

**DEFIANCE MINING NL**  
A.C.N. 009161522

**ANNUAL REPORT FOR THE PERIOD**  
**20 SEPTEMBER 1998 TO 19 SEPTEMBER 1999**

**MICROFILMED**  
FICHE No.015116 - 18<sup>B</sup>

EL3/97 pt 1  
See folio 52

**FOR EL 3/97 - TOWER HILL**

MINERAL RESOURCES  
14 SEP 1999  
TASMANIA

- Report No : Def 081D
- Date due : 19 August 1999
- Author : DG Jackson
- Accepted By: AG Keogh
- Signature :
- Copies : Defiance Mining (1)
- : Connemarra Gold Mines (1)
- : Mineral Resources Tasmania (1)

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2. **RC Drill Logs and Assays**
3. **Rock Chip Sample Locations and Results**

## **1. Summary**

Defiance Mining NL are exploring EL 3/97 at Mathinna in Joint Venture with Connemarra Gold Mines Pty Ltd, a wholly owned subsidiary of the Mining Contractor, Barmenco Pty Ltd.

The targets are high-grade gold bearing reefs containing more than 50,000 ozs and similar in style to the Main and Loanes Reefs at the New Golden Gate Mine in adjacent tenement 43M/89.

Since the Joint Venture was signed in September 1998, Defiance has mainly concentrated its field program within 43M/89, which is just to the north of EL 3/97.

Work completed in EL 3/97 during the reporting period has included:

- Drilling of two RC percussion holes (180m) into the Jubilee West Au soil geochemical anomaly.
- Entering historical geochemical data from Resolute Samantha Limited into a digital data base and processing the data in a GIS package, at a variety of scales, as both images and dot plans.
- Obtaining regional airborne geophysical data from Mineral Resources Tasmania and having it processed into images by Southern Geoscience Consultants.
- Evaluation of all the available historical data within the tenement and selection of a number of targets for further work.
- Purchasing geological and topographical data in digital form to enhance map production.

## **2. Introduction**

EL 3/97 "Tower Hill", of approximately 249sq km, is centred on Tower Hill approximately 65 km east of Launceston. The licence, which is now nearing its second birthday, is due for renewal on 19 September 1999.

The tenement is held in the name of Connemarra Gold Mines Pty Ltd. Defiance Mining NL has signed a joint venture with Connemarra, whereby it can earn a 50% equity in this and other associated tenements, by spending \$1 million on exploration for high-grade gold reefs. The ground was previously held by Resolute Samantha Ltd as Tower Hill EL 22/92.

The licence is a mixture of private land on flatter areas along the South Esk River and on higher level plateaus and State Forest in adjacent hilly country. Access is generally excellent with a sealed road to Launceston and strategically placed gravel roads throughout the tenement.

### **3. Conclusions and Recommendations**

- First pass evaluation drilling should be completed on the Buckland's, Alpine and Tower Hill Consolidated targets as soon as evaluation drilling in the New Golden Gate area is completed. All three targets are old workings mined in the late 19<sup>th</sup> century and unmined portions of the reefs are likely to produce gold at the joint venturers' target grade of 10-15 g/t Au.
- Drilling at the Jubilee West soil geochemical target was disappointing with a best intersection of 1m from 16m at 1.0g/t gold in MT043. No further drilling should be planned for this target.

### **4. Geology**

EL 3/97 lies near the southern end of the 90-km long, north-north-west trending, line of gold deposits that extend from Mangana in the south to Lyndhurst on the north coast.

The gold deposits occur as auriferous quartz reefs, hosted in the Mathinna Beds, a folded sequence of Silurian-Ordovician age sediments. The Mathinna beds are intruded by younger, Devonian-Carboniferous age granites and are in part overlain by Permo-Triassic glacial marine sediments, Jurassic dolerites and Tertiary basalts.

The gold bearing veins are structurally controlled and occur in a range of orientations and forms within zones of shearing and tectonic deformation. Typical vein features are:

Width	0.1-1.0m	up to 10m
Length	10-100m	up to 350m
Depth	<100m	up to 580m
Grade	15-30g/t	cut off 10g/t
Strike	variable	NW to NE dominant
Dip	typically steep	70-80°
Mineralogy	quartz, arsenopyrite, pyrite	minor galena, chalcopyrite, sphalerite

This overall geological setting is very similar to the high grade, quartz vein style mineralisation in the slate belts of central and eastern Victoria which have historical production of approximately 80Mozs.

### **5. Summary of Previous Exploration**

The first gold discovery in Tasmania was made at Mangana in 1852. As exploration extended to the north, further discoveries were made in the Lyndhurst-Mangana belt (including a number in Tower Hill EL 3/97) and at Lisle, Lefroy and Beaconsfield.

In this first phase of mining, production peaked sometime prior to 1884. In the Lyndhurst-Mangana zone, activity was concentrated on the southern section between Mangana and Alberton within a 70km by 5km belt of deformed sediments.

In about 1887, after the first phase of mining had largely been completed, a Mr A Loane discovered a reef (Loane's Reef) in the abandoned adit of the Golden Gate mine. Sinking of a shaft to evaluate this reef discovered an additional reef (Main Reef). These two reefs were subsequently mined down to about 280m depth and probably each produced somewhere between 50,000 and 100,000 ozs.

Further exploration at depth below, and adjacent to, these reefs discovered a further two reefs (East and West Reefs) which were mined from 250-470m depth. The New Golden Gate Shaft was subsequently extended to 549m.

The bulk of the 265,000 ozs of gold from the New Golden Gate mine was produced in the years 1888 to 1904. Intermittent production occurred through to 1929 when the workings were finally abandoned. New Golden Gate production represents approximately 16% of Tasmania's historical production.

Early mills were generally simple stamp and gravity mills, which recovered most of the coarse free gold, but gold associated with sulphides was lost. The New Golden Gate mill experimented with cyanide extraction of their sulphides with limited success.

An important feature of the area is that many of the quartz veins never outcropped and were only discovered during underground development aimed at other veins.

Modern day exploration activity has seen a number of companies hold tenure over the New Golden Gate mine and other mines in the Mathinna-Tower Hill-Mangana area, however, very few have carried out drilling programs in the area of the old mines.

Of the two more comprehensive programs, prior to the recent Defiance program, Epoch Minerals had a best intersection of 8m at 10.7g/t gold in the Central Reef at the New Golden Gate mine and Resolute Samantha Limited had best intersections of 7m at 2.4g/t gold in Mathinna township and 6m at 1.9g/t gold at the old Jubilee workings in the current Tower Hill EL 3/97. For both companies the target was shallow, large tonnage, open pit gold resources and because these did not look achievable, the programs were not continued.

A large number of old workings remain untested by drilling.

A more detailed summary of historical exploration is available in MacDonald (1996)

## **6. Summary of Work Completed**

### **6.1 Soil Geochemical Data**

Resolute Samantha Ltd collected 2002 soil and auger samples over Tower Hill EL 3/97 while they held tenure. These samples, which were collected at 100m by 50m spacing with 50m by 25m infill in anomalous zones, cover an area of approximately nine square kilometres. They were analysed at Minlabs in Perth WA for Au by fire assay (AAS finish) with a 50g charge and a detection limit of 1ppb and for As by perchloric acid digest and AAS with a 10ppm detection limit.

After ascertaining that Resolute did not have the data in digital form Defiance arranged to have it entered into a digital data base (Appendix 1 – ASCII tab delimited file). In the Defiance data base samples below detection limits are entered as half of the detection limit to facilitate statistical processing.

Plots of sample locations and both elements at a variety of scales and in a number of formats were then possible using the Map Info GIS package. Attached Plan Nos TAS082-083 present the Au and As data as images at 1:25000 scale and Plan Nos TAS078-081 illustrate the elements as dot plans at 1:10000 scale.

### **6.2 Airborne Data Processing**

Defiance purchased the available airborne magnetic and radiometric data, comprising the Fingal (1993), Mathinna (1990) and Alberton-Mangana (1989) surveys from Mineral Resources Tasmania.

These data were processed by Southern Geoscience consultants to produce a number of images. The Total Magnetic Intensity image is presented here at 1:25000 scale (Plan No TAS075).

Several NNW and NW trending structures are apparent in the processed data, particularly in the Mangana area and may be controlling features on the gold mineralisation in that area.

### **6.3 Prospect Evaluation**

Prior to Defiance Mining NL and Connemarra Gold Pty Ltd forming the Mathinna Joint Venture, Connemarra arranged the production of a report on all the potential gold prospects in the area (Colville 1998). A number of these prospects, on which further work was recommended, are within the Tower Hill EL 3/97 and are summarised below.

### **6.3.1 Buckland Mine**

Old mine plans show a steeply north plunging orientation to the ore shoot with grades averaging 18-30g/t gold over one metre. The lowest level is at ~30m and the down plunge projection of the mineralisation can be drilled from the top of the ridge as the old workings lie just below the edge of the ridge.

### **6.3.2 Jubilee West Soil Anomaly**

Soil sampling by Resolute Samantha Ltd produced a well defined trend of anomalous gold over 1km towards the southern part of the Mathinna field and within Tower Hill EL 3/97. This anomaly is approximately 200m to the west of a similar anomaly coincident with the Jubilee mine.

The Jubilee West anomaly is coincident with minor old workings (Horseshoe and Telegraph) and was considered to have a favourable structural setting. Quartz float samples collected along this trend by Resolute Samantha Ltd assayed up to 1g/t gold.

As outlined below this anomaly was drilled with two RC holes as part of Defiance's 1998 drill program.

## **6.4 Drilling**

In November 1998 two RC holes (MT043 & 44) for a total of 180m were drilled on a fence across the Jubilee West soil anomaly outlined above. The holes were drilled on a bearing of 210 degrees AMG approximately normal to the trend of the soil anomaly and on an old access track parallel to, and 30m to the south east of Long Gully creek.

The holes intersected Mathinna group siltstones and sandstones and some zones of quartz veining with very minor sulphides.

In zones of barren material with no quartz or sulphides present samples were collected at 2m intervals using a 50mm poly spear. In zones of moderate interest based on the lithological logging, poly speared samples were collected every metre. In samples containing significant amounts of quartz and/or sulphides samples were collected using a riffle splitter.

Samples were sent to Analabs in Burnie where they were analysed for (detection limits in brackets) the following:

- Au (10ppb) by fire assay.
- Cu (2ppm), Pb (3ppm), Zn (2ppm) and Ag (1ppm) by a triple acid digest with an AAS finish.
- As (1ppm) by a triple acid digest with an AAS vapour hydride finish.

Where one or two metre poly speared samples reported anomalous gold the samples were re-sampled at one metre spacing using a riffle splitter. These samples were only analysed for gold by fire assay.

The analytical results were disappointing with a best intersection of 1m from 16m at 1.0g/t gold in MT043. No further drilling is planned for this target. Full logs and assay results are located in Appendix 2.

At the completion of drilling the holes were plugged with a concrete plug. Following receipt of the assay results the samples were removed from the site and dumped in the old tailings dam at the New Golden Gate mine. The polythene sample bags were disposed of at a council refuse disposal site. During the drilling process water from the drill hole was diverted so that it did not enter Long Gully creek.

