

# ***TZ Enterprises Pty Ltd***

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## **ROPER FE PROJECT**

### **EL 24102 “Mount Davidson”**

### **FIRST ANNUAL REPORT**

### **FOR PERIOD**

### **13-08-2007 to 12-08-2008**

**Submitted to:** NT Dept of Primary Industry, Fisheries and Mines

**Submitted by:** TZ Enterprises Pty Ltd

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## 1. Summary

Application for Exploration Licence 24102 was made on 03 December 2003. After extensive negotiations with the N.L.C.; agreement was reached in April 2007 and the lease was granted to Geoffrey John Fanning on the 16<sup>th</sup> August 2007. TZ Enterprises Pty Ltd, a Darwin based resource sector company, is now the designated Project Manager. The tenement covers approximately 198.9 sq km covering a portion of Roper Group stratigraphy in the Bauhinia Shelf tectonic element of the western McArthur Basin.

In late December 2007 TZ Enterprises Pty Ltd (TZE) was sold to Citizen International Investments Ltd and EL 24102 was subsequently transferred into TZE by Geoff Fanning. This assignment was completed after approval was received from the N.L.C. as per the Exploration Agreement.

The tenement lies wholly within the Roper River Iron Field, a part of the Maiwok Subgroup of the Roper Group and the dissected Gulf Fall physiographic division. The tenement is only partially accessible by road with the Roper River flowing east west to the North of the tenement and the north east trending Hodgson River to the South and east of the tenement

The geology is dominated by sandstone of the Sherwin and Moroak Formations throughout with pisolitic and oolitic ironstones within as previously documented by Ferenzi (DME, 2001)

Exploration activities on these resources are first recorded by BHP in 1955. They chose not to develop due to the discovery of their higher grade Pilbara Fe deposits. Exploration recommenced in 1991 by Roper Resources Pty Ltd and by the Northern Territory Government Department of Mines who reconfirmed an inferred resource of approximately 60 million tonnes of moderate grade iron ore at Hodgson Downs to accompany the 30 million tonnes at Sherwin Creek identified by BHP in the 1950's. The resources contained within the tenement are well explored and noted by Ferenzi (DME, 2001). In total Ferenzi inferred "several hundred million tonnes" of available ore. The ironstones of the Roper Iron deposits are of marine sedimentary origin and occur as extensive beds of pisolite, oolite and ferruginous sandstones interbedded with shales and quartz sandstones within the Sherwin Formation of the Maiwok subgroup (Roper Group) of the McArthur Basin.

Interrogation of the recently produced DBIRD diamond and diamond indicator database reveals sparsely scattered positive results but without any macro or microdiamonds located within the EL confines. The scattered indicators are considered to be secondary sourced and hard rock diamond potential is deemed low as follow-up sampling by previous explorers failed to repeat the positive results.

No major intrusive on-site field work was undertaken during the past twelve months as the submitted SMMP had not yet been approved and an "Authority to Explore" has not been issued at this stage. Several visits with prospective partners has occurred by helicopter with some small scale sampling to confirm ore grade of approx 25kg taken from Deposit W and U.

A full company restructure was completed in early 2008 by the new owners and EL24102 was seen as a vital part of this company. The new owners are currently in discussions with Jianlong Steel Holdings Limited, Sinosteel Mining Company Limited, Itochu Australia Ltd, DeLong Holdings Limited, Guandong Foreign Trade Group Company Ltd, Stone Group Holdings Ltd, Yin Tong Ltd and Janfull Group Ltd to jointly develop these resources.

CA's have been signed with Itochu, Stone Group and Janfull Group and several visits have been made to Darwin by these groups for discussions on methods of partnership. The Directors of TZE are confident that a joint venture/farm-in agreement will be reached in calendar year 2008 to fully develop the deposits of Iron ore contained within EL 24102.

