



# **Northern Gold NL**

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## **EL 9122 1996/97 ANNUAL REPORT**

**Margaret River (14/2-I) 1:50,000 scale and Mount  
Ringwood (14/3-IV) 1:50,000 scale map sheets**

**Title Holder:- Territory Goldfields N.L.  
Managed by:- Northern Gold N.L.**

June 1997

Author:- N.Socic

NTDME

Northern Gold N.L., Adelaide River

Northern Gold N.L., Perth Office

CR 97 / 588

## **SUMMARY**

EL 9122 is located approximately 90 kilometres south - east of Darwin and 40 kilometres east north - east of Adelaide River on the Margaret River (14/2-I) 1:50,000 scale and the Mount Ringwood (14/3-IV) 1:50,000 scale map sheets.

The licence is underlain by sediments of the Early Proterozoic Burrell Creek Formation. The sediments are tightly folded with fold axes generally trending north-west to south-east. The area is low lying with poor stream development and extensive areas of alluvium.

Previous work completed by Northern Gold N.L. included digital data acquisition and manipulation. Landsat Imagery, SPOT Imagery and AGSO mapping were obtained and used in conjunction with aerial mapping to aid in the planning of exploration programs over the licence. GIS and satellite imagery were used to log soil types and to interpret the structural geology of the region.

EL 9122 was granted to Dominion Gold Operations Pty. Ltd. on the 5<sup>th</sup> of June 1995 for a period of six years. The tenement was acquired by Territory Goldfields N.L., which is now managed by Northern Gold N.L.

During the 1996/97 year of tenure, Northern Gold N.L. completed a work program based on the manipulation of DTM, aerial magnetics and remote sensing data.

The covenant for the 1996/97 year of tenure was \$20,000 and the expenditure totaled \$8,910.

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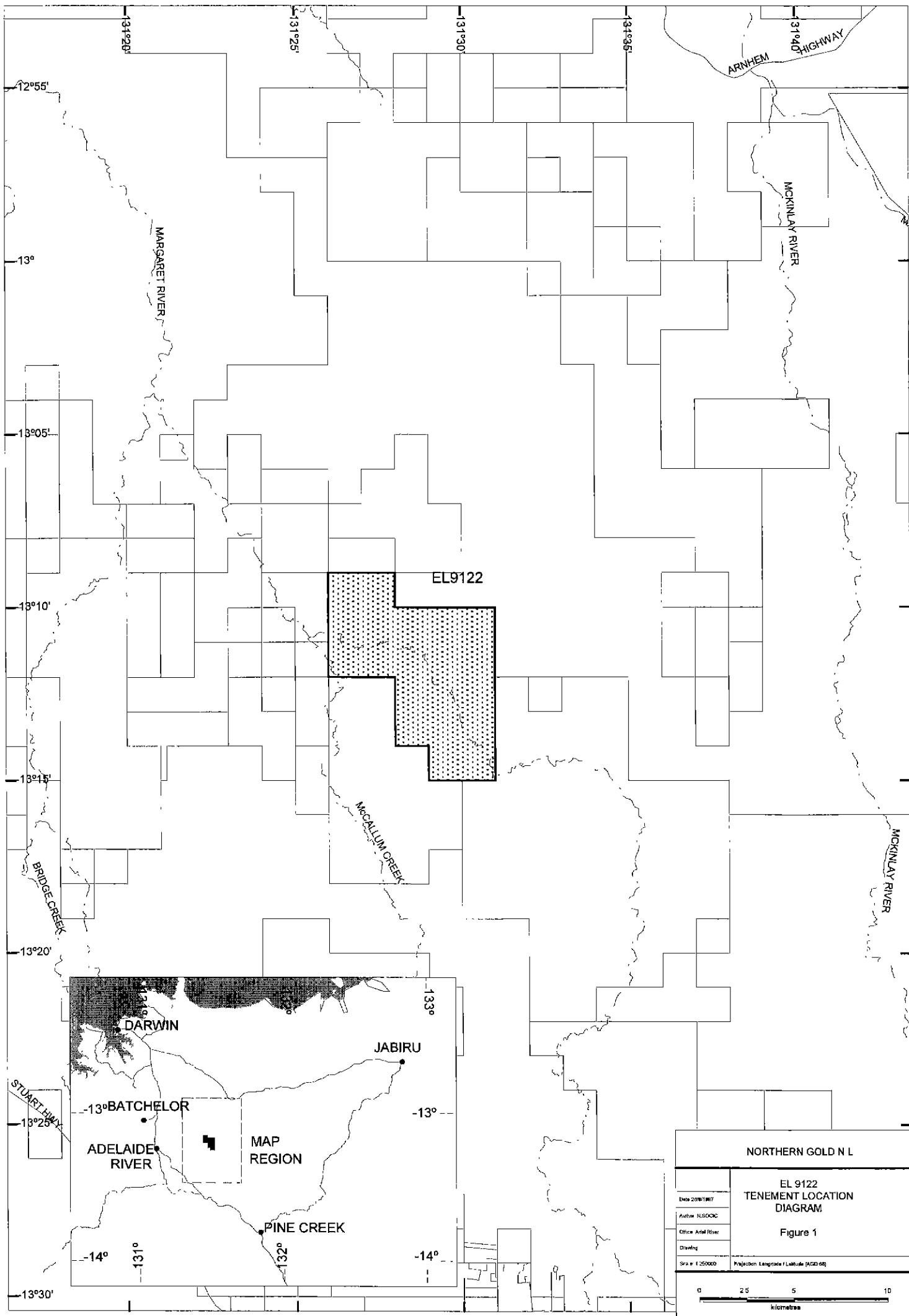
## **1.0 INTRODUCTION**

