gridding was performed using a bicubic spline algorithm.

The following grid formats have been provided:

? ER-Mapper format

LINE NUMBER FORMATS

Line numbers are identified with a six digit composite line number and have the following format - ALLLLB, where:

A	Survey area number
LLLL	Survey line number
	0001-8999 reserved for traverse lines
	9001-9999 reserved for tie lines
B	Line attempt number, 0 is attempt 1, 1 is attempt 2 etc..

UTS FILE NAMING FORMATS

Located and gridded data provided by UTS Geophysics uses the following 8 character file naming convention to be compatible with PC DOS based systems.

File names have the following general format - JJJJAABB.EEE, where:

JJJJ UTS Job number

AA Area number if the survey is broken into blocks

BB

M	Magnetic data
R	Radiometric data
TC	Total count data
K	Potassium counts
U	Uranium counts
Th	Thorium counts
KC	Potassium concentration
UC	Uranium concentration
ThC	Thorium concentration
DT	Digital terrain data

EEE File name extension

LDT	Located digital data file
FMT	Located data format definition file
ERS	Ermapper gridded data header file
	Ermapper data portion has no extension
GRD	Geosoft gridded data file

APPENDIX B - COORDINATE SYSTEM DETAILS

Locations for the survey data are provided in both geographical latitude and longitude and Universal Transverse Mercator metric projection coordinate systems.

WGS84	World Geodetic System 1984
Coordinate Type	Geographical
Semi Major Axis	6378137m
Flattening	1/298.257223563
AMG84	Australian Map Grid 1984
Coordinate Type	Universal Transverse Mercator Projection Grid
Geodetic datum	Australian Geodetic Datum
Semi Major Axis	6378160m
Flattening	1/298.25
MGA94	Map Grid of Australia 1994
Coordinate type	Universal Transverse Mercator Projection Grid
Geodetic datum	Geodetic Datum of Australia
Semi major axis	6378137m
Flattening	1/298.257222101

APPENDIX C - SURVEY BOUNDARY DETAILS

Job ID code: A3980101
Client: Gold Fields Australasia Pty Ltd
Job: Mt Solitaire Project 1
Coordinate System: AMG84 Grid Zone: 52

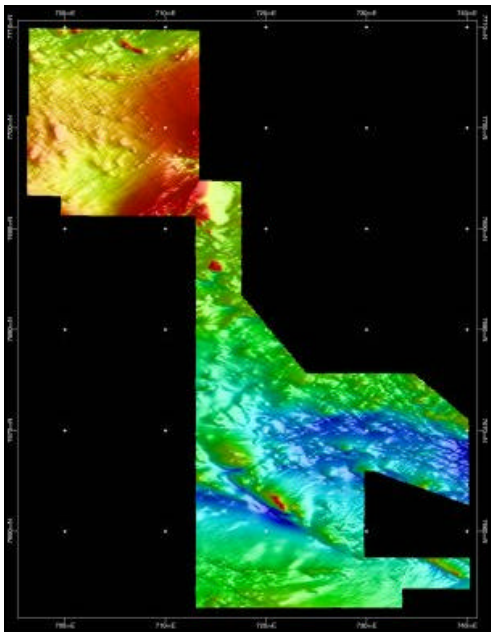
696142.530	7710003.360
695920.260	7693244.370
699432.090	7693155.460
699387.640	7691243.960
713034.880	7691199.510
712723.710	7652302.640
733624.290	7652313.010
733624.290	7654211.920
740507.180	7654214.140
740507.180	7657503.710
729838.330	7657503.710
729826.480	7666123.250
740373.820	7662349.150
740356.780	7671129.460
734832.690	7675790.420
724129.750	7675790.420
717791.410	7683420.130
717791.410	7694800.250
713390.510	7694933.610
713434.970	7709781.100
696142.530	7710003.360

Job ID code: A3980401
Client: Gold Fields Australasia Pty Ltd
Job: Mt Solitaire Project 2
Coordinate System: AMG84 Grid Zone: 52

