First Annual Exploration Report
Whyte River EL 9/2006

For the Period 1/04/2007 to 1/04 2009

Prepared for Manasia Pty Ltd.

by

Simon Tear

BSc (Hons), ARSM, PGEO, MAusIMM, MIOM3, Eur Geol

Hellman & Schofield Pty Ltd

April, 2009

H & S Hellman & Schofield Pty Ltd

Technical specialists to the minerals industry

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Summary

The White River Licence EL9/2006 is located 65km WSW of Burnie in NW Tasmania. The licence is close to the Savage River Mine which lies 5km to the west. The licence is split into two, namely the Eastern and Western sub-areas. This report details a desktop study of the area that has resulted in the identification of exploration targets and has proposed a ground exploration strategy.

Road access to both areas is via the sealed road from the Lyell Highway to the Savage River Mine. Access to other parts of the tenement is by unsealed roads constructed for previous exploration and may be in a state of disrepair. It is likely that helicopter support may be required to access some of more remote target areas.

The geology of the Whyte River licence involves a complex arrangement of five structurally-bound elements within the Dundas Stratotectonic Element. These are:

1. Part of a Late Proterozoic high to moderate grade metamorphic belt (Oonah and Burnie Formations).
2. Cambrian volcanoclastics and mafic lavas associated with the Mt Read Volcanics.
3. Sub-sections of the Heazlewood Ultramafic Complex; an ophiolitic sequence.
4. A structurally bound Ordovician-Siluro-Devono clastic basin.
5. Devonian Granite, the northern margin of the Meredith Granite.

In addition there are localised zones of Quaternary cover.

The principal mineral targets are:-

1. Possible small scale iron ore deposits similar to Savage River e.g. the Whyte River iron ore occurrence.
2. Avebury-style nickel deposits within the ultramafic rocks proximal to the Meredith Granite
3. Irish-style lead/zinc mineralisation in the Gordon Limestone associated with the lead/zinc vein occurrences/mines
4. Platinum group elements (PGE's) associated with the layered ultramafics.
5. Devonian tin/zinc (and tungsten) skarn-type mineralisation, typical of West Tasmania, in proximity to the Meredith Granite and the Cleveland Tin mine.

Past exploration work for the licence area has included regional and detailed stream sediment sampling, localised soil sampling grids, airborne magnetics and Dighem and localised ground magnetic and Sirotem surveys. Historical drilling amounts to approximately 1000m on two prospects at Mt Youngbuck (tungsten) and Godkin Mine (Pb/Zn).

Work completed in this report is an exhaustive data compilation of historical exploration combined with assessment of recent Mineral Resources Tasmania geophysical data. This work has been used to reappraise the geology of the licence and in combination with new geological concepts to develop a list of targets for the licence and allow for the design of an exploration programme.

Contents

1 INTRODUCTION 1

2 LOCATION 1

3 PHYSIOGRAPHY & VEGETATION 1

4 TENURE 5

5 GEOLOGICAL SETTING & MINERALISATION 7
5.1 Regional Geology....7
5.2 Local Geology....11
5.3 Mineralisation....14

6 PREVIOUS COMPETITOR ACTIVITY 16
6.1 Aberfoyle....16
6.1.1 Contact Creek/Scheelite Creek EL16/78....17
6.1.2 Upper Castray River EL16/78....17
6.1.3 Washington Hay EL1/63 & 34/82....18
6.2 Comstaff....18
6.3 ANZECO....18
6.4 RGC....18
6.5 Others....19

7 EXPLORATION POTENTIAL 22

8 RECENT WORK 23

9 PROPOSED WORK 33

10 CONCLUSIONS 35

11 EXPERT COMPETENCY 36

12 REFERENCES 38

APPENDIX 1 39

APPENDIX 2 48

APPENDIX 3 59

GLOSSARY 66

List of Figures

Figure 1 Manasia Tasmanian Licences Location Map 2
Figure 2 Whyte River EL 9/2006 Location Map 3
Figure 3 Licence Map with Digital Elevation Model 4
Figure 4 Whyte River Land Tenure and Use Map 6
Figure 5 Stratotectonic Elements for Tasmania (MRT) 8
Figure 6 Whyte River Geology Map 12
Figure 7 Whyte River Airborne Magnetic Map 13
Figure 8 Whyte River Previous Exploration Work 20
Figure 9 Whyte River Previous Exploration Work Anomaly Map 21
Figure 10 Whyte River Airborne Magnetic Domains 23
Figure 11 Whyte River Structural Interpretation 25
Figure 12 Whyte River Revised Geology Map 27
Figure 13 Whyte River Geochemical Anomalism 29
Figure 14 Whyte River Target Map 32

List of Tables

Table 1 Tasmanian Stratotectonic Elements 7
Table 2 Major Mineral Deposits of Tasmania (Source MRT 2004) 10
Table 3 Whyte River Lead/Zinc Mines 14
Table 4 Summary of Competitor Activity for EL9/2006 16
Table 5 Characterisation of Magnetic Domains 24
Table 6 List of Geochemical Anomaly Thresholds 28
Table 7 List of Geophysical Targets 31
Table 8 Budget for Proposed Work Programme 34

1 Introduction

The purpose of this report is to undertake a literature review of all relevant data for the Whyte River area, held under licence by Manasia NL as EL 9/2006. The review includes searching and summarising previous competitor activity in the general area from reports digitally available online from the Mineral Resources Tasmania ("MRT") Library. In addition government data in the form of digital datasets was also used to formulate a geological synthesis of the area. From the data synthesis a series of exploration targets and target types was created, with the inclusion of a ground based exploration strategy and budget.

All figures in this report have the same projection of MGA94 Zone 55 except where stated.

2 Location

The centre of this exploration licence is approximately 65km south west of the coastal port of Burnie in NW Tasmania. The licence is close to the Savage River Mine which lies 5km to the west. The licence is part of a suite of exploration licences held by Manasia and is split into two, the Eastern and Western sub-areas (Figure 1).

Road access to both areas is via the sealed road from the Lyell Highway to the Savage River Mine (Figure 2). Access to other parts of the tenement will be by unsealed roads constructed for previous exploration and may be in a state of disrepair. It is likely that helicopter support will be required for access to some of the potential target areas.

3 Physiography & Vegetation

The licence area has considerable relief with a moderate increase in the average height occurring in the southern part due to the presence of the Meredith Granite (Figure 3). The digital elevation model is constructed from geophysical data gathered as part of MRT's West Tasmanian Regional Minerals Program (WTRMP).

Vegetation comprises dense forestry (temperate rainforest) making access very difficult, necessitating substantial track cutting in order to reach target areas.

Climate is temperate with substantial annual rainfall typical of Western Tasmania. Temperature ranges from just above freezing in winter to a likely maximum of 30^{o}C in summer.

Figure 1 Manasia Tasmanian Licences Location Map

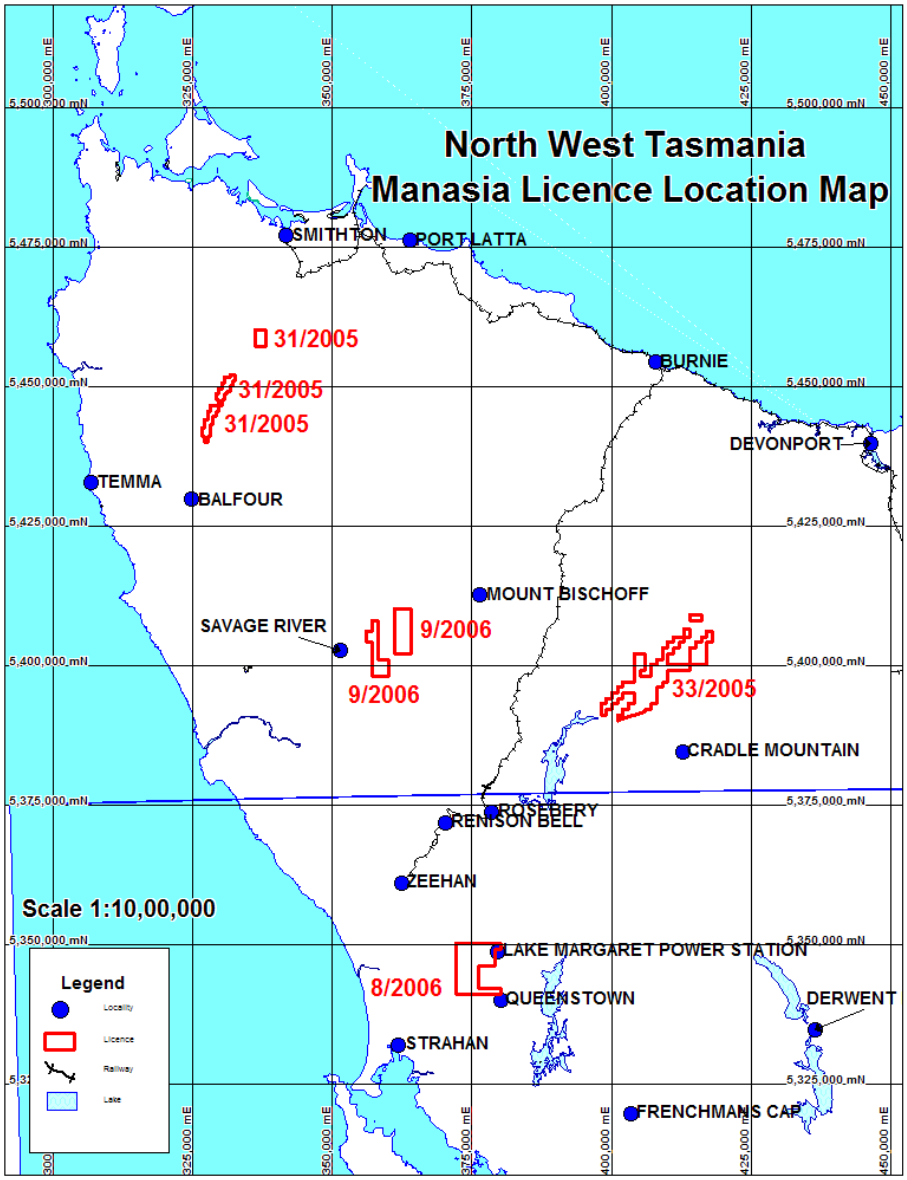
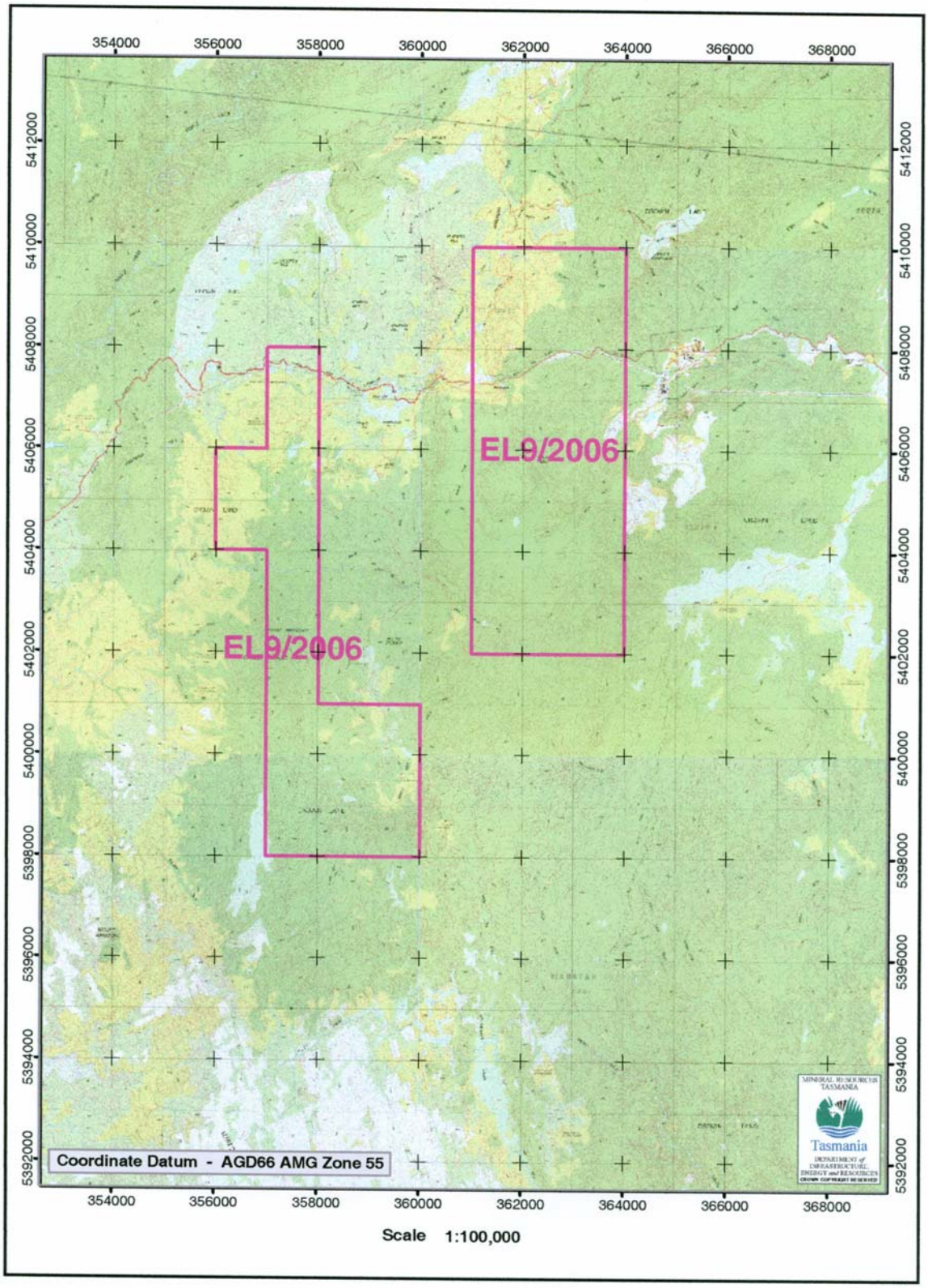
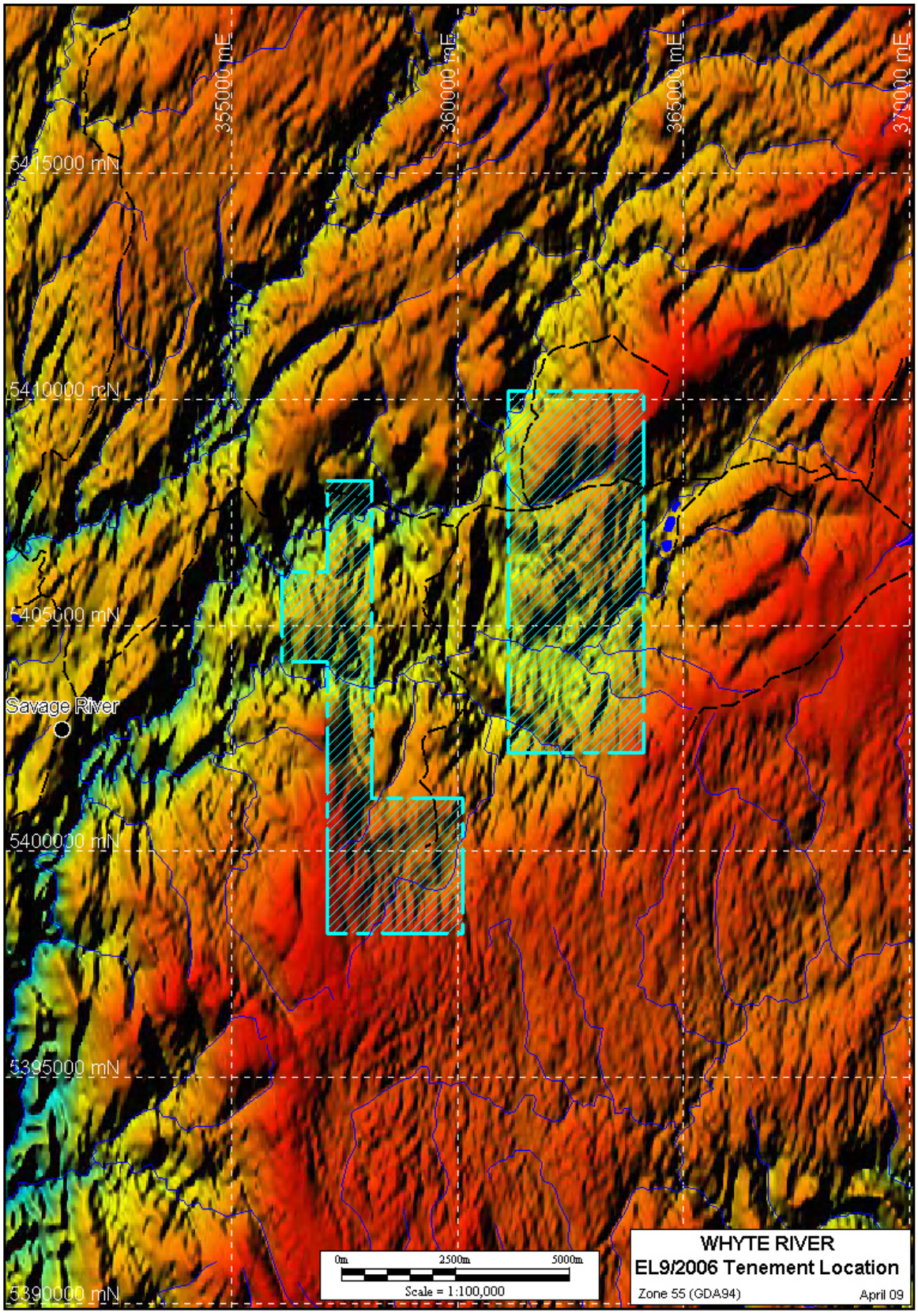


Figure 2 Whyte River EL 9/2006 Location Map



(supplied by MRT)

Figure 3 Licence Map with Digital Elevation Model



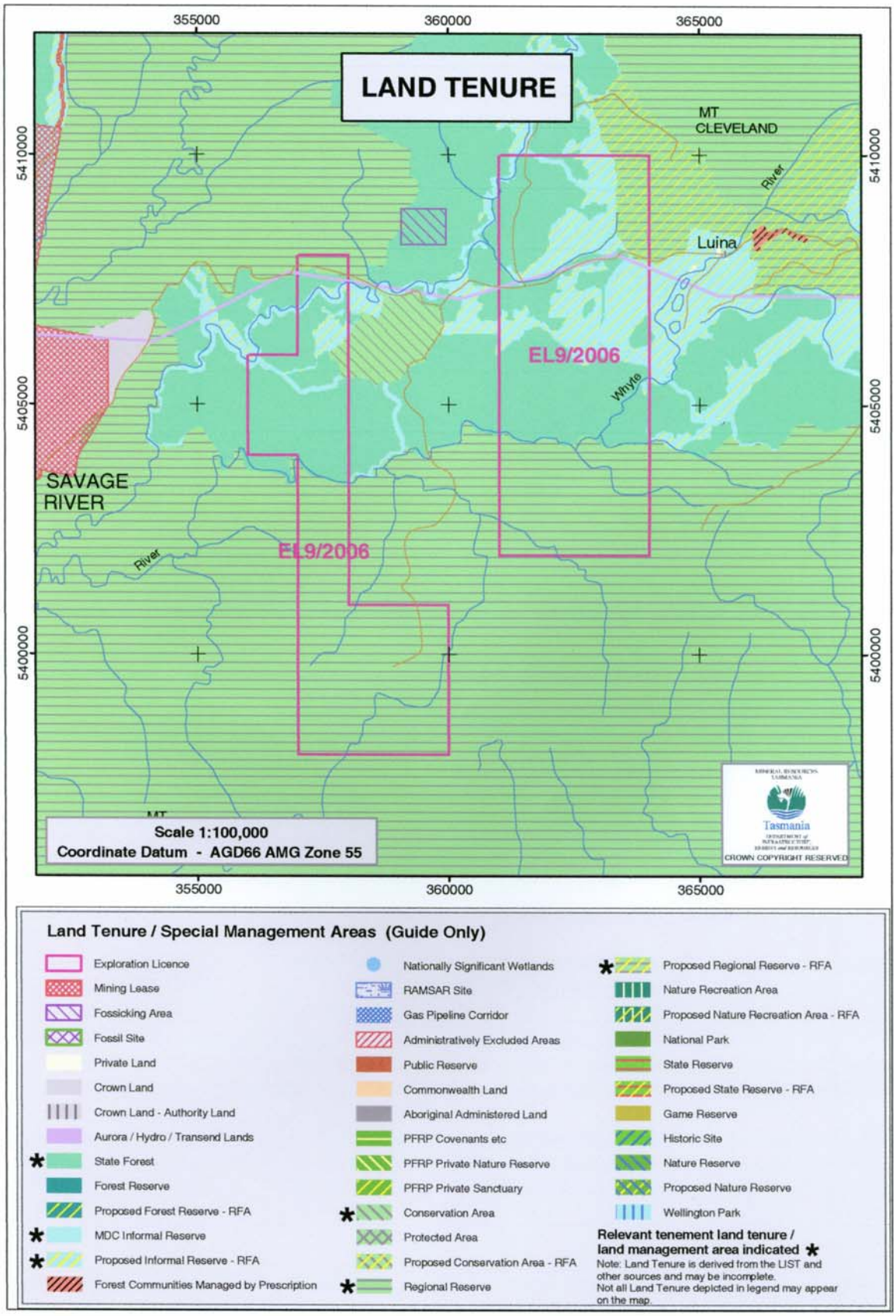
4 Tenure

The land tenure situation in Tasmania is based on a series of classifications that have resulted from the Regional Forestry Agreement (RFA). This act established, in conjunction with other stakeholders, which land is available for exploration and mining e.g. State Forest. Some of the main land use categories that are covered by the RFA, and which allow for mineral exploration and mining subject to a project activities review, are Nature Recreation Areas, Regional Reserves and Conservation Areas. These three categories can be regarded as the same for mineral exploration purposes; they have different objectives for other land users e.g. hunting, forestry etc. An exploration work programme that is planned within any of the above three categories triggers the Mineral Exploration Working Group (MEWG) which reviews the planned work programme, making recommendations and/or modifications to the plan. This group is convened by MRT on behalf of any applicant with the review process undertaken in a timely manner. Other land categories which allow mineral exploration/exploitation include a Forest Reserve which is not available for forestry use; and an MDC Informal Reserve which is a forestry-related category that has a very minor impact on mineral exploration. The main areas where mineral exploration is not permitted are Nature Reserves, State Reserves and National Parks.