EL 9122 is located approximately 90 kilometres south - east of Darwin and 40 kilometres east north - east of Adelaide River on the Margaret River (14/2-I) 1:50,000 scale and the Mount Ringwood (14/3-IV) 1:50,000 scale map sheets. The tenement, which consists of 20 blocks, 64 square kilometres in area, lies between latitudes 13°09' south and 13°15' south and longitudes 131°26' east and 131°31' east (Figure 1). EL 9122 is situated within Pastoral Lease No.718, Mount Ringwood, held by W. E. and V. J. Moon, and M. A. Rathsmann.

The tenement can be accessed via the Stuart Highway and along unsealed roads to Mount Ringwood Station and then via station tracks bearing east from the homestead across the Margaret River.

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|  |  |
|--|--|
| NORTHERN GOLD N L  |  |
| EL 9122<br>TENEMENT LOCATION<br>DIAGRAM<br>Figure 1  |  |
| Date 20/6/1997   |  |
| Author NSO/C   |  |
| Office Arnhem River  |  |
| Drawing  |  |
| Scale 1:250000   | Projection Longitude / Latitude (AGD 66) |
| <div style="text-align: center;">           0      2.5      5      10<br/>           kilometres         </div> |  |

## **2.0 GEOLOGY**

### **2.1 Regional Geology**

EL 9122 is situated within the Pine Creek Geosyncline, a tightly to isoclinally folded sequence of mainly pelitic and psammitic Lower Proterozoic sediments with interlayered tuff units. All the lithologies in the area have been metamorphosed to low, and in places, medium grade metamorphic assemblages. For the purpose of this report, the pre-fix meta- is implied, but omitted from the rock names and descriptions.

The sequence has been intruded by pre-orogenic dolerite sills of the Zamu Dolerite, and a large number of late syn-orogenic to post-orogenic Proterozoic granitoids. Largely undeformed Middle and Late Proterozoic, Palaeozoic and Mesozoic strata, as well as Cainozoic sediments and laterites, overly the Pine Creek Geosyncline.

### **2.2 Local Geology**

The licence is underlain by sediments of the Early Proterozoic Burrell Creek Formation. The sediments are tightly folded with fold axes generally trending north-west to south-east. The area is low lying with poor stream development and extensive areas of alluvium (Socic, 1996).

The tenement is located in the north-west extension of the north-west - south-east trending Pine Creek Shear Zone, a major structure in which a number of mineralised zones have been identified (Socic, 1996).

In the south of the tenement the Mount Bonnie Formation underlies Quaternary alluvial cover. The Margaret Granite intrudes the surrounding sediments in the south-east corner (Socic, 1996).

### **3.0 PREVIOUS EXPLORATION**

In the 1995/96 year of tenure, Northern Gold N.L. completed a work program involving digital data acquisition and manipulation. Landsat Imagery, SPOT Imagery and AGSO mapping were obtained and used in conjunction with aerial mapping to aid in the planning of exploration programs over the tenement (Socic, 1996).