ProMet Engineers in Perth, Western Australia are TZE's nominated managers for this exercise and have assisted with the production of several studies to both mine and beneficiate this ore. This may change with a new joint development as proposed by the companies listed above. Further studies are underway on the development of the feasible use of Port Roper as an alternative method using a conveyor system to ship the beneficiated ore and the Government has been briefed on the amount of interest shown by these organisations in the use of Port Roper in the long term and also in the Roper Highway, N/S railway to Port Darwin in the short term.

## **1.1 Environment**

Most activities were confined to office work and aerial inspections. In consequence, no major ground disturbance was undertaken during the term of tenure. Aerial surveys by helicopter have been conducted with approximately 25kg of material removed from the site during this period by prospective development partners to assist in the beneficiation studies.

A detailed environmental report is scheduled to be conducted before any "major disturbance" on-site exploration takes place as indicated within the submitted Small Mine Management Plan.

## **1.2 Conclusions**

Following overall Roper Fe Project data reviews and spatial analysis, a medium to large insitu Fe resource is apparent within EL 24102 which is contiguous with the resource in EL24101.

Prior exploration conducted by BHP and subsequent information published by the NTG Geological Survey confirm the inferred existence of a medium to large resource of oolitic hematite iron ore of varying amounts of Fe from low to high (39-64.9%)

Desk top studies coupled with site visits and opportunistic grab sampling conducted by TZE have enabled the company to further understand the nature of these deposits and to develop marketing methodologies to appeal to potential investors and joint development partners.

Ground truthing of the analysed data re-commenced in a non-intrusive manner in year 1 as sample was needed for chemical analysis for a trip to China with the visiting NTG delegation. The Small Mine Management Plan has been submitted and an exploration plan completed. The SMMP comments have been answered and TZE now awaits an "Authority to Explore" issued by the Department.

Several of the deposits identified by BHP and Ferenzi on this lease as well as EL24101 have never been fully investigated and this plan will accommodate a medium scale drilling and trench sampling program using a small RC drilling rig should the SMMP be accepted by the Department. It will look at underexplored deposits as well as the known deposit at deposit W.

EL 24102 complements an existing large tenure holding at EL 24102 to form a collective but non contiguous Roper Fe Project Area and if favourable will add substantially to the resource identified by TZE.

TZE is currently negotiating with several companies in China and Japan for the joint development of these resources and the development of further exploration programs to assess the tenements suitability to host Westmoreland/Murphy style of unconformity related Uranium deposits.

Several visits have been made to Darwin by both Chinese and Japanese companies seeking partnerships with TZE and several Confidentiality Agreements have been issued and signed. The Directors of TZE expect that a joint development of the mineral resources contained within the Roper Fe Project Area will commence in calendar year 2008 and that a modified SMMP will be required to be submitted to the Department by late 2008 to allow for further intrusive and non-intrusive exploration for iron ore and also uranium.

## **2. Introduction**

Application for Exploration Licence 24102 was made on 03 December 2003. After extensive negotiations with the N.L.C.; agreement was reached in April 2007 and the lease was granted to Geoffrey John Fanning on the 14<sup>th</sup> August 2007. TZ Enterprises Pty Ltd, a Darwin based resource sector company, is now the designated Project Manager. The tenement covers approximately 198.9 sq km covering a portion of Roper Group stratigraphy in the Bauhinia Shelf tectonic element of the western McArthur Basin.

In late December 2007 TZ Enterprises Pty Ltd (TZE) was sold to Citizen International Investments Ltd and EL 24102 was subsequently transferred into TZE by Geoff Fanning. This assignment was completed after approval was received from the N.L.C. as per the Exploration Agreement.

Exploration Licence 24102 covers an area of 60 sub-blocks (198.9 sq km) in the north western portion of Hodgson Downs 1:250,000 map sheet SD53-14, centred approximately 210km ESE of Katherine. The tenement was granted for a period of six years on 16<sup>th</sup> August 2007. Tenement acquisition was based on the regions known iron resources located within this license area and within EL 24102.