For the Whyte River licence 40% of the tenement is State Forest with 40% classified as a Regional Reserve, mainly in the southern half of each sub-licence (Figure 4). The remaining 20% is split between MDC Informal Reserve (3%) and Proposed Informal Reserve (13%), Proposed Regional Reserve (4%). A small conservation area is located in the northern half of the Western sub-licence on its eastern boundary.

The latest downloaded Mine Lease information from MRT indicates that there are no mine leases within Manasia's tenements.

Figure 4 Whyte River Land Tenure and Use Map



(supplied by MRT)

5 Geological Setting & Mineralisation

5.1 Regional Geology

Tasmania has been geologically divided by MRT into seven Proterozoic-Lower Palaeozoic regions or "Stratotectonic Elements", each with a different geological history and economic mineral associations (Table 1). As a result of multiple subduction episodes these elements or terranes were welded together during geological history, which has produced the current geological framework. The Manasia Whyte River exploration licence lies within the Dundas element.

Table 1 Tasmanian Stratotectonic Elements

Element Name	Mineral Deposit Association
Rocky Cape	Savage River Iron Ore, Balfour Copper, Magnesite deposits
Dundas	Rosebery and Hellyer copper, lead & zinc mines, Mt Lyell Copper-Gold Mine, Henty Gold Mine, Renison Tin Mine, Avebury Nickel Deposit
Sheffield	Mount Bischoff Tin Deposit, tungsten skarns and numerous small scale skarn deposits & occurrences
Adamsfield-Jubilee	PGE mining
Northeast Tasmania	Beaconsfield Gold Mine, NE Tasmania Goldfields & Anderson's Creek Nickel

An abbreviated stratotectonic history of Tasmania is detailed below (see also Figure 5):

1. Formation of basement as Early Neoproterozoic shelf clastic sedimentation with an age range of 900-1000 million years ago (ma) followed by a major orogenic event at 760ma, which included granite intrusions. This produced the Rocky Cape Element.

2. A failed rift episode then followed with its associated clastic sedimentation and volcanic inputs ensued by a second, successful rift event that happened in the Late Neoproterozoic to Early Cambrian. This added an assortment of units including mafic lavas to the Rocky Cape Element.

3. An island arc-continent collision east or northeast of Tasmania occurred in the late Early Cambrian and the emplacement of a series of allochthonous slices across Tasmania, including oceanic assemblages (ultramafics and associated mafic lavas) and other units. This formed the Dundas, Sheffield, Tyennan and Adamsfield-Jubilee Elements.

4. A series of Mid to Late Cambrian clastic basins developed post-collision and were concomitant with major calc-alkaline volcanism – the Mt Read Volcanics which contain a world class volcanogenic hosted massive sulphide (VHMS) province.

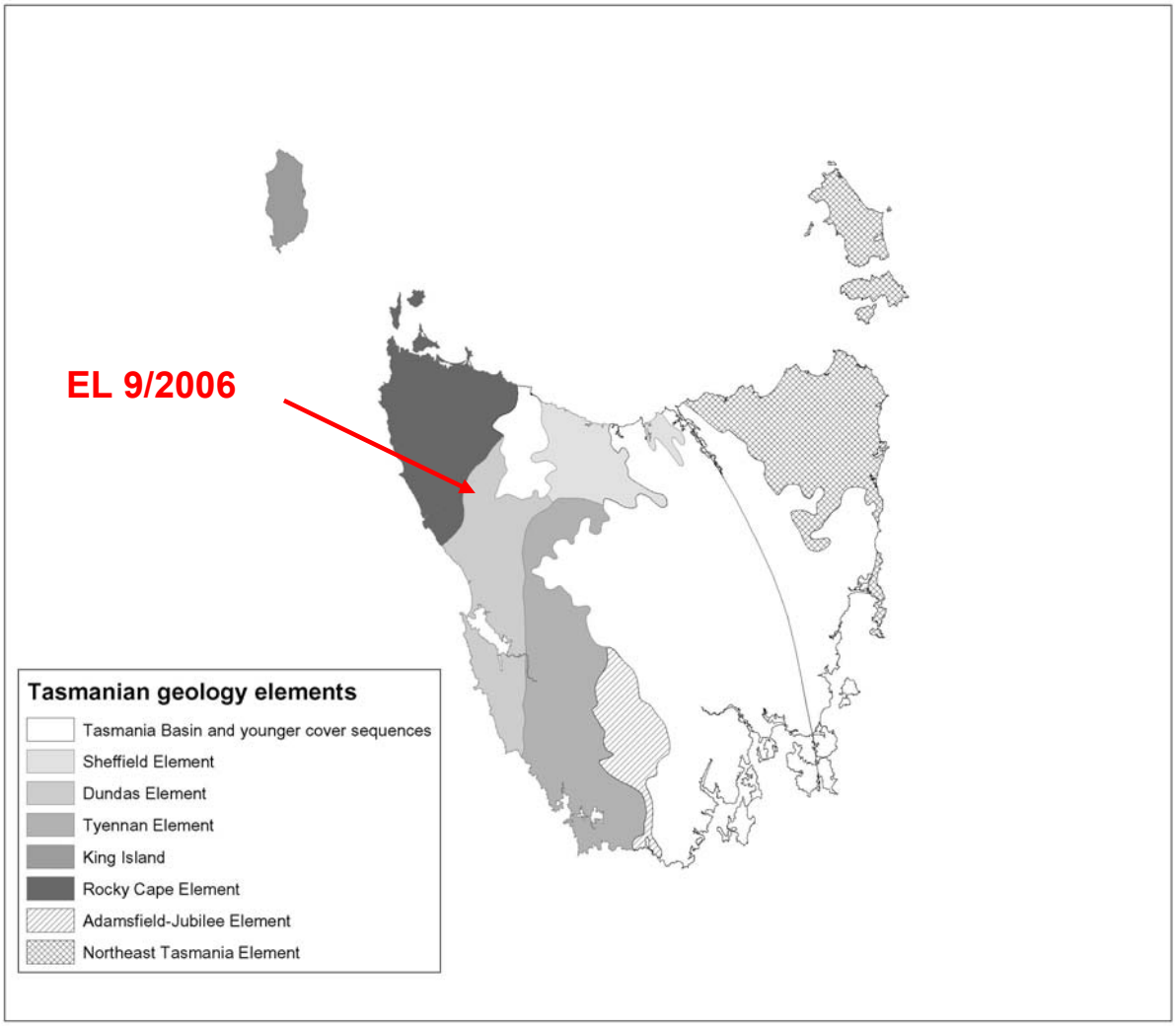
5. This was followed by Late Cambrian orogenesis comprising fold belt style tectonics at 500-510ma and includes some thrust stacking of units.

6. The establishment of a state wide clastic basin began in Late Cambrian times with initial basal conglomerates overlain by limestone lithologies followed by a gradually deepening marine clastic sequence up to Mid Devonian times. At the same time the Northeast Tasmanian Element developed as a turbiditic basin quite distinct from the other elements and lies east of an inferred subduction suture zone.

7. Cessation of sedimentation was caused by uplift and erosion associated with the Tabberabberan Orogeny (Mid-Devonian) and with a subsequent Late Devonian to Early Carboniferous phase of major granitic intrusions. This included the Heemskirk, Meredith and the Northeast Tasmanian Granites, with the first two causing modifications to the Cambrian morphology via structural overprints and hydrothermal alteration effects. These granite intrusions resulted in the formation of many skarn and vein deposits for tin, nickel, lead/zinc etc. The tectonism also resulted in the structurally controlled Henty gold deposit. . In Northeast Tasmania the Devonian-aged intrusions and deformation are associated with gold mineralisation

8. Minor sedimentation including glacial deposits and coal measures occurred in the post-Devonian Tasmania Basin. Substantial amounts of dolerite and basalt were formed as a result of continental break up associated with Jurassic and Tertiary global events. Continental extension and rifting began in Mid Jurassic times with separation occurring in the Mid Cretaceous. Major Jurassic dolerites related to a Gondwana event occur as sills across Tasmania and are similar to the Karoo series in Africa.

Figure 5 Stratotectonic Elements for Tasmania (MRT)



A list of Tasmanian mineral deposits is provided in Table 2.

The Whyte River licence lies peripheral to the eastern margin of the Arthur Metamorphic Complex ("AMC"), or the Arthur Lineament as it is also known. The AMC is an elongate (100km by 10km), NE/SW striking, high metamorphic grade geological belt/tectonic boundary that occurs in NW Tasmania. It lies between the Rocky Cape and Dundas/Sheffield stratotectonic elements and has a metamorphic grade of upper greenschist to amphibolite with localised blueschist facies. The eastern boundaries of the complex are transitional into less deformed and less metamorphosed rocks whereas the western boundary is thought to be an east-dipping thrust contact. The rock sequences within the complex are rich in industrial mineral deposits e.g. iron ore at Savage River, silica sand at Corinna, magnesite at Keith River etc. It is distinguished by a strong and distinctive magnetic signature that extends southwards towards the west of Zeehan.

Current theory for the AMC suggests that it is an allochthonous unit of strongly metamorphosed Rocky Cape Group of sediments i.e. the Neoproterozoic Togari Group. These sediments include mafic volcanics that have been strongly deformed across a major fault/suture zone i.e. a klippen. Offshore seismic data across the AMC indicates a relatively shallow level of penetration for the unit implying that the rock sequences became detached from source, were substantially folded by thrust tectonics and placed into their current position by an east-dipping thrust system. The west margin of the AMC and further west are believed to have been emplaced by west dipping thrusts.

The ultramafics in proximity to the Whyte River licence, on the northern margin of the Meredith Granite, are part of an extensive belt of magnetically distinct units that reappear on the southern margin of the granite and continue south-westwards past Zeehan to include the Avebury Nickel deposit.

There is some evidence from the magnetic data that the AMC and the ultramafic regional belt are related, possibly even the same unit. In addition to this there are carbonate rocks around Zeehan, in part hosting the ultramafic units, which have similarities to the host rocks for the magnesite deposits in the AMC.

Table 2 Major Mineral Deposits of Tasmania (Source MRT 2004)

Mine or Deposit	Mineral Style	Commodity	Tonnages (production + reserves)
Mt Lyell	Volcanic hosted disseminated	Cu, Au	135Mt @ 1.2%Cu and 0.4g/t Au
Rosebery	Volcanic hosted massive sulphide	Zn, Pb, Ag, Cu, Au	28Mt @ 0.6%Cu, 14.3%Zn, 4.3%Pb, 145g/t Ag & 2.4g/t Au
Hellyer	Volcanic hosted massive sulphide	Zn, Pb, Ag, Cu, Au	15.5Mt @ 0.4%Cu, 14.3%Zn, 5.9%Pb, 140g/t Ag & 2.2g/t Au
Que River	Volcanic hosted massive sulphide	Zn, Pb, Ag, Cu, Au	2.5Mt @ 0.45% Cu, 7.5%Pb, 13.6%Zn, 172g/t Ag and 2.8g/t Au
Hercules	Volcanic hosted massive sulphide	Zn, Pb, Ag, Cu, Au	2.6Mt @ 0.4%Cu, 16.7%Zn, 5.2%Pb, 159g/t Ag & 2.7g/t Au
Henty	Structurally controlled/vein	Au	0.5Mt @ 29g/t Au
Beaconsfield	Structurally controlled/veins	Au	1.085Mt @ 24.5g/t (production); 0.67Mt @ 24g/t (resource 1990)
Renison Bell	Skarn	Sn	28Mt @ 1.5% Sn approx
Cleveland	Skarn	Sn	10.3Mt @ 0.78% Sn and 0.45%Cu
Mt Bischoff	Skarn	Sn	10.32Mt @ 1.13% Sn
Queen Hill	Skarn	Sn	3.6Mt @ 1.2% Sn
Savage River	Massive magnetite	Fe	>330Mt @ 35%Fe
Mt Lindsay	Massive magnetite	Fe	20Mt @ 33% Fe
Nelson Bay	Massive magnetite	Fe	6.92Mt @ 38.2% magnetite
Main Creek	Magnesite	Mg	47.4Mt @ 43.4% MgO
Keith River	Magnesite	Mg	29Mt @ 42.8% MgO
King Island	Skarn	W	16.9Mt @ 0.78% WO_3
Kara	Skarn	W	2.2Mt @ 0.8% WO_3
Avebury	Skarn	Ni	14Mt @ 1.04%Ni
Melba Flats	Mafic hosted massive sulphide	Ni	7400t of ore @ 10% Ni & 5% Cu
Oceana	Carbonate hosted	Pb, Ag, Zn	2.15Mt @5.2%Pb, 1.63% Zn & 46g/t Ag
Mariposa	Carbonate hosted	Pb, Ag, Zn	0.57Mt @5.1%Pb, 1.92% Zn & 60g/t Ag
Zeehan Field	Lode/veins	Ag, Pb	0.19Mt Pb, 26Moz Ag, 71t Zn, 945t Cu & 5.3t Sn
Comstock	Carbonate Hosted	Zn, Pb	1.55Mt @3.0%Zn, 3.2% Pb & 66g/t Ag
Balfour	Structurally controlled	Cu	6177t of Cu Ore at 20-30% Cu
Grieves	Carbonate hosted and oxidised	Zn oxides	Small resource <1Mt

5.2 Local Geology

The geology of the Whyte River licence involves a complex arrangement of five structurally-bound elements within the Dundas Stratotectonic Element (Figure 6). These are:

1. Part of the eastern margin of the Late Proterozoic high to moderate grade AMC metamorphic belt (Oonah and Burnie Formations).
2. Cambrian volcanoclastics and mafic lavas associated with the Mt Read Volcanics.
3. Sub-sections of the Heazlewood Ultramafic Complex; a proposed ophiolitic sequence.
4. A structurally bound Ordovician-Siluro-Devono clastic basin.
5. Devonian Granite, the northern margin of the Meredith Granite.

In addition from the MRT mapping there are localised zones of Tertiary basalts and Quaternary cover.

The Western sub-licence has in its southern half an ultramafic embayment within the Meredith Granite. This ultramafic unit comprises serpentinised layered dunite and harzburgite and is likely to have a substantial thermal metamorphic overprint caused by the granite. This presents the opportunity for an Avebury-style nickel deposit. The Avebury Nickel deposit is located near Zeehan in West Tasmania and is essentially a nickel skarn hosted by ophiolitic ultramafics in proximity to a major Devonian granite, the Heemskirk Granite.

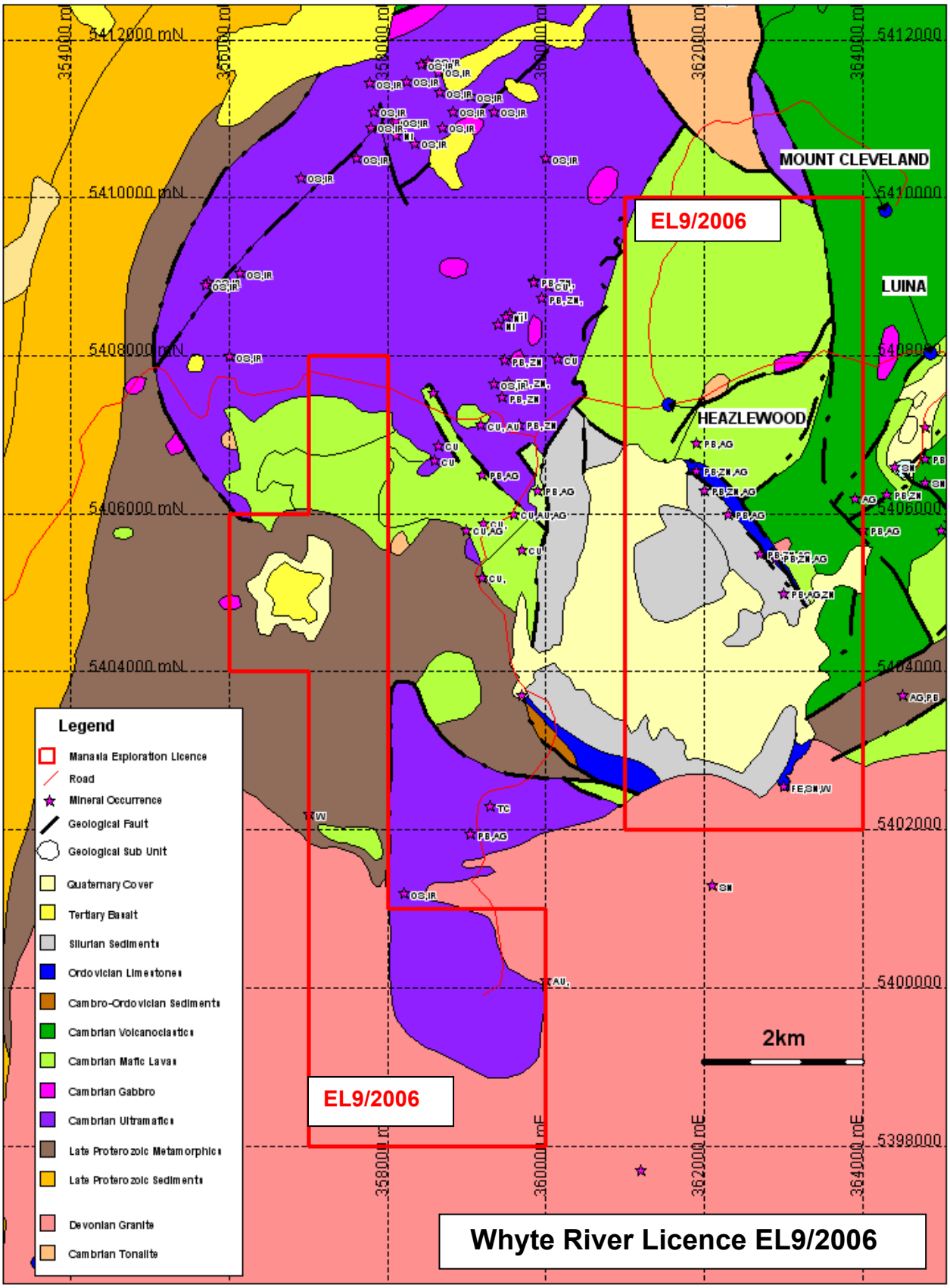
Further north in this western area lie Late Neoproterozoic highly metamorphosed fine grained clastics of the Burnie and Oonah Formations. The metamorphic effect could be a result of either thermal metamorphism associated with the Meredith Granite or an effect associated with the Arthur Lineament. Interestingly within this unit are small, Cambrian-aged gabbro 'plugs' as well as a much larger circular Tertiary basalt feature. Finally the northern quarter of the Western Area contains ultramafics in the form of layered pyroxenite and dunite juxtaposed with Cambrian mafic volcanics that may or may not be genetically related to the ultramafics.

In the Eastern sub-licence, fault bounded Cambrian mafic volcanics similar to those in the Western area make up 30% of the area. These rocks are in faulted contact with Cambrian volcanoclastics of the Mt Read Volcanic Group on the licence's eastern margin. South of the mafic volcanics lies a remnant of the Tasmanian-wide Ordovician to Silurian sedimentary basin. This basin includes the Gordon Limestone at its base, followed by a gradual deepening and fining series of siliciclastics. The Ordovician-Silurian sequence is abutted against the Meredith Granite and is thus likely to have a significant thermal metamorphic overprint with potential for skarn formation. Significant skarn mineralisation is reported east of the licence at the Cleveland Tin deposit, the tungsten mineralisation on the western boundary of the licence at Mt Youngbuck, the Ifield mineral occurrence proximal to the licence and the Whyte River magnetite deposit (from within the licence).

Structurally the area is very complex with all the sub-units mentioned above appearing to be in faulted contact with each other. There is scope for major and localised thrusting to have taken place although this is not obvious in the published mapping.

The airborne magnetic data flown by MRT in 2001 at 200m line spacing indicates several domains within the licence area (Figure 7). It is worth noting that the Whyte River magnetite mineral occurrence is characterised by a distinct, isolated magnetic high hosted by a mapped outcrop of presumed Gordon Limestone.