GIS and satellite imagery were used to log soil types and to interpret the structural geology of the region (Socic, 1996).

Interpretation of the GIS and remote sensing imagery shows that the majority of the tenement is low lying with extensive areas of alluvial cover caused by deposition from the Margaret River.

In the north-east of the tenement, outcrops of the Burrell Creek Formation are present in north-west to south-east trending fold structures.

### **4.0 1996/97 EXPLORATION PROGRAM**

During the 1996/97 exploration season Northern Gold N.L. completed a work program involving magnetic data acquisition and manipulation, and digital terrain modelling. The data was obtained and used in conjunction with aerial mapping, site visits and previous digital data interpretations to determine the best method of exploration to be used on the licence.

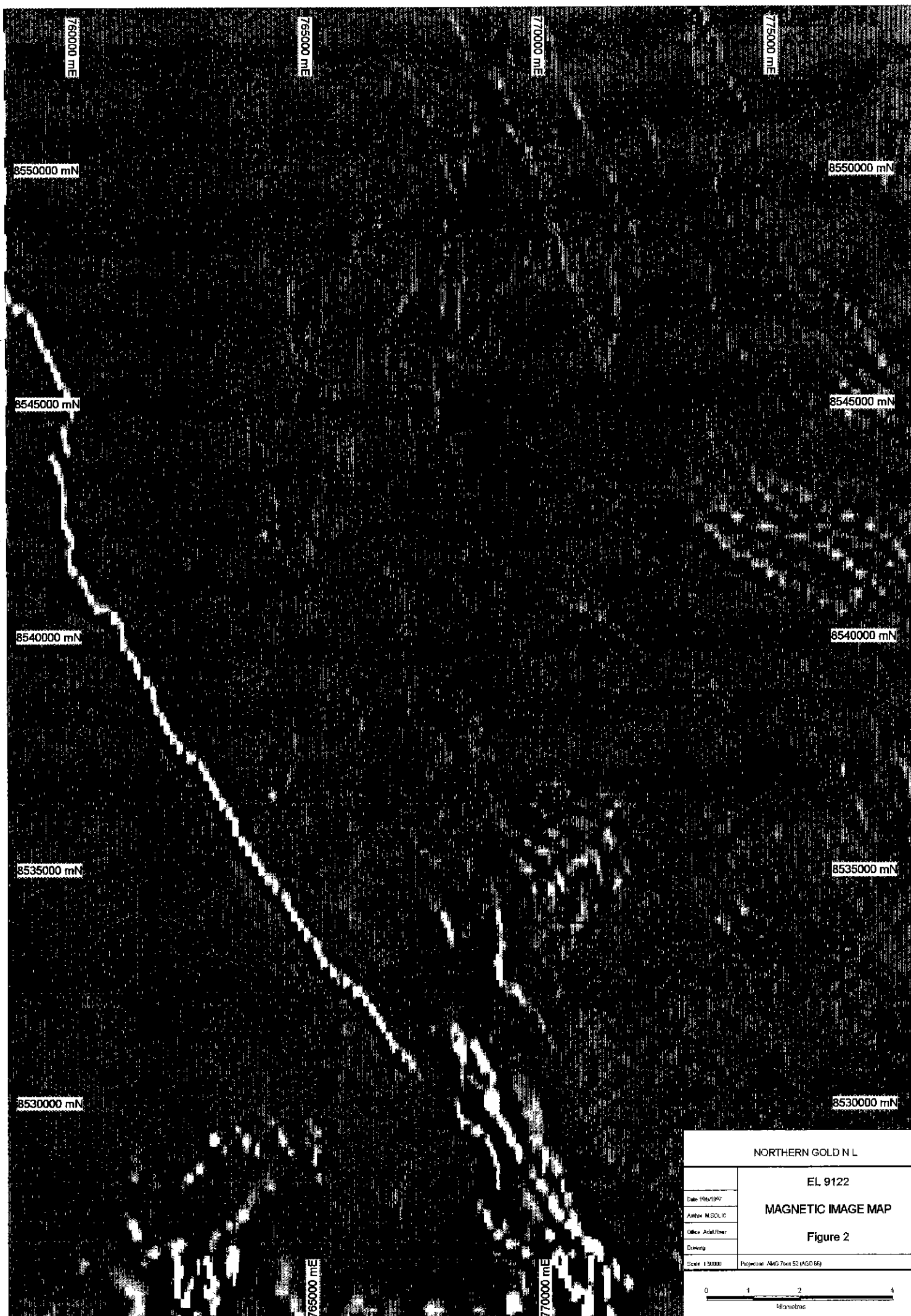
#### **4.1 Geophysics**

Northern Gold N.L. purchased multiclient aerial geophysics from World Geoscience. The data covers areas not previously held by Northern Gold N.L. It is presented as a south - west, sun shaded residual plot in Figure 2.