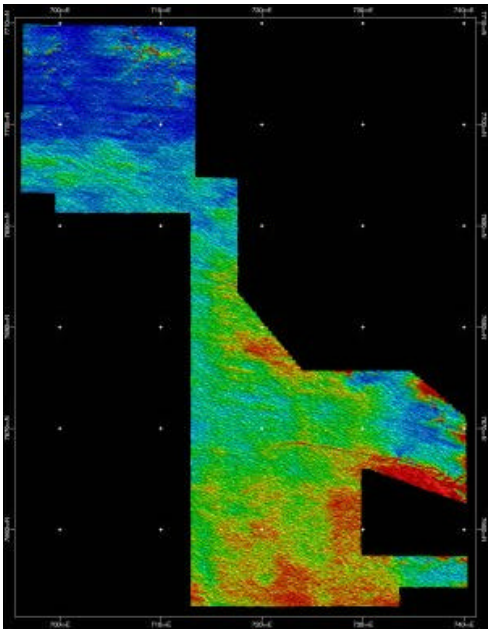
746152.790	7677596.720
746152.790	7677552.260
754687.870	7674218.250
754776.780	7685465.000
746108.330	7685465.000
746152.790	7677596.720

APPENDIX D - PROJECT DATA OVERVIEW

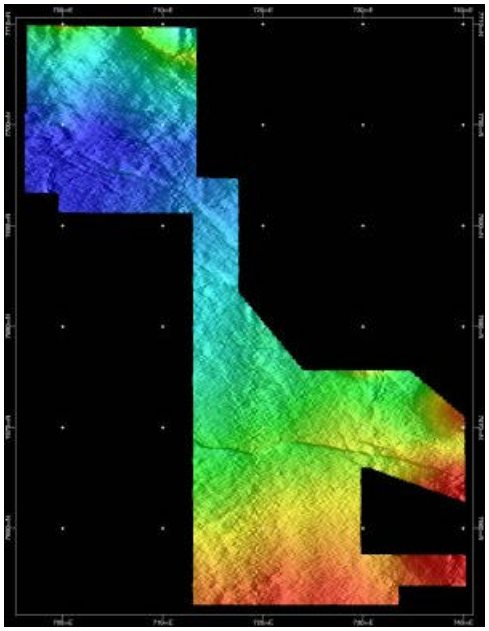
Mt Solitaire Project 1



Total Magnetic Intensity

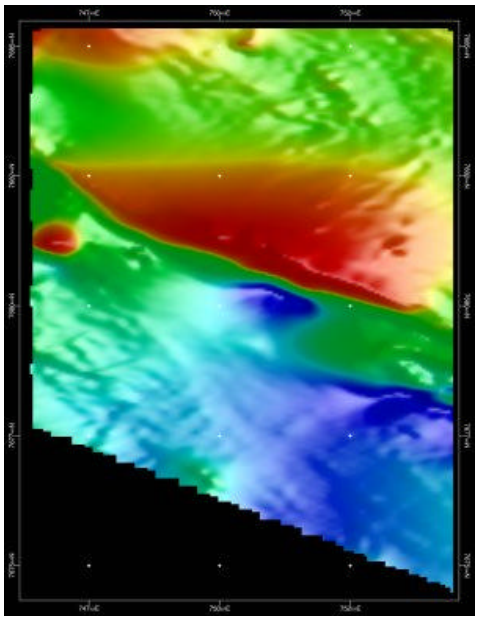


Radiometric Total Count

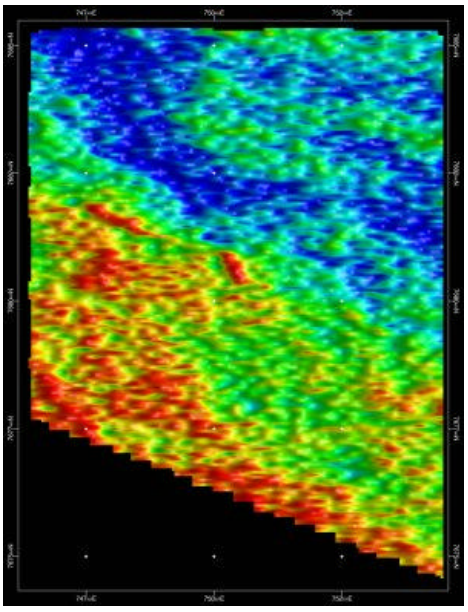


Digital Terrain Model

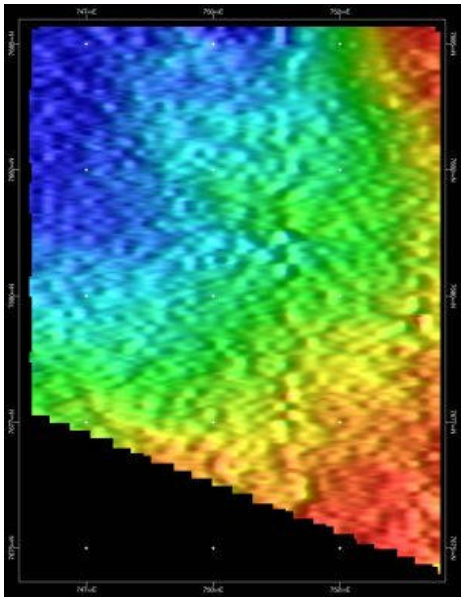
Mt Solitaire Project 2



Total Magnetic Intensity



Radiometric Total Count



Digital Terrain Model

APPENDIX E – RADIOMETRIC CALIBRATION RESULTS

APPENDIX F – DATA PROCESSING PARAMETERS

Magnetic Data

Mt. Solitaire Project 1

IGRF date	2000.71
IGRF mean value	51974 nT
Magnetic inclination	-52.617 deg
Magnetic declination	4.191 deg
Diurnal base value	51390 nT

Mt. Solitaire Project 1

IGRF date	2000.71
IGRF mean value	51937 nT
Magnetic inclination	-52.656 deg
Magnetic declination	4.264 deg
Diurnal base value	51390 nT

Radiometric Data

Stripping Ratios

?	0.224
?	0.395
?	0.722
a	0.047
b	0.000
c	0.000

Height Attenuation Coefficients

Total Count	-0.0060
Potassium	-0.0075
Uranium	-0.0039
Thorium	-0.0062

Final Reduction - All data reduced to STP height datum 25m

Stripping Equations

?	=	? + STPHeight * 0.00049
?	=	? + STPHeight * 0.00065
?	=	? + STPHeight * 0.00069
tho`	=	(tho – (a * ura)) / (1 – (a * ?)
ura`	=	(ura – (? * tho)) / 1 – (a * ?)
pot`	=	pot – (? * tho`) – (? * ura`)

Conversion to Concentrations

% K	=	k.cps / 232.1

ppm U	=	u.cps / 33.0
ppm Th	=	th.cps / 9.2

APPENDIX G – SURVEY KILOMETRE REPORT

LINE KM REPORT FOR a39801m.ldt

LINE	FLT	DATE	START COORDINATE		END COORDINATE		LINE KM
190020	191	000822	733648	7654004	712658	7653994	21.0
190030	191	000822	712727	7655996	740574	7656002	27.9
190040	191	000822	729872	7658001	712697	7658000	17.2
190050	191	000822	712761	7659996	729924	7659997	17.2
190060	191	000822	729851	7662003	712714	7662004	17.1
190070	191	000822	712793	7663999	740445	7663998	27.7
190080	191	000822	740399	7666013	712756	7665995	27.6
190090	191	000822	712809	7667989	740451	7668001	27.6
190100	191	000822	740399	7670004	712803	7670000	27.6
190110	191	000822	712849	7671999	739451	7671998	26.6
190120	191	000822	737040	7673995	712834	7674001	24.2
190130	191	000822	712866	7675981	724071	7676004	11.2
190140	191	000822	722353	7677996	712865	7678005	9.5
