Title Holder	Territory Iron Pty Ltd (ACN 125 984 401) subsequently renamed.
Operator	Territory Iron Pty Ltd
Titles / Tenements	EL23506
Mine / Project Details	Frances Creek
Reporting Title	Final Technical Report
Personal Authors	Hong-Jim Saw (Territory Iron)
Corporate Authors	Territory Iron Pty Ltd
Target Commodity	Iron ore, Base Metals, Gold, Uranium, Graphite
Report Date	22 April 2020
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250k Mapsheet	Pine Creek SD52-08
100k Mapsheet	Pine Creek 5270; McKinlay River 5271
Contact Details	Hong-Jim Saw Tenement Manager PO Box 268 West Perth, WA 6872
Contact Phone	Mobile: 0412 919 945
Email for Technical Enquiries	hong@goldvalley.com.au
Email for Expenditure	hong@goldvalley.com.au

TERRITORY IRON PTY LTD

(ACN 125 984 401)

FINAL TECHNICAL REPORT

EL23506

For The Period

8th May 2010 – 7th May 2019

Pine Creek SD52-08	**1:250,000 Geological Map Sheet**
Pine Creek 5270	**1:100,000 Geological Map Sheet**
McKinley River 5271	**1:100,000 Geological Map Sheet**

Authors: **Hong-Jim Saw, April 2019**

Distribution: **NT Department of Mines and Energy**
Territory Iron Pty Ltd

TABLE OF CONTENTS

Contents

SUMMARY

This report describes exploration activities conducted on Frances Creek East/ Allamber tenement EL23506 by operator Territory Iron Pty Ltd (subsequently renamed but referred to as Territory Iron for convenience) from 8 May 2010 to 7 May 2019. Territory Iron Pty Ltd has a Split Commodity Agreement with Element 92 (wholly owned subsidiary of Thundelarra Pty Ltd) for the majority of the report period, with the new owners of Territory Iron acquiring the asset in the final year.

Territory Iron reacquired the tenement for gold prospectivity but subsequently sold their Frances Creek assets. The immediate gold results were not strong enough for the tenement renewal to be made by the purchaser.

Introduction, Location and Access

This report describes exploration activities conducted on Frances Creek/ Allamber tenement EL23506 from the 8 May 2010 to 7 May 2019.

EL23506 is an exploration licence within the Pine Creek Orogen in the Northern Territory. The Frances Creek Project Area is located about 220 km south of Darwin and ~23 km north of Pine Creek town ship, Figure 1.

EL23506 is situated about 16km north-northeast of the current Frances Creek mining operations, Figure 2. Access to the northern area is via unsealed tracks north of the Frances Creek mine operations. The southern area of EL23506 (where Territory Iron has conducted exploration activity) is accessed along the Kakadu Highway (~21km northeast of Pine Creek) and then north via the unsealed Mary River Station road for about 20km. Access to the Ox-Eyed Herring prospect is also via the Kakadu Highway (~21km northeast of Pine Creek) and then north via the unsealed Mary River Station road for about 35km.