### **6.5 Rock Chip Sampling**

A total of eight rock chip samples of vein quartz were collected on a recent field trip. Seven samples were from the Tower Hill Consolidated old workings and one from Blackboy Ridge north west of Mangana. The rock chips were sent to Analabs in Burnie who analysed them for Au and As by the same techniques as for the RC samples. The best results were from the Tower Hill Consolidated old workings where 3.7g/t gold (repeats 0.6 & 1.0g/t gold) and 1.2g/t gold (repeat 1.0g/t gold) were reported. Assay results and coordinates are attached in Appendix 3.

### **7. Proposed Future Program**

In the period September-October 1999 Defiance plans to drill approximately 2000m in about 16 RC and core holes in the vicinity of the New Golden Gate mine in 43M/89. Following this drilling a further program of reconnaissance holes on a number of regional prospects is proposed. This program would test a number of targets in the Tower Hill EL 3/97 including the following.

- The Buckland and Alpine old workings that extend over 300m of strike and as outlined above produced good grades from the lowest production levels. Eight RC holes for a total of approximately 1000m of drilling are proposed as an initial test of these targets.
- The Tower Hill Consolidated old workings, which are the only known significant mineralised occurrence that could have provided the source of the alluvial gold recovered from the Majors Gully catchment. Surface grades at these workings were very good (~2ozs/t) however, deeper development was disappointing. This may have been as a result of either poor gold recoveries due to sulphides or a zone of depletion in the weathering profile. Field inspection has indicated that a RC drill program to test below these old workings could be completed with minimal environmental disturbance.

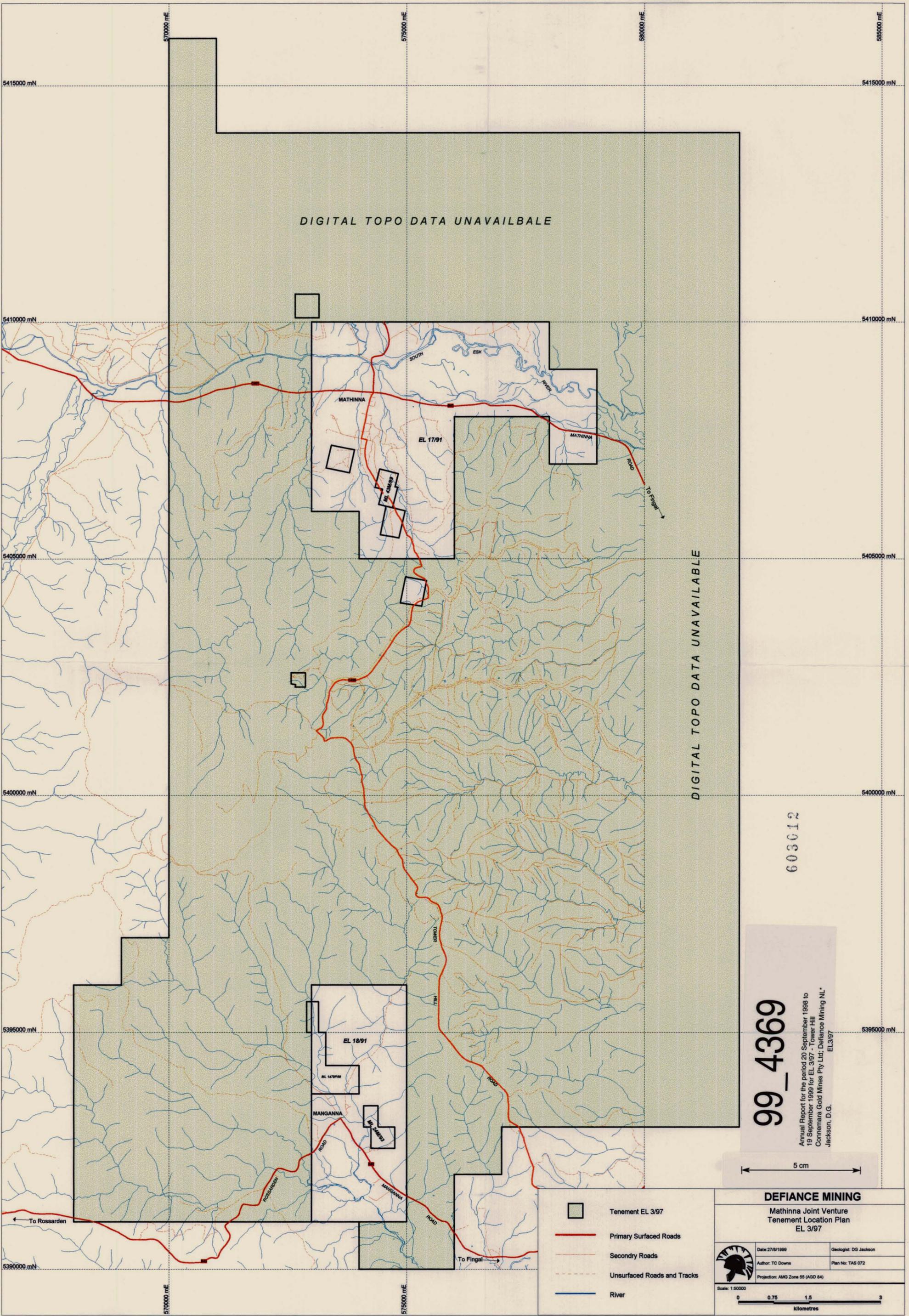
**8. References**

Colville, R. 1998. Connemarra Gold Mines Pty Ltd, Mathinna Gold Project, Annual Report on Exploration Licence 3/97 for the Twelve months ending 19 September 1998.

MacDonald, G. 1996. Resolute Samantha Limited, Annual Report 1995 EL 22/92 "Tower Hill".

**9. Expenditure Statement - EL 3/97****For the period 20 September 1998 to 31 August 1999**

<b>Item</b>	<b>\$</b>
MRT/ Legal/NNTT Costs	1,815
Literature Research	329
Freight	55
Geophysics - Aeromags	75
Computing & CAD Services	892
Consultant - Geophysics	766
Assaying	1,597
Drilling – Reverse Circulation	8,400
Salaries & Wages	12,148
Vehicles	320
Travel & Accommodation	4,406
Consumables	475
Overheads at 10%	3,475
<b>Total</b>	<b>34,753</b>



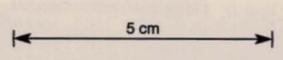
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 Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
 Jackson, D.G. EL3/97

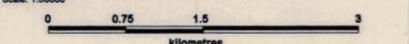


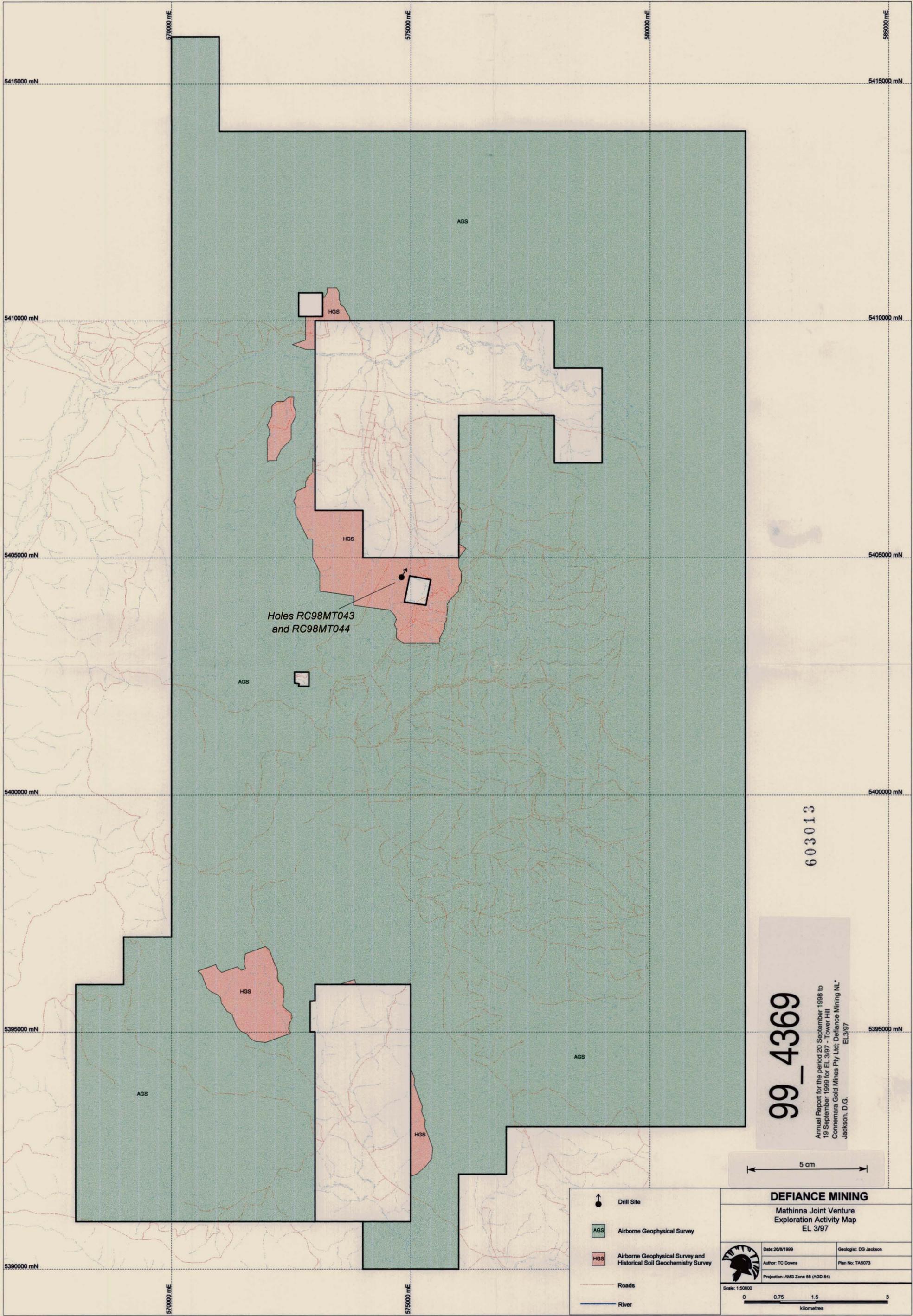
-  Tenement EL 3/97
-  Primary Surfaced Roads
-  Secondary Roads
-  Unsurfaced Roads and Tracks
-  River

**DEFIANCE MINING**  
 Mathinna Joint Venture  
 Tenement Location Plan  
 EL 3/97

Date: 27/8/1999	Geologist: DG Jackson
Author: TC Downs	Plan No: TAS 072
Projection: AMG Zone 55 (AGD 84)	