190150	191	000822	712922	7680002	720746	7679996	7.8
190160	191	000822	719020	7681993	712889	7681991	6.1
190170	191	000822	712936	7683998	717862	7683994	4.9
190180	191	000822	717824	7686011	712934	7686004	4.9
190190	191	000822	712987	7688004	717867	7688000	4.9
190200	191	000822	717830	7690003	712961	7689992	4.9
190210	191	000822	699362	7692009	717874	7691995	18.5
190220	191	000822	717804	7693997	695855	7693994	22.0
190230	191	000822	695926	7696003	713472	7696000	17.6
190240	191	000822	713425	7697998	695909	7698004	17.5
190250	191	000822	695976	7699988	713480	7700001	17.5
190260	191	000822	713437	7702001	695968	7702008	17.5
190270	191	000822	696029	7703982	713506	7704003	17.5
190280	191	000822	713464	7705994	696019	7705995	17.4
190290	191	000822	696069	7708000	713512	7707999	17.4
200010	201	000814	712090	7710000	695729	7710013	16.4
200020	201	000814	740399	7657546	740397	7654152	3.4
200030	201	000814	740218	7654171	740199	7657581	3.4
200040	201	000814	740004	7657546	740000	7654132	3.4
200050	201	000814	739806	7654187	739804	7657568	3.4
200060	201	000814	739594	7657552	739600	7654143	3.4
200070	201	000814	739400	7654188	739401	7657585	3.4
200080	201	000814	739200	7657550	739198	7654145	3.4
200090	201	000814	738983	7654183	738997	7657577	3.4
200100	201	000814	738800	7657530	738805	7654151	3.4
202230	202	000815	738607	7654169	738601	7657566	3.4
202220	202	000815	695937	7701395	695999	7693170	8.2
202210	202	000815	696204	7693219	696199	7710075	16.9
202200	202	000815	696399	7710038	696397	7693153	16.9
202190	202	000815	696586	7693187	696604	7710067	16.9
202180	202	000815	696799	7710021	696802	7693138	16.9
202170	202	000815	697000	7693177	697004	7710070	16.9
202160	202	000815	697200	7710027	697206	7693143	16.9
202150	202	000815	697401	7693176	697403	7710069	16.9
202140	202	000815	697598	7710030	697600	7693130	16.9
202130	202	000815	697808	7693168	697803	7710045	16.9
202120	202	000815	697991	7710003	697997	7693123	16.9
202110	202	000815	698199	7693164	698203	7710064	16.9
202100	202	000815	698399	7710003	698404	7693106	16.9
202090	202	000815	698592	7693141	698601	7710035	16.9
202080	202	000815	698801	7710012	698800	7693093	16.9
200110	203	000816	699001	7693132	699002	7710027	16.9
200120	203	000816	738397	7657538	738399	7654141	3.4
200130	203	000816	738212	7654175	738198	7657572	3.4
200140	203	000816	738001	7657531	737999	7654130	3.4