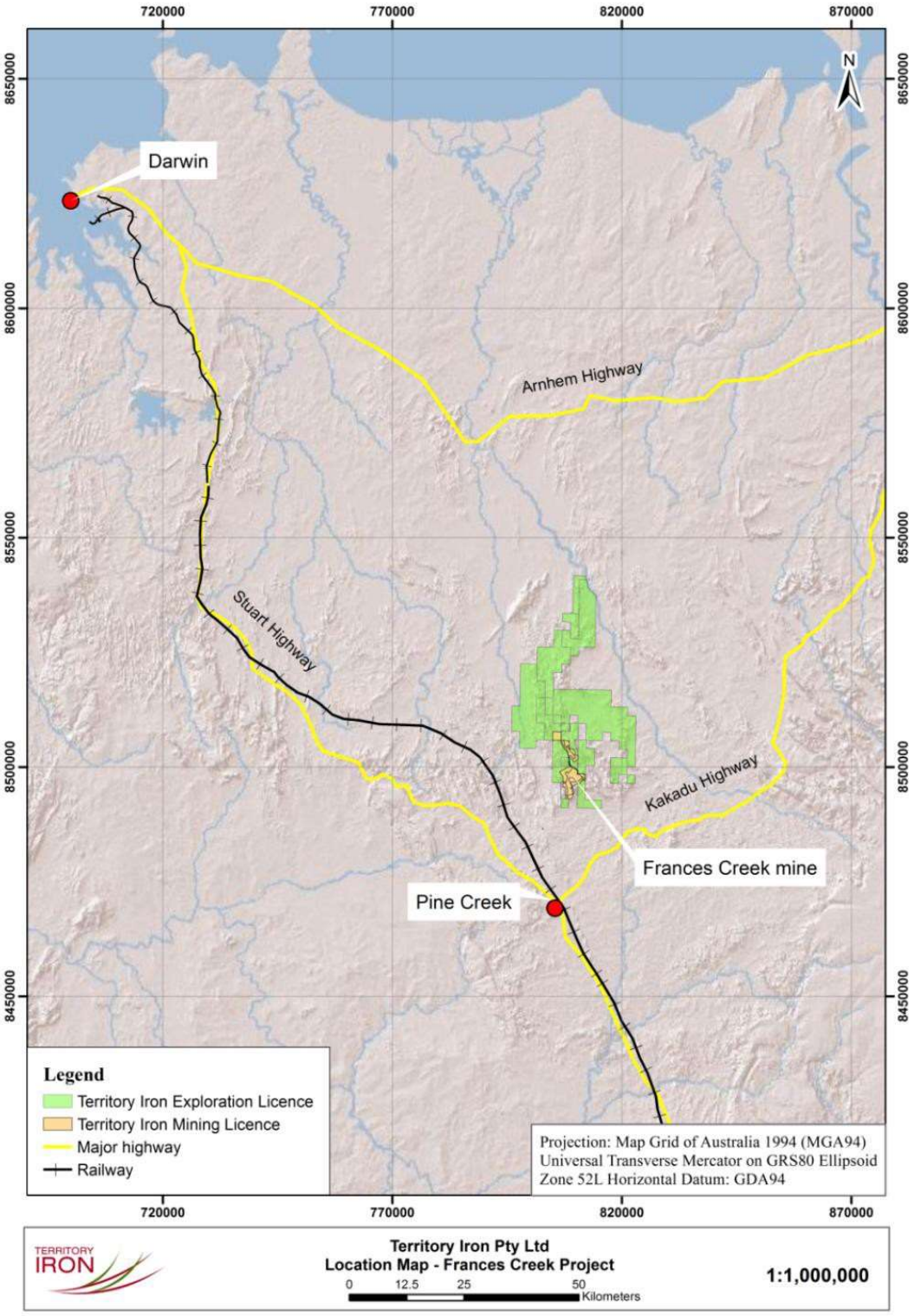

Figure 1

Location Map of Frances Creek Project with ESRI world shaded relief defining background topographic elevation. Beige polygons represent Frances Creek Mining Leases and green polygons represent Exploration Licences (the remainder of the Frances Creek Project Area)