Figure 6 Whyte River Geology Map



(based on modified MRT mapping)

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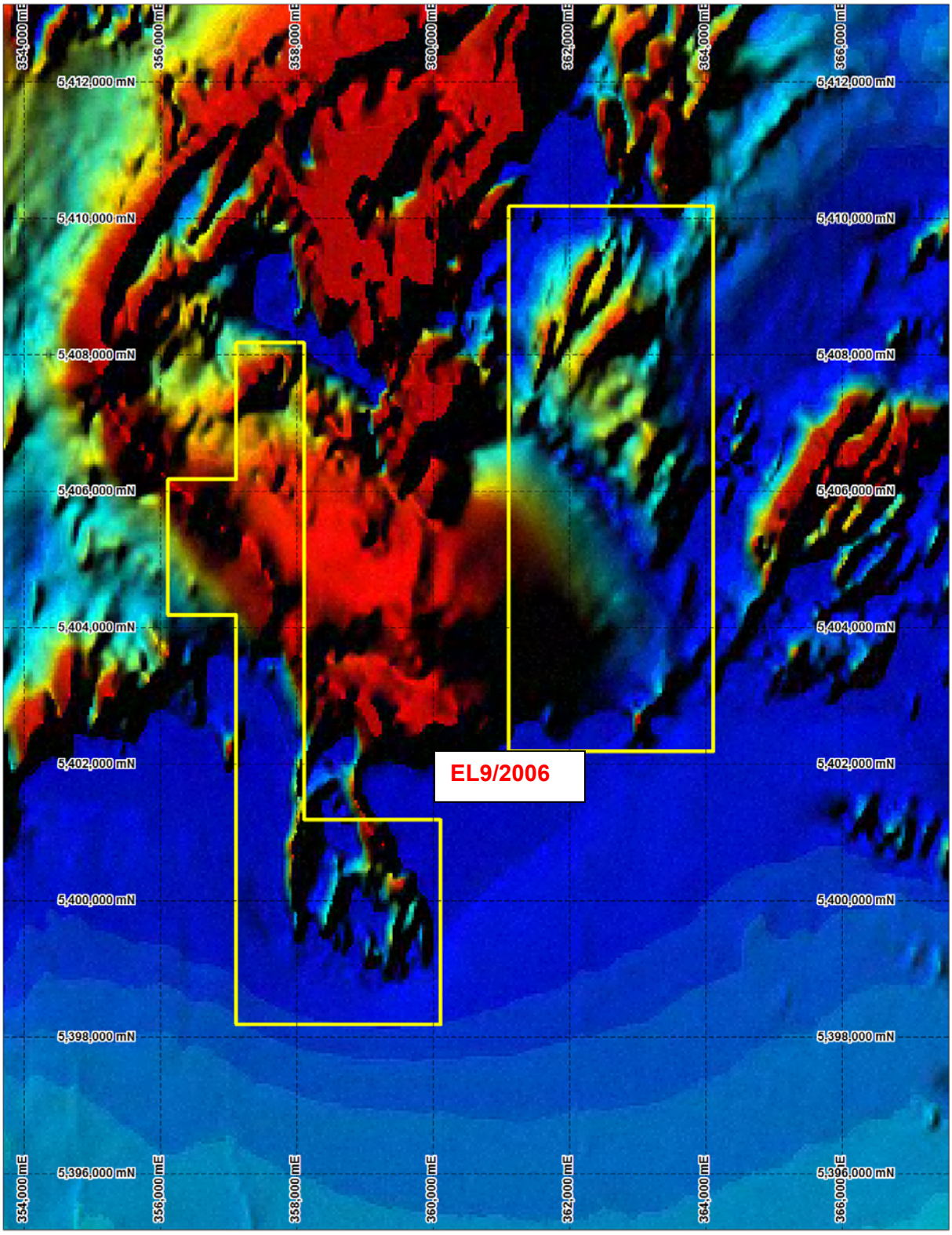
Figure 7 Whyte River Airborne Magnetic Map



(*NW Sun Direction; image supplied by MRT)*

5.3 Mineralisation

In general recorded mineralisation is peripheral to the Whyte River licence. For instance there is a cluster of old base metal mines/lodes in the northern part of the area between the two sub-licences (Figure 6), hosted by ultramafics seemingly on NW structural lines. West of the Eastern sub-licence is a set of mineral occurrences related to the Cleveland Tin deposit i.e. Washington, Washington Hay and Confidence. One of these, Washington, just lies on the Whyte River licence and has been the subject of a considerable amount of exploration by the former owners of Cleveland Tin (Aberfoyle in conjunction with Cominco).

A north west line of old lead mines (possibly from the 19th Century) occurs within the central part of the Eastern sub-licence and are hosted by limestone that is attributed to the Ordovician Gordon Limestone. Such is the mapped and drillhole geology of this area that it would imply that the limestone is thrusted over the Silurian sediments. The lead occurrences have been the subject of historical mining and include diamond drill tests by EZ in the 1940's. Three of the occurrences, Godkin, Discoverer and Bell's Reward were small scale producers (Table 3). At Godkin Cambrian igneous rocks are in contact, possibly via east dipping thrusting, with Ordovician and Silurian sediments including the Gordon Limestone and presumably Moina Sandstone unless the sequence is disturbed by thrusting. The old workings reached a depth of 110' (~ 35m) with up to 3 level developments. A 10' (~3m) wide lode was reported running at 15% Pb, 27% Zn and 49oz/ton Ag. Production figures state that 52.3 tons of lead was produced from 327 tons of ore. At North Godkin mining reached a depth of 210' but encountered barren gossan material. Godkin Extended comprised 3 levels with a sulphide lode between 2 and 3 level grading 4.75% Pb, 30.16% Zn and 13dwt/ton Ag.

Table 3 Whyte River Lead/Zinc Mines

Name	No of Levels	Depth worked to	Tons	Pb %	Ag oz/ton	Zn %	Comment
Godkin	3	110ft	327	15	49	27	2 Lodes
Godkin N	2	210ft	none				Gossan
Godkin Ext	3	?	?				Sulphide lens 30%Zn
Discoverer	4	460ft	none				Ferruginous Lode
Bells Reward	2	154ft	none				Ferruginous Lode
Mt Stewart		200ft	2000	6-14	75-111	?	2 lodes
Mt Wright	2	?	55	58	75	?	
Boxing Day	2	170ft	230	56	88		
Washington	2						Gossan
Washington Hay	1	80ft	40-50	60-75	80-105	?	Inc cerussite & crocoite; green stained carbonates; also significant tin assays
Confidence	3	?	<53	41	?	?	Green stained carbonates

At Discoverer mining reached a depth of 460' below the summit of Mt Bell using 4 adits. However, only barren, ferruginous material was encountered at the expected ore position. For Bell's Reward a 700' adit and a 154' deep shaft were developed only to intersect a few feet of gossanous lode with minor sulphide impregnations hosted by limestone. Diamond drilling by EZ resulted in 3 holes being targeted on Bell's Reward, with a single hole at both Discoverer and Godkin Extended. In all 5 holes were completed for a total of 3157' along the line of the supposed lode. In all five instances, only a few feet of ferruginous material was intersected.

Between the two sub-licences, near their southern limits, lies the Mt Stewart Pb/Zn lode hosted by pyroxenite with the schistosity striking north-south with a vertical dip. Historical mining comprised a main shaft, two smaller shafts and two adits to a total depth of 200'. Two ore shoots are known to have existed, with the lodes up to 200' long and 1-3' wide, with grades of 4%Pb, 8%Zn and 30oz/ton Ag. This is regraded as the biggest producer in the area under interest.

Further north in this central position are the copper lodes of Old Jasper and New Jasper that lie on the same NW line as the Heazlewood and the Boxing Day lead/zinc deposits. The Jasper deposits comprise chalcopyrite and bornite veinlets and 'splashes' in ultramafic rocks or Cambrian mafic lavas, including an 18" wide chalcopyrite vein. A gossan cap occurs to the mineralisation with accompanying copper secondaries of azurite and malachite. Total production is estimated at 188 tons of ore at 20% Cu with 50-70% of the material coming from the New Jasper mine. They differ from the lead/zinc deposits in having very little gangue (quartz & carbonate).

Lord Brassay, a small nickel mine, lies 1km to the east of the northern half of the Eastern sub-licence. Nickel mineralisation consists of veinlets of heazlewoodite, pentlandite, millerite and magnetite in ultramafics. Aspects of mineralisation in these ultramafics rocks are reminiscent of the nickel mineralisation at Avebury and Melba Flats near Zeehan, indeed one open file report makes a reference to the similarities with CUNI at Melba Flats (Groves, 1964). Mt Wright is a lead/zinc lode hosted by altered pyroxenite on a NW strike in line with the Healzewood Lode.

The Mount Youngback scheelite occurrence occurs on the immediate western boundary of the western sub-licence. The mineralisation is coincident with a small order magnetic anomaly hosted by Neoproterozoic rocks close to the shallow north dipping contact of the Meredith Granite. The host rocks are purple and green volcanic sediments, mainly shales and siltstones, which lie 200m from the granite contact. Aberfoyle drilled two diamond holes in 1982 into the magnetic anomaly which corresponded to a mineralised zone up to 36m wide with variable tungsten/scheelite distribution, peaking at 0.75m at 0.68%W. The mineralisation was hosted by calc-silicate hornfels containing banded magnetite and hastingsite and Aberfoyle alluded to the rocks being Crimson Creek equivalents i.e. Early Cambrian.

The Whyte River iron occurrence lies on the SE edge of the Huskisson Syncline. The occurrence consists of an irregular magnetite body hosted by the Gordon Limestone at the latter's immediate contact with the Meredith Granite. The magnetite body was reported by RGC to be several hundred metres long projecting a way form the granite and up to 50m wide. It is mapped at surface as a hematite/magnetite feature. There has been no diamond drilling of the main magnetite body or any along strike test.

A single gold occurrence, Castray River is reported at the granite/ultramafic contact south east of Mt Stewart, just within the Whyte River licence boundary and comprises anomalous gold values in stream sediments.

Within the greater area of the Heazlewood Ultramafic Complex beyond the current licence there is substantial ultramafic outcrop with recorded instances of osmium and iridium (two members of the platinum group elements ("PGE")), most notably in the serpentinised layered dunite and harzburgite unit. The area is also known for alluvial osmirdium deposits (an alloy of osmium and iridium) but no significant bedrock sources have been noted in the literature.

About 1km south west of the Mt Stewart Pb/Zn mine is the reported occurrence of a rich seam of osmiridium that was historically worked, presumed to be Humphries Creek. The mineralisation comprises a well defined vein of limonitic clay and talc, 3-18" thick with a 030° strike and steep south east dip. No production figures are available. This occurrence lies just inside the western sub-licence. The MRT mineral occurrence database suggests that Humphries Creek is an alluvial deposit and therefore it ought to be checked to confirm the mineralisation style.

6 Previous Competitor Activity

The following table summarises historical work completed on the area represented by the current Whyte River licence EL9/2006 (Table 4). Modern exploration of the area began in the late 1960's but the current licence was always divided between explorers e.g. Aberfoyle and Comstaff (Anglo American). Work undertaken by previous explorers comprised stream geochemistry and airborne EM/magnetic surveys with some ground follow up testing identified anomalies. There has been very limited diamond drilling on the licence area i.e. at Mt Youngbuck and Godkin. To date no-one has used the recent WTMRP airborne geophysical data to assist with geological interpretation and target selection. Allegiance flew the licence area with helimag post the WTMRP work but provided only a limited interpretation for the current Manasia licence. A map detailing previous exploration is included as Figure 8 and a full listing of previous explorer's reports relevant to the area is included in Appendix 1.

Table 4 Summary of Competitor Activity for EL9/2006

Company	Date	Licence	Work Done	MRT Report	Comment
Aberfoyle	1967-1982	1/63	Soil sampling, ground magnetics, trenching and diamond drilling	81-1539	Western extensions of Cleveland stratigraphy
Aberfoyle	1978-1985	16/78	Stream sediment geochemistry; Dighem and diamond drilling at Mt Youngbuck	85-2390	Regional Sn-W search
Aberfoyle	1984-8	34/82	Drilling and data compilation	87-2717	JV with Billiton; work jet east of licence
Comstaff	1968-1985	1/68	Stream sediment geochemistry	85-2316	Regional search
EZ	1949	n/a	Diamond drilling of the Godkin Pb/Zn mines	49-0101	Carbonate hosted lead/zinc
ANZECO	1976	11/75	Pan concentrate geochemistry	76-1179	Regional search for tin
Pasminco	1993-1995	49/94	Prospectivity analysis with GIS	96-3954	JV with MPI Gold
Pasminco	1993-1995	17/93	Prospectivity analysis with GIS	97-4003	JV with MPI Gold
CRAE	1994-1995	36/92	Stream, soil & rock geochemistry	95-3777	Nickel in ultramafics
Metals Exploration	1885-9	21/85	Stream, soil & rock geochemistry; trenching & drilling	89-3054	PGE & Au in ultramafic
RGC	1990-2	12/90 & 15/90	Ground geophysics and soil geochemistry	95-3363	Whyte River Magnetite
Allegiance Mining NL	2001-5	14/01	Helimag	Annual Report 2004	Last work completed on licence

Details of airborne geophysical surveys are included in Appendix 2 whilst relevant maps from some of the open file reports are included in Appendix 3. A map showing anomalism associated with the historical work is included as Figure 9. The majority of past work was completed by Aberfoyle.

6.1 Aberfoyle

Aberfoyle's early work (1970's) was focussed on extensions of the Cleveland Tin deposit, located east of the current licence, and using the exploration model developed for that deposit. This was expanded to cover a larger area when more ground became available (in the

1980's), and included the use of airborne surveys. Aberfoyle had tin-tungsten as its commodity focus with four exploration models:

1. Replacement tin of the Cleveland-type
2. Contact tin skarns of the Mt Lindsay-Ramsay type
3. Greisen and breccia-pipe tin in marginal granite zones
4. Reactive carbonate horizons adjacent to the Meredith Granite (Kara-type)

However most work in the area terminated in 1984 due to the discovery of the Hellyer Pb/Zn Mine, which involved a substantial reallocation of resources and personnel combined with Aberfoyle's perception of a falling tin/tungsten market. As a result the area was re-licenced as EL32/84 surrounding Cleveland mine lease 84M/84, the former of which became a JV with Billiton. The Washington and Washington Hay area, south west of Cleveland was subject to a detailed exploration programme of mapping, geochemical sampling, ground-based geophysics and then two diamond drillholes.

Aberfoyle's main areas of interest within the current EL 9/2006 were:

6.1.1 Contact Creek/Scheelite Creek EL16/78

The Scheelite Creek area comprises a monotonous Cambrian/Neoproterozoic rocks (?Crimson Creek), purple/green volcanoclastic sandstones, siltstones and shales, in immediate proximity to the Meredith Granite. A 1km contact metamorphic halo with cordierite porphyroblasts is noted and has been observed in the magnetic data, similar to the halo found around the Heemskirk Granite near Zeehan.

Exploration work consisted of regional mapping, stream sediment (Sn/W only) and soil sampling (25m site spacing on tracks) with a Dighem II follow up for approximately 70 line km. This work located the Mt Youngbuck anomaly which was followed up with 10m site spaced soil geochemistry, ground magnetics and a ground-based Sirotem survey of 5 cross lines for 750m of strike. The original EM anomaly was thought to be a carbonaceous black shale although the ground magnetics indicated a co-incident anomaly with the EM data. Mapping identified a magnetite-hastingsite-scheelite skarn approximately 10m wide with 500m of strike length, terminated in the south by the granite and possibly by a fault in the north. Follow up stream sediment sampling failed to locate the significant anomalism seen in the heavy mineral concentrate samples and the base-of-slope soil sampling. As a result two diamond drillholes, MY1 and MY2, were completed for a total of 229.4m. The two drillholes intersected the same calc-silicate hornfels (skarn) unit with anomalous tungsten as scheelite. MY1 recorded a skarn zone with sporadic tungsten values from 35.92m to 87m with a peak of 6800ppm W over 0.75m from 78.95m whilst MY2 had 0.4% W over 2m from 50.5m. Tin values were <900ppm. Exploration potential for this area appears to be very limited.

Contact Creek is 3km west of Scheelite Creek and is beyond the current licence.

6.1.2 Upper Castray River EL16/78

The regional stream sediment sampling at Upper Castray identified anomalous Sn and W in river catchment. In this area Cambrian ultramafics are in contact with the Meredith Granite. Mineralisation in the immediate area is reported to comprise greisen veins with cassiterite, quartz-sulphide veins and quartz-tourmaline veins, generally within the granite. Most of the anomalism was attributed to the small greisen veins in the granite however it was noted that the granite contact with the ultramafics returned anomalous zinc and tin stream sediment values. Follow up work produced a discrete anomaly at Ifield which lies just beyond the SW corner of the Eastern sub-licence. Soil sampling close to the stream

anomaly delineated a 200m long by 80m wide ENE-striking tin-lead-zinc anomaly attributed to a magnetite/pyroxenite skarn derived from metasomatic replacement of either Cambrian ultramafics or Ordovician limestones adjacent to the Meredith Granite. Trenching was reported as uncovering a 10m wide magnetite skarn averaging 3715ppm tin (plus anomalous base metals) with only background tungsten values. The tin mineralisation in the trenches was examined by thin/polished section with no cassiterite being identified. The anomalous tin is attributed to being within the mineral lattice of silicates (and borates) and was deemed to be mineralogically complex.

It may be possible that the host rocks are Neoproterozoic ultramafics and carbonates associated with the Savage River/Arthur Lineament suite of rocks. The anomaly appears to be open to the west within the granite but is truncated in the east; it has not been drilled. Exploration potential appears to be limited.

6.1.3 Washington Hay EL1/63 & 34/82

Work by Aberfoyle identified at Washington Hay similar stratigraphy to the Cleveland Mine. Follow up soil and ground geophysics identified a drill target that was tested with two drillholes, C1510 and C1515. The drilling intersected chocolate shales, ultrabasics and sandstones, which were considered as unfavourable for Cleveland style mineralisation. However mineralised fault zones were encountered comprising small scale sulphide veins, up to 5% Pb and 1.5% Zn, which were regraded as explaining the surface IP and geochemical anomalism. The westernmost drill hole lies 80m east of the Eastern sub-licence boundary. It appears that geological complexities associated with stratigraphy caused a downgrading of the area, some additional mapping was completed after the drilling but no conclusions were arrived at. It should be noted that the Washington Hay mine contained crocoite which is thought to be associated with ultramafic rock types as demonstrated further south at Zeehan. There may be some exploration potential for Cleveland-style mineralisation on EL 9/2006.

6.2 Comstaff

A substantial regional stream sediment sampling programme was completed in the search for initially nickel and then sediment hosted base metal mineralisation. However most of the Comstaff work lies to the north of the current licence.

6.3 ANZECO

ANZECO held the southern half of the current licence area in the mid 1970's and undertook a reasonably widespread stream sediment sampling programme including heavy mineral sampling, presumed to be pan concentrates. The main target commodity was tin/tungsten, but in some instances nickel was included in the assaying and this has shown interesting results not withstanding that it is from pan concentrates. Near Mt Stewart five anomalous sample sites (>100ppm Ni) over an inferred 'strike' length of 4km appear to be draining the same 'stratigraphic' sequence of ultramafics rocks. Another series of seemingly anomalous nickel assays occurred on the Whyte River close to the southern margin of the Eastern sub-licence. The weak nickel anomalism may be considered to offer exploration potential in these areas.

6.4 RGC

RGC acquired the eastern part of the current area in the early 1990's and tested an isolated but high amplitude magnetic anomaly at the contact between the supposed Gordon Limestone and the Meredith Granite – the Whyte River Magnetite deposit. A ground magnetic grid of 3 line kilometres was completed but produced a rather odd shape anomaly that RGC attributed to the fact that the main anomalous grid line ran sub-parallel to the granite contact and hence sub-parallel to the magnetic skarn. Mapping in the area was difficult due to dense vegetation but appeared to report a NNE strike to the hematite/magnetite mineralisation for several 100's of metres, albeit of reduced magnetic intensity.

Rock chip sampling of the magnetite showed tin values averaging 300ppm with a peak value of 0.1%, with weakly anomalous levels of arsenic, lead and zinc. There was no soil sample coverage. No assays for iron were completed and there is the possibility that there maybe more hematite than magnetite over the inferred strike length of the mineralisation. If the hematite was produced from weathering then there is the possibility that the surface expression of any base metal mineralisation may be considerably reduced due to leaching. Follow up exploration is required on this anomaly.

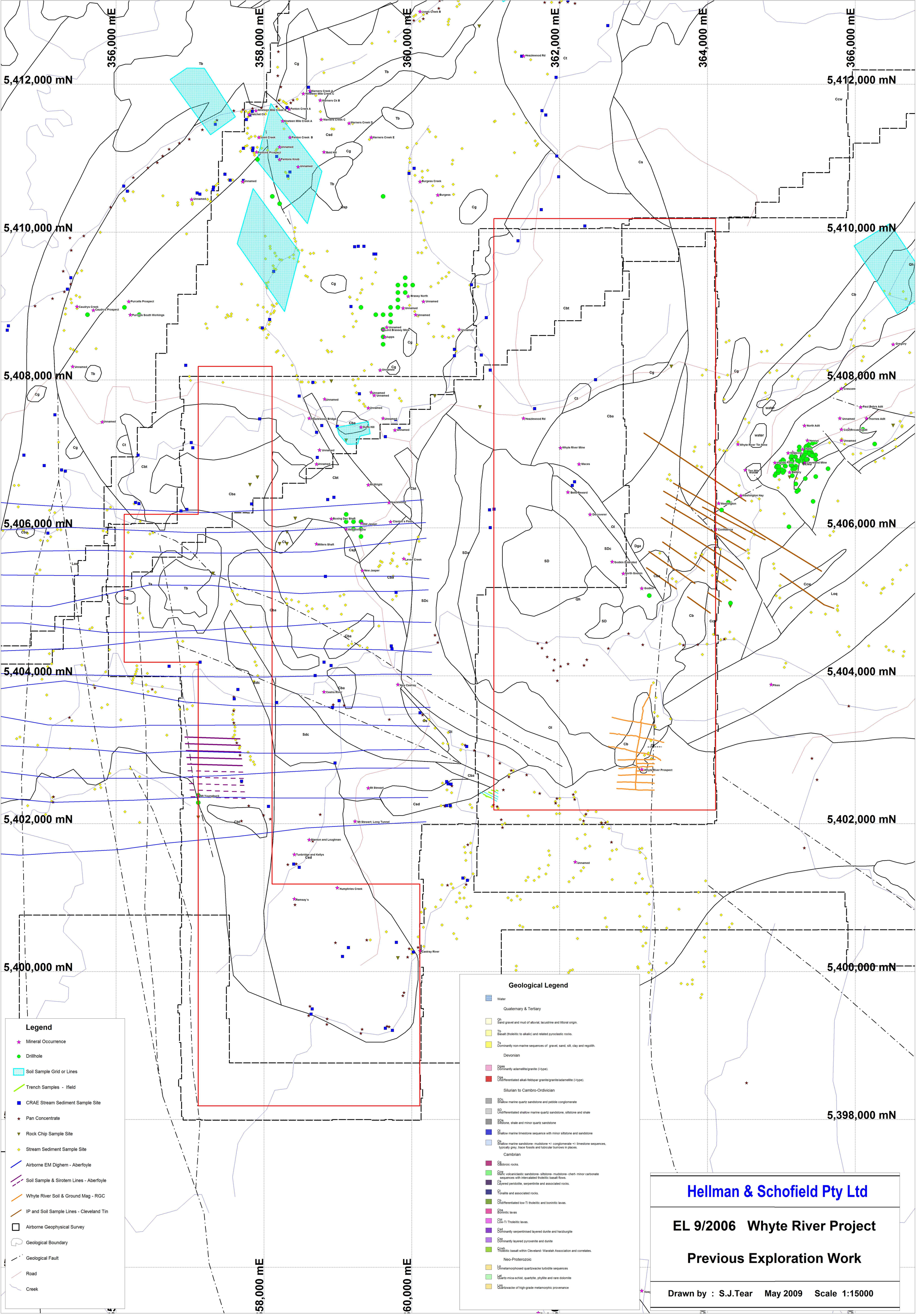
6.5 Others

CRAE held the majority of the licence area as EL 36/92 searching for sulphide nickel mineralisation similar to Honeymoon Well in WA. Work was focussed on the ultramafics of the Heazlewood Ultramafic Complex, with >100 stream sediment sample sites (including multi-element data, none of which is in the MRT geochemical database), some reconnaissance soil and rock chip sampling. Attention was given to the Duffs Hill prospect which lies between the two sub-licence areas of Manasia's licence. The main ultramafic areas stand out in the stream geochemical data but the southern area of ultramafics at Humphries Creek/Mt Stewart (as mapped by MRT) is conspicuously different and includes some anomalous nickel and arsenic values coincident with the earlier anomalous pan concentrate data.