200150	203	000816	737803	7654168	737799	7657588	3.4
200160	203	000816	737592	7657544	737601	7654132	3.4
200170	203	000816	737403	7654172	737399	7657583	3.4
200180	203	000816	737207	7657545	737198	7654134	3.4
200190	203	000816	736999	7654164	737001	7657582	3.4
200200	203	000816	736792	7657548	736801	7654140	3.4
200210	203	000816	736602	7654158	736603	7657585	3.4
200220	203	000816	736402	7657546	736403	7654151	3.4
200230	203	000816	736202	7654183	736202	7657593	3.4
200240	203	000816	735999	7657541	736004	7654146	3.4
200250	203	000816	735799	7654166	735799	7657584	3.4
200260	203	000816	735606	7657548	735601	7654130	3.4
200270	203	000816	735404	7654180	735401	7657581	3.4
200280	203	000816	735191	7657534	735199	7654133	3.4
200290	203	000816	734998	7654173	735000	7657591	3.4
200300	203	000816	734802	7657520	734802	7654125	3.4
200310	203	000816	734603	7654168	734598	7657592	3.4
200320	203	000816	734400	7657536	734397	7654133	3.4
200330	203	000816	734204	7654165	734204	7657568	3.4
200340	203	000816	733999	7657540	734003	7654140	3.4
200350	203	000816	733799	7654181	733799	7657588	3.4
200360	203	000816	733599	7657529	733598	7652240	5.3
200370	203	000816	733399	7652261	733395	7657569	5.3
200380	203	000816	733202	7657527	733204	7652250	5.3
200390	203	000816	733001	7652285	733000	7657574	5.3
200400	203	000816	732786	7657532	732801	7652241	5.3
200410	203	000816	732608	7652270	732599	7657569	5.3
200420	203	000816	732400	7657530	732399	7652228	5.3
200430	203	000816	732201	7652277	732198	7657579	5.3
200440	203	000816	732016	7657541	732006	7652237	5.3
200450	203	000816	731804	7652267	731796	7657574	5.3
200460	203	000816	731603	7657526	731607	7652237	5.3
200470	203	000816	731403	7652265	731401	7657567	5.3
200480	203	000816	731190	7657546	731203	7652248	5.3
200490	203	000816	731000	7652280	731002	7657579	5.3
200500	203	000816	730804	7657544	730796	7652235	5.3
200510	203	000816	730603	7652280	730598	7657591	5.3
200520	203	000816	730399	7657526	730402	7652223	5.3
200530	203	000816	730199	7652265	730198	7657590	5.3
200540	203	000816	730004	7657528	729998	7652246	5.3
200550	203	000816	729800	7652283	729799	7675891	23.6
200560	203	000816	729599	7675852	729602	7652228	23.6
200570	203	000816	729402	7652260	729394	7675888	23.6
200580	203	000816	729195	7675851	729199	7652238	23.6
200590	203	000816	729008	7652266	729002	7675875	23.6
200600	203	000816	728798	7675844	728803	7652243	23.6
200610	203	000816	728602	7652262	728597	7675875	23.6
200620	203	000816	728400	7675832	728398	7652244	23.6
200630	203	000816	728195	7652274	728196	7675890	23.6
200640	203	000816	728000	7675848	727996	7652243	23.6
200650	203	000816	727809	7652275	727800	7675873	23.6
200660	203	000816	727590	7675834	727605	7652241	23.6
200670	203	000816	727400	7652277	727404	7675887	23.6
200680	203	000816	727197	7675820	727202	7652221	23.6
202070	205	000819	727011	7652269	726992	7675889	23.6
202060	205	000819	699205	7709998	699199	7693081	16.9
202050	205	000819	699394	7691202	699401	7710041	18.8
202040	205	000819	699599	7710003	699603	7691173	18.8
202030	205	000819	699800	7691209	699799	7710037	18.8
202020	205	000819	700000	7709997	699998	7691162	18.8
202010	205	000819	700201	7691202	700199	7710034	18.8
202000	205	000819	700410	7709994	700397	7691177	18.8
201990	205	000819	700596	7691206	700597	7710030	18.8
201980	205	000819	700799	7709972	700802	7691176	18.8
201970	205	000819	700996	7691200	700999	7710010	18.8
201960	205	000819	701196	7709969	701205	7691154	18.8