Regionally the area lies within the dissected Gulf Fall physiographic division. And geologically within the Maiwok Subgroup and is distinguished by the presence of the oolitic ironstones. The tenement itself covers a sub-province of the Maiwok Subgroup, the Moroak and Sherwin Formations with the oolitic ironstones at the base of the Sherwin Formation. Most of EL 24102 is only partially accessible by road with the Roper River flowing east west to the North of the tenement and the north east trending Hodgson River to the southeast of the tenement. The Roper Highway runs east-west to the north of the tenement and numerous used and non-used station tracks are to be found within.

The principal vegetation regime is open Eucalyptus woodland ranging from sparsely wooded open grassland with alluvial and small black-soil plains scattered throughout with densely vegetated lancewood on high ground and steeply sloping areas. The major watercourses are lined with paperbarks and larger Eucalypts. Spinifex grows predominantly only on the sandy sections.

This report outlines exploration activities conducted within EL 24102 during the first period of tenure ending 13<sup>th</sup> August 2008.

### **3. Regional Geology**

The tenement is part a larger Project Area in the central-western shelf (Bauhinia Shelf) of the McArthur Basin. The basin can be viewed as several northerly trending rifts separated by northwest-trending faults and transverse ridges and was subject to repeated cycles of clastic and marine carbonate sedimentation interspersed with volcanic extrusion and sill emplacement (*Tawallah, McArthur and Nathan Groups*) in response to reactivation of older basement structures.

A later, more passive series of sedimentation cycles in response to western basin subsidence occurred with the deposition of suites of blanket quartz sandstones, micaceous siltstones, black shales and glauconitic sandstones (*Roper Group*). Ironstones are prominent on a local stratigraphic level (Roper and Hodgson Iron Deposits). 'A variety of marginal, shallow and deeper marine shelf environments reflect alternating basin-wide sea level rises and falls. Tholeiitic dolerite and gabbro sills were emplaced throughout the Roper group soon after deposition ceased and before regional deformation.' (NTGS).

#### **3.1 Tenement Geology**

The iron ore deposits are located in the south western part of the Palaeo to Mesoproterozoic McArthur Basin (see Figure 2) within the Urapunga and Hodgson Downs 1:250,000 map sheets. Quartz sandstone with interbedded micaceous mudstone and shale assigned to the Mesoproterozoic Roper Group dominate the geology in the region forming long cuesta-form ridges and broad flat floored valleys respectively. The cyclic sandstone and mudstone shallow marine sequence is up to 2000m thick in the area and has been intruded by tholeiitic dolerite sills prior to regional deformation.

Ferenzi (1994) postulated that a theory for the Sherwin ironstone member within this sequence is that it represents an off-shore bar in an active shoal environment that transgressed lagoonal muds and nearshore sands (Moroak sandstone). The ferruginous oolite beds were then transgressed by inner shelf organic rich muds. These iron ore presences are at several stratigraphic levels within the sediments of the Roper Group but the main exploration target for TZE has been the Sherwin Ironstone Member within the Moroak Sandstone.

The mapped geology is dominated by the interbedded sandstone, siltstone and mudstone of the Sherwin Formation Subgroup throughout with extensive pisolitic ironstone lenses. Small exposures of rubbly dolerite sills are mapped on adjoining plateau margins and were exposed by drainage erosion.

The absence of Cambrian flood basalts and only remnant outliers of Cretaceous sandstones, both of which are extensive to the west and north, suggest a significant exposure to uplift and erosion within the area permitting exposure of the underlying Proterozoic sediments and dolerite sills.

The dolerite sills intruding into the Moroak Sandstone may also host unconformity style uranium deposits. Further aerial radiometric survey is warranted.

## **4. Previous Exploration**

The tenement environs have attracted various Fe related exploration campaigns including:

### **4.1 BHP**

The first significant iron ore find in the NT was made in 1911 at Murphy's prospect near Roper Bar. This small discovery drew BHP Ltd to the area in 1955 and led to an investigation of the Roper River oolitic iron ore deposits. Diamond drilling, bulk sampling and some metallurgical testing of deposits near Hodgson Downs (Deposits T, U, V and W) Mount Fisher (Deposit M) and Sherwin Creek (Deposits A, B, C and E) was carried out between 1956 and 1961.