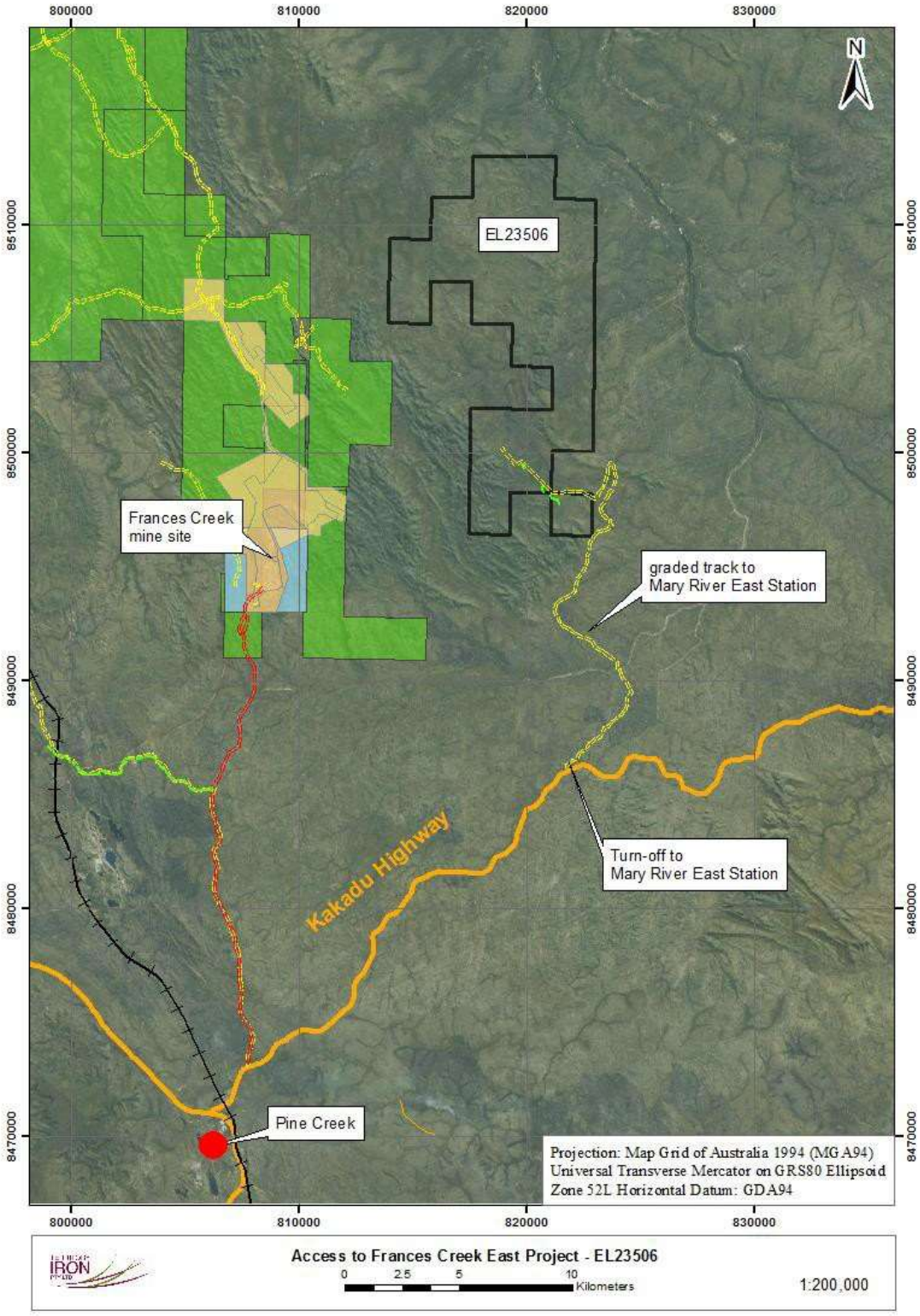

Figure 2 Location and access map to southern area of EL23506 (black polygon) relative to the Frances Creek mine site. Mineral Leases are shown in beige, Mineral Authority in blue and Frances Creek Exploration Licences in green. ESRI world satellite imagery defines background relief.

Tenure

Tenement EL23506 was granted on 8 May 2003 for a 6 years term with an area of 173.3km^2 covering 52 square blocks. Reduction deferrals were granted on 22/05/2005, 04/04/2006, 02/04/2007, and 17/04/2008. A renewal application was made on 2nd February 2009, and granted on 9th March 2009.