201950	205	000819	701406	7691209	701396	7710022	18.8
201940	205	000819	701602	7691214	701597	7710013	18.8
201930	205	000819	701784	7709953	701796	7691173	18.8
201920	206	000820	701998	7691204	702003	7709999	18.8
201910	206	000820	702199	7709944	702198	7691154	18.8
201900	206	000820	702398	7691194	702398	7709995	18.8
201890	206	000820	702585	7709973	702600	7691150	18.8
201880	206	000820	702799	7691211	702800	7709999	18.8
201870	206	000820	702977	7709959	703006	7691159	18.8
201860	206	000820	703201	7691209	703202	7709991	18.8
201850	206	000820	703392	7709942	703400	7691157	18.8
201840	206	000820	703611	7691199	703601	7709985	18.8
201830	206	000820	703795	7709947	703799	7691164	18.8
201820	206	000820	704000	7691189	704002	7709986	18.8
201810	206	000820	704201	7709934	704200	7691151	18.8
201800	206	000820	704396	7691182	704403	7709969	18.8
201790	206	000820	704608	7709940	704596	7691154	18.8
201780	206	000820	704811	7691204	704799	7709957	18.8
201770	206	000820	705009	7709932	705005	7691143	18.8
201760	206	000820	705204	7691185	705199	7709974	18.8
201750	206	000820	705383	7709932	705396	7691136	18.8
201740	206	000820	705610	7691192	705598	7709964	18.8
201730	206	000820	705797	7709921	705799	7691160	18.8
201720	206	000820	705996	7691173	705995	7709957	18.8
201710	206	000820	706199	7709912	706195	7691155	18.8
201700	206	000820	706414	7691186	706400	7709941	18.8
201690	206	000820	706616	7709916	706602	7691139	18.8
201680	206	000820	706797	7691191	706797	7709943	18.8
201670	206	000820	707012	7709893	706996	7691141	18.8
201660	206	000820	707172	7691176	707199	7709935	18.8
201650	206	000820	707407	7709901	707400	7691137	18.8
201640	206	000820	707594	7691173	707595	7709939	18.8
201630	206	000820	707764	7709892	707801	7691129	18.8
201620	206	000820	708002	7691170	707998	7709936	18.8
201610	206	000820	708203	7709870	708204	7691153	18.7
201600	206	000820	708412	7691168	708401	7709929	18.8
201590	206	000820	708593	7709889	708598	7691148	18.7
201580	206	000820	708806	7691180	708800	7709917	18.7
201570	206	000820	709002	7709873	709006	7691142	18.7
201560	206	000820	709196	7691176	709199	7709915	18.7
201550	206	000820	709397	7709876	709402	7691127	18.8
201540	206	000820	709606	7691166	709602	7709895	18.7
201530	206	000820	709801	7709869	709801	7691142	18.7
201520	207	000820	710007	7691172	710001	7709913	18.7
201510	207	000820	710200	7709842	710202	7691135	18.7
201500	207	000820	710386	7691168	710400	7709897	18.7
201490	207	000820	710593	7709842	710596	7691143	18.7
201480	207	000820	710799	7691171	710796	7709889	18.7
201470	207	000820	710994	7709851	711001	7691125	18.7
201460	207	000820	711199	7691156	711200	7709873	18.7
201450	207	000820	711390	7709829	711400	7691123	18.7
201440	207	000820	711594	7691168	711598	7709871	18.7
201430	207	000820	711817	7709827	711796	7691128	18.7
201420	207	000820	712006	7691176	711997	7709886	18.7
201410	207	000820	712195	7709835	712201	7691134	18.7
201400	207	000820	712406	7691165	712398	7709882	18.7
201350	207	000820	712595	7709836	712601	7691130	18.7
201360	207	000820	713609	7694956	713598	7652240	42.7
201370	207	000820	713404	7652261	713401	7709857	57.6
201380	207	000820	713202	7709832	713199	7652214	57.6
201390	207	000820	713010	7652270	712999	7709869	57.6
201340	207	000820	712803	7709837	712798	7652227	57.6
201330	207	000820	713798	7652285	713799	7694996	42.7
201320	207	000820	713993	7694938	714005	7652233	42.7
201310	207	000820	714196	7652269	714196	7694979	42.7
201300	207	000820	714398	7694946	714402	7652236	42.7