Gold mineralisation has been conspicuous by its absence in the previous exploration, despite being tested for. MPI Gold acquired a large tract of ground covering the whole of the licence area (licences EL17/93, EL23/96 and EL23/96) but focussed its attention on the Magnet Mine, NE of the Whyte River licence. Most of this ground was then joint ventured to Pasminco (in 1993-6) who performed a "prospectivity analysis" on the licences. This involved compiling regional datasets (but not with the 2001 WTRMP airborne geophysics) and using in-house techniques to assess the prospectivity of the area. Some attention was given to some isolated, high amplitude, magnetic anomalies on the northern margin of the Meredith Granite. The work concluded that the area was not prospective, but the project was probably hampered by the daunting task of data compilation, a lack of multi-element stream sediment data, old patchwork airborne geophysical data and geological maps that were in need of revising. The aim of this report is to perform a similar exercise only this time with much more coherent data, advanced software and a much increased geological understanding of the geology of West Tasmania.

In 2001 the area once again became the focus of nickel exploration with a wholly owned subsidiary of Allegiance Mining NL, Heazle Pty Ltd, holding EL 14/2001 to look for Avebury style mineralisation. Part of its exploration work involved a detailed helimag survey flown over the licence which included part of EL9/2006. This work was interpreted to show favourable outcomes for the Avebury style mineralisation as defined by Allegiance. The most prospective ground in Allegiance's view was retained with the relinquished areas making up EL9/2006.

In summary the licence area of EL9/2006 has had minimal coordinated exploration completed in recent times, it has suffered from a lack of regional data and perspective, which as a result means the area is under explored.



Legend

- Mineral Occurrence
- Drillhole
- Soil Sample Grid or Lines
- Trench Samples - Ifield
- CRAE Stream Sediment Sample Site
- Pan Concentrate
- Rock Chip Sample Site
- Stream Sediment Sample Site
- Airborne EM Dighem - Aberfoyle
- Soil Sample & Sirotem Lines - Aberfoyle
- Whyte River Soil & Ground Mag - RGC
- IP and Soil Sample Lines - Cleveland Tin
- Airborne Geophysical Survey
- Geological Boundary
- Geological Fault
- Road
- Creek

Geological Legend

Water

Quaternary & Tertiary

- Qh — Sand gravel and mud of alluvial, lacustrine and littoral origin.
- Tb — Basalt (tholeiitic to alkalic) and related pyroclastic rocks.
- Ts — Dominantly non-marine sequences of gravel, sand, silt, clay and regolith.

Devonian

- Dgaa — Dominantly adamellite/granite (I-type).
- Dga — Undifferentiated alkali-feldspar granite/granite/adamellite (I-type).

Silurian to Cambro-Ordivician

- SDc — Shallow marine quartz sandstone and pebble conglomerate
- SD — Undifferentiated shallow marine quartz sandstone, siltstone and shale
- SDa — Siltstone, shale and minor quartz sandstone
- Ol — Shallow marine limestone sequence with minor siltstone and sandstone
- Os — Shallow marine sandstone- mudstone +/- conglomerate +/- limestone sequences, typically grey, trace fossils and tubicular burrows in places.

Cambrian

- Cg — Gabbroic rocks.
- Ccw — Mafic volcaniclastic sandstone- siltstone- mudstone- chert- minor carbonate sequences with intercalated tholeiitic basalt flows.
- Cs — Layered peridotite, serpentinite and associated rocks.
- Ct — Tonalite and associated rocks.
- Cb — Undifferentiated low-Ti tholeiitic and boninitic lavas.
- Cba — Boninitic lavas
- Cbt — Low-Ti Tholeiitic lavas.
- Csd — Dominantly serpentinised layered dunite and harzburgite
- Csp — Dominantly layered pyroxenite and dunite
- Ccwb — Tholeiitic basalt within Cleveland- Waratah Association and correlates.

Neo-Proterozoic

- Lo — Unmetamorphosed quartzwacke turbidite sequences
- Let — Quartz-mica-schist, quartzite, phyllite and rare dolomite
- Loq — Quartzwacke of high-grade metamorphic provenance

Hellman & Schofield Pty Ltd

EL 9/2006 Whyte River Project

Previous Exploration Work

Drawn by : S.J.Tear May 2009 Scale 1:15000

Legend

- Manasia Exploration Licence
- Mineral/Mine Occurrence
- Old Adit/Dump
- Historical Drillhole
- Historical Prospect
- Ground UTEM Anomaly
- Dighem Anomaly
- Dighem Anomaly trend
- Anomalous Rock Chip Sample
- >200ppm Tin Soil Anomaly
- Anomalous Nickel Catchment
- Anomalous Trend in Nickel Pan Concentrates
- Anomalous Tin-Tungsten Catchment
- Anomalous Copper-Zinc Catchment
- CRAE Anomalous Stream Sediments - Nickel
- CRAE Anomalous Stream Sediments - Arsenic
- Magnetite - Hematite Skarn
- Isolated Airborne Magnetic Anomaly
- Creek
- Road

358,000 mE
360,000 mE
362,000 mE
364,000 mE
366,000 mE
5,412,000 mN
5,410,000 mN
5,408,000 mN
5,406,000 mN
5,404,000 mN
5,402,000 mN
5,400,000 mN
5,398,000 mN

Washington Hay - Confidence Geochemical Anomaly

Mt Youngbuck Tungsten Skarn

Ifield Tin Skarn

Whyte River Magnetite Skarn

Godkin Line of Lode Carbonate Hosted Lead/Zinc

Humphries Creek Anomalous Nickel Stream Sediment Line

Hellman & Schofield Pty Ltd

EL 9/2006 Whyte River Project

Historical Exploration Anomalies

Drawn by : S.J.Tear May 2009 Scale 1:15000

7 Exploration Potential

In assessing the exploration potential of the Whyte River licence a key element is a reinterpreted geological map based on the relatively new airborne geophysical data from MRT and Allegiance. The area contains a variety of geological elements that could result in several different types of target commodity. The principal targets are:

1. Possible small scale iron ore deposits e.g. the Whyte River magnetite occurrence, with the possibility of near surface hematite deposits that could represent direct shipping ore. Other discrete magnetic highs may represent small scale iron ore deposits.

2. Avebury-style nickel deposits within the ultramafic rocks proximal to the Meredith Granite contact. There is plenty of skarn type mineralisation in the area eg Mt Youngbuck, Ifield and Cleveland Tin.

3. Platinum group elements (PGE's) associated with the layered ultramafics. This is a relatively new concept involving locating stratiform PGE mineralisation within the igneous stratigraphy of an ultramafic magma chamber. Mineralisation can be found at horizons of sulphur saturation in the stratigraphy and/or disseminated chromite layering.

4. Irish-style lead/zinc mineralisation associated with the lead/zinc vein occurrences hosted by the Gordon Limestone.

5. Devonian tin/zinc (and tungsten) skarn-type mineralisation, typical of West Tasmania, in proximity to the Meredith Granite.

6. Possible along strike potential associated with the Cleveland tin mine.

A secondary and more speculative target might include nickel of a similar style to the CUNI deposits near Zeehan.

Manasia has an opportunistic approach to target commodities rather than restricting the exploration search to one particular commodity and this report has been prepared with this philosophy in mind.

8 Recent Work

Recent work was focussed on compiling data to produce a new geological interpretation. This has included a review of the available MRT airborne geophysical data, both total magnetic intensity (TMI) and first vertical derivatives (1VD). A series of magnetic domains are identified and are shown below on the tmi_nwsun MRT airborne magnetic image (Figure 10). Magnetic characterisation of the domains is included below as Table 5.

Figure 10 Whyte River Airborne Magnetic Domains

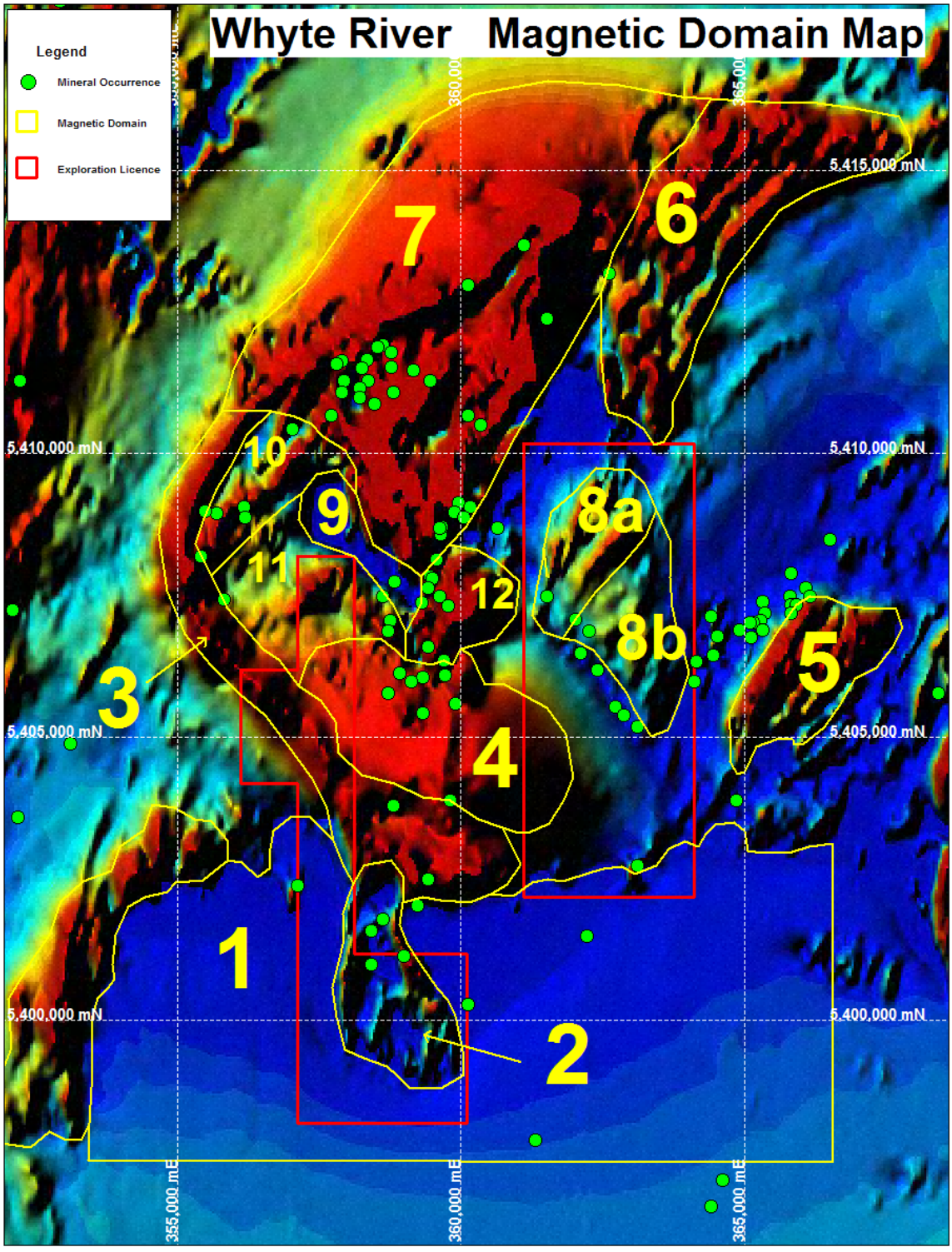
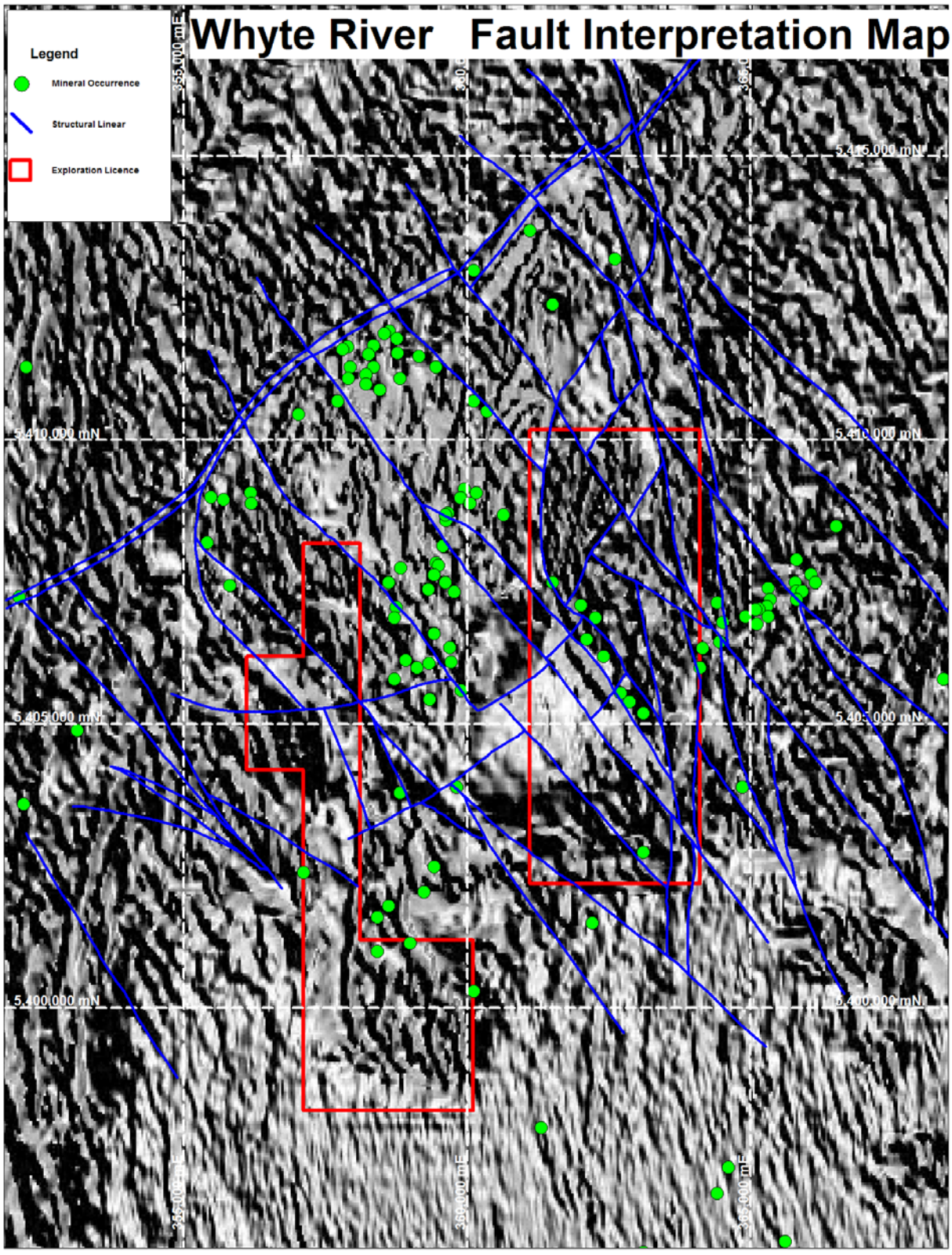


Table 5 Characterisation of Magnetic Domains

Unit	Magnetic Character	MRT Unit	Comment
1	Very flat and low level magnetism	Meredith Granite	The margin of the granite is difficult to pin-point in a number of cases
2	Distinctive moderate level orthogonal highs with 'blocks' of lows	Cambrian ultramafics (Csd); dunite & harzburgite	Possible roof pendant of ultramafics surrounded by granite; has no magnetic similarity with the ultramafics to the north
3	A curved linear high	Bounding unit to the Heazlewood Ultramafics	The curve feature represents a major change in the regional structural fabric and is interpreted as a fault, maybe a thrust fault or perhaps an ultramafic dyke or magnetite
4	A broad high	Ordovician to Devonian basin (in east) juxtaposed with Cambrian boninitic lavas (Cba) in west	Possibly a deep seated feature reminiscent of similar feature near Melba Flat and Comstock, both near Zeehan with nearby nickel mineralisation
5	A series of narrow magnetic highs striking NE	Cambrian tholeiitic basalt inc spillites (Ccwb)	Lies adjacent to the Cleveland Tin Mine. The mine itself is hosted in stratigraphy with a magnetic low
6	A series of narrow magnetic highs striking NE	Cambrian tholeiitic basalt inc spillites (Ccwb)	Magnetic character looks similar to Unit 5
7	A large scale anomaly with a large amplitude	Heazlewood Ultramafics; Csd (LDH) overlain by Csp (LDP)	A domain subdivision is more obvious in the 1 Vertical Derivative mag data; Unit 3 could be extended to act as the subdivide
8a	Small linear moderately magnetic highs	Cambrian tholeiitic volcanics (Cbt)	Abuts the NW striking fault that cuts through the Cleveland Tin deposit
8b	Slight difference in amplitude and orientation of magnetic highs to 8a	Cambrian tholeiitic & boninitic volcanic (Cb & Cba)	The Godkin Pb/Zn mines lie on the SW margin
9	Discrete magnetic low	Cambrian layered pyroxenite and dunite (Csp)	Maybe similar to the magnetic low area SW of unit 6; feature appears to be a major structural break
10	NE striking magnetic linears in weak to magnetic background	Cambrian layered pyroxenite & dunite (Csp)	Noted as containing several mineral occurrences for "platinoids" near contact
11	NE striking magnetic linears in weak to magnetic background	Cambrian layered pyroxenite & dunite (Csp) juxtaposed with tholeiitic & boninitic volcanics (Cb & Cba)	Unit could be similar to Unit 10; may represent a mafic magma chamber younging to south east i.e. up sequence; distinct anomaly at ultramafic contact with lavas
12	Discrete magnetic high	Cambrian layered pyroxenite & dunite (Csp)	No obvious reason for anomaly but outside the licence area

Use of the MRT first vertical derivative image tmi_1vd_nesun has enabled the completion of a structural interpretation for the general licence area (Figure 11). This combined with the magnetic domain interpretation appears to contradict some of the original geological mapping.

Figure 11 Whyte River Structural Interpretation



Key features to the structural interpretation are:

1. There is a dominant later NW striking fault set, potentially with limited dextral movement. Some of these structures appear to cut into the Meredith Granite. There is occasional bifurcation of these structures.

2. The NW boundary of the Cambrian ultramafics appears to curve round and strike south east at its southern end. This is believed to be a major fault structure, possibly an east dipping thrust fault. The NE striking section of the contact appears to continue to the SW after parting from the ultramafic at the change in strike of the latter's contact.

3. There appears to be a complicated NNW striking structural zone through the eastern half of the Eastern sub-licence, which appears to be prior to the NW structural trend.

4. The broad magnetic anomaly associated with the eastern half of domain 4 is recognisable in the 1VD data and may correspond to a deep ultramafic feature.

5. There appears to be a structural corridor running NW-SE across the upper half of the Western sub-licence.

A combination of the magnetic domaining, the structural interpretation and the MRT geology has been used to generate a revised geological interpretation (Figure 12). The new geology map can be used to assess the exploration potential of previous geochemical anomalism and untested geophysical anomalies for a variety of commodity types.

A series of geological observations for the Manasia licence area derived from the geological interpretation and the open file review are included below:

- The Tertiary basalt outlier in the western sub-licence does not show up in the magnetic data and its presence is questioned.

- The Whyte River Magnetite is the strongest of the solitary magnetic anomalies close to the Meredith Granite but the anomaly size limits the likely extent of the magnetite.

- The Ifield skarn does not show up in the magnetic data whereas the Mt Youngbuck tungsten deposit is very distinct.

