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THE CONSOLIDATED SYNDICATE

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ANNUAL REPORT

MT. TYNDALL E.L. 9/66

1971 - 72

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1. INTRODUCTION

Work on Mt. Tyndall E.L. 9/66 during the 1971-72 year was concentrated in the following areas:

(i) Selina area

(ii) Red Hills area

(iii) White Spur area

(iv) Henty Fault zone

(v) S.W. ultramafic area

Five diamond drill holes (total footage ~~2561~~ 2562½ ft.) were completed to test anomalous zones outlined by previous geological, geophysical and geochemical investigations. Geological mapping was undertaken in a number of areas, and the N.E. corner of the licence area was investigated by a series of mapping traverses.

The exploration program planned for the 1972-73 year consists of three main phases. One aspect involves conducting detailed geophysical coverage (I.P., magnetics) combined with follow-up geochemistry over the Henty Fault zone. A second phase involves the continued appraisal of the Selina zone of mineralisation by detailed trace element geochemistry and surface geological mapping. If warranted, additional diamond drilling will be conducted in this zone. The third phase of the 1972-73 program involves continuing detailed geological mapping of the area between Henty Camp and Basin Lake to complete the re-analysis of the stratigraphy of the Mt. Read Volcanics in that section of the licence area.

Staffing during 1971-72 was provided by The Mount Lyell Mining & Railway Company Limited. All diamond drilling was carried out, under contract, by Associated Diamond Drillers Pty. Ltd.

Total expenditure on E.L. 9/66 during the 1971-72 year was $68,668. A budget total of $143,500 has been recommended for The Consolidated Syndicate's operations during 1972-73; including a budget of $76,000 for the Mt. Tyndall licence area.

2. ACKNOWLEDGEMENTS

Geologist K.J. Lee worked on the Tyndall area for five months during the summer field season. The results of his work are embodied within this report.

Student R.A. Poltock carried out geological mapping and sampling in a number of areas and submitted notes and plans of this work.

All draughting associated with E.L. 9/66 was carried out competently by R.G. Wilson.

3. SELINA AREA

3.1 Introduction

Diamond drill testing of an extensive geophysical anomaly in the Lake Rolleston - Lake Selina area of E.L. 9/66 has been in progress since April, 1970. The drilling program has consisted of two distinct and geographically separate phases, each involving the drilling of three diamond drill holes.

A zone of strong, anomalous I.P., resistivity and magnetic response (with coincident soil geochemical anomalies for Cu, Pb, Zn) was located within sheared pyroclastics and lavas between traverses 40N and 80N. A three hole diamond drilling program to test the anomalous zone was completed in 1970-71.

The results of this testing have been documented by Newnham (1970) and McKibben (1971 B, 1971 C).

Continued geophysical surveying during the 1970-71 summer season detailed the northward extension of the previously outlined anomalous zone. A strong I.P. and resistivity axis was located between traverses 88N to 136N, coinciding in part with a magnetic anomaly. Particularly strong I.P. response was obtained from traverses 112N to 136N.

Three diamond drill holes were recommended to test the peak of the anomalous zone. The drilling program was carried out during the period from April, 1971 to September, 1971.

The results of D.D.H.'s Selina 4, 5 are discussed in the 1970-71 annual report, whilst the whole programme has been reviewed by McKibben (1971 C). A summary of the holes drilled during the 1971-72 year is given below.

3.2 Diamond Drilling

Two holes, totalling 1,260½ feet, were completed in the Selina area during the year. A Mindrill F52 rig, using BQ wireline equipment was used in drilling these holes.

3.2.1 D.D.H. Selina 5

D.D.H. Selina 5 was collared 800 ft. north of D.D.H. Selina 4 on traverse 128N/2900W to test the northward continuation of the same I.P. anomaly. The hole advanced to 642 feet during the 1970-71 year and was completed at a final depth of 902½ feet early in 1971-72.

The hole collared in 20 feet of soil and rubble cover. From 20 - 446 ft., the hole intersected a sequence of

massive acid volcanics showing varying degrees of chloritisation. The rocks contain patches and blebs of pinkish albite and probably represent rhyolitic and keratophyric lavas. Massive magnetite-pyrite mineralisation occurs in the interval 208 - 212 ft., with strongly disseminated pyrite continuing to 315 ft. From 446 - 642 ft. massive, highly siliceous pinkish-grey rhyolite contains fine to medium grained, veinlets and blebs of pyrite disseminated throughout, with minor traces of chalcopyrite associated with the pyrite. The mineralisation is generally less intense than that intersected in D.D.H. Selina 4. Chloritised acid volcanics (tuffs and lavas) containing disseminated pyrite with traces of chalcopyrite were intersected from 642 - 845 ft. Small veinlets of pyrite are present throughout and minor splashes of chalcopyrite are present in quartz-chlorite albite patches. From 845 - 902½ ft., the hole intersected massive unsheared and unmineralised quartz-feldspar porphyry (of probable keratophyric composition) and was completed at that depth.