201290	208	000821	714600	7652260	714605	7694980	42.7
201280	208	000821	714797	7694926	714796	7652234	42.7
201270	208	000821	715003	7652269	714995	7694959	42.7
201260	208	000821	715198	7694920	715204	7652223	42.7
201250	208	000821	715398	7652271	715394	7694940	42.7
201240	208	000821	715606	7694906	715594	7652228	42.7
201230	208	000821	715797	7652255	715796	7694925	42.7
201220	208	000821	715994	7694876	715999	7652241	42.6
201210	208	000821	716193	7652268	716198	7694935	42.7
201200	208	000821	716391	7694883	716402	7652234	42.7
201190	208	000821	716595	7652267	716605	7694919	42.7
201180	208	000821	716797	7694873	716795	7652232	42.6
201170	208	000821	716998	7652264	717009	7694893	42.6
201160	208	000821	717205	7694849	717199	7652219	42.6
201150	208	000821	717388	7652264	717404	7694902	42.6
201140	208	000821	717580	7694833	717606	7652225	42.6
201130	208	000821	717802	7652272	717798	7683514	31.2
201120	208	000821	718011	7683239	718001	7652223	31.0
201110	209	000821	718194	7652259	718204	7683046	30.8
201100	209	000821	718401	7682772	718398	7652232	30.5
201090	209	000821	718595	7652255	718601	7682582	30.3
201080	209	000821	718800	7682293	718802	7652219	30.1
201070	209	000821	719000	7652268	718998	7682093	29.8
201060	209	000821	719192	7681806	719200	7652236	29.6
201050	209	000821	719389	7652254	719400	7681629	29.4
201040	209	000821	719591	7681351	719591	7652236	29.1
201030	209	000821	719796	7652269	719798	7681149	28.9
201020	209	000821	719992	7680867	719999	7652234	28.6
201010	209	000821	720199	7652269	720195	7680649	28.4
201000	209	000821	720396	7680362	720401	7652218	28.1
200990	209	000821	720608	7652270	720606	7680154	27.9
200980	209	000821	720811	7679860	720800	7652234	27.6
200970	209	000821	721009	7652266	720998	7679705	27.4
200960	209	000821	721198	7679411	721198	7652234	27.2
200950	209	000821	721406	7652287	721401	7679209	26.9
200940	209	000821	721594	7678934	721600	7652240	26.7
200930	209	000821	721812	7652270	721800	7678718	26.5
200920	209	000821	721998	7678463	722003	7652222	26.2
200910	209	000821	722181	7652281	722196	7678243	26.0
200900	209	000821	722398	7677957	722398	7652221	25.7
200890	209	000821	722596	7652277	722597	7677781	25.5
200880	209	000821	722806	7677462	722800	7652230	25.2
200870	209	000821	723026	7652263	723002	7677283	25.0
200860	209	000821	723202	7677013	723201	7652231	24.8
200850	210	000822	723405	7652273	723391	7676813	24.5
200840	210	000822	723597	7676535	723598	7652235	24.3
200830	210	000822	723806	7652289	723800	7676316	24.0
200820	210	000822	724001	7676043	723996	7652243	23.8
200810	210	000822	724200	7652269	724200	7675870	23.6
200800	210	000822	724398	7675825	724403	7652223	23.6
200790	210	000822	724613	7652269	724600	7675875	23.6
200780	210	000822	724800	7675836	724803	7652236	23.6
200770	210	000822	725007	7652268	725003	7675878	23.6
200760	211	000822	725203	7675836	725201	7652232	23.6
200750	211	000822	725400	7675841	725396	7652237	23.6
200740	211	000822	725599	7652271	725604	7675875	23.6
200730	211	000822	725783	7675842	725800	7652239	23.6
200720	211	000822	725999	7652268	726000	7675883	23.6
200710	211	000822	726194	7675831	726201	7652239	23.6
200700	211	000822	726416	7652271	726399	7675869	23.6
200690	211	000822	726601	7675831	726600	7652233	23.6
300520	301	000819	726795	7652277	726802	7675879	23.6
300510	301	000819	730004	7665997	730001	7675872	9.9
300500	301	000819	730204	7675824	730199	7665885	9.9
300490	301	000819	730381	7665862	730400	7675880	10.0
300480	301	000819	730613	7675842	730600	7665763	10.1