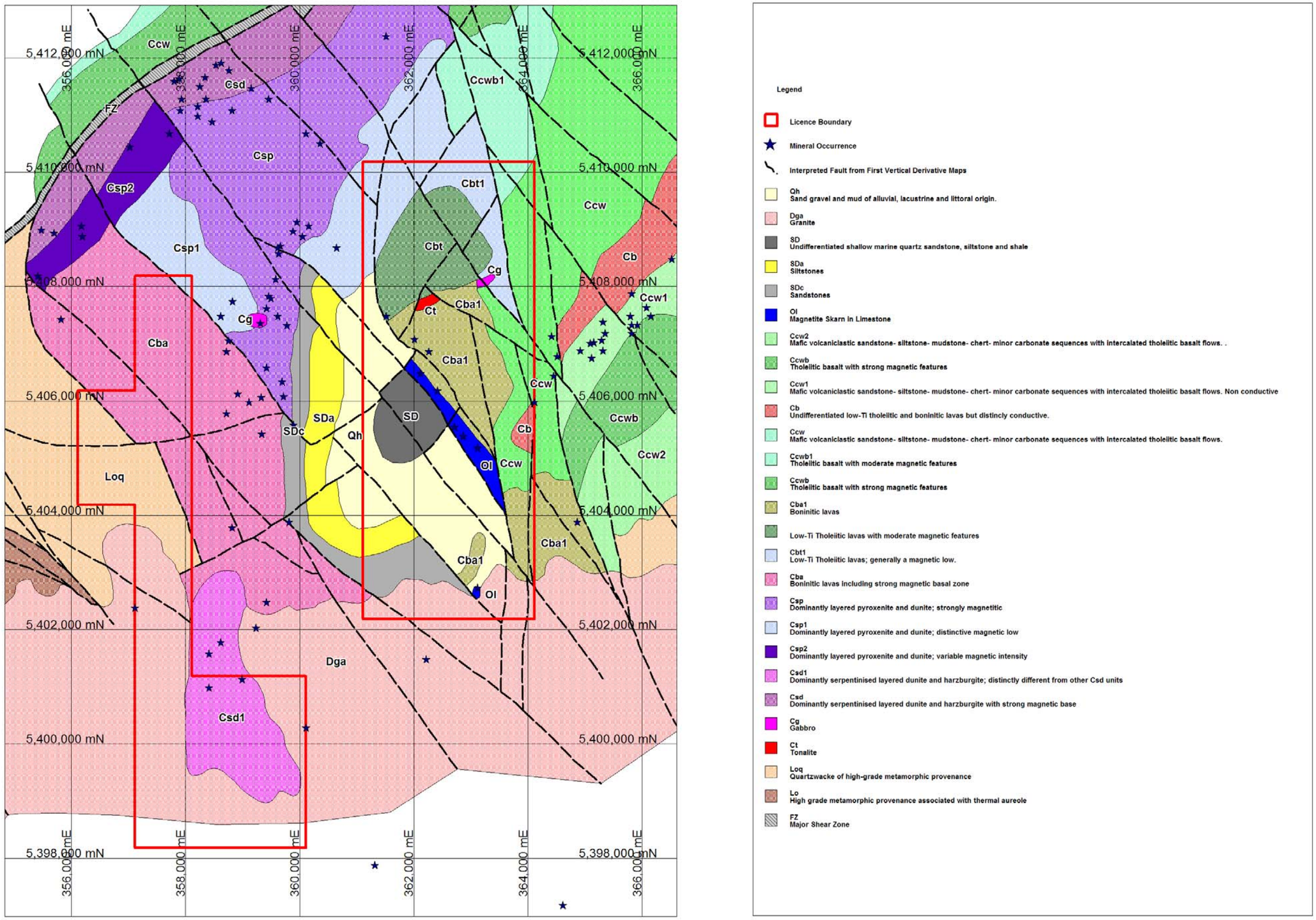
- The nature and trace of the granite contact west of the western sub-licence is uncertain.

- The Humphries Creek ultramafics seem very different in magnetic character to the main bulk of the Heazlewood Ultramafics further to the north. This may be because the former is some form of roof pendant in the granite and has a strong magnetic low overprint from the granite that lies beneath. Alternatively the ultramafics have undergone significant hydrothermal alteration with magnetite destruction.

- The high amplitude linear magnetic anomaly in the Western sub-licence is a continuous feature that curves through 90° from striking NE-SW to NW–SE. This unit could be a sole thrust bounding the Heazlewood ultramafics; the change in its orientation suggests that it may be a sole thrust to the ultramafics. This sole thrust is likely to be characterised by extensive talc alteration and may have gold mineralisation associated with it.

- There is a deep seated magnetic feature similar to the CUNI area at the western boundary of the Eastern sub-licence. Some of the nickel–bearing massive sulphide bodies at CUNI were only 1-2m thick, with up to 10% nickel, associated with relatively narrow non-magnetic dolerite dykes. These units had no airborne magnetic signature.

Figure 12 Whyte River Revised Geology Map



Legend

- Licence Boundary
- Mineral Occurrence
- Interpreted Fault from First Vertical Derivative Maps
- Qh — Sand gravel and mud of alluvial, lacustrine and littoral origin.
- Dga — Granite
- SD — Undifferentiated shallow marine quartz sandstone, siltstone and shale
- SDa — Siltstones
- SDc — Sandstones
- Ol — Magnetite Skarn in Limestone
- Ccw2 — Mafic volcaniclastic sandstone- siltstone- mudstone- chert- minor carbonate sequences with intercalated tholeiitic basalt flows. .
- Ccwb — Tholeiitic basalt with strong magnetic features
- Ccw1 — Mafic volcaniclastic sandstone- siltstone- mudstone- chert- minor carbonate sequences with intercalated tholeiitic basalt flows. Non conductive
- Cb — Undifferentiated low-Ti tholeiitic and boninitic lavas but distincly conductive.
- Ccw — Mafic volcaniclastic sandstone- siltstone- mudstone- chert- minor carbonate sequences with intercalated tholeiitic basalt flows.
- Ccwb1 — Tholeiitic basalt with moderate magnetic features
- Ccwb — Tholeiitic basalt with strong magnetic features
- Cba1 — Boninitic lavas
- Low-Ti Tholeiitic lavas with moderate magnetic features
- Cbt1 — Low-Ti Tholeiitic lavas; generally a magnetic low.
- Cba — Boninitic lavas including strong magnetic basal zone
- Csp — Dominantly layered pyroxenite and dunite; strongly magnetitic
- Csp1 — Dominantly layered pyroxenite and dunite; distinctive magnetic low
- Csp2 — Dominantly layered pyroxenite and dunite; variable magnetic intensity
- Csd1 — Dominantly serpentinised layered dunite and harzburgite; distinctly different from other Csd units
- Csd — Dominantly serpentinised layered dunite and harzburgite with strong magnetic base
- Cg — Gabbro
- Ct — Tonalite
- Loq — Quartzwacke of high-grade metamorphic provenance
- Lo — High grade metamorphic provenance associated with thermal aureole
- FZ — Major Shear Zone

Problems with the new geological interpretation include:

- The broad area of boninitic lavas (Cba) in the Western sub-licence contains a range of magnetic features indicating a range of lithotypes with different strike directions. The 1VD data indicates a different signature to the unit when compared with the supposed along strike layered pyroxenites and dunites (Csp). The current representation is too simplified and requires additional ground mapping.

- The Mt Youngbuck tungsten occurrence appears to lie within the Meredith Granite, yet its hosts rocks are described as volcanoclastics. It may be that the zone represents a thin sliver of faulted material or possibly some form of roof pendant.

- The insular looking magnetic domains 5, 8a and 8b suggest faulted blocks, mainly of tholeiitic volcanics. It is uncertain as to what rocks are juxtaposed with these blocks.

- A more credible explanation of the high amplitude curved magnetic linear associated with the edge of the ultramafics and its associated changes in strike direction.

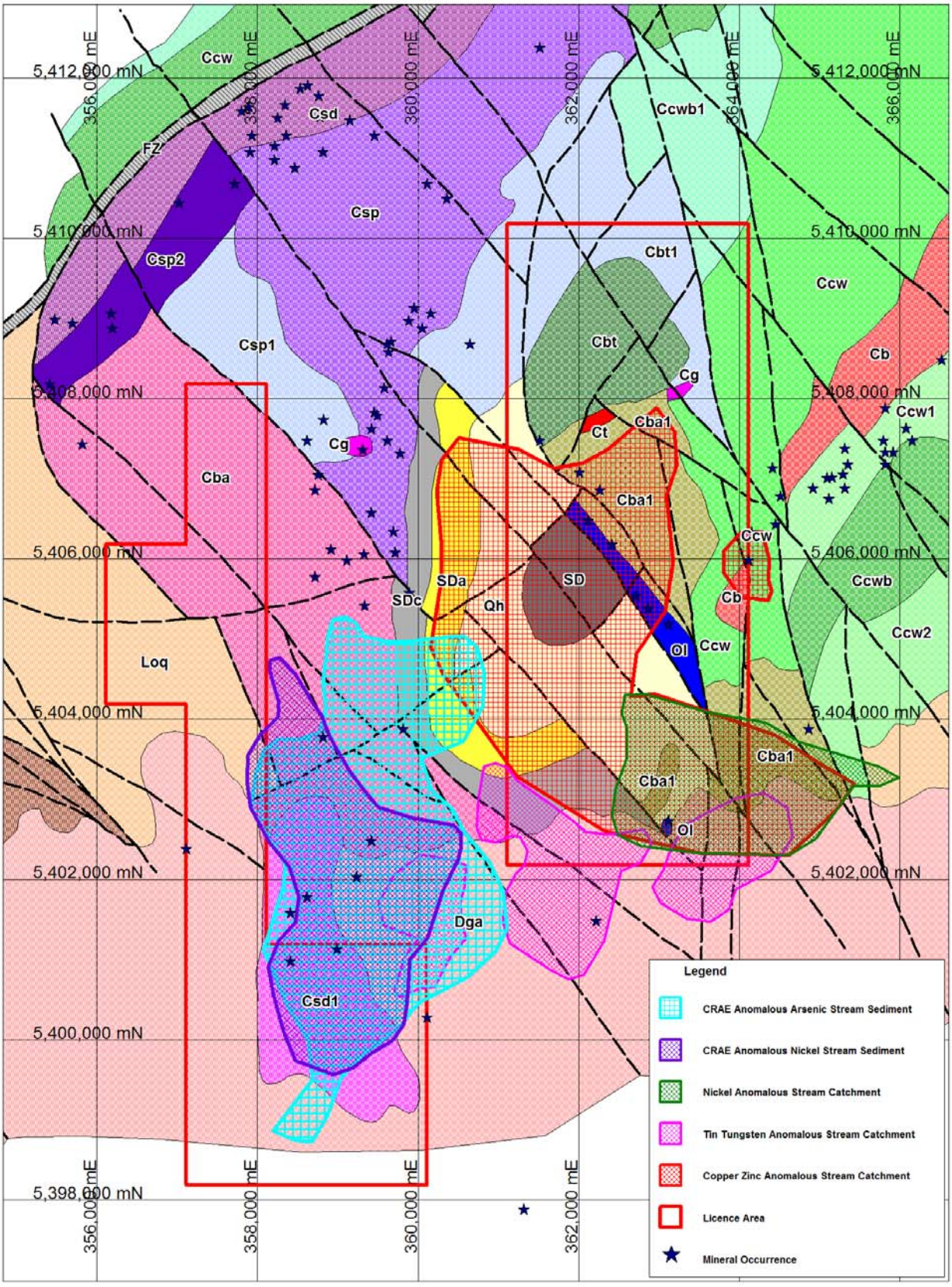
A review of the historical stream sampling data covered both -80 mesh stream sediment and pan concentrate data. A total of 90 pan concentrates and 225 stream sediment samples are recorded from within the Whyte River licence (not counting the missing CRA data from 1995) and the list of the elements reviewed is include below as Table 6. Population breaks for determination of anomalism was generated from the MRT West Tasmanian dataset and based on 4,450 pan concentrate samples and 42,552 stream sediments.

Table 6 List of Geochemical Anomaly Thresholds

Pan Concentrate Data				
Element	Samples with assays	Assays >DL	Anomalous Samples	Comment
Ag	27	2	0	Anomalous >4ppm
Au	6	4	0	Anomalous >3200ppm
Sn	58	58	14	Anomalous >4000ppm
W	90	84	18	Anomalous >2000ppm
Cu	62	41	3	Anomalous >90ppm
Pb	62	61	0	Anomalous >3000ppm
Zn	62	62	13	Anomalous >14000ppm
Ni	39	39	12	Anomalous >100ppm
Stream Sediment Sampling Data				
Element	Samples with assays	Assays >DL	Anomalous Samples	Comment
Ag	13	13	0	Anomalous >60ppm
Au	13	2	0	Anomalous >290ppm
Sn	192	159	0	Anomalous >6200ppm
W	192	101	3	Anomalous >500ppm
Cu	218	186	2	Anomalous >1300ppm
Pb	191	2	0	Anomalous >1500ppm
Zn	218	217	0	Anomalous >18000ppm
Ni	13	11	1	Anomalous >80ppm

The main areas of anomalous catchment are the northern margin of the Meredith Granite for tin and tungsten and the southern and central areas of the Eastern sub-licence for base metals including copper, zinc and nickel (Figure 13). The anomalous nickel catchment coincides within part of the copper-zinc anomaly on a postulated strike continuation of the Cleveland Tin deposit and encompasses the Whyte River magnetite occurrence.

Figure 13 Whyte River Geochemical Anomalism



(see figure 12 for geology legend)

Most of the stream sampling work was in the 1970's and often targeted certain commodities rather than being a broad sweep of multi-element analysis and mixed sample types. In some

instances it was noted that tin and tungsten anomalous pan concentrates could not be replicated in the stream sediment data. These comments create uncertainty over the reliability of the sampling and may necessitate repeating the sampling for both -80mesh stream sediments and pan concentrates.

The CRAE 1994 -80mesh stream sediment data covers most of the Western sub-licence and includes a comprehensive suite of elements. The Heazlewood Ultramafic Complex is delineated by high levels of iron, magnesium and chromite typical of the rocks. However the supposed dunite-pyroxenite unit surrounded by the Meredith Granite in the south of the Western sub-licence has a quite different elemental signature suggesting that it not the same unit, or has undergone extensive alteration. There are anomalous nickel values up to 1000ppm that appear to be draining approximately the same stratigraphic position as the previously mentioned panned concentrate sites. In addition there are some relatively anomalous arsenic values in this southern area (plus weak base metals), which may be due to the influence of the granite alone but may also indicate fertile ground for Avebury-type mineralisation.

The explanation for the broad copper and zinc anomalous catchment is uncertain. The western half of it appears to coincide with Quaternary cover on the Siluro-Devonian clastic sequence and may have been sourced from the Godkin suite of Pb/Zn mines. It is believed that there is significant uncertainty over the age of the rocks in this area that requires site visits and mapping to clarify the situation.

Work by Aberfoyle around the Washington Mine indicates that anomalous tin and base metal soil geochemistry continues along strike to the SW onto the Eastern sub-licence. Most of this anomalism is relatively low grade however there was some additional rock chip sampling that indicates the area warrants further exploration.

It is recommended that the main area of interest in the Eastern sub-licence is subjected to a detailed stream sediment survey for a range of elements. Careful selection of sample sites will be important and should include a panned sample at each site for at least visual inspection.

As a result of the recent work a series of targets have been drawn up from geological, geophysical and geochemical data (Figure 14). The simple rationale behind the selection of the geophysical targets (Table 7) is the identification of isolated magnetic highs and EM conductors. The EM conductive targets were selected from the WTRMP data for the Meredith area.

Selection of geochemical targets is based on the anomalous areas identified from the historical data. Whilst the geology is important there has been a reluctance to downgrade the exploration targets because of the ‘wrong host rocks’. The Avebury discovery was based on this philosophy.

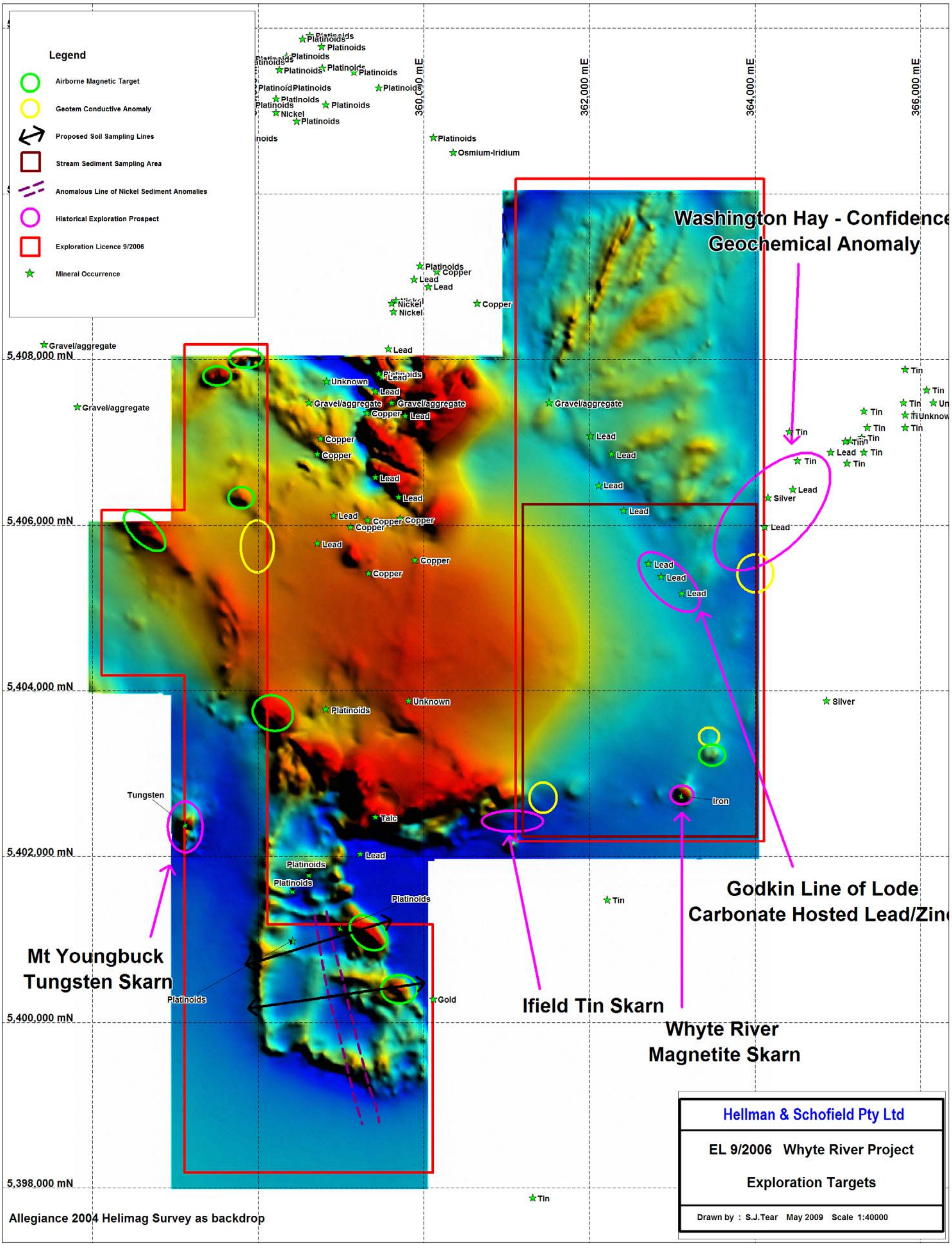
All the listed targets should be subject to a site visit with the reason for the anomalous feature satisfactorily explained. Where there is no obvious explanation, some reconnaissance prospecting, geochemical sampling or some simple ground based geophysics eg magnetometry should be employed.

Table 7 List of Geophysical Targets

Type	Sub-licence	MGA94 E	MGA94 N	Comment
Magnetic	West	357820	5408010	Isolated magnetic high
Magnetic	West	357500	5407810	Isolated magnetic high
Magnetic	West	358070	5403810	Possible ultramafic ?dyke
Magnetic	West	359340	5401070	Medium amplitude isolated magnetic anomaly
Magnetic	West	359680	5400410	Isolated magnetic high
Magnetic	West	356575	5405956	End of a long linear feature; possible magnetite zone or ultramafic ?dyke
Magnetic	West	357800	5406330	Isolated magnetic high
Magnetic	East	363460	5403220	Small magnetic high along strike from the Whyte River magnetite
EM Conductors	East	363440	5403440	North of low grade magnetic anomaly at the granite margin
EM Conductors	East	363500	5404650	Possible junction of the Godkin base metal trend and the Cleveland Mine host units
EM Conductors	East	361430	5402710	Along strike from the Ifield skarn
EM Conductors	West	358000	5405740	Isolated feature 400m south of magnetic anomaly

All the targets included in this report are regarded as high risk with no certainty of the existence of economic mineralisation. Many of the anomalies are small in size or weak in intensity but nevertheless should be field checked. The reader is reminded that the Avebury magnetic anomaly remained untested for at least ten years and the significance of the relatively low level anomalous soil geochemistry was not appreciated until after its discovery.

Figure 14 Whyte River Target Map



9 Proposed Work

Manasia's exploration strategies for this tenement recognise that the tenement's disjointed exploration history and complex geology provides a variety of commodity opportunities for grassroots exploration using new geological concepts. Historical geochemical exploration has mainly comprised stream sediment sampling sometimes with a limited suite of analysed elements. Localised airborne geophysical coverage was completed in the 1970's and 1980's but with limited follow up.

Anomalous areas identified in this report should be subject to a series of site visits which may include reconnaissance mapping and some geochemical sampling, which may require helicopter support. Encouraging outcomes will result in detailed mapping and geochemical sampling (if applicable) and ground geophysical surveys e.g. ground magnetic, ground EM and/or IP, aiming to delineate drill targets.

The following reconnaissance work programme is advised:

1. 2 by 2km long soil sample lines run across the Humphries Creek ultramafic embayment testing for stratiform Ni/PGE mineralisation (possibly Avebury-type). It is recommended that 25m site spacing and 400m line spacing is used. The aim should also be to test the two discrete magnetic anomalies on the eastern margin of the ultramafics, in contact with the granite.

2. Two small magnetic anomalies hosted by possible ultramafics at north end of Western sub-licence should be inspected with the possibility of a single similar soil sample line(s) completed for Ni/PGE mineralisation. 1 by 1.2km long line with 25m site spacing is recommended.

3. Soil sample & mapping around the Whyte River Magnetite for both magnetite & hematite and other base metals eg tin. This may require infill magnetic lines depending on the mapping outcomes. 5 by 500m long soil sampling lines with 25m site spacing and 200m line spacing could be needed in order to cover the limestone outcrop. An additional aim should be to check the magnetic and EM features to the NNE of the magnetic outcrop.

4. Visit the Godkin set of mines to confirm EZ's interpretation and review the Godkin drillcore if possible to confirm that the Gordon Limestone is present. Attempt to ascertain the potential for Irish-type mineralisation similar to that seen around Zeehan.

5. Site visit the remaining airborne magnetic and EM anomalies. Work to include reconnaissance mapping, rock chip sampling and possibly a reconnaissance soil sample line(s).

6. Stream sediment sampling immediately east and north east of the Ifield area including visiting the EM conductor just NE of the occurrence.

7. Review the Mt Youngbuck drillcore if possible and assess the geology of the deposit as to whether there is scope for more mineralisation.

8. Geochemical sampling and prospecting over the possibility of Cleveland Tin deposit stratigraphy in the SE of the Eastern sub-licence (note that the deposit has no magnetic signature). Follow up the anomalous geochemical sites from past exploration.

A budget for this work has been supplied in Table 8.