### **4.2 Roper Resources**

More recent exploration work has been carried out on some of the iron ore deposits by Roper Resources who conducted a five year intensive program from 1991 which included preliminary geological surveys, sampling, metallurgical investigations and evaluation of alternative processing options including detailed discussions with suppliers of various innovative, high technology smelting and processing systems such as Ausmelt, Hismelt and Allis Mineral Systems

### **4.3 N.T. Government Activities**

Due to Roper Resources interest in these deposits, the areas were visited by the then Northern Territory Department of Mines and classified as an inferred resource of "several hundred million tonnes". In the mid 1990s, the NTGS conducted a geological investigation and review of the Roper region iron ore deposits (Ferenczi 1997). Further testing by the DME concurred with BHP's conclusion that the physical structure within the ore was amenable to beneficiation.

Limited diamond exploration was also conducted by Stockdale and the then CRA Exploration in the early nineties.

A comprehensive summary of all past exploration is published in the 2<sup>nd</sup> edition of 1:250 000 Geological Map Series Explanatory Notes for the Roper Region Urapunga and Roper River Special with additional notes available for the Hodgson Downs 1:250 000 Explanatory Notes.

### **4.4 Roper Iron Pty Ltd**

Roper Iron Pty Ltd was appointed as the designated Project manager by the tenement application holder in 2004 and had in turn appointed ProMet Engineering Pty Ltd of Perth, Western Australia as Project Managers. A large collection of material held by Roper Iron was sent to ProMet Engineering for beneficiation and metallurgical flow tests during the first year of tenure. The results from ProMet confirm BHP's conclusions that the ore could be readily crushed and beneficiated to provide a workable resource. Further work carried out by ProMet Engineering have identified a suitable program to bring the resource to a Feasibility stage during the next year of tenure.

Ongoing, lengthy negotiations with the Northern Land Council for the grant of ELA 24102 proceeded during this time frame and concluded with the grant of EL24102 by August 2007. This tenement grant was deemed essential to the ongoing success of the development of the resource.

## **5. Exploration Activities**

Year 1 activities saw disruption with the company being sold to Citizen International Investments Ltd and all tenements analysed and finally consolidated. The company then centered its efforts to develop the resources using a joint venture partner and several visits have been made by interested companies to Darwin and a visit to China and Japan to promote joint development was made by the author with the NTG delegation in May 2008.

Several site visits were made to both EL24102 and EL24101 with various interested companies conducting initial survey and taking small grab samples (<5kg) for analysis. One of these companies is expected back in Darwin late July 2008 with a further two companies expressing interest of again revisiting the site for more detailed inspections. CA's have been issued and signed by three organisations and discussions are underway to form a joint venture development agreement with two organisations.

A web site of all available documentation has been updated and marketing has focussed in Asia. Several parties have expressed interest and the Board is confident that a joint development partner will be established by late 2008. The Fe contained within the tenements is suitable in some cases for DRO (Direct Shipped Ore) status with the remainder proved suitable for beneficiation with trials achieving over 63% Fe.

The Board of TZE also believe that the area under its control including EL 24102 and EL 24101 shows potential for uranium within the lower lying areas of the tenements. The heavy minerals sampled contains traces of gold and elevated vanadium levels within the ilmenite and titanomagnetite profile. Both are indicators for Westmoreland/Murphy style of uranium deposits. Westmoreland-Murphy-type deposits occur within the lower McArthur Basin succession, on the northern side of the Murphy Inlier, straddling the NT-Queensland border.