300470	301	000819	730807	7665724	730801	7675868	10.1
300460	301	000819	730990	7675823	731000	7665608	10.2
300450	301	000819	731186	7665579	731200	7675879	10.3
300440	301	000819	731409	7675826	731401	7665474	10.4
300430	301	000819	731613	7665433	731600	7675869	10.4
300420	301	000819	731806	7675852	731798	7665334	10.5
300410	301	000819	731997	7665293	731997	7675865	10.6
300400	301	000819	732197	7675830	732194	7665173	10.7
300390	301	000819	732405	7665136	732402	7675867	10.7
300380	301	000819	732599	7675830	732598	7665040	10.8
300370	301	000819	732803	7665008	732802	7675878	10.9
300360	301	000819	733000	7675829	732996	7664903	10.9
300350	301	000819	733198	7664851	733201	7675877	11.0
300340	301	000819	733414	7675835	733393	7664756	11.1
300330	301	000819	733596	7664725	733603	7675855	11.1
300320	301	000819	733804	7675815	733800	7664611	11.2
300310	301	000819	734008	7664581	734002	7675862	11.3
300300	301	000819	734201	7675823	734192	7664464	11.4
300290	301	000819	734403	7664440	734398	7675867	11.4
300280	301	000819	734600	7675823	734599	7664338	11.5
300270	301	000819	734846	7664284	734804	7675857	11.6
300260	301	000819	734995	7675715	734995	7664174	11.5
300250	301	000819	735202	7664155	735200	7675587	11.4
300240	301	000819	735397	7675383	735400	7664043	11.3
300230	301	000819	735618	7663991	735599	7675252	11.3
300220	301	000819	735801	7675044	735800	7663897	11.1
300210	301	000819	736006	7663865	735998	7674898	11.0
300200	301	000819	736192	7674699	736201	7663742	11.0
300190	301	000819	736409	7663709	736401	7674560	10.9
300180	301	000819	736597	7674357	736599	7663624	10.7
300170	301	000819	736806	7663580	736799	7674228	10.6
300160	301	000819	737003	7674031	737000	7663483	10.5
300150	301	000819	737196	7663442	737200	7673885	10.4
300140	301	000819	737399	7673697	737396	7663342	10.4
300130	301	000819	737600	7663294	737606	7673554	10.3
300120	301	000819	737806	7673352	737797	7663188	10.2
300110	301	000819	738010	7663148	737998	7673221	10.1
300100	301	000819	738192	7673039	738202	7663036	10.0
300090	301	000819	738403	7662999	738407	7672888	9.9
300080	301	000819	738590	7672690	738598	7662895	9.8
300070	301	000819	738798	7662882	738799	7672552	9.7
300060	301	000819	739001	7672338	738997	7662767	9.6
300050	301	000819	739179	7662732	739204	7672208	9.5
300040	301	000819	739387	7672010	739402	7662618	9.4
300030	301	000819	739605	7662577	739602	7671859	9.3
300020	301	000819	739803	7671654	739800	7662469	9.2
300010	301	000819	740024	7662419	740000	7671526	9.1
300010	301	000819	740194	7671333	740197	7662340	9.0