A request for the reduction of 27 blocks (25 retained) by Element 92 Pty Ltd was approved on the 16th July 2015.

Mineral Rights

Territory Iron held the exploration rights for iron ore and manganese under a Split Commodity Agreement. This Agreement was originally held with Teelow, Orridge and Clarke (TOC), dating from November 2006. TOC sold their rights to EL23506, to Element 92 Pty Ltd (wholly owned subsidiary of Thundelarra Pty Ltd). Territory Iron Pty Ltd retained the iron and manganese rights to the tenement.

Territory Iron merged the rights before the final year of term in April 2018.

Land Tenure

Land tenure under the title includes parts of:

- Ban Ban Springs Pastoral Lease, PPL 1111 – NT Portion 695, owned by Ban Ban Springs Station Pty Ltd, PO Box 7207, St Kilda Road, Melbourne, Vic 8004.
- Mary River East Pastoral Lease, PPL 1134 - NT portion 1631, owned by Mary River Wildlife Ranch Pty Ltd, PO Box 137, Pine Creek, NT 0847.

Aboriginal Heritage and Native Title

Registered native title claims are in place over the pastoral lease:

- DC01/21 (Paddy Huddleston & Ors) – PPL 1111
- DC00/18 (Northern Land Council) – PPL 1134

In July-August 2009, heritage surveying contractor Earthsea Pty Ltd was employed to conduct a detailed heritage survey in the southern portion of the tenement for areas considered prospective for iron mineralisation with the potential to incur drilling activities. A number of archaeological sites protected under the *Heritage Act* 2012 were recorded. More recent heritage surveys by Territory Iron archaeologists in the north-western portion of the tenement

recorded additional archaeological sites. All drill programmes and associated land disturbance have been designed to avoid these areas. The remainder of the tenement has not yet been surveyed. Senior Traditional Owners accompanying the archaeological surveys stated that there were no sacred sites in the survey areas. An Authority Certificate under the *NT Aboriginal Sacred Sites Act* 1989 will only be issued should the area ever be mined.

Geology

Regional Geology

The Frances Creek mine site and adjacent exploration area are located within the Palaeoproterozoic Pine Creek Orogen which forms part of the North Australian Craton. The Pine Creek Orogen covers an area of ~50,000 km2 and represents a >4 km succession of carbonate, clastic and carbonaceous sedimentary and volcanic rocks, which unconformably overlie Neoarchaean (~2500 Ma) basement granite and gneiss. Based on the timing of sedimentation, magmatism and metamorphism, the Pine Creek Orogen has been divided into three distinct domains, from west to east; the amphibolite to granulite facies Litchfield Domain, the greenschist facies Central Domain and the amphibolite facies Nimbuwah Domain. The Frances Creek mine site and adjacent exploration area is located within the Central Domain.

The oldest rocks (the Palaeoproterozoic Woodcutters Supergroup) comprise the Namoona Group (Masson Formation) to the east of the Frances Creek project area. They are unconformably overlain by the Mount Partridge Group (Mundogie Sandstone and Wildman Siltstone) which cover the majority of the Frances Creek project. The Mundogie Sandstone (Mount Partridge Group) forms prominent continuous northwest-striking ridges of dominantly coarse, pebbly, feldspathic quartzite and arkosic sandstone (Stuart-Smith *et al.,* 1987). Massive, graded beds of pebble conglomerate are common and units often display graded bedding and lenticular cross-bedding. Subsequent to sedimentation of the Mundogie Sandstone, the Wildman Siltstone (subdivided into two members; the Lower Wildman Siltstone and Upper Wildman Siltstone) were deposited with apparent conformity. The unit mainly comprises metapelitic assemblages with subordinate sandstone. The Lower Wildman Siltstone is host to the majority of the iron mineralisation at Frances Creek.