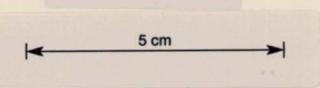
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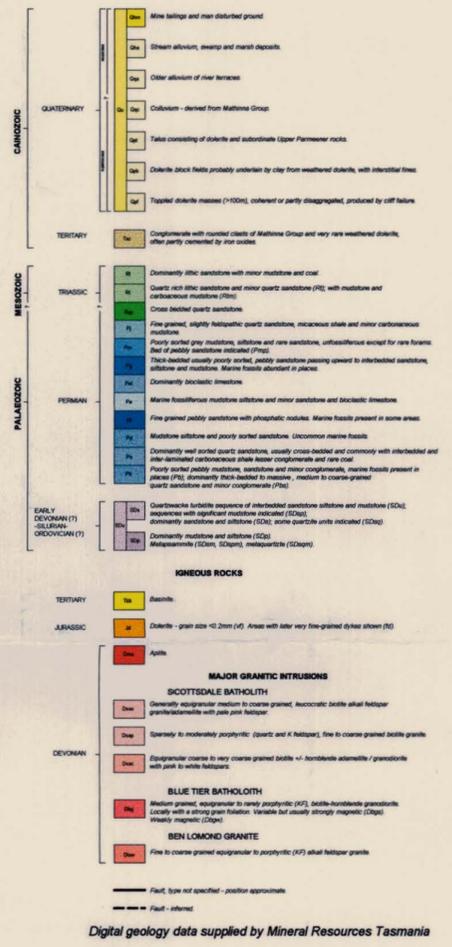
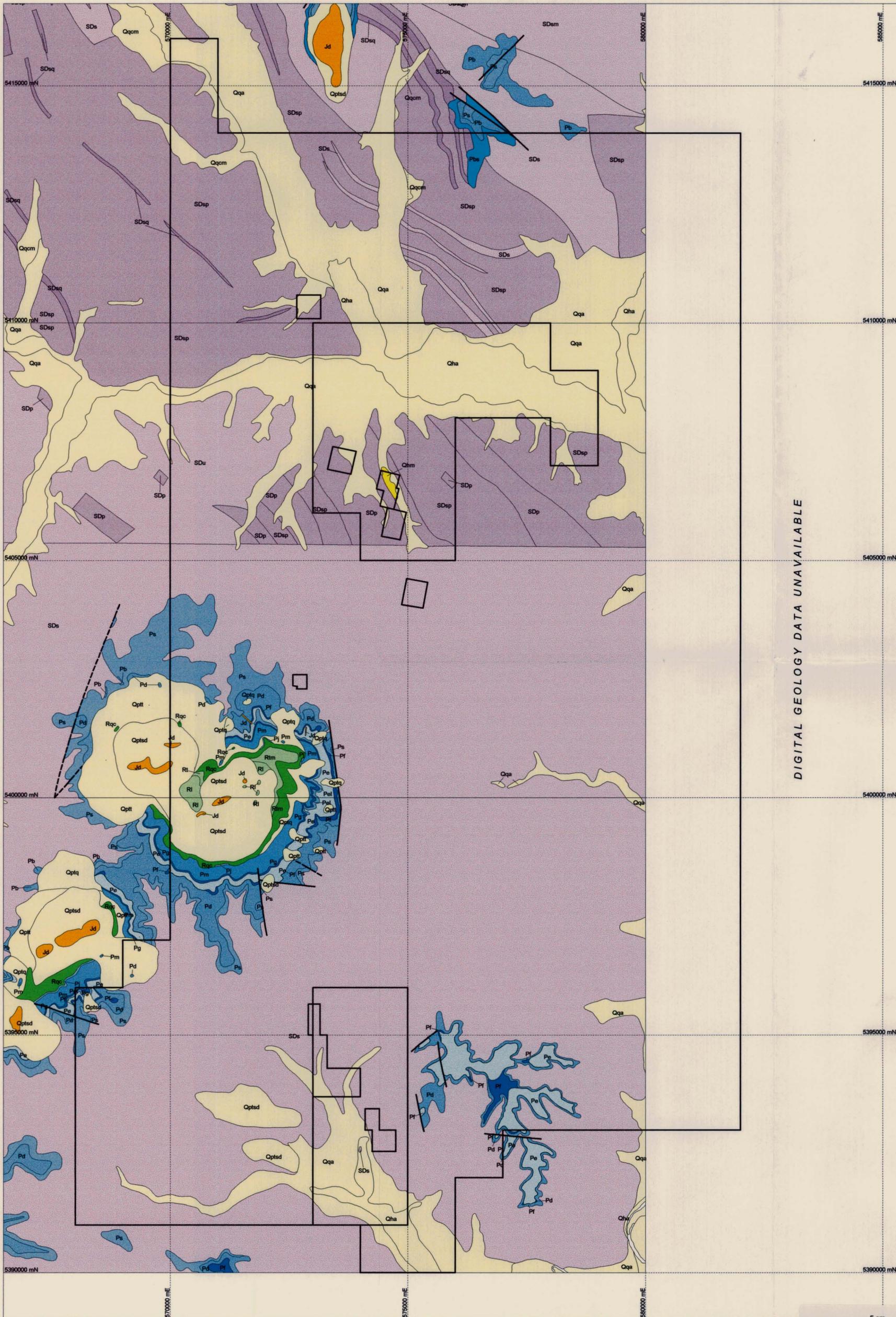
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19 September 1999 for EL 3/97 - Tower Hill  
Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
Jackson, D.G. EL3/97



- Drill Site
- Airborne Geophysical Survey
- Airborne Geophysical Survey and  
Historical Soil Geochemistry Survey
- Roads
- River

<b>DEFIANCE MINING</b>	
Mathinna Joint Venture Exploration Activity Map EL 3/97	
Date: 20/8/1999	Geologist: DG Jackson
Author: TC Downs	Plan No: TA8073
Projection: AMG Zone 55 (AGD 84)	
Scale: 1:50000	



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 Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
 Jackson, D.G. EL3/97

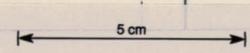
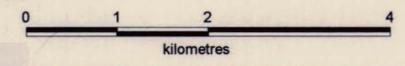
**DEFIANCE MINING**

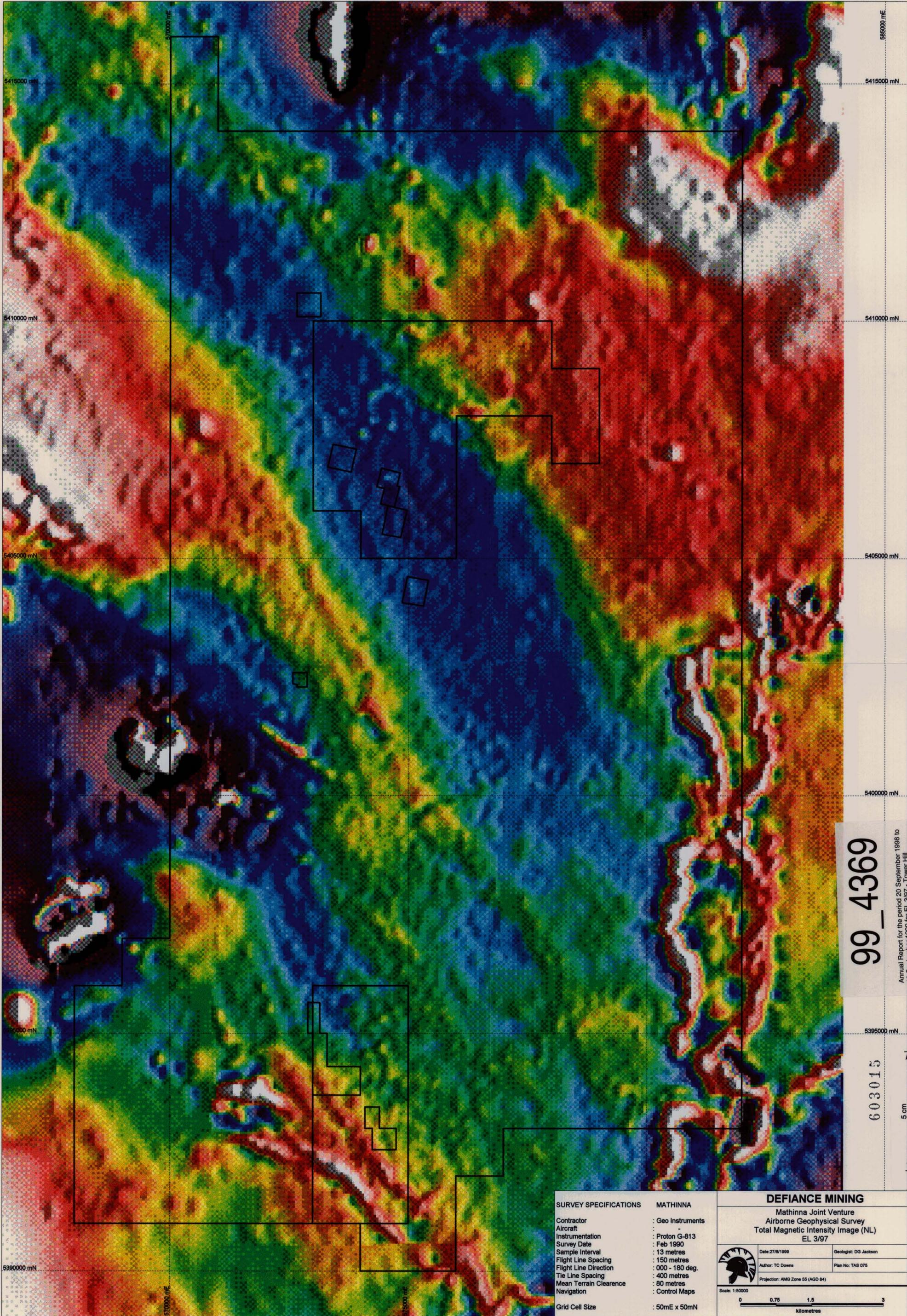
Mathinna Joint Venture  
 Regional Geology  
 EL 3/97



Date: 27/8/1999	Geologist: DG Jackson
Author: TC Downs	Plan No: TAS 074
Projection: AMG Zone 55 (AGD 84)	

Scale: 1:50000





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5410000 mN  
5405000 mN  
5395000 mN  
5390000 mN