Production from two small operations in the 1960s totaled 35 t U<sub>3</sub>O<sub>8</sub>. The largest known deposits of this type are in Queensland and occur where dolerite dykes cross-cut sandstone. Other styles of this deposit type occur at contacts between rocks of different oxidation states, and appear to have formed by reduction of oxidised uranium-bearing fluids. Small occurrences of uranium mineralisation occur in similar geological settings in Katherine River Group rocks, near the western margin of the McArthur Basin, and appear to have been formed by similar processes. The leases held by TZ Enterprises and its sister company ERD contain over 1600 sq km of dolerite sills. Sills are horizontal magma extrusions and TZE/ERD have the largest accumulation of dolerite sills in the Northern Territory

Research is ongoing to evaluate the areas potential using ternary radiometric data available from the Department.

Itochu Corporation of Japan are interested in developing a joint venture/farmin agreement with ERD to allow the full development of this tenement and EL 24101 Iron ore resources. They are also interested in the ability of this tenement to host uranium deposits. A field trip in late June was conducted to assess the anomalies using hand held instrumentation identified using NTG coarse ternary and radiometric data sets. The results are currently

under analysis and will be combined to form a plan to conduct a detailed radiometric survey later in 2008.

## **5.1 Diamonds**

EL 24102 was selected for exploration targeting known pisolitic and oolitic lenses of hematite. The tenement was also selected for potential diamond exploration as even though no major diamond occurrences are mapped within the Roper environs, it is believed that the major structural corridors including the Walker-Batten Fault Zones and the Urapunga Tectonic Ridge and their associated parasitic fault splays have provided deep-seated conduits for mineralisation focus, notably diamondiferous diatreme emplacement (ie. Merlin and Emu diamond fields near the Emu Fault to the SE and the Packsaddle and Blackjack kimberlite dykes to the west).

Interrogation of the DBIRD diamond and diamond indicator database reveals sparsely scattered positive results (indicator minerals) but not one single macro-diamond within the EL confines. Follow-up sampling failed to repeat the positive results and the scattered indicators and diamond are considered to be secondary sourced. Hard rock diamond potential is deemed to be low but the search continues. No field work was conducted during tenement year 1 on diamonds or their associated indicator minerals with this information.

## **5.2 Iron**

Open file reviews have shown previous exploration in the EL environs having comprised regional drainage stream sediment and gravel sampling programs targeting stratabound base metals and diamonds along with the extensive Fe work carried out by BHP, Roper Resources and the Department of Mines and Energy. These exploration programs and subsequent follow-up ground surveys led to the Department of Mines and Energy classifying these undeveloped iron resources with an "inferred" status under the J.O.R.C. Code to comprise some several hundred million tonnes (Ferenzi, *Report 13*, NTG, 2001) of low to moderate grade ores which would appear to now be in an increasingly favourable location in relation to existing and potential infrastructure and Asian markets.

During the previous 24 months the following work had been carried out to assess the potential for a fully funded exploration program based on published information after grant and hopefully in the 2008 exploration season and to allow Roper Iron to complete and be granted the required "Authority to Explore":

- submission of samples held by Geoff Fanning to ProMet Engineering in Perth, WA for beneficiation studies to confirm BHP results and assessment of resource development strategies.
- discussions with the Mines Department re ore estimates
- discussions with the Port Authority re access to ship loading facilities and provision of bulk storage and handling methods
- scoping study by SKM on stacker/reclaimer and ship loaders
- discussions and negotiations with various mining equipment suppliers to gain information on mining techniques suited to the deposits
- Interpretation of results from all previous exploration.