In the western portion of the Frances Creek project area, the Mt Partridge Group is unconformably overlain by the stratigraphic sequences of the Cosmo Supergroup, comprising the South Alligator Group (Koolpin Formation, Gerowie Tuff and Mt Bonnie Formation) stratigraphic sequence. Subsequent to deposition of these units, pre-orogenic Zamu Dolerite sills intruded these stratigraphic successions.

Syn- to post-orogenic activity is represented by intrusion of the 1835-1800 Ma Cullen Supersuite granitoids. Intrusion of the granite led to contact aureoles in the surrounding pre-orogenic Masson Formation, Mundogie Sandstone and Zamu Dolerite.

Two major episodes of folding are recognised, earlier tight to isoclinal F1 folds followed by younger open (widely spaced) folds (Stuart-Smith *et al.,* 1987). The major structural controls in the tenement area are related to D3 1-3 km scale northwest-trending non-cylindrical folds, which plunge gently to the northwest to form a series of anticlines and synclines pre-dating the intrusion of the Cullen Supersuite, and 1-3 km long northwest and northeast-trending faults.

Local Geology and Mineralisation

In EL23506 (Frances Creek East) the area mapped includes, (in stratigraphic order), the Palaeoproterozoic Masson Formation (Namoona Group), Mundogie Sandstone (Mount Partridge Group), intrusive, pre-orogenic Zamu Dolerite, all of which are flanked to the east by the intrusive, post-orogenic Frances Creek Leucogranite (Cullen Supersuite), Figure 3. The stratigraphy is structurally controlled by a large northwest-trending anticline, comprising the Mundogie Sandstone which forms prominent ridges to the west and east and the centrally positioned Masson Formation, which forms low-lying valley, floodplain deposits. Resistant ridges within the Masson Formation represent iron and quartz-hematite-goethite mineralised breccias. The iron mineralisation is hosted in the older Masson Formation, which forms the core of the anticline.

The oldest rocks in the Frances Creek East tenement area belong to the Palaeoproterozoic Woodcutters Supergroup. These include the Namoona Group (Masson Formation) and the Mount Partridge Group (Mundogie Sandstone). Although not present in the Frances Creek East region, the Mount Partridge Group also includes the stratigraphically younger Wildman Siltstone which is host to hematite mineralisation in the Frances Creek mine area.

The Masson Formation (Namoona Group) consists of poorly exposed metapelites, minor quartzose sandstone, sandstone, muscovite-tremolite marble (dolomitic schist) and ironstone ridges in the west (Stuart et al 1987). Quaternary alluvium and colluvium covers most of the unit. The Masson Formation is best exposed on slopes close to ridges of the overlying Mundogie Sandstone, where they form interbedded sequences of dominantly metapelite with minor quartzite. The Masson Formation is intruded by Zamu Dolerite sills and the Allamber Springs Granite, where it is extensively hornsfelsed at the contact.

The Mundogie Sandstone (Mount Partridge Group) forms prominent continuous northwest-striking ridges of dominantly coarse, pebbly, feldspathic quartzite and arkosic sandstone (Stuart-Smith et al 1987). Massive, graded beds of pebble conglomerate are common and units often display graded bedding and lenticular cross-bedding. Within the contact aureole with Cullen Supersuite granitoids, the units are recrystallised to micaceous quartzite and metamorphic assemblages include cordierite-mica-hornsfels.

Subsequent to sedimentation of the Mundogie Sandstone, the Wildman Siltstone was deposited with apparent conformity. The unit mainly comprises metapelitic assemblages with subordinate sandstone. Although associated with Fe-mineralisation to the east, the stratigraphically younger Wildman Siltstone does not occur in the Frances Creek East tenement area. After deposition of the Namoona Group, pre-orogenic Zamu Dolerite sills intruded the Masson Formation. In dissected valleys, the dolerite has limited outcrop exposure where it subcrops as rounded boulders and rubble. Further to the west in the Frances Creek mine area and surrounds, dolerite(s) intruded the Wildman Siltstone and the overlying South Alligator Group of the Cosmo Supergroup.