Assay results in the mineralised zones include:

107 ft. (208 - 315 ft.) of 0.05% Cu 10.1% FeS_2

400 ft. (445 - 845 ft.) of 0.08% Cu 9.2% FeS_2

including,

30 ft. (720 - 750 ft.) of 0.35% Cu 23.6% FeS_2

3.2.2 D.D.H. Selina 6

D.D.H. Selina 6 was collared on traverse 136N/2700W and drilling commenced on July 26, 1971.

The hole collared in brecciated "cherty" volcanics from 0 - 59 ft. From 59 - 685 ft. highly siliceous,

chloritised lavas containing very patchy disseminated pyrite were intersected with minor traces of chalcopyrite (from 140 ft. onwards). The hole passed through tuffaceous rocks of similar composition to the acid lavas from 685 - 868 ft. Patches of massive magnetite-pyrite mineralisation are scattered from 736 - 868 ft. From 868 - 972 ft. siliceous tuffs and lavas containing small veinlets of very fine grained pyrite are present. At 972 ft. massive unmineralised quartz-feldspar porphyry, identical to that intersected at the end of D.D.H. Selina 5, was intersected and drilled to a final depth of 1,000 ft.

Three zones of pyrite mineralisation were intersected and averaged:

170 ft. (215 - 385 ft.) of 0.07% Cu 5.2% FeS_2
60 ft. (625 - 685 ft.) of 0.04% Cu 4.0% FeS_2
232 ft. (740 - 942 ft.) of 0.05% Cu 7.5% FeS_2

3.3 Conclusions and Recommendations

Drilling results obtained from D.D.H.'s Selina 4, 5 and 6 indicate a wide zone of strongly developed pyrite mineralisation in excess of 1,200 feet long and up to 500 feet wide. Mineralisation, consisting of disseminated and veinlet pyrite, sometimes with associated magnetite veining, occurs in all three drill holes. The grade and intensity of pyrite mineralisation decreases northwards from traverse 120N to 136N and the mineralised zone appears to split into a number of narrower zones.

No significant concentration of copper was indicated by drilling. However, some encouragement is received from D.D.H. Selina 4, which intersected a 280 ft. wide zone of sheared quartz-sericite schist showing basic similarities to the rhyolitic fragmental host rocks of the Prince Lyell and Cape Horn orebodies. In addition a costean across the area tested by D.D.H. Selina 4, exposed pyritic volcanics containing some molybdenite films on schistosity surfaces. This evidence could indicate increasing metasomatic alteration southwards from traverse 120N.

If an increase in alteration can be demonstrated between traverses 120N and 80N (a distance of 4,000 ft.) the environment could represent a favourable drilling target. Recommendations for further investigation of this area are outlined in Section 10.4.1.

4. RED HILLS AREA

4.1 Introduction

Newnham (1971) recommended a two phase, two rig drilling program in the Red Hills area during the 1971-72 summer season. The drilling program was completed during the year; three short holes (totalling 1,302 ft.) being drilled.

The drilling was designed to evaluate an area of anomalous I.P. response corresponding to interesting disseminated haematite-magnetite-chlorite-pyrite-chalcopyrite-pyrrhotite zones in acid lavas on the crest of Red Hills.

The main potential for the presence of economic mineralisation in the Red Hills area appeared to be either as a large low-grade disseminated deposit within 200 vertical feet of the surface or as a series of shoots of massive copper mineralisation.

4.2 Diamond Drilling

Drilling commenced on October 11, 1971 using a Mindrill F30 trailer mounted, mast type rig equipped for BQ wireline drilling.

4.2.1 D.D.H. Red Hills No. 1

D.D.H. Red Hills No. 1 was collared on traverse 16S/3100E, drilling eastwards to test the northern end of I.P. axis A2 (refer Map 6).

The hole intersected weathered acid lavas (dacites, rhyolites) with minor tuffaceous horizons from 0 - 142 ft. From 142 - 450 ft. the hole passed through rhyolite/dacite lavas showing varying degrees of chloritisation and was completed at that depth. A weak patch of malachite and cuprite joint-face coatings occurred between 70 - 78 ft. Otherwise only very minor magnetite veinlets and scattered patches of coarse pyrite occur within the core. Very rare minute specks of chalcopyrite were observed in the section from 380 - 450 ft.