- Appointing ProMet Engineering as overall Project Managers
- Finalising the requirements and funding allocations to a Project Feasibility Study with ProMet Engineers

The work detailed above was completed and EL24102 has been granted. The following further discussions and work were carried out to further assess the potential for a fully funded exploration program during the 2007-2008 exploration season :

- Legal discussions with Cridland's on the impact of grant of ELA 24102 finalised and upon grant both EL's will be placed into the same project and Project Status will be sought from the relevant authorities.
- Ongoing protracted and lengthy discussions with the NLC on the status of a contract for the grant of ELA 24102. A second draft agreement was received in July 2006 and sent to Cridland's for advice. This contract has been further engineered and agreement has been reached. This contract has been signed and the conditions to grant have been met.
- discussions with ProMet Engineering on suitability of beneficiation plant requirements are ongoing and will be further implemented;
- discussions with the Port Authority re access to ship loading facilities and provision of bulk storage and handling methods has been modified with a ships loader now "on-stream at the Port of Darwin
- Suitability models created to investigate the use of Port Roper and a conveyor facility to move and ship the beneficiated ore have been undertaken but require more detailed work for costings to be produced
- Refinement of the scoping study by SKM on stacker/reclaimer and ship loaders
- Further interpretation of results from all previous exploration compiled with the Promet Engineering studies.
- Appointing ProMet Engineering as overall Project Managers to include mining
- Redrafting the requirements and funding allocations to a Project Feasibility Study with ProMet Engineers

In late 2007 TZE was sold to Citizen International Investments Ltd and a complete company restructure was implemented. EL's 24102 and 24101 were then transferred from Geoff Fanning into TZ Enterprises Pty Ltd and the NLC notified of the assignment.

By January 2008 a full review of all available information on the tenements was completed by the new owners and a detailed strategy to produce a development plan was introduced to the Directors.

The plan included obtaining joint development partners and the new owners marketed the potential of the resources throughout Asia with great success. Several site visits by interested parties ensued throughout early 2008 and a visit by the Directors to China and Japan to discuss the project with newer potential partners was undertaken with the NTG delegation in May 2008. This visit has led to several CA's being issued and signed along with the receipt of several development proposals. During the helicopter borne site visits initial survey work was carried out along with the taking of small samples for beneficiation testwork by the inspecting parties.

The new owners are currently in discussions with Jianlong Steel Holdings Limited, Sinosteel Mining Company Limited, Itochu Australia Ltd, DeLong Holdings Limited, Guandong Foreign Trade Group Company Ltd, Stone Group Holdings Ltd, Yin Tong Ltd and Janfull Group Ltd to jointly develop these resources. CA's have been signed with Itochu, Stone Group and Janfull Group and several visits have been made to Darwin by these groups for discussions

on methods of partnership. The Directors of TZ Enterprises are confident that a joint venture/farm-in agreement will be reached in calendar year 2008 to fully develop the deposits of Iron ore contained within EL 24102.

The owners are now in the process of further discussion and selection of a joint development partner to mine, beneficiate and ship ore through either Port Darwin using an upgraded Roper Highway and the Port Darwin railway head or barges on the Roper River to Port Roper. The Department is fully briefed on these discussions.

It is anticipated that an agreement will be reached in late 2008 and feasibility studies will commence in a phased approach to select mineable areas as well as the creation of a mining plan to formulate a MMP application.

## 6. Planned Exploration Activities

As the vast majority of work scheduled for year 1 was not undertaken due to the land access issues reported and the restructure of the companies after sale TZ Enterprises would seek to complete the following program which is dependant on any joint venture development partner being chosen.

- Commission a Mining Engineering organisation to finalise the Feasibility Study to develop the resource. This study will concentrate on ore reserves
- Commission an engineering organisation to assess and recommend suitable beneficiation methodologies
- Intrusive exploration to include diamond drilling, surface and bulk sampling for ore reserves and potentially beneficiation test-work
- Desktop Study of all available data to analyse the use of barges on the Roper River and the use of Port Roper as an ore loading point.
- Desktop Study of all available data to produce a mining engineering plan for deposits A, B and C.
- Dependant upon selecting a joint development partner TZ Enterprises will seek to modify its submitted SMMP to include a full exploration program for EL 24101.

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## **LIST OF FIGURES**

**Figure 1: EL 24102 Tenement Location Plan**

**Figure 2 Major Tectonic Units of the McArthur Basin  
(Courtesy Ferenzi, NTGS Technical Report GS 97/004)**

Figure 1.