EL 9122 lies within the area covered by the survey.

The survey specifications are listed in Table 1.

The results of the geophysics were used primarily as imaged processed data for regional interpretation of exploration concepts.



|                       |                                |
|-----------------------|--------------------------------|
| NORTHERN GOLD N L     |                                |
| EL 9122               |                                |
| MAGNETIC IMAGE MAP    |                                |
| Figure 2              |                                |
| Date 19/6/1997        | Projector AMG Twin 52 (AGD 96) |
| Author M.SOLIC        |                                |
| Office Adelaide       |                                |
| Drawing               |                                |
| Scale 1:50000         |                                |
| 0 1 2 4<br>kilometres |                                |

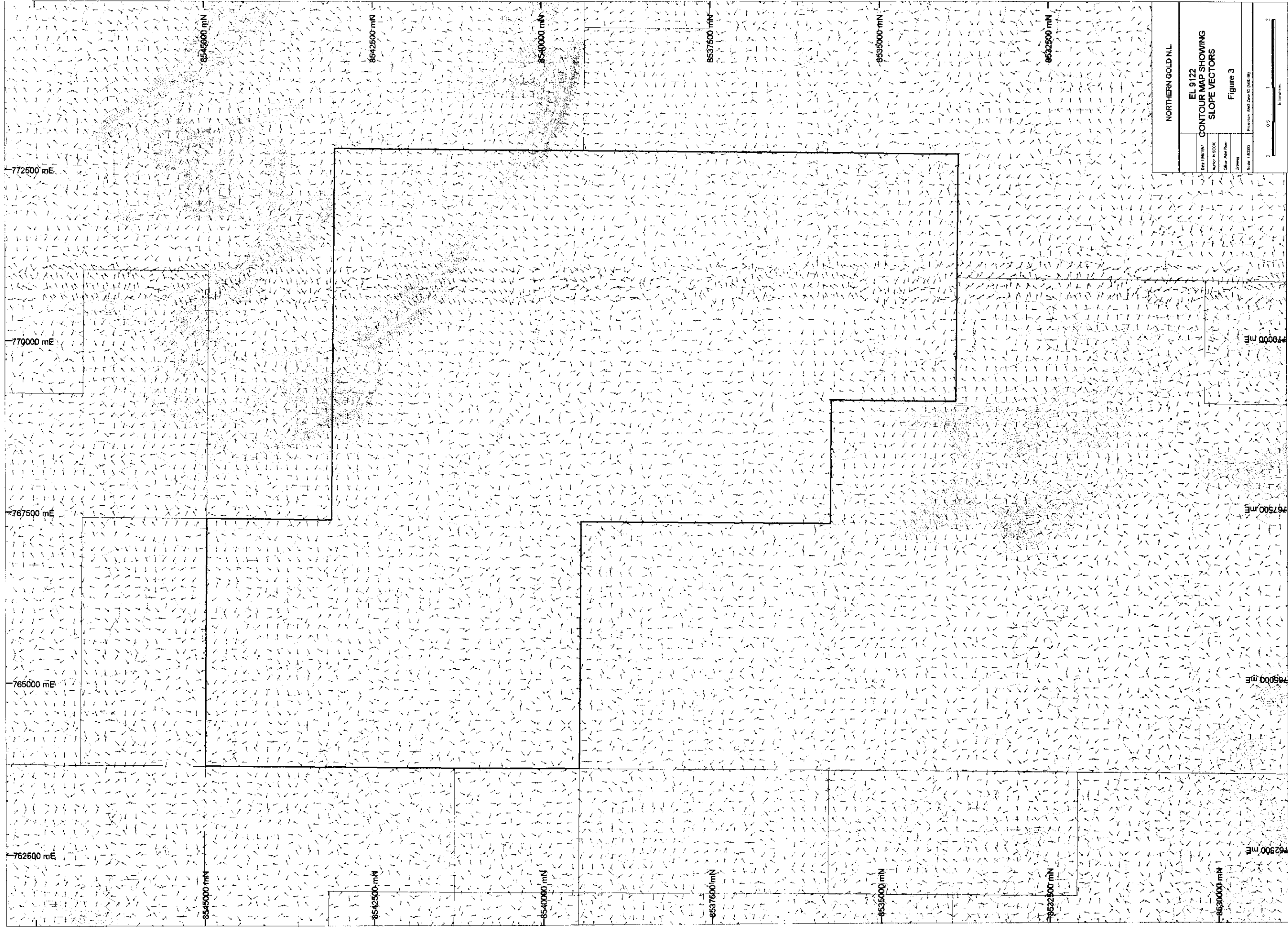


**Table 1 Aerial Geophysical Survey Specifications**

|                              |   |
|------------------------------|---|
| <b>Aircraft</b>              | Rockwell Strike Commander 500S            |
| <b>Magnetometer</b>          | Scintrex V201 Split Beam Caesium Vapour   |
|                              | Resolution: 0.04 nanoTesla                |
|                              | Cycle Rate: 0.2 second                    |
|                              | Sample Interval: 14 metres                |
| <b>Spectrometer</b>          | 256 Channel Geometrics Exploranium GR800B |
| <b>Processed Channels</b>    | Total Count 0.4 - 3.01 MeV                |
|                              | K40 1.37 - 1.56 MeV                       |
|                              | Bi214 1.67 - 1.86 MeV                     |
|                              | Ti208 3.02 - 6.00                         |
|                              | Cosmic 3.02 - 6.00                        |
|                              | Volume: 33.56 litres                      |
|                              | Cycle Rate: 1.0 second                    |
|                              | Sample Interval: 70 metres                |
| <b>Data Aquisition</b>       | Hewlett Packard 9000 Series Computer:     |
|                              | Aerodata Digital Data Acquisition System  |
| <b>Flight Line Spacing</b>   | Traverse Lines: 200 metres                |