TOTALS BY FLIGHT

FLIGHT	LINE KM
1	579.2
2	261.6
3	536.7
5	280.4
6	750.8
7	730.0
8	733.0
9	716.1
10	213.8
11	188.8
91	495.2
TOTAL	5485.6

LINE KM REPORT FOR a39804m.ldt

LINE	FLT	DATE	START COORDINATE		END COORDINATE		LINE KM
490020	491	000814	749919	7675996	754777	7676001	4.9
490030	491	000814	754756	7677996	746074	7678001	8.7
490040	491	000814	746112	7679988	754820	7679999	8.7
490050	491	000814	754776	7682000	746044	7681998	8.7
400010	401	000814	746075	7683993	754829	7683999	8.8
400020	401	000814	754600	7685485	754601	7674166	11.3
400030	401	000814	754393	7674287	754401	7685529	11.2
400040	401	000814	754199	7685495	754202	7674336	11.2
400050	401	000814	754009	7674458	753997	7685528	11.1
400060	401	000814	753804	7685495	753800	7674478	11.0
400070	401	000814	753601	7674616	753601	7685552	10.9
400080	401	000814	753396	7685503	753402	7674649	10.9
400090	401	000814	753184	7674765	753199	7685543	10.8
400100	401	000814	752999	7685501	753001	7674789	10.7
400110	401	000814	752798	7674910	752800	7685542	10.6
400120	401	000814	752607	7685509	752601	7674960	10.5
400130	401	000814	752400	7675062	752400	7685543	10.5
400140	401	000814	752196	7685494	752197	7675109	10.4
400150	401	000814	752014	7675207	752001	7685550	10.3
400160	401	000814	751798	7685497	751800	7675273	10.2
400170	401	000814	751603	7675369	751601	7685540	10.2
400180	401	000814	751395	7685489	751399	7675416	10.1
400190	401	000814	751200	7675527	751199	7685551	10.0
400200	401	000814	751002	7685503	750999	7675574	9.9
400210	401	000814	750800	7675682	750801	7685541	9.9
400220	401	000814	750600	7685497	750594	7675742	9.8
400230	401	000814	750407	7675851	750400	7685539	9.7
400240	401	000814	750200	7685501	750196	7675893	9.6
400250	401	000814	750010	7676002	750004	7685539	9.5
400260	401	000814	749791	7685512	749801	7676047	9.5
400270	401	000814	749610	7676148	749597	7685533	9.4
400280	401	000814	749404	7685496	749397	7676197	9.3
400290	401	000814	749209	7676323	749199	7685546	9.2
400300	401	000814	748989	7685500	749002	7676366	9.1
400310	401	000814	748790	7676473	748800	7685544	9.1
400320	401	000814	748593	7685500	748600	7676510	9.0
400330	401	000814	748403	7676630	748402	7685543	8.9
400340	401	000814	748204	7685511	748200	7676674	8.8
400350	401	000814	748015	7676779	747997	7685530	8.8
400360	401	000814	747799	7685494	747804	7676811	8.7
400370	401	000814	747596	7676938	747606	7685551	8.6
400380	401	000814	747393	7685498	747399	7676987	8.5
400390	401	000814	747202	7677108	747199	7685548	8.4
400400	401	000814	747003	7685492	747000	7677126	8.4
400410	401	000814	746784	7677274	746801	7685537	8.3
400420	401	000814	746605	7685507	746597	7677289	8.2
400430	401	000814	746408	7677398	746394	7685526	8.1
400430	401	000814	746201	7685510	746198	7677452	8.1

TOTALS BY FLIGHT

FLIGHT	LINE KM
1	416.7
91	39.7
TOTAL	456.5