570000 mE  
585000 mE

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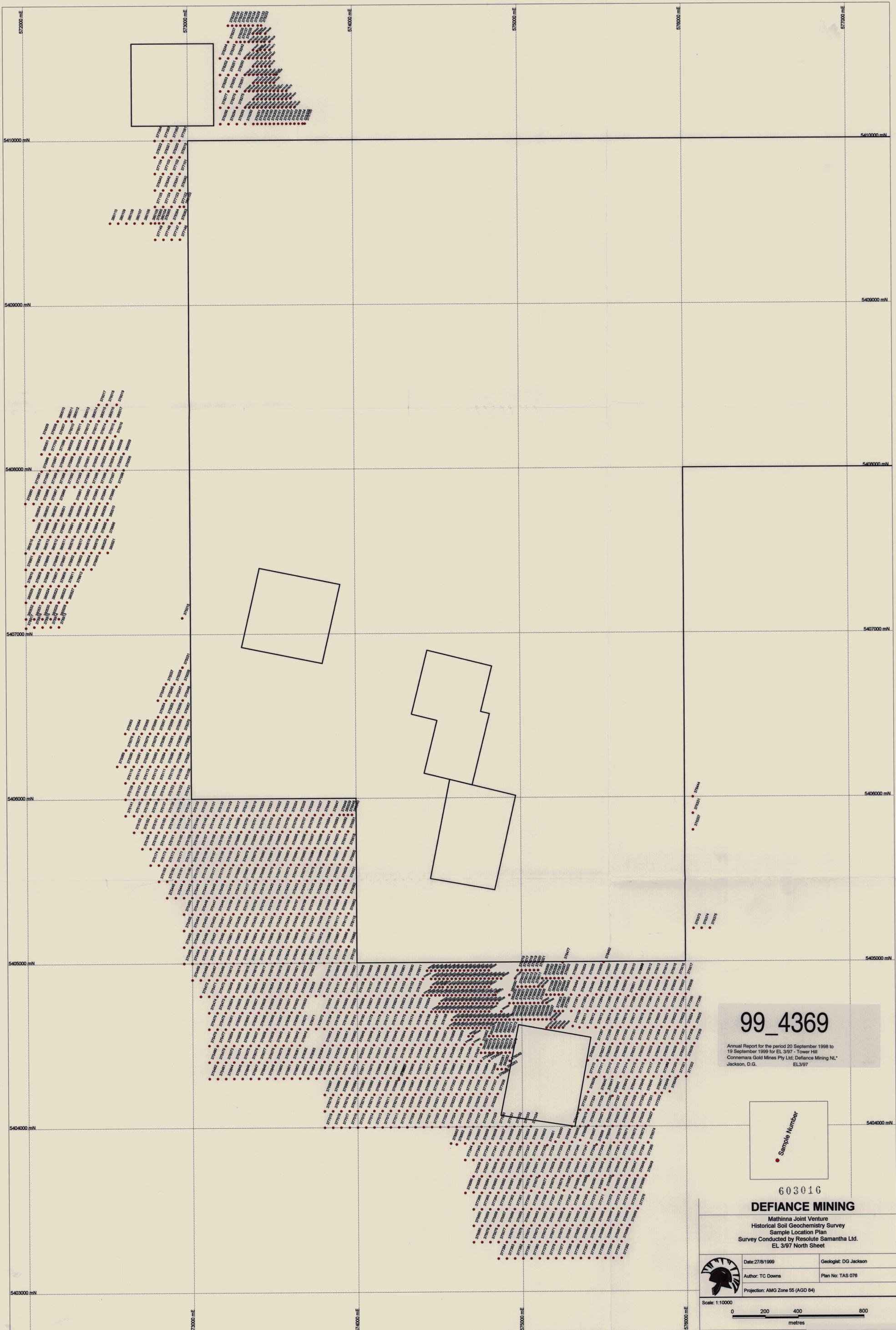
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Annual Report for the period 20 September 1998 to 19 September 1999 for EL 3/97 - Tower Hill  
Connemara Gold Mines Pty Ltd, Defiance Mining NL  
Jackson, D.G.

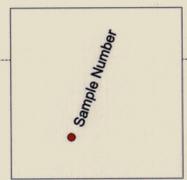
5 cm

SURVEY SPECIFICATIONS		MATHINNA
Contractor	:	Geo Instruments
Aircraft	:	-
Instrumentation	:	Proton G-813
Survey Date	:	Feb 1990
Sample Interval	:	13 metres
Flight Line Spacing	:	150 metres
Flight Line Direction	:	000 - 180 deg.
Tie Line Spacing	:	400 metres
Mean Terrain Clearance	:	80 metres
Navigation	:	Control Maps
Grid Cell Size	:	50mE x 50mN

DEFIANCE MINING	
Mathinna Joint Venture Airborne Geophysical Survey Total Magnetic Intensity Image (NL) EL 3/97	
Date: 27/8/1999	Geologist: DG Jackson
Author: TC Downs	Plan No: TAS 075
Projection: AMG Zone 55 (AGD 84)	
Scale: 1:50000	



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 Connemara Gold Mines Pty Ltd; Defiance Mining NL  
 Jackson, D.G. EL 3/97



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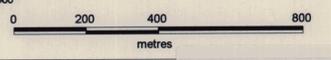
**DEFIANCE MINING**

Mathinna Joint Venture  
 Historical Soil Geochemistry Survey  
 Sample Location Plan  
 Survey Conducted by Resolute Samantha Ltd.  
 EL 3/97 North Sheet

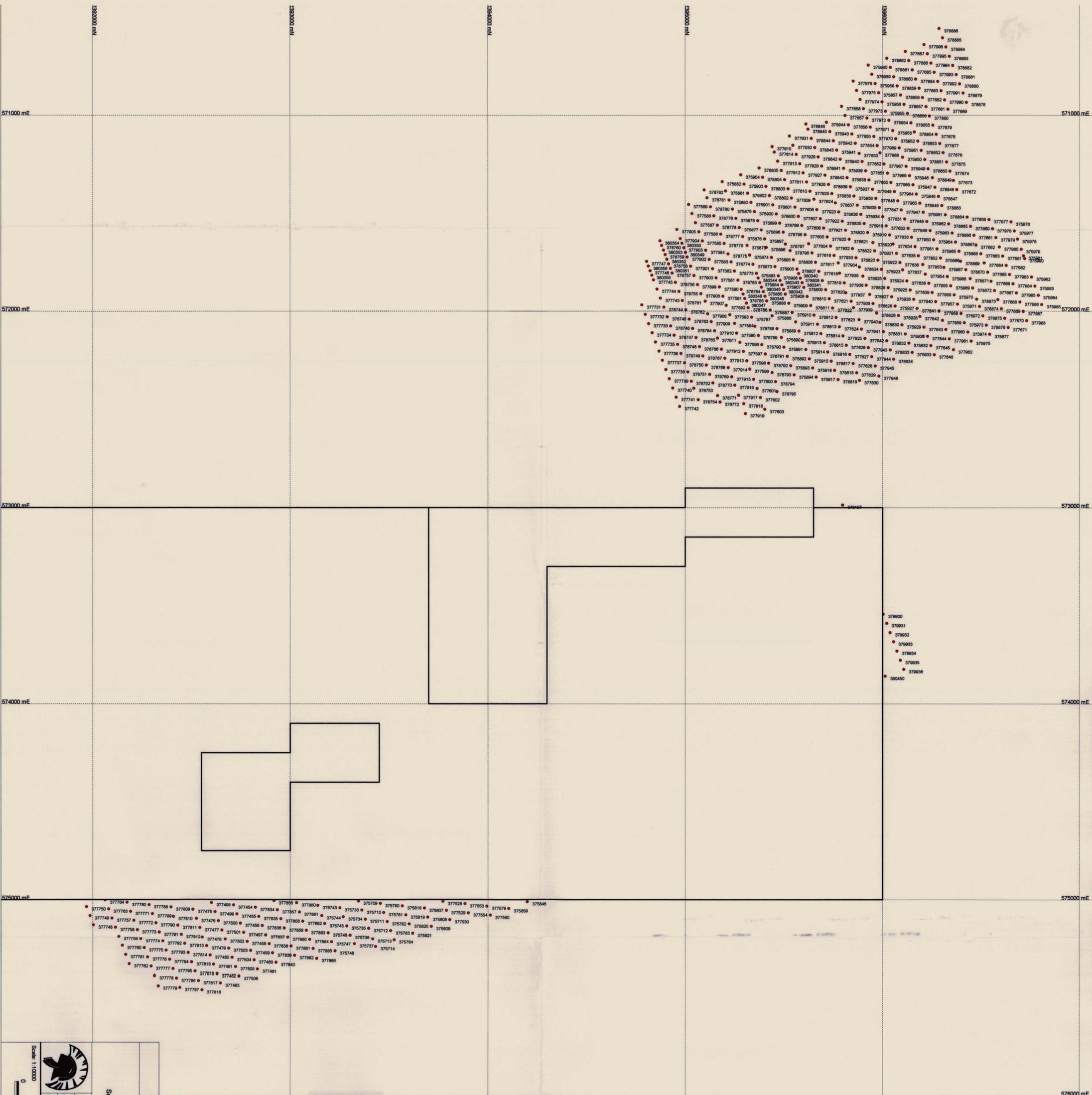


Date: 27/8/1999	Geologist: DG Jackson
Author: TC Downs	Plan No: TAS 076
Projection: AMG Zone 55 (AGD 84)	

Scale: 1:10000



5 cm



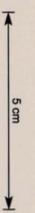
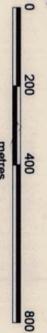
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379632  
379633  
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**DEFIANCE MINING**  
Mathinna Joint Venture  
Historical Soil Geochemistry Survey  
Sample Location Plan  
Survey Conducted by Resource Samantha Ltd.  
EL 3197 South Street

Date: 30/9/1999  
Author: TC Downs  
Geologist: DG Jackson  
Plan No: TAS 077



Scale: 1:10000  
Projection: AMG Zone 55 (AAD 84)

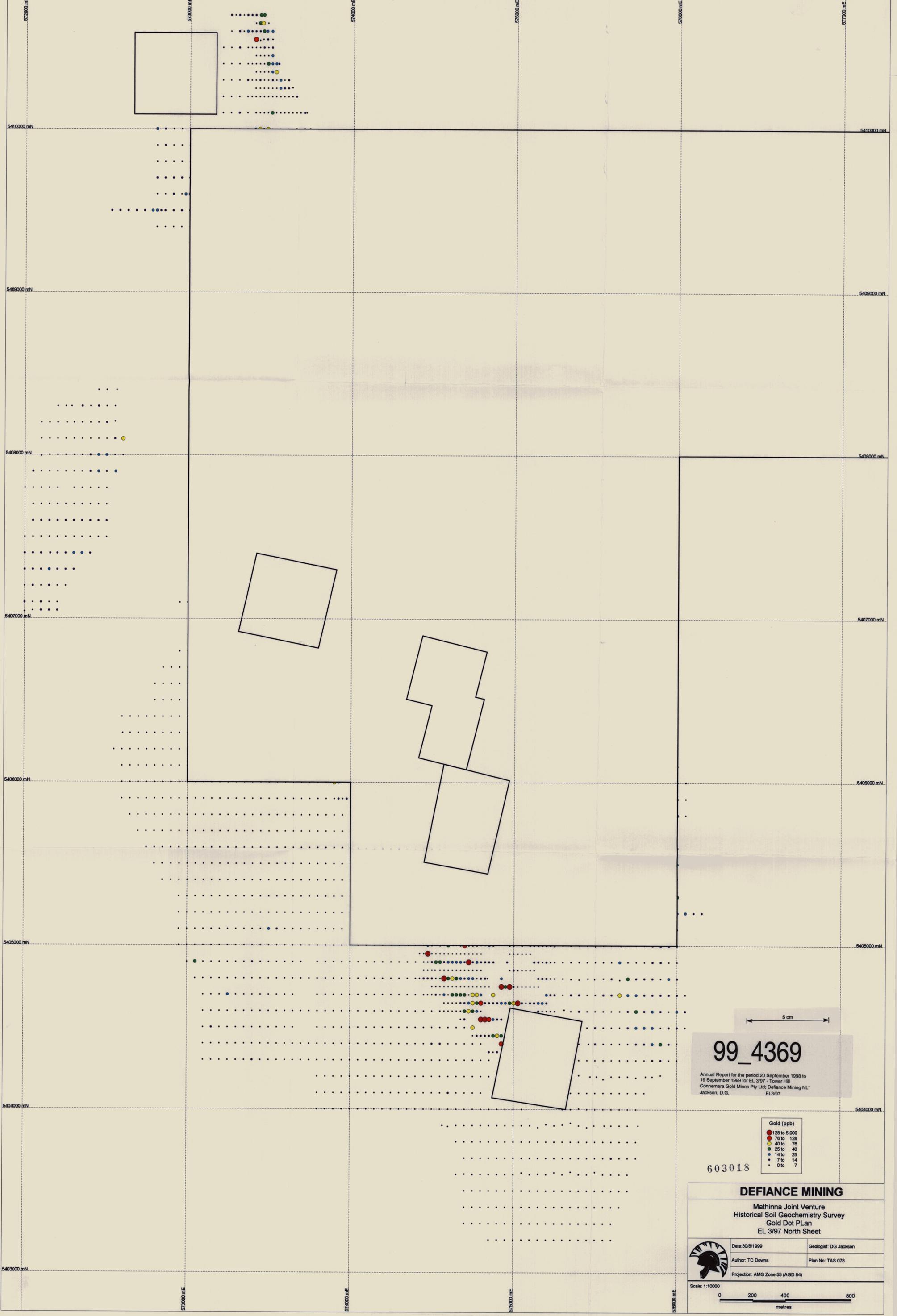


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Annual Report for the period 20 September 1998 to 19 September 1999 for EL 3197 - Tower Hill  
Comenara Gold Mines Pty Ltd, Defiance Mining NL  
Jackson, D.G. EL3197