Table 8 Budget for Proposed Work Programme

Work Activity	No of Samples	Line Kms	Days	Cost A$
Phase 1				
Site visits/Mapping			20	20,000
Rock Chip Sampling	200			5,000
Stream Sediment Sampling	60			10,000
Soil Sampling	130			10,000
Report				5,000
			Sub-total	50,000
Phase 2				
Line Cutting		10		15,000
Soil Sampling	600	10		30,000
Ground Magnetometry		10	10	10,000
Report				7,500
			Sub-total	62,500
			Total	$112,500

10 Conclusions

Manasia have commissioned Hellman & Schofield to undertake a data compilation and review exercise for their Whyte River licence EL 9/2006 in NW Tasmania. The outcome of the work has generated a list of exploration targets for a variety of commodities accompanied by a proposed ground-based exploration strategy and budget.

The centre of this exploration licence is approximately 65km south west of the coastal port of Burnie in NW Tasmania. The licence is close to the Savage River Mine, which lies 5km to the west. The licence is split into two, the Eastern and Western sub-areas. Road access to both areas is via the sealed road from the Lyell Highway to the Savage River Mine. Access to other parts of the tenement will be by unsealed roads constructed for previous exploration and may be in a state of disrepair. It is likely that helicopter support will be required for access to some of the potential target areas.

The geology of the Whyte River licence involves a complex arrangement of five structurally-bound elements within the Dundas Stratotectonic Element. These are:

1. Part of a Late Proterozoic high to moderate grade metamorphic belt (Oonah and Burnie Formations).
2. Cambrian volcanoclastics and mafic lavas associated with the Mt Read Volcanics.
3. Sub-sections of the Heazlewood Ultramafic Complex; a proposed ophiolitic sequence.
4. A structurally bound Ordovician-Siluro-Devono clastic basin.
5. Devonian Granite, the northern margin of the Meredith Granite.

Mineralisation within the licence area comprises the Godkin lead/zinc mines inferred to be Ordovician carbonate hosted vein deposits and series of small scale skarn deposits adjacent to the northern margin of the Meredith Granite. Commodities include tin (Ifield), tungsten (Mt Youngbuck) and magnetite (Whyte River). Small scale platinoid workings are recorded in the south western part of the licence.

Modern exploration of the area began in the late 1960's but the current licence was always divided between explorers and suffered for it. Work undertaken by previous explorers comprised stream geochemistry and airborne EM/magnetic surveys with some ground follow up testing identified anomalies. There has been very limited diamond drilling on the licence area, namely at Mt Youngbuck and the Godkin suite of small scale mines. Very minor ground exploration work has been completed in the last 25 years.

Possible targets include a similar geological setting to the Avebury Nickel Mine and the Melba Flats nickel deposits, iron ore as magnetite/hematite at Whyte River, tin skarns possibly along strike from the Cleveland deposit, platinum group elements associated with the layered ultramafics and Irish-style lead/zinc mineralisation associated with the lead/zinc vein occurrences proximal to the Gordon Limestone at Godkin.

Work completed for this report involved a comprehensive literature review of many open file reports, compiling the relevant exploration information into a series of maps for target selection. In addition government data in the form of digital datasets, including the WTMRP airborne geophysical data, was also used to formulate a geological synthesis of the area. From the data synthesis a series of exploration targets and target types was created.

11 Expert Competency

Hellman & Schofield Pty Ltd ("H & S"), a geological consulting company based in Sydney, Brisbane and Perth, Australia, prepared this geological report at the behest of the directors of Zelos. Simon Tear, a Consulting Geologist, has a BSc (Hons) in Mining Geology from The Royal School of Mines, London, U.K. and has over 26 years worldwide experience in the mining & mineral exploration industry. He is a member of the IMM (22 years), the AusIMM (12 years) and the Institute of Geologists of Ireland (PGEO and EurGeol, both 15 years). He was Team Leader for CRAE Pty Limited's Tasmanian exploration program from 1995-1996. That program successfully explored Western Tasmania, accounting for nickel and lead/zinc discoveries.

The Author's Tasmanian experience consists of:-

- Led the CRAE field team in the discovery of the Avebury Nickel deposit (1996).
- Devised and executed CRAE's and Noranda Pacific's carbonate hosted base metal programmes in the Gordon Limestone near Zeehan (1995-6 and 2001 respectively).
- Undertook exploration on CRAE's Balfour copper licences in NW Tasmania (1996)
- Worked on the Lynchford/Sulphide Creek gold project for CRAE (1996) and Shree Minerals (2008).
- Project generation for sediment hosted gold targets for CRAE in Northern Tasmania (1996)
- Consulting Geologist for the Zeehan Zinc Ltd Comstock Ni & base metal projects (1999-2007)
- Nickel project generation for Tasmania for Falconbridge (2002)
- Literature Study and Resource Assessment of the Nelson Bay Iron Project for Zelos Resources NL (2006-7)
- Literature Study of the Mt Bertha Project for Zelos Resources NL (2006)
- Literature Study and Resource Assessment of the Adamsfield PGE Project for Zelos Resources NL (2006)

Other relevant experiences include:-

- Industry supervision of a MIRO sponsored research project into Platinum Group Mineralisation in the Unst Ophiolite, UK
- Exploration experience in Cambro-Ordovician island arc related volcanic terranes similar to the Mt Read Volcanics in SE Ireland; explored around the Avoca Copper Mine (very similar scenario to Mt Lyell).
- Nine years of Lower Palaeozoic gold hosted exploration experience, mainly field related, including vein and 'Slate Belt' styles.
- Independent Geologists Report for Zinico (now Zelos) Resources NL successful IPO in 2005.

The above experiences and qualifications make Simon Tear adjudged to be a competent person under the JORC Code and has completed this report in accordance with the VALMIN Code.

The digital geological and geophysical information used in this report was supplied by the directors of Manasia. Additional open file information was sourced from Mineral Resources Tasmania via their websites and through personal communication. H&S has relied upon and assumed without verification the accuracy and completeness of all information provided and cannot take any responsibility to guarantee its accuracy.

Limitations and Consent

This assessment has been based on data, reports and other information made available by Manasia or otherwise obtained through publicly available sources. A draft copy of this report has been provided to Manasia for comment as to errors of fact, omissions or incorrect assumptions. H&S has no reason to believe that the information provided by Manasia is misleading or that any material facts have been withheld.

The opinions expressed herein are given in good faith and H&S believes that any assumptions or interpretations are reasonable.

This report is provided to Manasia for the purpose of assessing its Whyte River exploration licence. Neither the whole nor any part of this report, nor any reference thereto, may be included in, or with, or attached to any document or used for any purpose without H&S's written consent to the form and context in which it appears.

Respectfully submitted,

Simon Tear
BSc (Hons), ARSM, PGEO, MAusIMM, EurGeol, MIMM
Consulting Geologist
Hellman & Schofield Pty Limited

23rd June 2009

12 References

Some selected references are included here for additional information.

Author	Initial	Year	Title
Bottrill et al	RS	1998	A Summary of the Economic Geology and Mineral Potential of the Late Proterozoic and Palaeozoic Provinces in Tasmania
Burrett Martin (eds)	C L	1989	The Geology & Mineralisation of Tasmania
Groves	DI	1964	The Geology of the Heazlewood- Godkin Area. Tr_10_26_40
Halley	S	1992	EL 12/90 and EL 15/90 Waratah Area Annual Report for the Period July 1991 to June 1992. TCR92_3363
McClenaghan Seymour	M DB	1996	Combined Interpretation of New Aerial-Survey Geophysical Datasets for NW Tasmania, UR1996_16
Newnham	L	2004	EL 14/2001 Heazlewood Area Annual Report
Ransom	D	1976	Progress Report on Exploration Licence 1/63 for Six Months Ending August 11, 1976 TCR76_1181
Seymour Calver	DB CR	1995	Mineral Resources Tasmania. Tasmanian Geological Survey Record 1995/01. TASGO NGMA Project. Sub-Project 1: Geological Synthesis. Explanatory notes for the Time-Space Diagram and Stratotectonic Elements Map of Tasmania.
Seymour et al		2006	The Geology and Mineral Deposits of Tasmania : a summary MRT Bulletin 72
Sise	JR	1985	Final Report Exploration Licence 16/78 Meredith Tasmania TCR85_2390

Appendix 1
Open File Listing of Competitor Reports

You searched for: Dataset: Company Reports - OnshoreDataset: Company Reports - Offshore HydrocarbonsDataset: MRT Documents, Location: Spatial Criteria Used

Downloaded	02_4819 - Tasmania - Regional Bulk Sampling - Inter-Office Memorandum
	Ellis, P.D.
	03_4912 - Old Mine Plans
	Green, D.
YES	03_4914 - Meredith Granite 1979
	Green, D.
	19_0023 - Mount Jasper Copper Mines Special Report
	Mills, J.A., OConnor, P.J.
YES	49_0101 - Godkin Mine, Drilling.
	Anon
	57_0164 - Miller`s Nickel Prospect North West Tasmania.
	Jensen, H.E.
	57_0167 - R.T.A.E. and E.Z. Exploration Programme Geophysical Surveys in N.W. Tasmania to 31st May 1957 - Project PRP/7/100
	McCarthy, E.
	57_0169 - Programme and Budget for Preliminary Diamond Drilling R.T.A.E. Magnetic Anomaly Savage River Area, North West Tasmania
	Matheson, R.S.
	57_0181 - Discovery of An Ancient Mineralised Rift-Valley in West Tasmania.
	Campana, B.
	57_0183 - Field Work Magnet Quadrangle 35
	Anon
	57_0187 - Field Work Corinna Quadrangle 43
	Anon, Brook, W.
	58_0256 - Exploration Notes and Proposals for Future Work
	Anon
	60_0305 - Cambro-Ordovician Sedimentation and Tectonism in West Tasmania. Age and Control of Mineralisation and Results of the Exploration
	Campana, B., King, D.
	63_0362 - Mount Cleveland Project, Outline of Proposed Exploratory Development and Ore Testing Programme.
	Glasson, K.R., Hopwood, T.P., Mason, A.A.C.
	65_0402 - Airborne Magnetometer Survey Over the Waratah - Zeehan Area Northwest Tasmania
	Zarzavatjian, P.A.
	65_0412 - I.P. Profiles
	Anon

YES

66_0425 - Report on Regional Geology. Summer 1965-1966. (Waratah, Mt Cleveland, Mt Lindsay Areas.)
Ransom, D.M., Wilson, C.J.L.
66_0428 - Report on the Helicopter AFMAG Survey Northwestern Tasmania
Sutherland, D.B.
66_0438 - Report on Planet Mining Co Tasmanian Phosphate Leases
Watts, T.R.
67_0457 - Northwest Tasmania, Proposed Program of Exploration (in Detail)
Anon
67_0469 - The Application of Statistical Analysis in Mineral Evaluation, Utilising Data from Hall`s Lode, Lenses `A`, `B` and `C`, Cleveland Mine, Tasmania.
Cox, R.
67_0488 - Memorandum Report, Reconnaissance Structural Evaluation, Coastal Tasmania.
Barton, R.H.
69_0590 - Review of Summer Exploration Program Exploration Licence 1/68 1968-1969
Anon
70_0644 - Heazlewood Nickel - Tasmania, Australia.
Gilfillan, J.F., Marshall, J.P.
70_0709 - Review of 1969-1970 Summer Exploration Programme Exploration Licence 1/68, Tasmania.
Anon
71_0721 - Espea and Bald Hill Areas, E.L. 1/68, Winter 1970.
Robison, H.R.
71_0795 - The Heazlewood Prospect - Waratah, Tasmania
Dummett, H.T.
71_0803 - Mt Stewart Drilling, Exploration Licence 1/68.
Everett, M.P.
71_0815 - Drill Hole Logs, Mount Jasper Grid
Anon
71_0829 - 1970-71 Annual Report, E.L. 48/70 and E.L. 49/70, North-Western Tasmania.
Newnham, L.A., Woodward, A.J.
71_0838 - 1970-1971 Summer Field Season Report, Exploration Licence 5/63
Chisholm, T., Everett, M.P., Henry, D., Pigott, G.F., Wallis, D.
72_0845 - Report to Tasmanian Mines Department for Period Ending February 9, 1972 on Exploration Licence 1/63, Luina, County of Russel, Tasmania.
Hunt, F.L.
72_0847 - Geochemistry Progress Report E.L. 1/63
Sale, R.V.

72_0856 - Exploration Licence 1/68, 1971/72 Summer Field Season Report, Meredith Granite Project
Yardley, S.R.

YES 72_0878 - Year-End Report for Tasmania Mines Department on Mineral Lease 27M/71, Exploration Licence 1/63, Period: September 1971 to June 1972
Hunt, F.L., Ransom, D.M.

73_0932 - Summary of Exploration Activities in EL 1/63 between 11th August 1972 and 11 Th February, 1973
Anon

73_0942 - Report to Tasmanian Mines Dept. Progress Report - Cleveland Tin N.L., 6 Months Ending June 30, 1973
Ransom, D.M., Simpson, D.C.

73_0964 - Pieman River, Exploration Licence 2/73 - Tasmania, Progress Report for the Period January 31 - July 31, 1973
Neale, R.C.

74_1036 - Report to the Tasmanian Mines Dept., Exploration Licence 1/63. for Six Months to August 11th 1974.
Stuart-Smith, P.G.

75_1072 - Progress Report - Exploration Licence 1/63, Cleveland Tin N.L. Six Months to February 11,1975
Palmer, K.G.

75_1115 - Progress Report, Exploration Licence 1/63, for Six Months Ending August 11, 1975
Palmer, K.G.

76_1153 - Progress Report, Exploration Licence 1/63, for Six Months Ending February 11, 1976
Ransom, D.M.

YES 76_1179 - Exploration Licence 11/75, Mount Stewart Area, Tasmania. Report on Field Season Activity, 1975-76.
Lockhart, J.D.

YES 76_1181 - Progress Report on Exploration Licence 1/63 for Six Months Ending August 11, 1976
Ransom, D.M.

YES 77_1197 - Progress Report, Exploration Licence 1/63 (Cleveland), for Six Month Period Ending February 11, 1977.
Ransom, D.M.

YES 77_1232 - Progress Report, Exploration Licence 1/63, Cleveland, for Six Month Period Ending August 11, 1977
Ransom, D.M.

78_1302 - Progress Report - September 1978, E.L. 17/77 - Wilson River Area, Western Tasmania
Schellekens, R.R.

79_1370 - Meredith Granite Project Preliminary Report 1978/79 Summer Exploration Programme for the Six Months Ending April 20, 1979.
Taylor, J.R., White, J., Young, C.H.

79_1388 - Meredith Granite Project, Report for the Six Months Ending, October 20, 1979.
Young, C.H.

79_1391 - Progress Report on Exploration Licence 1/63 for Period February 1979 to August 1979.
Eadie, A., Tulp, T.

80_1460 - Meredith Granite Project Progress Report for the Six Months Ending April 20, 1980
Joyce, R.M.
80_1476 - Meredith Granite Project, Progress Report for the Six Months Ending October 20, 1980
Joyce, R.M.
80_1476A - DIGHEM II Survey in Western Tasmania
Dvorak, Z., Fraser, D.C.
YES 80_1485 - Progress Report Exploration Licence 1/63 for Six Months Ending 11 August, 1980.
Ellis, P.D.
YES 80_1485A - DIGHEM II Survey in Western Tasmania
Dvorak, Z., Fraser, D.C.
80_1500 - Report Accompanying Licence Renewal Application for Exploration Licence 1/68, Tasmania
Pigott, G.F.
80_1500A - DIGHEM II Survey of Mt Cleveland Area, Tasmania
Dvorak, Z., Fraser, D.C.
81_1517 - Exploration Licence 26/78 (Tasmania), Pieman, Precious Stones, Relinquishment Report.
Hutton, M.J.
YES 81_1539 - Progress Report, Exploration Licence 1/63 for the Period August 12, 1980 - January 13, 1981
Ellis, P.D.
81_1565 - Meredith Granite Project, Progress Report for the Six Months Ending April 20, 1981.
Joyce, R.M.
YES 81_1577 - Progress Report, Exploration Licence 1/63 for the Period January 14, 1981 - August 11, 1981
McArthur, G.J.
YES 81_1577A - DIGHEM II Survey of Cleveland Area, Tasmania
Dvorak, Z., Vergos, S.
YES 81_1605 - Report Accompanying Licence Renewal Application for Exploration Licence 1/68 Tasmania
Pigott, G.F.
YES 81_1605A - Report on Exploration, Heazlewood Area, EL 1/68
Anon
82_1691 - Six Monthly Report to Tasmania Department of Mines for the Period Ended 30 December 1981, Exploration Licence 1/68
Pigott, G.F.
YES 82_1710 - Progress Report Exploration Licence 1/63 for the Period August 12, 1981- February 11, 1982.
McArthur, G.J.
82_1732 - Quarterly Report to the Department of Mines, Tasmania, for the Period 1st January to 31st March, 1982. Exploration Licence 1/68
Jones, C.M.
82_1753 - Notes to Accompany the Photo-Interpretation of the Country between the Arthur and Pieman Rivers, Tasmania.

Carey, S.W.
YES 82_1785 - Meredith Granite Project. Progress Report for the Six Months Ending April 20, 1982
Joyce, R.M.
82_1818 - Exploration Licence 18/80 Arthur River, Tasmania Report for the Six Months Ended 31st July, 1982
Anon
82_1854 - Progress Report, Exploration Licence 16/78, Meredith, Tasmania. for Six Months Ending October 19, 1982
Sise, J.R.
82_1885 - A Summary Report on the 1982 Geophysical Surveys Over the Little Wilson River Infill Grid, EL 17/77
Bishop, J.R.
83_1898 - Annual Report to the Department of Mines, Tasmania for the Period 1 January - 31 December 1982, Summary of Work Completed, in Progress and Proposed for E.L. 1/68
Pigott, G.F.
83_1899 - Progress Report on the Regional Exploration in Exploration Licence 1/68
Pigott, G.F.
83_1900 - Interim Report on Heazlewood Grid 19C, E.L. 1/68
Jones, C.M.
83_1916 - Geophysical Surveys - Tasmania
McCarthy, E.
YES 83_2047 - Annual Report, Exploration Licence 16/78, Meredith, Tasmania, for Year Ended October 20, 1983.
Sise, J.R.
83_2060 - Annual Report to the Department of Mines Tasmania for the Period 1/1/83 to 31/12/83. Summary of Work Completed and Proposed for EL 1/68.
Shaw, R.W.L.
83_2060A - Interim Report on the Heazlewood Project, Exploration Licence 1/68
Roberts, R.H.
84_2169 - The Lower Freshwater Sequence of the Parmeener Supergroup, Tasmania
Summons, T.G.
YES 85_2316 - Final Report to the Department of Mines, Tasmania Exploration Licence 1/68 Heazlewood
Shaw, R.W.L.
YES 85_2390 - Final Report Exploration Licence 16/78 Meredith Tasmania
Sise, J.R.
85_2410 - Relinquishment Report on Exploration Licence 5/84 Mt Meredith
Shannon, C.H.C.
86_2614 - Exploration Licence No. 22/85, Savage River. Report on Exploration Activity 20th November, 1985 to 20th November, 1986.
Mathison, I.J.
87_2634 - E.L. 31/85 Mt Stewart, Progress Report on Exploration for the Period 23/1/86 to 22/1/87

Hall, D.B.
87_2644 - Heazlewood Prospect North West Tasmania E.L. 21/85 Annual Report for the Period Ending 1/12/86

Anon
87_2709 - El 20/85 Mt Cleveland. Annual and Final Report Period Ending 20 October 1987.

Hall, D.B.
YES 87_2717 - Luina Joint Venture EL 34/82. Progress Report for the Period 1/11/86 to 31/10/87 ;

Randell, J.P.
YES 87_2755 - EL 31/85 Mt Stewart, Progress Report on Exploration for the Period 23/1/87 to 22/1/88

Hall, D.B.
88_2770 - Sampling of Ultramafic Rock Types for Monier Ltd, Savage River, N.W. Tasmania

Anon
88_2779 - Relinquishment Report on Exploration Licence 4/61 Savage River. Tasmania

Shannon, C.H.C.
88_2804 - Heazlewood Prospects, North West Tasmania, EL 21/85. Annual Report for the Period Ending 1.12.87. Year 2 (2.12.86-1.12.87).

Morrison, K.C., Summons, T.G.
YES 88_2811 - E.L. 31/85 - Mt. Stewart, Relinquishment Report

Hall, D.B.
88_2854 - Exploration Licence 24/87 - Rapid River, Annual Report : Year 1 (September 1987 - September 1988)

Cromer, W.C., Davidson, J.K., Hofto, V.
YES 88_2876 - Heazlewood Prospects, North West Tasmania, EL 21/85 Annual Report for the Period Ending 1.12.88, Year 3 (2.12.87 - 1.12.88)

Bellairs, P.G., Carthew, S.J.
YES 88_2876A - Preliminary Report on Evaluation of the Gold Potential of the Old Jasper Mine Area, E.L. 21/85 Heazlewood, Tasmania

Bellairs, P.G., Carthew, S.J., Herrmann, W.
89_2959 - E.L. 37/82 Longback, Annual Report on Exploration Activity, April 1988 - April 1989.

Mathison, I.J., Virgoe, K.J.
YES 89_3054 - EL 21/85 Annual Report for the Period Ending 1/12/89 Year 4 (2/12/88 - 1/12/89)

Carthew, S.J.
YES 89_3054A - A Report on Geophysical Surveys at Heazlewood, Tasmania

Rutter, H.
89_3067 - Exploration Licence 59/88 - Mount Ramsay. Relinquishment Report.

Hofto, V., Morrison, K.C.
89_3067A - Processing of Aeromagnetic Data, E.L. 59/88. Mt Ramsay.

Leaman, D.E.
91_3212 - E.L. 41/89 Mt Bertha. Report on Exploration Activity January 1990 to November 1990.