EL 24102 Location Plan

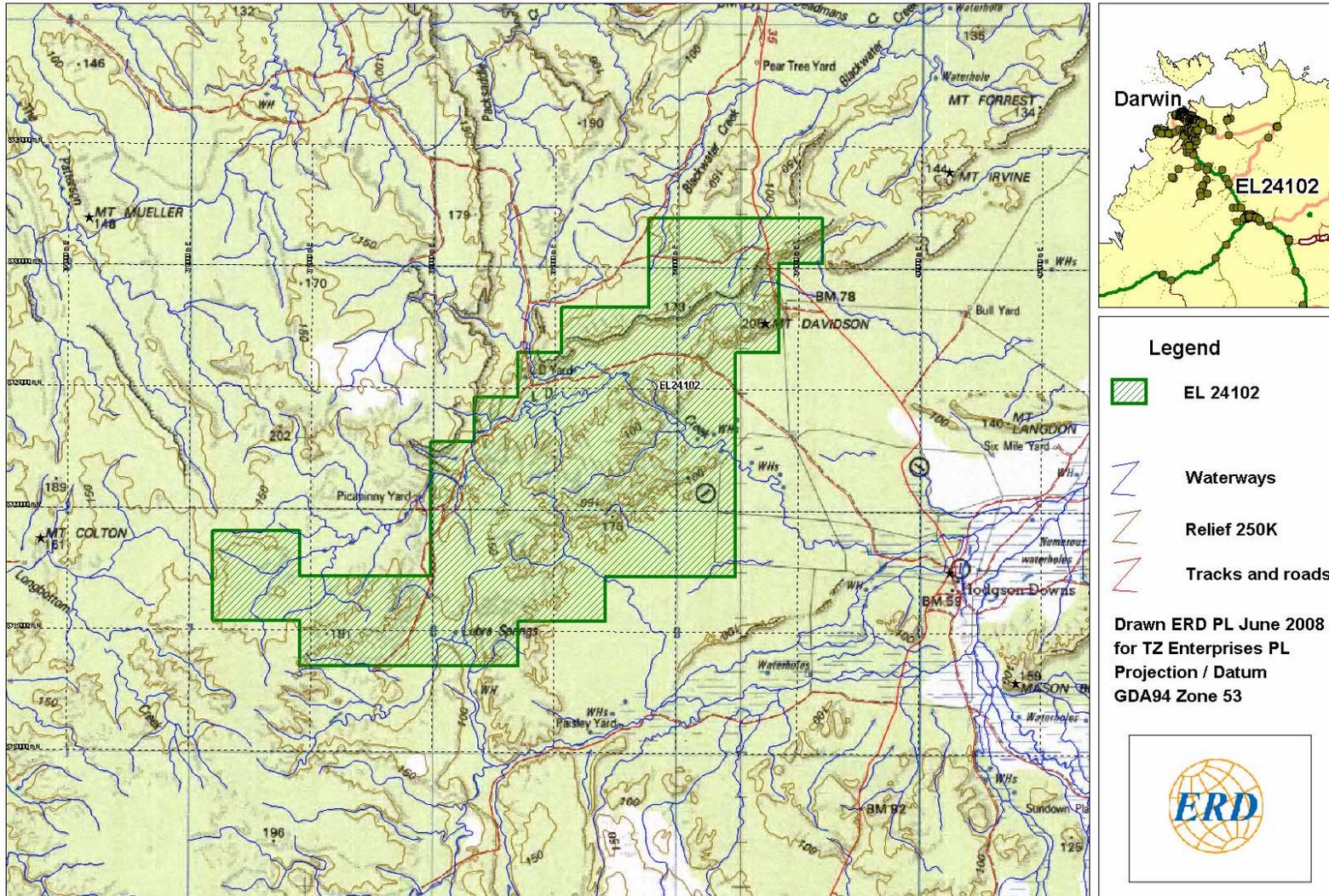


Figure 2.