Post-orogenic activity is represented by intrusion of the 1835-1800 Ma Cullen Supersuite. The intrusion resulted in contact aureoles in the surrounding pre-orogenic Masson Formation, Mundogie Sandstone and Zamu Dolerite.

Known (outcropping) Fe-mineralisation in Frances Creek East is hosted by the Masson Formation in the southeast portion of the tenement and is documented in Stuart-Smith *et al* (1987). In this region, ironstone ridges are dominantly Fe-breccia with both hematite and goethite, however, goethite-dominated breccias in this region are not deemed to be prospective. The hematite ridges are located on the western boundary of the southern-most portion of EL23506. The local geology is shown in Figure 3.

Iron-bearing oxides include hematite (Fe_2O_3) and goethite (FeO(OH) ± accessory manganese minerals which are associated with goethite. High grade Fe-ore (>65 %Fe) is characterized by hard, grey, massive hematite or friable purple, microplaty hematite. These ores can range from extremely fine grained to coarse grained and bladed with numerous irregularly shaped vugs and skeletal-textures reminiscent of boxworks, in which vugs are often filled with late-crystallising, coarse-grained hematite. Goethite occurs as both ochreous and vitreous forms.

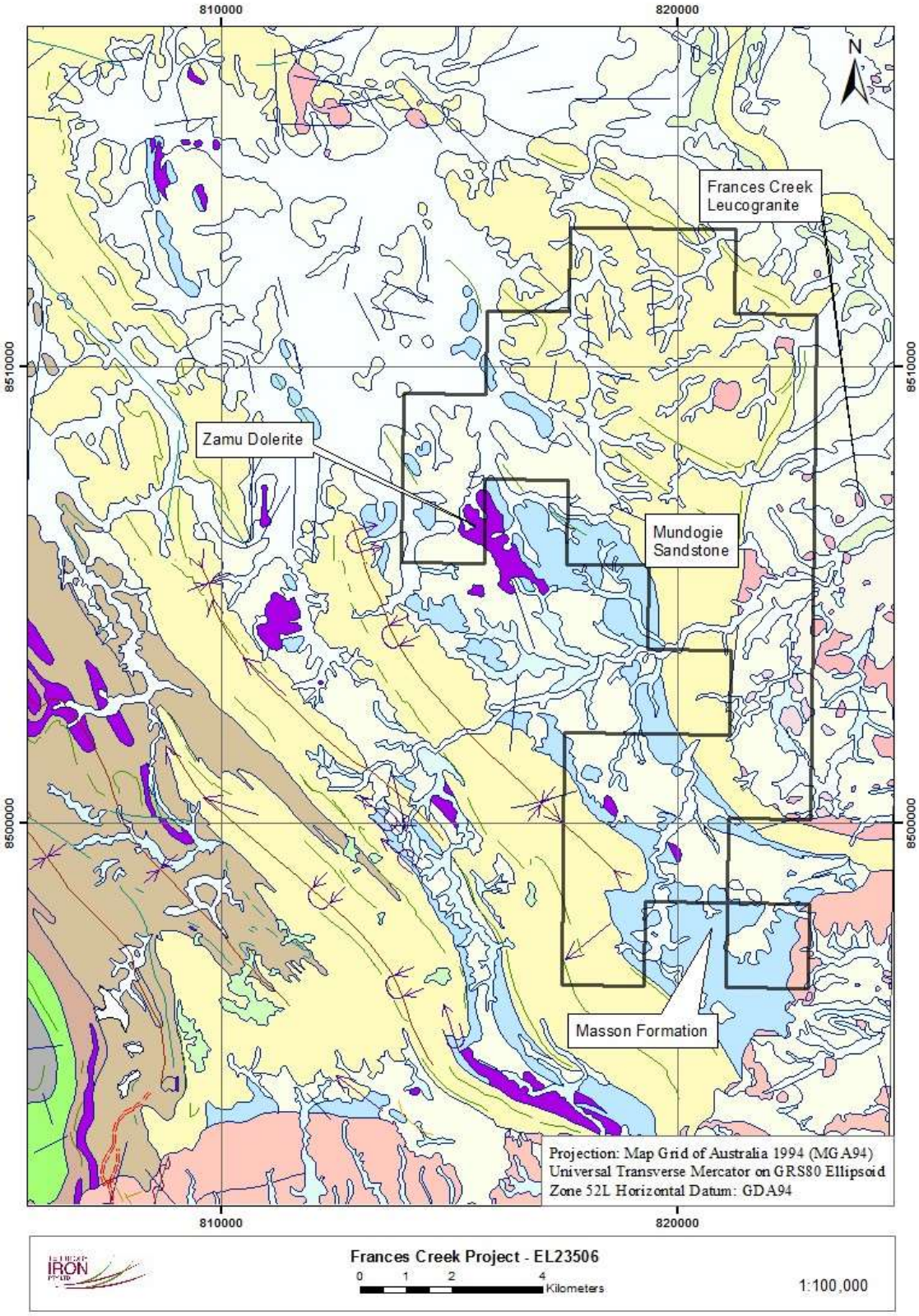

Figure 3 The tenement boundary for EL23506 (shown as a black polygon) overlying the local geology for EL23506.

Previous Exploration Activities – 2010-2019

2010

Work undertaken during the reporting year ending 8th May 2010 within EL23506 included desk top studies, field mapping, heritage work and RC drilling of priority targets with potential for iron mineralisation.

Despite desktop reviews and field mapping showing moderate potential for iron mineralisation, RC drilling revealed poor results. No further work is warranted at Frances Creek East for iron mineralisation on EL23506.

2011

Territory Iron continued with some activity including, as Territory Iron continued to be responsible for tenement maintainance;

(i) Ground gravity geophysical surveying: this tenement was part of a larger geophysical review that re-interpreted all the historical and recent geophysical survey data available in the Frances Creek region over Territory Resource Limited's tenement holdings;