|                              | Tie Lines: 5000 metres                    |
| <b>Flight Line Direction</b> | Traverse Lines: 090 - 270 degrees         |
|                              | Tie Lines: 180 - 360 degrees              |
| <b>Survey Height</b>         | 70 metres - mean terrain clearance        |
| <b>Navigation</b>            | Syledis UHF Positioning System            |

## 4.2 DTM Studies

A contour map of the region was compiled, showing the slope vectors of the terrain, indicating possible dispersion directions of mobile elements (Figure 3).



## 5.0 1996/97 EXPENDITURE

Expenditure on EL 9122 during the 1996/97 year of tenure totaled \$8,910. Details of this expenditure are listed below as Table 2.

**Table 2**      **EL 9122 1996/97 Expenditure**

| <b><u>COSTS</u></b>             | <b><u>AMOUNT</u></b>  |
|---------------------------------|-----------------------|
| Report Compilation              | 405                   |
| Tenement Management             | 535                   |
| Data Review                     | 305                   |
| Stationary and Office Expenses  | 40                    |
| Computing                       | 60                    |
| Motor Vehicle Expenses and Fuel | 185                   |
| Geophysics                      | 1,720                 |
| GIS Manipulation                | 825                   |
| DTM Manipulation                | 2,255                 |
| Salaries and Wages              | 1,420                 |
| <b>Subtotal</b>                 | <b>7,750</b>          |
| Administration @ 15%            | 1,160                 |
| <b>TOTAL</b>                    | <b><u>\$8,910</u></b> |

## 6.0 1997/98 PROPOSED WORK PROGRAM

Exploration for the 1997/98 year of tenure will include soil sampling, rock chip sampling, assaying and geological mapping.

An estimate of the costs of these programs is given below in Table 3.

**Table 3**      **1997/98 Proposed Work Program**

| <b><u>COSTS</u></b> | <b><u>AMOUNT</u></b>   |
|---------------------|------------------------|
| Soil Sampling       | 2,500                  |
| Rock Chip Sampling  | 800                    |
| Assaying            | 6,100                  |
| Geological Mapping  | 600                    |
| <b>TOTAL</b>        | <b><u>\$10,000</u></b> |

## 7.0 REFERENCES

SOCIC, N., (1996). EL 9122 1996 Annual Report, 05/06/95 to 04/06/96.  
Unpublished report by Northern Gold N.L. for the NTDME.