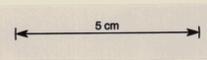
● Sample Number

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 Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
 Jackson, D.G. EL3/97



- Gold (ppb)
- 128 to 5,000
  - 78 to 128
  - 40 to 78
  - 25 to 40
  - 14 to 25
  - 7 to 14
  - 0 to 7

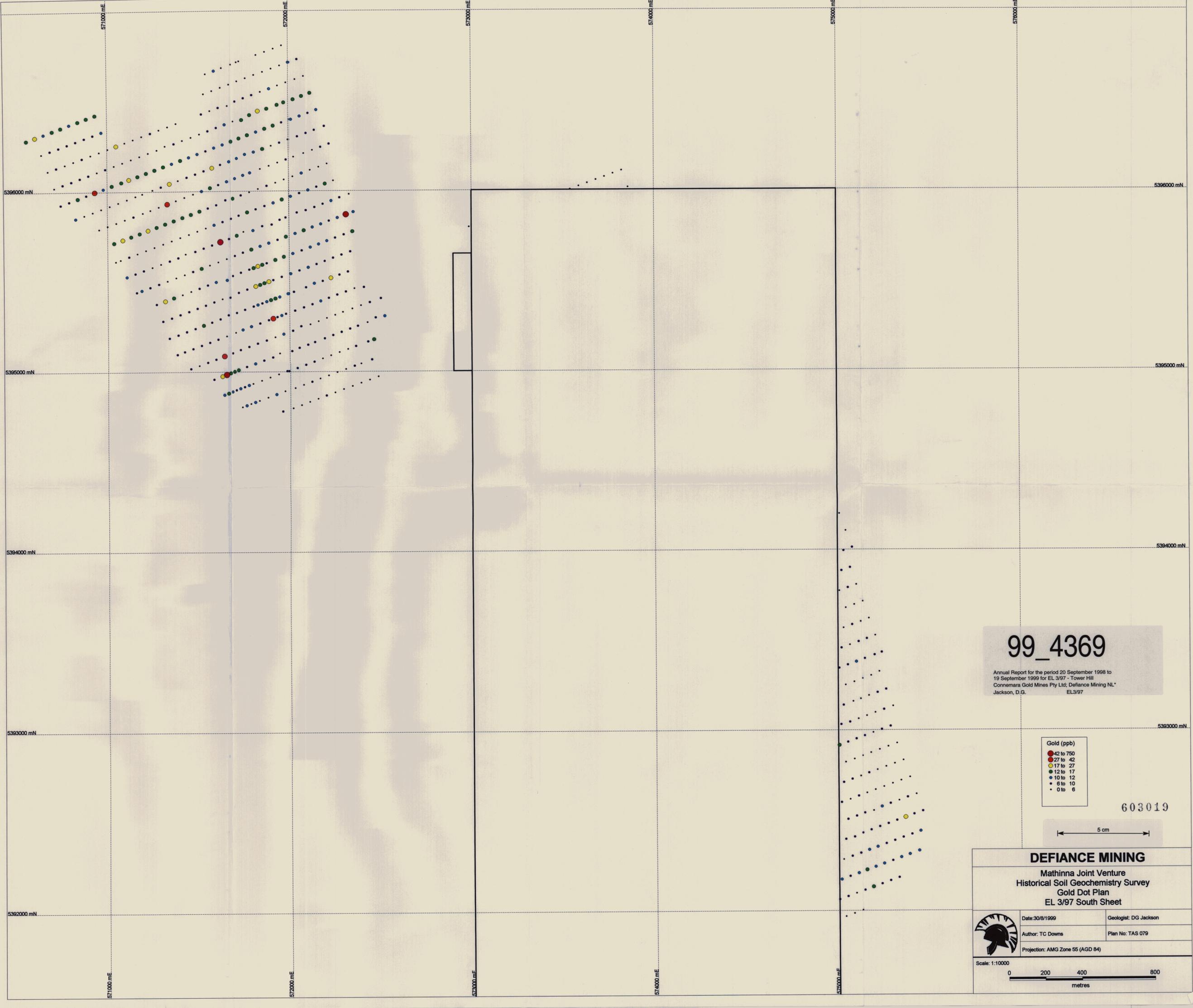
603018

**DEFIANCE MINING**

Mathinna Joint Venture  
 Historical Soil Geochemistry Survey  
 Gold Dot Plan  
 EL 3/97 North Sheet

	Date: 30/8/1999	Geologist: DG Jackson
	Author: TC Downs	Plan No: TAS 078
	Projection: AMG Zone 55 (AGD 84)	

Scale: 1:10000

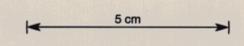


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 Connemara Gold Mines Pty Ltd, Defiance Mining NL\*  
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- Gold (ppb)
- 42 to 750
  - 27 to 42
  - 17 to 27
  - 12 to 17
  - 10 to 12
  - 6 to 10
  - 0 to 6

603019

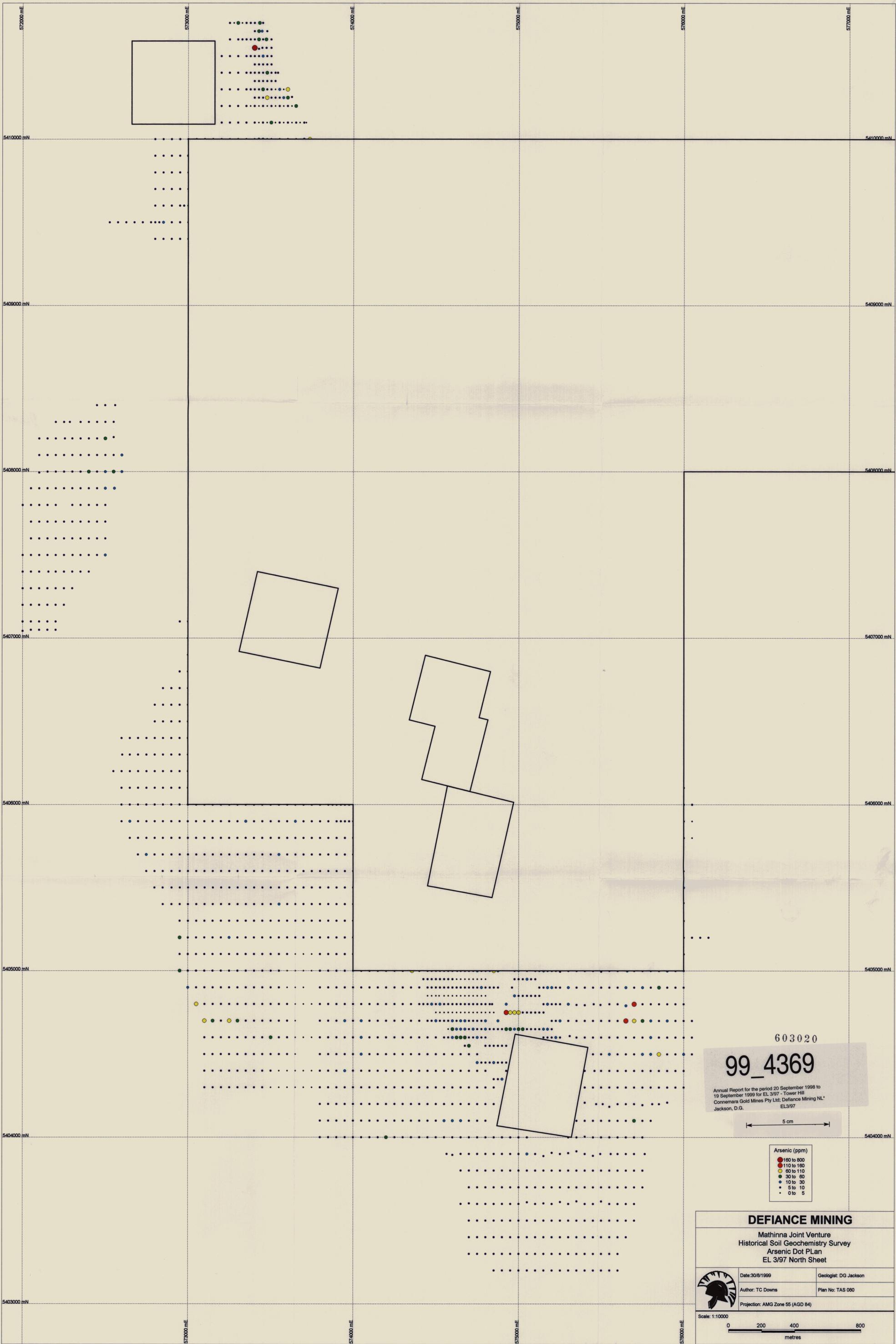


**DEFIANCE MINING**

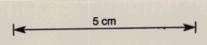
Mathinna Joint Venture  
 Historical Soil Geochemistry Survey  
 Gold Dot Plan  
 EL 3/97 South Sheet

	Date: 30/8/1999	Geologist: DG Jackson
	Author: TC Downs	Plan No: TAS 079
	Projection: AMG Zone 55 (AGD 84)	

Scale: 1:10000



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 Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
 Jackson, D.G. EL3/97



- Arsenic (ppm)
- 160 to 800
  - 110 to 160
  - 60 to 110
  - 30 to 60
  - 10 to 30
  - 5 to 10
  - 0 to 5

**DEFIANCE MINING**

Mathinna Joint Venture  
 Historical Soil Geochemistry Survey  
 Arsenic Dot Plan  
 EL 3/97 North Sheet

	Date: 30/6/1999	Geologist: DG Jackson
	Author: TC Downs	Plan No: TAS 080
	Projection: AMG Zone 55 (AGD 84)	

Scale: 1:10000



**99\_4369**  
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 Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
 Jackson, D.G. EL3/97

- Arsenic (ppm)**
- 160 to 600
  - 110 to 160
  - 50 to 110
  - 25 to 50
  - 10 to 25
  - 5 to 10
  - 0 to 5