	Mathison, I.J., Virgoe, K.J. 91_3213 - Geophysical - Structural Review Rocky Cape Block NW Tasmania.
	Leaman, D.E. 91_3218 - EL 45/89 Savage River. Report on Exploration Activity January 1990 to November 1990.
YES	Mathison, I.J., Virgoe, K.J. 91_3284 - E.L. 12/90 and E.L. 15/90 Waratah Annual Report 1990/91
	Halley, S.W. 91_3299 - EL 21/90 Luina Report on Exploration Activity October 1990 to September 1991
	Mathison, I.J. 92_3357 - EL 12/90 and EL 15/90 Waratah Partial Relinquishment Report for the Period 1990 to 1992.
	Halley, S.W. 92_3357B - An Interpretation Form of Meredith Granite Waratah Area EL 12/90 and 15/90
YES	Leaman, D.E. 92_3363 - EL 12/90 and EL 15/90 Waratah Area Annual Report for the Period July 1991 to June 1992.
	Halley, S.W. 92_3365 - Partial Relinquishment Report Including Report on Exploration Activity December 1991 to June 1992.
	Gardner, D., Mathison, I.J. 92_3371 - Relinquishment Report Including Report on Exploration Activity October 1991 to June 1992.
	Mathison, I.J. 93_3409 - Annual Report 1991-92
	Gardner, D. 93_3428 - Partial Relinquishment Report June 1993
	Halley, S.W. 93_3428A - Interpretation of Regional Aeromagnetic Data from Waratah-Mt Ramsay Area
	Wyatt, B. 93_3428B - An Interpretation Form of Meredith Granite Waratah Area
	Leaman, D.E. 93_3530 - EL 45/89 Savage River - Relinquishment Report and Annual Report December 1992 to December 1993
YES	Gardner, D. 94_3536 - EL 36/92 Heazlewood,Tasmania - Annual Report for the Period Ending 5 March 1994
	Maher, S. 94_3580 - Rehabilitation Surveys Heazlewood (EL 21/85)
YES	Jones, P.A. 94_3619 - List of Transparencies from Portions of EL 4/61 and EL 22/85.
	Anon

YES	95_3705 - EL 36/92 Heazlewood, Tasmania. Annual Report for Period Ending 5 March 1995. Maher, S.
	95_3711 - Assorted Stream Sediment Geochemistry-Tasmania Wide Ellis, P.D.
YES	95_3720 - Annual Technical Report to April 1995 EL 17/93 Luina Poltock, R.
YES	95_3777 - Final and Third Annual Report for the Period Ending 5 March 1996 EL 36/92 Heazlewood. Maher, S.
	96_3822 - Summary Report on Activities in 1993 on EL 35/94 Savage River and EL 36/94 Mt Bertha. Ridge, K.J.
	96_3838 - Annual Report EL 35/94, EL 36/94 Savage River and Mt Bertha Ridge, K.J.
	96_3851 - Annual Report 1996, Luina Joint Venture EL 17/93 McGunnigle, N.K.
	96_3876 - Annual Report EL 35/94 Savage River and 36/94 Mt Bertha Ridge, K.J.
YES	96_3954 - Annual Report - Whyte River EL 49/94 - P.E. Oct 1996 McGunnigle, N.K.
YES	97_4003 - Annual Report - EL 17/93, Luina Basford, P.W., McGunnigle, N.K.
YES	98_4137 - Final Report - Luina EL 17/93 - April 1997-Nov 1997 (Note - Report Submitted Due to Ending of J/V with MPI Gold) Weber, G.B.
YES	99_4406 - Annual Report - P.E. November 1999 - EL 22/98 - Meredith Range - Newnham, L.A.

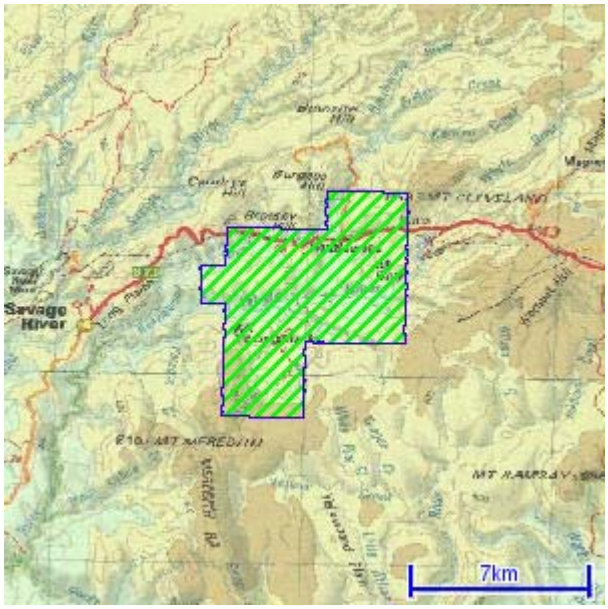
Appendix 2
Details of Relevant Airborne Surveys

Mineral Resources Tasmania - Airborne Survey Details

Survey Name	2004 Heazlewood
State	TAS
Operator	Allegiance Mining NL
Contractor	Fugro Airborne Surveys Pty Ltd
Processor	Fugro Airborne Surveys Pty Ltd
Custodian	Tasmanian Geological Survey
Start Date	21 January 2004
End Date	25 January 2004
Total Km	1455
Survey Type	Detailed
Vessel Name	VH-JWF Bell 206 B3 Jetranger
Vessel Type	Helicopter
On/off shore	Onshore
Crystal Volume (l)	
Upward Crystal Volume (l)	
Mean AGL (m)	48.500
Description	
Data Sampled	Elevation, Magnetics
Digital Data Sampled	Elevation, Magnetics

Tie Spacing	Tie Numbers
500m	901-9017

Traverse Direction	Spacing	Numbers
90	50m	1-242

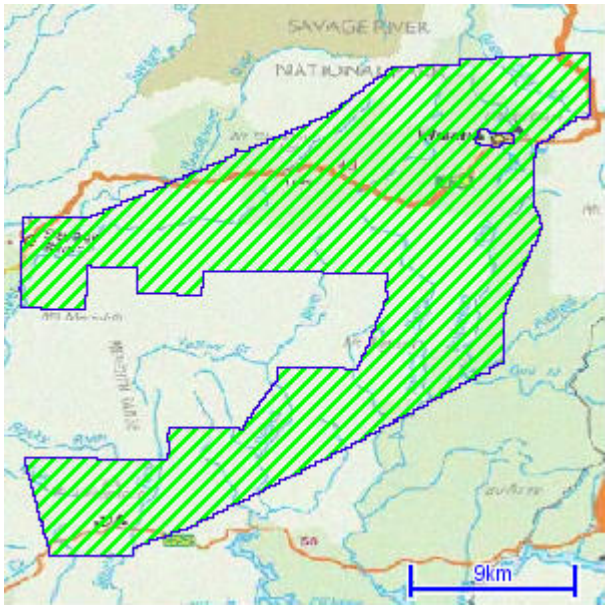

Savage River
7km

Mineral Resources Tasmania - Airborne Survey Details

Survey Name	2002 Meredith Granite (WTRMP EM)
State	TAS
Operator	Tasmanian Geological Survey
Contractor	Geo Instruments Pty Ltd
Processor	Geo Instruments Pty Ltd
Custodian	Tasmanian Geological Survey
Start Date	29 November 2001
End Date	27 March 2002
Total Km	3026
Survey Type	Regional
Vessel Name	VH-RTV AS-350B
Vessel Type	Helicopter
On/off shore	Onshore
Crystal Volume (l)	
Upward Crystal Volume (l)	
Mean AGL (m)	81.000
Description	
Data Sampled	Electromagnetics, Elevation, Magnetics
Digital Data Sampled	Electromagnetics, Elevation, Magnetics

Tie Spacing	Tie Numbers
2000m	70011-72031

Traverse Direction	Spacing	Numbers
90	200m	10011-12352

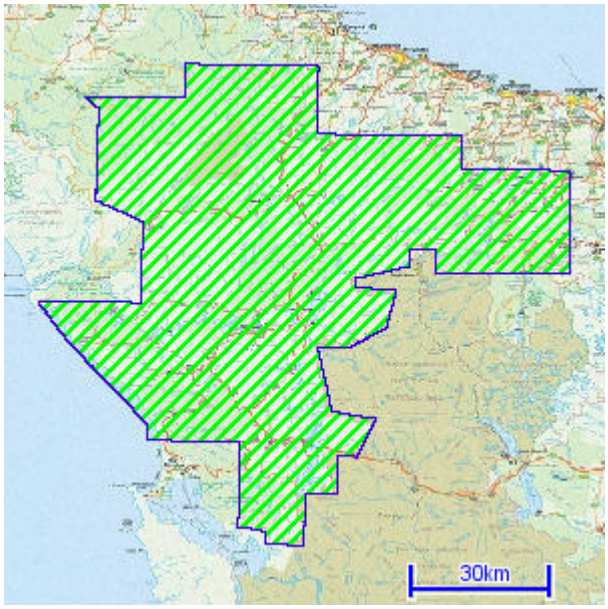

SAVAGE RIVER
9km

Mineral Resources Tasmania - Airborne Survey Details

Survey Name	2001 West Tasmania (WTRMP Area C)
State	TAS
Operator	Tasmanian Geological Survey
Contractor	Geo Instruments Pty Ltd
Processor	Geo Instruments Pty Ltd
Custodian	Tasmanian Geological Survey
Start Date	05 January 2001
End Date	22 March 2001
Total Km	43535
Survey Type	Regional
Vessel Name	VH-JWF Bell 206B3
Vessel Type	Helicopter
On/off shore	Onshore
Crystal Volume (l)	16.800
Upward Crystal Volume (l)	
Mean AGL (m)	76.000
Description	
Data Sampled	Elevation, Magnetics, Radiometrics
Digital Data Sampled	Elevation, Magnetics, Radiometrics

Tie Spacing	Tie Numbers
2000m	70021-71051

Traverse Direction	Spacing	Numbers
90	200m	10011-17375

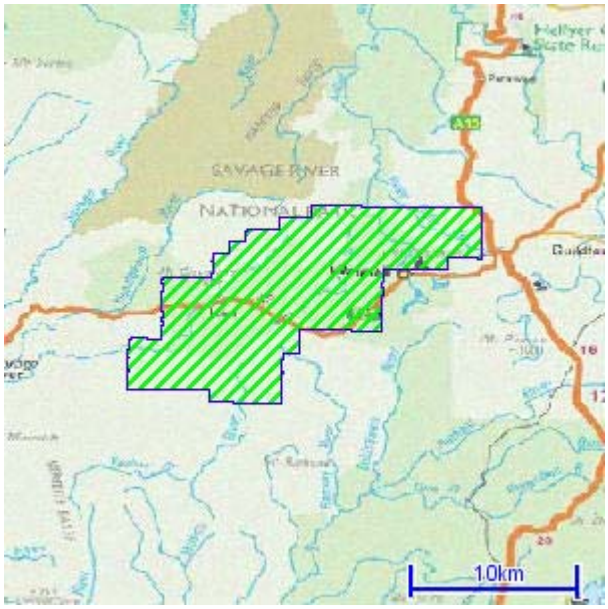

30km

Mineral Resources Tasmania - Airborne Survey Details

Survey Name	1996 Waratah
State	TAS
Operator	Pasminco Exploration Limited
Contractor	UTS Geophysics
Processor	Pitt Research Pty Ltd
Custodian	Tasmanian Geological Survey
Start Date	04 May 1996
End Date	10 May 1996
Total Km	2092
Survey Type	Detailed
Vessel Name	AS-350B
Vessel Type	Helicopter
On/off shore	Onshore
Crystal Volume (l)	
Upward Crystal Volume (l)	
Mean AGL (m)	58.000
Description	23 kilometres flown with 250 metre traverse spacing, 750 metre tie spacing and 152 metres average terrain clearance.
Data Sampled	Magnetics
Digital Data Sampled	Magnetics

Tie Spacing	Tie Numbers
1000m	19010-19220
750m	29010-29050

Traverse Direction	Spacing	Numbers
90	100m	10010-11620
90	250m	20010-20050

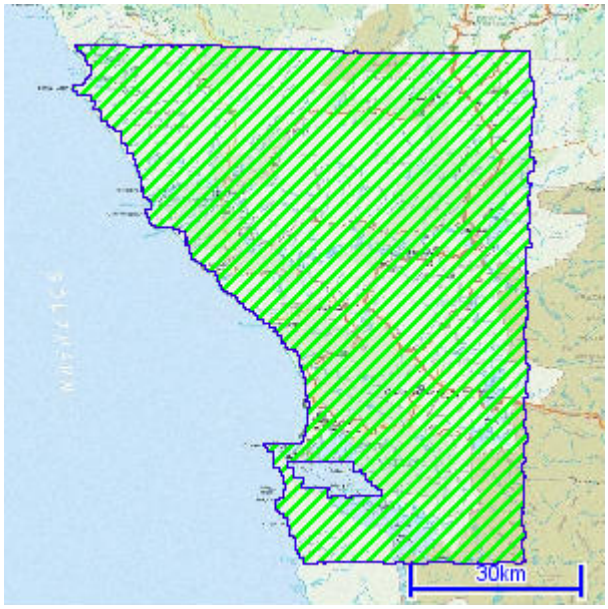

SAVAGE RIVER
1.0km

Mineral Resources Tasmania - Airborne Survey Details

Survey Name	1981 West Tasmania
State	TAS
Operator	Tasmanian Geological Survey
Contractor	Geoex
Processor	Geoex
Custodian	Tasmanian Geological Survey
Start Date	22 May 1981
End Date	18 March 1982
Total Km	14710
Survey Type	Regional
Vessel Name	VH-RKZ, VH-ESE Cessna
Vessel Type	Plane
On/off shore	Onshore
Crystal Volume (l)	
Upward Crystal Volume (l)	
Mean AGL (m)	197.000
Description	Precise levelled version available.
Data Sampled	Magnetics
Digital Data Sampled	Magnetics

Tie Spacing	Tie Numbers
10000m	9000-10000

Traverse Direction	Spacing	Numbers
90	500m	0-8900


30km

Appendix 3
Selected Maps from Open File Reports

Cleveland Tin mapping (TCR 76_1181)
Cleveland Tin geochemistry (TCR 76_1181)
Cominco Cleveland geology map (TCR 76_1181)
Billiton geology map (TCR 87_2717)
Aberfoyle Ifield sampling & mapping (TCR 83_2047)
RGC Whyte River Magnetite (TCR 92_3363)

362,000 mE
363,000 mE
364,000 mE
365,000 mE
366,000 mE
367,000 mE
5,408,000 mN
5,407,000 mN
5,406,000 mN
5,405,000 mN
5,404,000 mN
5,403,000 mN
5,402,000 mN
E.L. 1/63 BOUNDARY
ML 27M/71
E.L. 1/63
Map 2
CLEVELAND TIN NL
E.L. 1/63
Geological Surface Outcrop Plan
8053
Licence Area
Geology map
Scale 1:10,000
MGA94 Zone 55

363,250 mE
363,500 mE
363,750 mE
364,000 mE
364,250 mE
364,500 mE
364,750 mE

5,407,000 mN
5,406,750 mN
5,406,500 mN
5,406,250 mN
5,406,000 mN
5,405,750 mN
5,405,500 mN
5,405,250 mN
5,405,000 mN
5,404,750 mN

E.L. 1/633 BOUNDARY

EL 9/2006

Lead
Tin
Silver

GODKIN TRACK
WHYTE RIVER
HALL'S REFERENCE PLANE
Track to 13M Mine

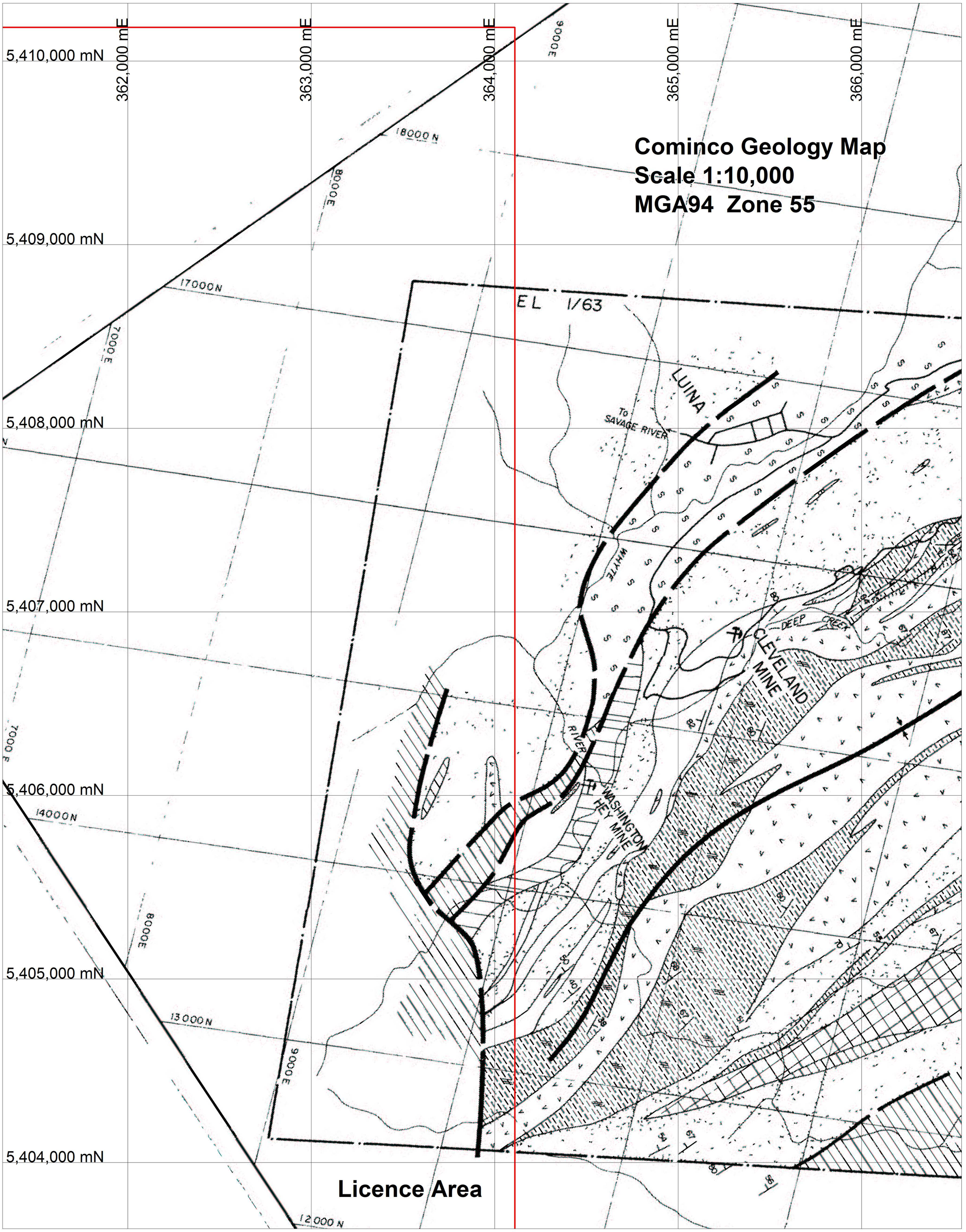
RA 1
RA 2
RA 3
RA 4
RA 5
RA 6
RA 7
RA 8
RA 9
RA 10
RA 11
RA 12
RA 13
RA 14
RA 15
RA 16
RA 17
RA 18
RA 19
RA 20
RA 21
RA 22
RA 23
RA 24
RA 25

The assays comprise 2 sets of Pb, Zn, Cu & Sn with lead the uppermost and tin nearest the sample site

Cleveland Tin Geochemical Sampling Map

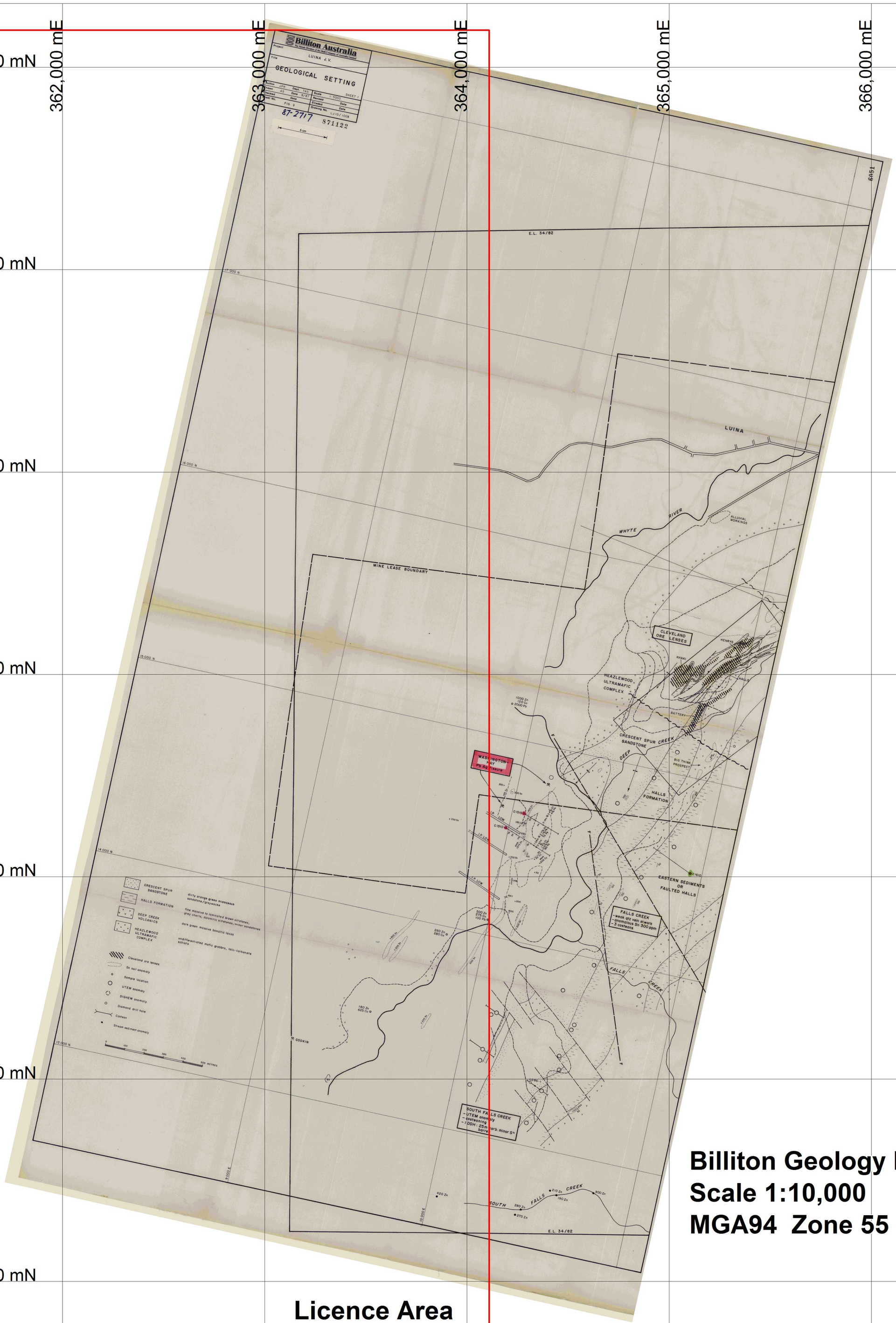
Scale 1:2,500

TCR 76-1181 page 15


362,000 mE
363,000 mE
364,000 mE
365,000 mE
366,000 mE
5,410,000 mN
5,409,000 mN
5,408,000 mN
5,407,000 mN
5,406,000 mN
5,405,000 mN
5,404,000 mN
Cominco Geology Map
Scale 1:10,000
MGA94 Zone 55
Licence Area
EL 1/63
LUINA
To SAVAGE RIVER
WHITE
DEEP CREEK
CLEVELAND MINE
RIVER
WASHINGTON HEY MINE
18000 N
17000N
14000N
13000 N
12 000 N
30006
80006
70006
90006