(ii) Geophysical targets for iron mineralization were identified within EL23506 from review of the historical and newly acquired data; and

(iii) Limited geological reconnaissance activities and data review.

2012

Territory Iron conducted extensive reviews of the ground gravity surveys and geophysical data review over all of its tenement holdings at Frances Creek, including EL23506. Geophysical targets were delineated within EL23506 and further ground truthing of these targets in the 2010-2011 reporting period were planned by inclement poor weather conditions for approximately the last 4 months of the reporting period made access to the tenement impractical.

2013

Detailed geological mapping by an independent geological consultant, in conjunction with Territory Resources Exploration Department staff

Rock-chip sampling program to further define iron ore mineralisation (30 samples), although this programme failed to trigger additional follow up expenditure.

2014

Exploration activities for the 2014 reporting year for EL23506 was in connection to other Frances Creek assets and overlaps of ground gravity and airborne electromagnetic surveys and minor field reconnaissance visits.

2015

Exploration activities during the reporting period for EL23506 include the drilling of 40 RC drill holes for a total of 2567 metres. Nine hundred and eighty-seven (987) samples were selected for geochemical analysis.

2016

Territory Iron's France Creek mine was put into care and maintenance during this period and

subsequently, exploration activity within EL23506 for the reporting year involved rehabilitation of earlier drill sites, field visits by personnel to evaluate the status of remediation, desktop studies and evaluation of earlier acquired data.

2017

Exploration activity within EL23506 involved desktop studies and evaluation of earlier acquired geological and geophysical data.

2018

Exploration activity within EL23506 consisted primarily of rehabilitation and site visits in conjunction with rehabiliation

2019

No activity and tenement subsequently relinquished.

Conclusions and Recommendations

The tenement was relinquished due to the iron ore potential being limited.

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