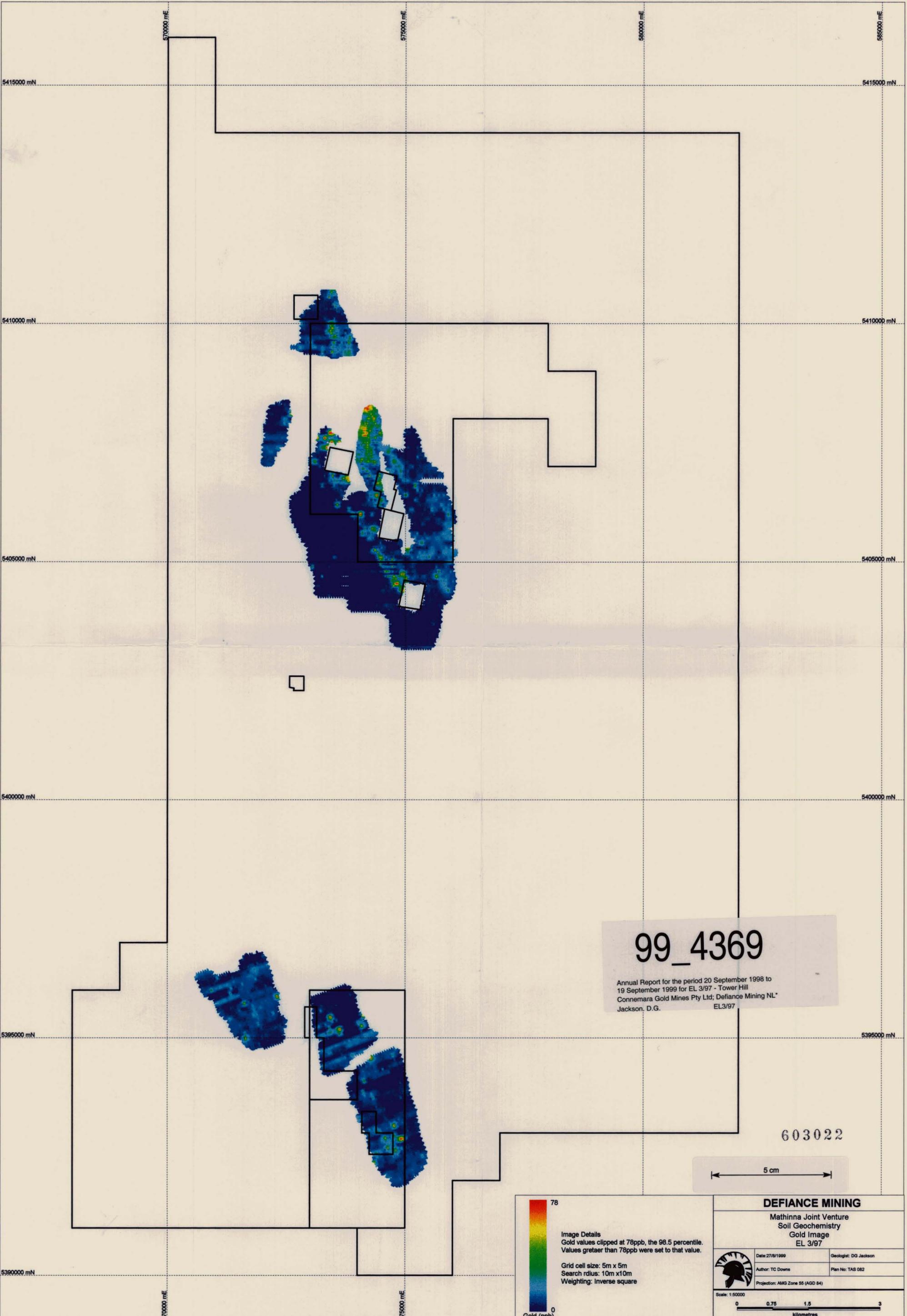
603021  
 5 cm

**DEFIANCE MINING**

Mathinna Joint Venture  
 Historical Soil Geochemistry Survey  
 Arsenic Dot Plan  
 EL 3/97 South Sheet

	Date: 30/8/1999	Geologist: DG Jackson
	Author: TC Downs	Plan No: TAS 081
	Projection: AMG Zone 55 (AGD 84)	

Scale: 1:10000  
 0 200 400 800  
 metres

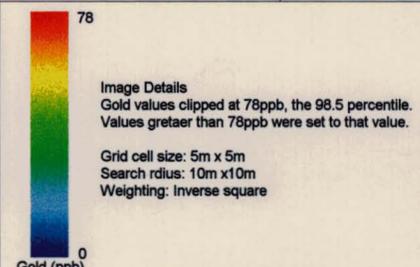


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 Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
 Jackson, D.G. EL3/97

603022

5 cm



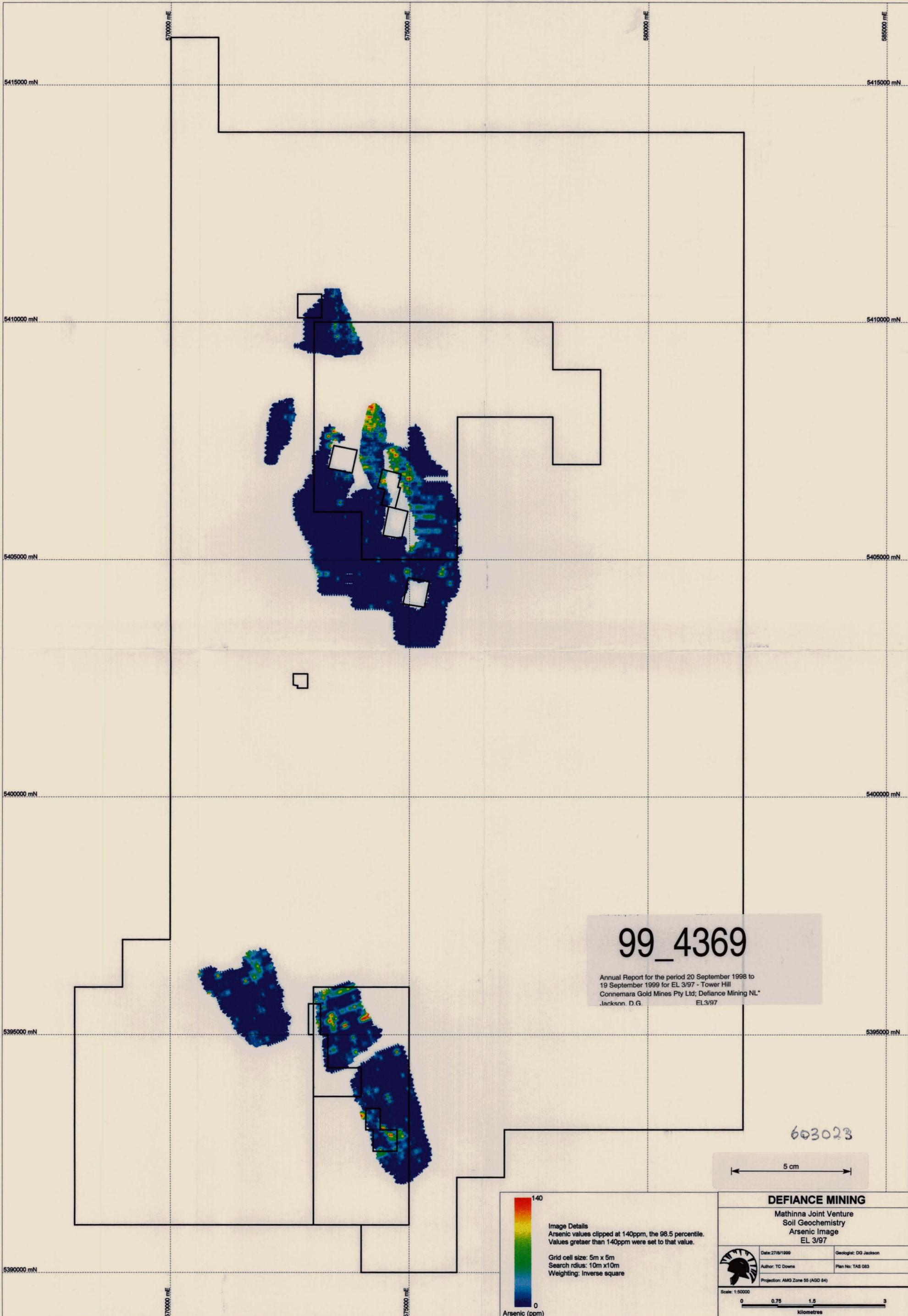
**DEFIANCE MINING**

Mathinna Joint Venture  
 Soil Geochemistry  
 Gold Image  
 EL 3/97

Date: 27/8/1999	Geologist: DG Jackson
Author: TC Downs	Plan No: TAS 082
Projection: AMG Zone 55 (AGD 84)	

Scale: 1:50000

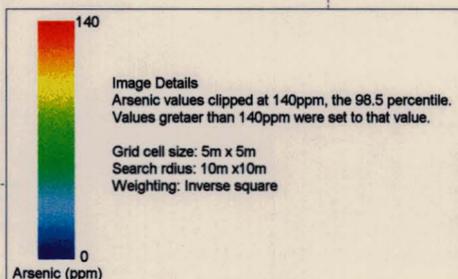
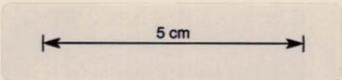
0 0.75 1.5 3  
kilometres



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Annual Report for the period 20 September 1998 to  
 19 September 1999 for EL 3/97 - Tower Hill  
 Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
 Jackson, D.G. EL3/97

603023



<b>DEFIANCE MINING</b>	
Mathinna Joint Venture Soil Geochemistry Arsenic Image EL 3/97	
Date: 27/8/1999	Geologist: DG Jackson
Author: TC Downs	Plan No: TAS 083
Projection: AMG Zone 55 (AGD 84)	
Scale: 1:50000	

78.0m

102.0m

MT043

MT044

574350 mE

5404800 mN

5404825 mN

574375 mE

5404850 mN

5404875 mN

574400 mE

1000 mRL

1000 mRL

975 mRL

975 mRL

950 mRL

950 mRL

925 mRL

78.0m

102.0m

# 99\_4369

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Connemara Gold Mines Pty Ltd; Defiance Mining NL\*  
Jackson, D.G. EL3/97

## 603024

900 mRL

574350 mE

5404800 mN

		<p><b>DEFIANCE MINING NL</b></p> <p>Mathinna Gold Project Jubilee West Prospect Oblique Drill Cross Section 30deg from 574783mE, 5404541mN (+/-10m)</p>	
<p>Au Test Au Histogram 1 nm/unit at 1500</p>	<p>Au Test Au Histogram 0.002 nm/unit at 1500</p>	<p>Date: 9/2/1999</p>	<p>Geologist: DG Jackson</p>
<p>LITHOLOGY Trace Shade</p>		<p>Author: TC Downs</p>	<p>Plan No:</p>
<p>EDH</p>		<p>Projection: AMG Zone 55 (AGD 84)</p>	
<p>Scale: 1:500</p>		<p>0 7.5 15 30 metres</p>	