362,000 mE
363,000 mE
364,000 mE
365,000 mE
366,000 mE

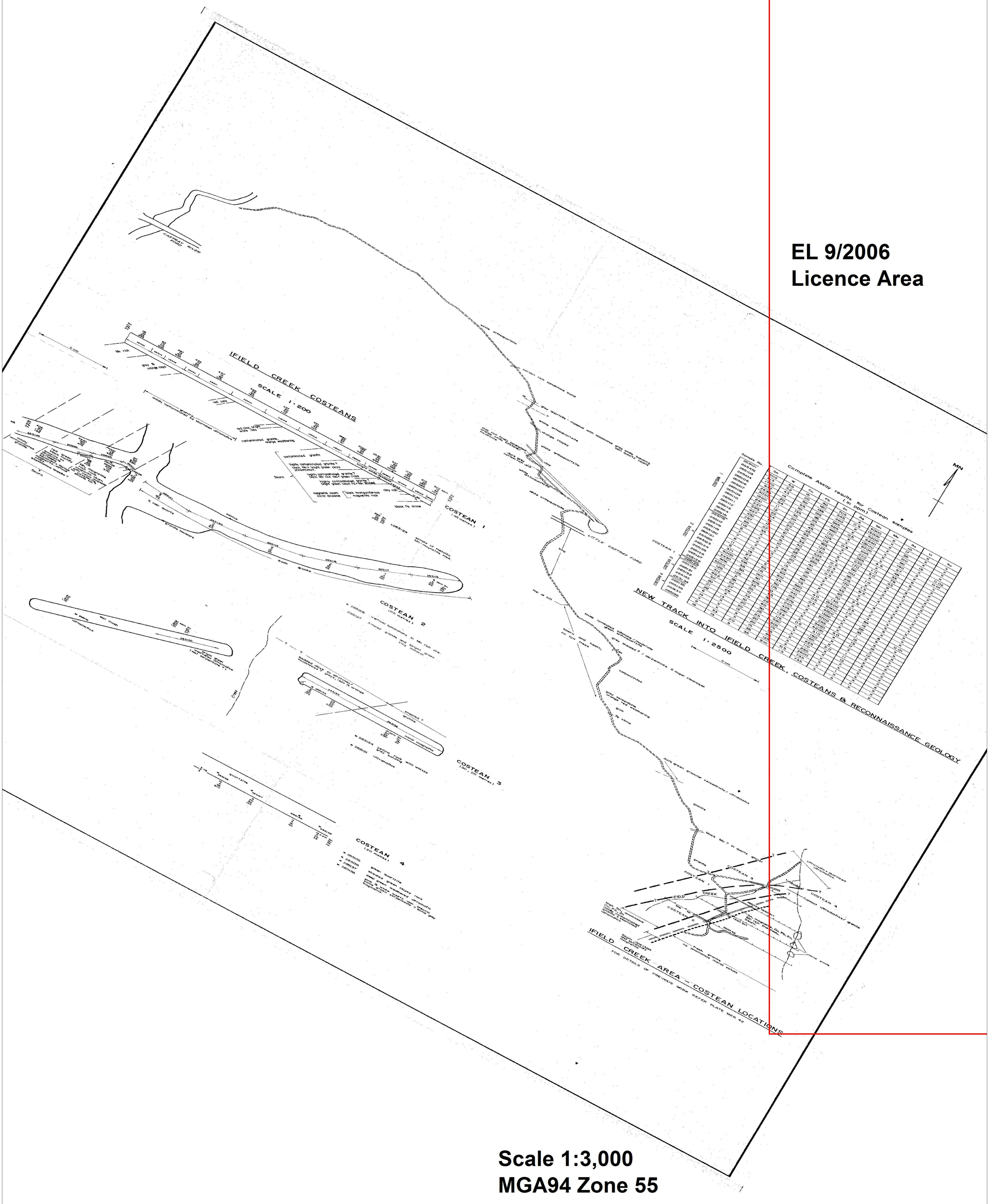
5,410,000 mN
5,409,000 mN
5,408,000 mN
5,407,000 mN
5,406,000 mN
5,405,000 mN
5,404,000 mN



Billiton Geology Map
Scale 1:10,000
MGA94 Zone 55

Licence Area

EL 9/2006
Licence Area



Scale 1:3,000
MGA94 Zone 55

363,000 mE

363,500 mE

364,000 mE

5,403,500 mN

5,403,000 mN

5,402,500 mN

5,402,000 mN

EL 9/2006

RGC Whyte River Magnetite Base Map

Scale 1 :3,000 TCR 92-3363

92-3363.

LEGEND

Quaternary	Qg	ALLUVIUM
Devonian	Dg	MEREDITH GRANITE
		MAGNETITE–HEMATITE SKARN
Silurian	Sa	AMBER SHALE
	Sc	CROTTY SANDSTONE
Ordovician	Og	GORDON LIMESTONE

RGC EXPLORATION PTY.LTD. 079052

COMPILED	S.HALLEY
DRAWN	M.WALTER
DATE	JULY 1991
CHECKED	
1:25000 REF.	

WARATAH AREA E.L. 12/90 & 15/90

WHYTE RIVER PROSPECT

GEOLOGICAL INTERPRETATION

DRAWING ID. 5530/034

0 25 50 100 200 300m

SCALE 1:2500

PLAN 3

Glossary

Abbreviation	Explanation & Units of Measure
cm	Centimetre - 100 centimetres = 1 metre
g	Gram - 1000 grams = 1 kilogram
g/t	Gram/tonne,1g/t =1ppm
km	Kilometre - 1 kilometre = 1000metres
m	Metre
ma	Million years ago
oz	Troy ounce - 12 troy ounces = 1 Avoirdupois pound (lb), 1oz = 31.103477g
sq.km.or km^2	Square kilometre - an area equal to 1000 metres by 1000 metres
t	Tonne - a metric tonne, 1 tonne = 1000 kilograms
ppm	Parts per million, 1ppm = 1 g/t
ppb	Parts per billion, 1000ppb = 1 ppm
Ag	Silver
Au	Gold
Cu	Copper
Fe	Iron
Ir	Iridium (a platinum group element)
Ni	Nickel
Os	Osmium (a platinum group element)
Pb	Lead
Sn	Tin
W	Tungsten
Zn	Zinc

Technical Name	Explanation of Term
Adit	Horizontal passage from the surface into a mine.
Aeromagnetic survey	An aerial survey made for the purpose of recording magnetic characteristics of rocks.
Allochthonous	A block of rock (any scale) transported to its current position usually by tectonic forces
Alluvial	Deposited by a stream or river. Said of a placer deposit formed by the action of running water.
Alteration	Change in the mineralogical and chemical composition of a rock, generally produced by hydrothermal fluids or by weathering.
Amphibole	A calcium, iron, magnesium silicate mineral usually dark green
Andesite	A dark coloured, fine-grained, usually extrusive rock of intermediate composition. The fine-grained equivalent to gabbro.
Ankerite	An iron, magnesium carbonate mineral
Anomaly	Value higher or lower than the expected norm.
Archaean	Geological era >2400 million years old
Arsenic	A common element associated with gold; elemental analysis used a as pathfinder for gold mineralisation
Auriferous	Gold bearing.
Autochthonous	A block of rock (any scale) that was formed in its current position and was not transported
Basalt/basaltic	A fine-grained dark extrusive volcanic rock with a low silica content.
Base metal	Generally a non-ferrous metal inferior in value to the precious metals; usually and especially copper, lead, zinc and nickel.
Bifurcating	A single structure which splits into two
Biotite	A rock forming mineral of the ring silicate group
Breccia	A course-grained rock consisting of angular broken rock fragments held together by a fine-grained matrix, distinct from conglomerate.

Technical Name	Explanation of Term
Brownfield	Of exploration; generally an area with previous work undertaken, often close to a mine or deposit
Calc-alkaline	Calcium-rich feldspar igneous rock
Cambrian (Cambro-)	A geological time period from 435 to 395ma
Carbonaceous	Containing carbon - often of organic origin.
Carboniferous	A geological time period ranging from 345 and 280 million years ago.
Chalcopyrite	A sulphide of copper and iron.
Channel sample	A sample obtained by cutting a rectangular channel across a rock face: more representative than a chip sample or a grab sample.
Chert	A quartz-rich sedimentary rock formed by chemical precipitation
Chlorite (-ic)	Iron rich alteration mineral
Clastic	of sediments derived by erosion of landmasses
Cleavage	A rock fabric of fine fractures imparted during deformation
Colluvial (-ium)	A general term applied to loose and incoherent deposits usually at the foot of a slope.
Complex	A stratigraphic unit that includes a mass of structurally complicated rocks.
Conformable	One package of sediments lying on top of another with no discernible difference in bedding angles
Conglomerate	A sedimentary rock formed by the cementing together of rounded, water-worn pebbles, distinct from breccia.
Craton	A major structural unit of the Earth's crust characterised by a large stable mass of crystalline rock
Detection limits	In laboratory analysis the lowest and highest level at which an element concentration can be accurately measured
Devonian	A geological time period from approximately 410 to 345 million years ago.
Dip	The angle that a stratum or planer feature such as a fault makes with the horizontal, measured perpendicular to the strike and in the vertical plane.
Disseminated	Descriptive of mineral grains which are scattered throughout the host rock.
Dolerite	An igneous iron-rich rock usually found as dykes
Dunite	An igneous ultramafic rock composed 90% of olivine minerals
Dyke	A tabular igneous intrusion which cuts across the bedding or other planer structure in the enclosing rock.
Epithermal	A deposit formed by low temperature hydrothermal fluids at shallow depths in the earth's crust; associated with volcanic rocks
Evaporitic	Relating to minerals form from evaporation of shallow seas and lakes e.g. salt, gypsum
Exposure	A place where rocks can be seen in situ
Facing	Used to describe which way the sedimentary rocks are younging
Fault bounded	A group of rocks that are constrained by geological faults
Feldspar	A common group of aluminium silicate minerals.
Felsic	Igneous rock composed mainly of light coloured minerals like quartz and feldspar (opposite of mafic; synonymous with acid); relatively high in silica and alumina and low in iron and magnesium.
Fissure vein	A cleft or crack in solid rock, commonly filled with mineral matter different from the enclosing walls.
Fluviatile	Of sediments deposited within a river system and its flood plain
Fold belt	A somewhat linear or curvilinear group of rocks, of sub-continental scale, that have suffered a common history of deformation (folding) and other geological events, such as mineralisation.
Formation	A (named) succession of sedimentary beds having some common characteristics.
Gabbro	A mafic intrusive igneous rock.
Galena	Lead sulphur mineral
Garnet	A calcium, iron, magnesium silicate mineral with different extra elements producing different colours
Geochemical sampling	Systematic collection of rock or soil samples in order to study their chemistry.
Geochemical survey	A systematic study of the variation of chemical elements in rocks or soils.

Technical Name	Explanation of Term
Geochemically anomalous	An area having elevated levels of specified elements in rocks or soils.
Geophysics	Study of the earth by quantitative methods.
Geoscientific	A term used to describe a range of disciplines related to the study of the earth
Geosynclinal	Relating to a major structural and sedimentalogical unit of the Earth's crust which exhibits substantial deformation
Glacial deposits	Accumulation and deposition of debris associated with glacier movements
Glaciomarine	A sediment derived from glacial deposits formed offshore
Gondwana	A supercontinent that existed in the Mesozoic Era
Graben	A downthrown block between faults
Grade	Average quantity of ore or metal in a specified quantity of rock.
Granite (-ic)	Course-grained felsic igneous rock containing quartz and feldspar.
Granulite	Usually a high grade metamorphic rock with a granular texture
Greenfield	Of exploration; generally were there has been no previous work or only very minor amounts
Greenschist	A moderate to low grade of regional metamorphism, usually involves the formation of green chlorite
Ground EM	An electromagnetic (EM) ground based geophysical method for detecting sulphide mineral accumulations
Ground magnetic survey	Surface geophysical survey investigating variations in the earth's magnetic field intensity.
Group	The formal stratigraphic unit next in rank above Formation. A Group contains two or more associated Formations with significant features in common.
Hydrothermal	Of, or pertaining to, heated waters which transport minerals in solution.
Igneous	Rocks formed from solidification of molten material either at surface (volcanic) or at depth (intrusive).
Induced Polarisation ("IP")	A surface electrical geophysical surveying method.
Inlier	A collection of older rocks (or a region) surrounded by a much younger sequence of rocks
Intermediate	Descriptive of igneous rocks lying midway between acid and basic (or felsic and mafic) in composition
Intrusive	An igneous rock mass emplaced in a largely molten state within surrounding older rock.
Island Arc	A chain of islands formed by volcanic activity related to subduction
Isoclinally	Of a fold where the two fold limbs are strongly deformed to be parallel
Jurassic	A time period from approximately 205 to 141 million years ago.
Limestones	Calcium carbonate-rich sedimentary rocks
Lithological competency contrast	Packages of rocks that display different physical properties when deformed; usually associated with structurally controlled deposits
Lithology (-ies)	The same as rock type, the description of rocks.
Lode	Aggregate of minerals in a mineral deposit.
Mafic	Igneous rocks with dark colouration due to high magnesium and iron content (opposite of felsic; synonymous with basic.
Magma chambers	Cavernous area formed and filled by molten rock deep within the earth
Magnesite	Magnesium carbonate mineral (listed as MS on the included maps)
Magnetite	An iron oxide mineral that is magnetic
Mesoproterozoic	A geological era form 1000 to 1600ma
Meta-	A prefix indicating that the rock-type has been metamorphosed
Metalliferous	Of or pertaining to metals; metal-rich or metal-bearing.
Mineral occurrence	An existence of a mineral accumulation; can range in size from a small solitary vein to a large mine
Mining lease ("ML")	A tenement on which mining may take place.
Mudstone	A fine grained sedimentary rock in which the proportion of clay and silt are approximately equal.
Neoproterozoic	A geological era from 570 to 1000ma
Obduction	A process that causes large blocks of rocks (many kms) to be scrapped off a subsiding geological plate (from subduction) and welded on to the opposite plate

Technical Name	Explanation of Term
Olivine	A calcium, iron, magnesium silicate
Ophiolites	Iron and magnesium-rich rocks formed on the seafloor and magma chambers, and then caught up in subduction
Ordovician	A geological time period from 500 to 435ma
Orogeny	A major phase of upheaval in the earth's crust
Ounce (oz)	Refers here to a troy ounce which is a unit of measure for precious metals, there are 12 troy ounces to one avoirdupois pound
Outcrop	Rock that comes to surface; can be covered by unconsolidated material and not visible
Palaeo-	A combining form meaning old or ancient.
Palaeoproterozoic	A geological subdivision of the Proterozoic era 1800Ma to 2400Ma
Palaeozoic	A geological era from 570 to 250ma
Palladium	A precious metal usually associated with ultramafic rocks (a platinum group element)
Pelite	A metamorphosed fine grained siltstone or mudstone
Permian	A time period from approximately 280 to 248 million years ago.
Permo-Carboniferous	Strata not differentiated between the Permian and Carboniferous systems, particularly in regions where there is no conspicuous stratigraphic break and fossils are transitional.
Phanerozoic	Part of geological time represented by rocks in which the evidence of life is abundant i.e. from 540Ma to present day
Phyllite	A metamorphosed fine grained siltstone or mudstone usually with a strong cleavage
Placer deposit	River derived sediment rich in economic minerals e.g. gold, diamonds
Platinum	A precious metal usually associated with ultramafic rocks
Platinum Group Elements (PGE)	A group of rare and precious metals; includes platinum, palladium, rhodium, ruthenium, osmium and iridium
Platinum Group Minerals (PGM)	Minerals containing platinum group elements
Pluton	A high level, cylindrical mass of granitic rock which was emplaced at low temperature in a near solid state.
Polymetallic	A number of different metallic species, applied to a vein or other type of deposit.
Porphyry (-itic)	An igneous rock in which large crystals ("phenocrysts") are scattered through a matrix of smaller crystals ("groundmass"); rocks displaying such textures.
Precious metals	Includes gold, silver and the platinum group metals.
Proterozoic	A geological eon from 570 to 2500ma
Province	A geological region with a common theme
Pyrite	Common iron sulphide mineral.
Pyroxene	A calcium, iron, magnesium silicate
Pyroxenite	An igneous ultramafic rock composed mainly of pyroxene minerals
Pyrrhotite	A magnetic iron sulphide mineral
Quartz	A mineral composed of silicon and oxygen.
RC Drilling	Reverse Circulation Drilling - A percussion drilling technique in which the cuttings are recovered up the inside of the drill rods to minimize contamination from the wall of the hole.
Radiometric Data	Data that measures the concentrations of certain different radioactive isotopes found within rocks; usually an aerial survey
Regional metamorphism	Large scale alteration of existing rocks by fluids generated by being buried, heated and deformed
Reserve	The economically mineable part of a resource.
Resource	An estimate of the total amount of a commodity or mineral in a given place, province, country etc.
Rhyolite	An acid igneous extrusive rock
Rifting	Splitting and separation of very large landmasses thro' geological forces
Rock chip sampling	Obtaining a sample, generally for assay, by breaking chips off a rock face.
Schist	Regionally metamorphosed rock characterised by parallel arrangement of mineral constituents

Technical Name	Explanation of Term
Sericite	A fine grained form of mica formed by the chemical alteration of other minerals.
Serpentinite	An ultramafic rock that has been wholly altered to serpentine mineral
Shaft	A vertical or steeply-inclined excavation used for access to a mine.
Shale	A very fine grained clastic rock
Silicic	Said of a silica rich igneous rock or magma.
Silicified	The introduction of, or replacement by, silica, which may replace existing minerals
Siltstone	Sedimentary rock composed of silt-sized particles.
Silurian (Siluro-)	A geological time period from 570 to 500ma
Sinistral	Used to describe apparent fault movement in this case to the left
Sinter	Silica deposited by hot springs
Skarn	Metamorphosed calcareous sediment into which silica and other elements, often including metals, have been introduced from an adjoining intrusive body.
Soil geochemistry	A systematic sampling and chemical analysis of soils.
Sphalerite	A sulphide mineral of zinc and iron, the main ore mineral of zinc.
Splay	A subsidiary fault that splits off from a main fault
Stratiform	Monominerallic layers usually parallel to bedding and sediment deposition
Stratigraphy (-ic)	The study of stratified rocks and the rock beds relationships
Stratotectonic	A unique combination of stratigraphy and structural history for a particular large section of rock mass
Stream sediment geochemistry	Systematic sampling and chemical analysis of sediments within drainage channels.
Strike	Trend or direction of rock strata in a horizontal plane; to extend in that direction.
Structurally controlled	A general term for geological features formed by faulting and/or deformation
Structure	A general term used to describe a linear feature e.g. a vein, fault, dyke, fissure
Subduction zone	A region where oceanic crust descends into the Earth's mantle.
Suite	A particular arrangement of associated rock types
Sulphide	A mineral compound characterised by the linkage of sulphur with metal.
Swamping'	An image effect on a geophysical map whereby a large and intense magnetic anomaly masks subtle geological detail on the surrounding imaged data
Syncline	A basin shaped fold in the rocks
Syndepositional fault	A fault penetrating deep into the earth that is moving whilst sedimentation is going on; often related to orebody formation
Synvolcanic	Movement of a fault during volcanic activity
Tectonic	General term descriptive of all movement of the Earth's crust caused by directed pressures.
Tectonic suture	A linear feature or zone that marks the welded junction of two geological plates (can be terranes)
Tenement	A land use instrument issued by state governments for regulation of mineral exploration and mining.
Terrane	A term to denote a group of formations with a linked heritage
Tertiary	A geological time period between 65 and 2 million years ago.
Tholeiite	A type of basalt of distinct mineral composition
Thrust stacking	A sequence of shallow dipping faults overlying each other
Triassic	A time period from approximately 251 to 205 million years ago.
Tuff (-aceous)	Volcanic ash strata (derived from weathering of, or containing, tuff strata).
Turbidite	A quartz-mica sediment deposited in a rapid fashion at great distances offshore
Ultramafic	Igneous rocks containing a high proportion of iron and magnesium silicate minerals with no quartz
Unconformable (-y)	Descriptive of rocks on either side of an unconformity.
Unconformity	Lack of parallelism between rock strata in sequential contact, caused by a time break in sedimentation.

Technical Name	Explanation of Term
Vein	Generally tabular mineral deposit, usually relatively narrow and occurring between well defined walls.
Volcanic hosted massive sulphide	A major accumulation of sulphide minerals, usually pyrite, sphalerite and galena, within and parallel to the stratification of volcanic material
Volcanic(s)	Pertaining to volcanoes, a rock produced by volcanic activity.
Volcaniclastics	A clastic rock containing material derived from volcanic source rocks.
Younging	The direction to which the youngest rocks occur in a sedimentary layered sequence