**APPENDIX 1**

**Historical Soil Geochemical Data**

**APPENDIX 2**

**RC Drill Logs and Assays**

## Mathinna Project - RC Logging Codes

Colour	l	light
	d	dark
	br	brown
	y	yellow
	gr	grey
	g	green
	cm	cream
	bl	black
Rock Types	kh	khaki
	fg	fine grained
	vfg	very fine grained
Mineralisation	cg	coarse grained
	tr	trace
	fe	ferruginous
	ox	oxidised
	su	sulphide
	py	pyrite
	asp	arsenopyrite
	po	pyrrhotite
	cpy	chalcopyrite
	vg	visible gold
Alteration	cvg	coarse visible gold
	cg	coarse grained
	bio	biotite
Quartz	carb	carbonate
	py	pyrite
	w	white
	fe	ferruginous
	gr	grey
	cm	cream

# DEFIANCE MINING NL - MATHINNA PROJECT - REVERSE CIRCULATION DRILL HOLE LOG

Prospect	Jubilee West	Geologist	D G Jackson	Easting	574810	Hole No	RC98MT043
Date Commenced	20.11.98	Drillers	Diamond Drill Tas	Northing	5404588	Azimuth	210 AMG
Date Completed	20.11.98	Hole Depth	78m	RL	1000	Inclination	50

Depth		Lithology						Sampling		
From	To	Colour	Description	Mineralisation	Alteration	% Qtz	Desc	From	To	Sample No
0	1	lbr	Sandstone & Siltstone, weathered			3	w fe	0	2	105873
1	2	lbr	Sandstone & Siltstone, weathered			5	w fe	2	4	105874
2	3	lbr	Sandstone & Siltstone, weathered			3	w fe	4	6	105875
3	4	ybr	Sandstone & Siltstone, weathered			5	w fe	6	8	105876
4	5	ybr	Sandstone, weathered			1	w fe	8	9	105877
5	6	lbr	Siltstone & minor Sandstone, weathered			1	w fe	9	11	105878
6	7	lbr	Siltstone, weathered			20	w fe	11	13	105879
7	8	lgr&br	Siltstone, partly weathered			10	w fe	13	15	105880
8	9	lbr&gr	Siltstone, partly weathered			70	w fe	15	16	105881
9	10	lbr&gr	Siltstone, partly weathered			5	w fe	16	17	105882
10	11	lbr&gr	Siltstone, partly weathered			0		17	18	105883
11	12	lgrg&br	Siltstone & minor Sandstone, partly weathered			0		18	20	105884
12	13	gr	Siltstone, partly weathered			0		20	21	105885
13	14	lgr&br	Siltstone, partly weathered			0		21	22	105886
14	15	lgr	Siltstone, fresh			1	w fe	22	23	105887
15	16	lgr	Siltstone, fresh			60	w	23	24	105888
16	17	lgr&g	Siltstone, fresh			80	w	24	25	105889
17	18	lgr&g	Siltstone, fresh			40	w	25	26	105890
18	19	lgr	Siltstone, fresh	Tr py		10	w	26	28	105891
19	20	lgr	Siltstone, partly weathered			0		28	29	105892
20	21	lgr	Siltstone, fresh			60	w	29	30	105893
21	22	lgr	Siltstone, fresh	Tr py		2	w			
22	23	lgr	Siltstone, fresh	Tr py		40	w			
23	24	lgr	Siltstone, fresh			50	w			
24	25	lgr	Siltstone, spotted, fresh	Tr py		70	w			
25	26	lgr&g	Siltstone, fresh			20	w			
26	27	lgr	Sandstone, fresh			0.5	w			
27	28	lgr	Siltstone, fresh			0.5	w			
28	29	lgr&br	Siltstone, partly weathered			50	w fe			
29	30	lgr&br	Siltstone, partly weathered			30	w fe			

603028

# DEFIANCE MINING NL - MATHINNA PROJECT - REVERSE CIRCULATION DRILL HOLE LOG

Prospect	Jubilee West	Geologist	D G Jackson	Easting	574810	Hole No	RC98MT043
Date Commenced	20.11.98	Drillers	Diamond Drill Tas	Northing	5404588	Azimuth	210 AMG
Date Completed	20.11.98	Hole Depth	78m	RL	1000	Inclination	50

Depth		Lithology					Sampling			
From	To	Colour	Description	Mineralisation	Alteration	% Qtz	Desc	From	To	Sample No
30	31	lgr	Siltstone, fresh			0.5	w	30	32	105894
31	32	lgr	Siltstone, trace weathering			1	w fe	32	34	105895
32	33	lgr	Siltstone, trace weathering			0		34	36	105896
33	34	lgr	Siltstone, fresh			0		36	38	105897
34	35	lgr	Siltstone, trace weathering			2	w	38	40	105898
35	36	lgr&br	Siltstone, partly weathered			5	w fe	40	42	105899
36	37	lgr	Siltstone, partly weathered			5	w fe	42	44	105900
37	38	lgr	Siltstone, fresh			0.5	w fe	44	46	105901
38	39	lgr	Siltstone, trace weathering			0		46	48	105902
39	40	lgr	Siltstone, fresh			0		48	50	105903
40	41	lgr	Siltstone, trace weathering			0		50	52	105904
41	42	lgr	Siltstone, trace weathering			3	fe w	52	54	105905
42	43	lgr	Siltstone, trace weathering			0		54	56	105906
43	44	lgr&g	Siltstone & Sandstone, trace weathering			1	w fe	56	58	105907
44	45	lgr&g&o	Siltstone & Sandstone, fresh			0		58	60	105908
45	46	lgr&o	Siltstone & Sandstone, fresh			0		60	62	105909
46	47	lgr&g&o	Siltstone & Sandstone, fresh			0		62	64	105910
47	48	lg&gr&o	Sandstone & Siltstone, fresh			0				
48	49	lgr	Siltstone & minor orange sandstone, fresh			0				
49	50	lgr	Siltstone, fresh			0				
50	51	lgr&o	Siltstone & minor orange sandstone, fresh			0				
51	52	lg&gr&o	Siltstone & Sandstone, fresh			0				
52	53	lgr	Siltstone & minor orange sandstone, fresh			0				
53	54	lgr&g	Siltstone & Sandstone, fresh			0				
54	55	lg&gr&o	Sandstone & Siltstone, fresh			1	w			
55	56	lgr	Siltstone, fresh			0				
56	57	lgr&g	Siltstone & Sandstone, fresh			2	w			
57	58	lgr&g&o	Siltstone & Sandstone, fresh			0				
58	59	gr	Siltstone, fresh			0				
59	60	gr	Siltstone, fresh			0				
60	61	gr	Siltstone, fresh			0				
61	62	gr	Siltstone, fresh			0				
62	63	gr	Siltstone, fresh			0				
63	64	gr	Siltstone, fresh			0				
64	65	gr	Siltstone, fresh			0				

603029

# DEFIANCE MINING NL - MATHINNA PROJECT - REVERSE CIRCULATION DRILL HOLE LOG

Prospect	Jubilee West	Geologist	D G Jackson	Easting	574810	Hole No	RC98MT043
Date Commenced	20.11.98	Drillers	Diamond Drill Tas	Northing	5404588	Azimuth	210 AMG
Date Completed	20.11.98	Hole Depth	78m	RL	1000	Inclination	50

Depth		Lithology						Sampling		
From	To	Colour	Description	Mineralisation	Alteration	% Qtz	Desc	From	To	Sample No
65	66	gr	Siltstone, fresh			0		64	66	105911
66	67	gr	Siltstone, fresh			0		66	68	105912
67	68	gr	Siltstone, fresh			0		68	70	105913
68	69	gr	Siltstone & minor sandstone, fresh			0		70	72	105914
69	70	gr	Siltstone, fresh			0		72	64	105915
70	71	gr	Siltstone, fresh			0		74	76	105916
71	72	gr	Siltstone, fresh			0		76	78	105917
72	73	gr&g	Siltstone, fresh			0				
73	74	gr&g	Siltstone, fresh			0				
74	75	gr&g	Siltstone, fresh			0				
75	76	gr	Siltstone, fresh			0				
76	77	gr&cm	Siltstone & minor sandstone, fresh	Tr py		0				
77	78	gr&g	Siltstone & minor sandstone, fresh			0				
78	79									
79	80		EOH at 78m							
80	81									
81	82									
82	83									
83	84									
84	85									
85	86									
86	87									
87	88									
88	89									
89	90									
90	91									
91	92									
92	93									
93	94									
94	95									
95	96									
96	97									
97	98									
98	99									
99	100									

# DEFIANCE MINING NL - MATHINNA PROJECT - REVERSE CIRCULATION DRILL HOLE LOG

Prospect	Jubilee West	Geologist	D G Jackson	Easting	574830	Hole No	RC98MT044
Date Commenced	20.11.98	Drillers	Diamond Drill Tas	Northing	5404622	Azimuth	210 AMG
Date Completed	21.11.98	Hole Depth	102m	RL	1000	Inclination	50

Depth		Lithology						Sampling		
From	To	Colour	Description	Mineralisation	Alteration	% Qtz	Desc	From	To	Sample No
0	1	lbr	Sandstone & Siltstone, weathered & Clay			0		0	2	105918
1	2	lbr	Sandstone & Siltstone, weathered			2	w fe	2	4	105919
2	3	lbr	Siltstone & Sandstone, weathered			5	w fe	4	6	105920
3	4	lgr&br	Siltstone, partly weathered			0		6	8	105921
4	5	lgr	Siltstone, minor weathering			0		8	10	105922
5	6	lgr	Siltstone, minor weathering			0		10	12	105923
6	7	lgr	Siltstone, minor weathering			0.5	w fe	12	14	105924
7	8	lbr&gr	Siltstone, partly weathered			0		14	16	105925
8	9	lbr&gr	Siltstone, partly weathered			0		16	18	105926
9	10	lbr&gr	Siltstone, partly weathered			1	w	18	20	105927
10	11	lgr	Siltstone, fresh			0		20	22	105928
11	12	lgr	Siltstone, fresh			0.5	w	22	23	105929
12	13	lgr	Siltstone, trace weathering			0.5	w	23	25	105930
13	14	lgr&g	Siltstone & Sandstone, fresh			0		25	27	105931
14	15	lgr&g	Siltstone & Sandstone, fresh			0		27	29	105932
15	16	gr	Siltstone & Sandstone, fresh			0				
16	17	gr	Siltstone & minor sandstone, fresh			0				
17	18	gr	Siltstone & minor sandstone, fresh			1	w			
18	19	gr&g	Siltstone, fresh			0.5	w			
19	20	gr	Siltstone & minor sandstone, fresh			0				
20	21	lgr	Siltstone, fresh	Tr py		0.5	w			
21	22	lgr	Siltstone, fresh	0.5% py		10	w			
22	23	lgr	Siltstone, fresh, spotted	Tr py		50	w			
23	24	lgr	Siltstone, fresh			0				
24	25	lgr&g	Siltstone, fresh			5	w			
25	26	lgr&g	Siltstone, fresh, spotted			0				
26	27	lgr	Siltstone, fresh	Tr py		15	w			
27	28	lgr	Siltstone & Sandstone, fresh			0				
28	29	lgr	Sandstone, fresh			2	w			
29	30	lgr	Sandstone, fresh	0.5% py		0				

603031

# DEFIANCE MINING NL - MATHINNA PROJECT - REVERSE CIRCULATION DRILL HOLE LOG

Prospect	Jubilee West	Geologist	D G Jackson	Easting	574830	Hole No	RC98MT044
Date Commenced	20.11.98	Drillers	Diamond Drill Tas	Northing	5404622	Azimuth	210 AMG
Date Completed	21.11.98	Hole Depth	102m	RL	1000	Inclination	50

Depth		Lithology						Sampling		
From	To	Colour	Description	Mineralisation	Alteration	% Qtz	Desc	From	To	Sample No
30	31	lgr	Sandstone, fresh			0		29	31	105933
31	32	lgr&g	Sandstone, fresh			0		31	33	105934
32	33	lgr&g	Sandstone & Siltstone, fresh	Tr py		5	w	33	34	105935
33	34	lgr	Siltstone, fresh	0.5% py		95	w	34	35	105936
34	35	lgr	Siltstone, fresh	Tr py		60	w	35	37	105937
35	36	lgr	Siltstone, fresh	0.5% py		1	w	37	39	105938
36	37	lgr&g	Sandstone & Siltstone, fresh			0.5	w	39	41	105939
37	38	lgr	Siltstone, fresh	0.5% py		0		41	43	105940
38	39	lgr&g	Siltstone, fresh	Tr py		5	w	43	45	105941
39	40	gr	Siltstone, fresh			2	w	45	47	105942
40	41	gr&g	Siltstone & minor sandstone, fresh			0		47	49	105943
41	42	gr&g	Siltstone, fresh			0		49	51	105944
42	43	gr	Siltstone, fresh			0		51	53	105945
43	44	gr	Siltstone, fresh			0		53	55	105946
44	45	gr	Siltstone, fresh			0.5	w	55	57	105947
45	46	gr	Siltstone, fresh			0		57	59	105948
46	47	gr	Siltstone, fresh			0		59	61	105949
47	48	gr&g&o	Siltstone & minor sandstone, fresh			0		61	63	105950
48	49	gr&g	Siltstone, fresh			1	w	63	65	105951
49	50	gr&g	Siltstone, fresh			1	w			
50	51	gr&g	Siltstone, fresh			0				
51	52	gr&cm	Siltstone & Sandstone, fresh			0				
52	53	gr&cm	Siltstone & Sandstone, fresh			0				
53	54	gr	Siltstone, fresh			0				
54	55	gr	Siltstone, fresh			0				
55	56	gr&g	Siltstone, fresh			0				
56	57	gr	Siltstone, fresh			0				
57	58	gr&o	Siltstone & minor sandstone, fresh			0				
58	59	gr	Siltstone, fresh			0				
59	60	gr	Siltstone, fresh			0				
60	61	gr	Siltstone, fresh	Wet sample		0				
61	62	gr	Siltstone, fresh	Wet sample		0				
62	63	gr	Siltstone, fresh	Wet sample		0				
63	64	gr	Siltstone, fresh	Wet sample		0				
64	65	gr	Siltstone, fresh	Wet sample		0				

603032

# DEFIANCE MINING NL - MATHINNA PROJECT - REVERSE CIRCULATION DRILL HOLE LOG

Prospect	Jubilee West	Geologist	D G Jackson	Easting	574830	Hole No	RC98MT044
Date Commenced	20.11.98	Drillers	Diamond Drill Tas	Northing	5404622	Azimuth	210 AMG
Date Completed	21.11.98	Hole Depth	102m	RL	1000	Inclination	50

Depth		Lithology							Sampling		
From	To	Colour	Description	Mineralisation	Alteration	% Qtz	Desc	From	To	Sample No	
65	66	gr	Siltstone, fresh	Wet sample		0		65	67	105952	
66	67	gr	Siltstone, fresh	Wet sample		0		67	69	105953	
67	68	gr	Siltstone, fresh	Wet sample		0		69	71	105954	
68	69	gr	Siltstone, fresh	Wet sample		0		71	73	105955	
69	70	gr	Siltstone, fresh	Wet sample		0		73	75	105956	
70	71	gr	Siltstone, fresh	Wet sample		0		75	77	105957	
71	72	gr	Siltstone, fresh	Wet sample		0		77	79	105958	
72	73	gr	Siltstone, fresh	Wet sample		0		79	80	105959	
73	74	gr	Siltstone & minor cream sandstone, fresh - Wet			0		80	81	105960	
74	75	gr	Siltstone, fresh	Damp sample		0		81	83	105961	
75	76	gr	Siltstone, fresh	Damp sample		0		83	85	105962	
76	77	gr	Siltstone, fresh	Damp sample		0.5	w	85	87	105963	
77	78	gr	Siltstone, fresh	Damp sample		2	w	87	89	105964	
78	79	gr&g	Siltstone, fresh	Damp sample		0.5	w cm	89	91	105965	
79	80	gr&g	Siltstone, fresh	Damp sample		20	cm	91	93	105966	
80	81	gr	Siltstone, spotted, fresh	Damp sample		40	w	93	95	105967	
81	82	gr	Siltstone, fresh	Damp sample		5	w	95	97	105968	
82	83	gr&g	Siltstone, fresh	Damp sample		3	w	97	99	105969	
83	84	gr	Siltstone, fresh	Damp sample		1	w				
84	85	gr	Siltstone, fresh	Damp sample		1	w				
85	86	gr	Siltstone, fresh	Damp sample		0					
86	87	gr	Siltstone, fresh	Damp sample		1	w				
87	88	gr	Siltstone, fresh	Damp sample		0					
88	89	gr	Siltstone, fresh	Damp sample		3	w cm				
89	90	gr	Siltstone, fresh	Damp sample		3	cm w				
90	91	gr	Siltstone, fresh	Damp sample		0					
91	92	gr	Siltstone, fresh	Wet sample		0					
92	93	gr	Siltstone, fresh	Damp sample		2	w cm				
93	94	gr	Siltstone, fresh	Damp sample		5	cm w				
94	95	gr	Siltstone, fresh	Damp sample		3	w cm				
95	96	gr	Siltstone, fresh	Damp sample		3	w cm				
96	97	gr	Siltstone, fresh	Damp sample		1	w cm				
97	98	gr&g	Siltstone, fresh	Very big damp sample		2	w cm				
98	99	gr	Siltstone, fresh	Damp sample		3	w cm				
99	100	gr	Siltstone, fresh	Damp sample		1	w cm				

603033

# DEFIANCE MINING NL - MATHINNA PROJECT - REVERSE CIRCULATION DRILL HOLE LOG

Prospect	Jubilee West	Geologist	D G Jackson	Easting	574830	Hole No	RC98MT044
Date Commenced	20.11.98	Drillers	Diamond Drill Tas	Northing	5404622	Azimuth	210 AMG
Date Completed	21.11.98	Hole Depth	102m	RL	1000	Inclination	50

Depth		Lithology							Sampling		
From	To	Colour	Description	Mineralisation	Alteration	% Qtz	Desc	From	To	Sample No	
100	101	gr	Siltstone, fresh			3	cm w	99	102	105970	
101	102	gr	Siltstone, fresh			0					
102	103										
103	104		EOH at 102m								
104	105										
105	106										
106	107										
107	108										
108	109										
109	110										
110	111										
111	112										
112	113										
113	114										
114	115										
115	116										
116	117										
117	118										
118	119										
119	120										
120	121										
121	122										
122	123										
123	124										
124	125										
125	126										
126	127										
127	128										
128	129										
129	130										
130	131										
131	132										
132	133										
133	134										

603034



Hole No	Sample No	Riffle Split	From	To	Au	Au(R)	Au(R2)	Au(S)	As(ppm)	Cu(ppm)	Pb(ppm)	Zn(ppm)	Ag(ppm)
MT044	105938		37	39	-0.01	-	-	-	2	3	9	78	-1
MT044	105939		39	41	-0.01	-	-	-	1	11	12	83	-1
MT044	105940		41	43	-0.01	-	-	-	1	20	7	81	-1
MT044	105941		43	45	-0.01	-	-	-	-1	17	9	76	-1
MT044	105942		45	47	-0.01	-	-	-	-1	9	12	80	-1
MT044	105943		47	49	-0.01	-	-	-	-1	16	23	73	-1
MT044	105944		49	51	-0.01	-	-	-	-1	45	26	82	-1
MT044	105945		51	53	-0.01	-	-	-	1	17	14	79	-1
MT044	105946		53	55	-0.01	-	-	-	-1	11	14	90	-1
MT044	105947		55	57	-0.01	-	-	-	-1	22	8	84	-1
MT044	105948		57	59	-0.01	-	-	-	-1	13	12	89	-1
MT044	105949		59	61	-0.01	-	-	-	-1	20	12	84	-1
MT044	105950		61	63	-0.01	-	-	-	2	25	16	82	-1
MT044	105951		63	65	-0.01	-	-	-	1	19	13	83	-1
MT044	105952		65	67	-0.01	-0.01	-	-	-1	22	17	73	-1
MT044	105953		67	69	-0.01	-	-	-	1	17	7	79	-1
MT044	105954		69	71	-0.01	-	-	-	-1	26	15	81	-1
MT044	105955		71	73	-0.01	-	-	-	-1	10	13	82	-1
MT044	105956		73	75	-0.01	-	-	-0.01	-1	7	11	81	-1
MT044	105957		75	77	-0.01	-	-	-	-1	8	13	81	-1
MT044	105958		77	79	-0.01	-	-	-	1	18	10	81	-1
MT044	105959		79	80	0.17	0.13	-	-	-1	262	138	84	-1
MT044	105960		80	81	0.11	-	-	-	2	112	121	84	-1
MT044	105961		81	83	-0.01	-	-	-	-1	48	29	85	-1
MT044	105962		83	85	-0.01	-	-	-	-1	27	16	90	-1
MT044	105963		85	87	-0.01	-	-	-	-1	13	8	86	-1
MT044	105964		87	89	-0.01	-	-	-	2	7	11	90	-1
MT044	105965		89	91	-0.01	-	-	-	2	7	11	87	-1
MT044	105966		91	93	-0.01	-	-	-	3	8	8	85	-1
MT044	105967		93	95	-0.01	-	-	-	-1	6	9	82	-1
MT044	105968		95	97	-0.01	-0.01	-	-	1	4	10	86	-1
MT044	105969		97	99	-0.01	-	-	-	-1	13	14	86	-1
MT044	105970		99	102	-0.01	-	-	-	-1	10	6	88	-1

**APPENDIX 3**

**Rock Chip sample Locations and Results**

Tower Hill EL 3/97 - Rock Chip Sample Register

Sample No	AMG E	AMG N	Au	Au(R1)	Au (R2)	Au(S)	As	Comments
106455	573600	5396800	-0.01	-	-			-1 Blackboy ridge
106466	572140	5397520	0.07	-	-			4 Tower Hill Consolidated - From entrance to SE adit to No 1 reef
106467	572140	5397520	1.20	1.04	-			705 Tower Hill Consolidated - From entrance to SE adit to No 1 reef
106468	572120	5397650	0.06	-	-			330 Tower Hill Consolidated - From entrance to NE adit to No 1 reef
106469	572120	5397650	0.08	0.07	-			1320 Tower Hill Consolidated - From entrance to NE adit to No 1 reef
106470	572100	5397600	3.70	0.60	1.00			10 Tower Hill Consolidated - No 1 reef O/C
106471	572070	5397540	0.03	-	-			3 Tower Hill Consolidated - Qtz vein in trench just W of No 3 reef
106472	572070	5397540	0.03	-	-			24 Tower Hill Consolidated - No 3 reef in trench