4.2.2 D.D.H. Red Hills No. 2

On completion of D.D.H. Red Hills No. 1, the F30 rig was moved to the site of D.D.H. Red Hills No. 2 which was collared on traverse 16S/2500E, drilling eastwards to test I.P. axis A1 and the surface zone of

disseminated haematite-magnetite mineralisation.

The hole commenced in massive dacite/rhyolite lavas and these rocks continued to the end of the hole at 450 ft. A zone of pyrite blebs and weak magnetite veinlets was present from 110 - 345 ft. Only rare specks of chalcopyrite were observed in the core.

Assay results of the 235 ft. section between 110 - 345 ft. average 0.04% Cu, 2.4% FeS_2.

At the completion of this hole, it became apparent that little potential for a large tonnage-low grade deposit remained within 200 vertical feet of the surface of Red Hills. In view of the disappointing results of D.D.H.'s Red Hills Nos. 1 and 2, it was decided to re-site the third short hole to more adequately test the zone of surface haematite-magnetite mineralisation corresponding to I.P. axis A1.

4.2.3 D.D.H. Red Hills No. 3

D.D.H. Red Hills No. 3 was collared at 29S/2400E and drilling commenced on November 29, 1971.

The hole intersected very hard, massive fine grained dacite/rhyolite lavas from 0 - 402 ft. at which depth drilling was stopped. Haematite occurred as small blebs throughout the lavas with very minor disseminated pyrite. No chalcopyrite was observed.

On completion of this hole, further drilling at Red Hills was considered unwarranted. The drilling contractor moved all his equipment from the licence area.

4.3 Conclusions and Recommendations

Drill testing of the Red Hills area has indicated only minor pyrite-magnetite-haematite mineralisation in the acid lavas. The extensive I.P. anomaly appears related to very small amounts of disseminated pyrite within the lavas. The zone of mineralised lavas outcropping on the crest of Red Hills were tested by D.D.H.'s Red Hills Nos. 1 and 2 and do not contain significant copper mineralisation.

The lavas intersected by drilling are generally massive and impermeable. The potential for the location of a large tonnage-low grade deposit within 200 vertical feet of the surface is low.

Economic mineralisation may exist as shoots of massive chalcopyrite-pyrite-magnetite localised in shear structures within the lavas (for example 1 North Adit). However such mineralisation is unlikely to represent large tonnage targets - the impermeable nature of the host rocks is not favourable for the localisation of extensive ore shoots. Identical rocks occur in the Lake Dora and Jukes - Darwin areas and contain minor amounts of chalcopyrote-pyrite magnetite mineralisation, none of which has supported an economic operation.

It is considered that little potential remains for the location at Red Hills of economic mineralisation which would be of interest to The Consolidated Syndicate.

5. WHITE SPUR AREA

5.1 Introduction

The White Spur area lies on the extreme western boundary of E.L. 9/66 (refer Map 7). Rio Tinto Australian Exploration conducted detailed work in this area between 1957-1960. Their investigation outlined a sequence of slates, greywackes and siltstones, underlain and overlain by pyroclastics and lavas of the Mt. Read Volcanics, in a stratigraphic and structural environment similar to the host rocks of the Rosebery and Hercules mineralisation.

Rio Tinto's grid over the area was surveyed by electromagnetic (Turam), magnetic and gravity techniques. A series of 5 E.M. anomalies (with coincident gravity anomalies in a number of cases) were revealed by Rio Tinto's work. The Electrolytic Zinc Company drilled one diamond drill hole (D.D.H. White Spur No. 1, total length 794 ft.) to test one of Rio Tinto's E.M. anomalies.

A revision of the E.L. 9/66 licence boundary in May, 1971 lead to the inclusion of a portion of the White Spur area in E.L. 9/66.

5.2 Access and Track Cutting

The White Spur area is particularly well served with access roads (refer Maps 2, 7). A new timber road has been constructed into the centre of the White Spur valley and permits easy access to most areas of interest.

Rio Tinto's grid was relocated during 1971-72 and appropriate traverse lines were remarked to permit re-location of the anomalous E.M. zones. No re-cutting was necessary as the

lines are sufficiently open for the purpses of initial investigation.

The Mount Lyell demountable field camp was erected on Howard's Road to provide a base for operations at White Spur and the ultramafic bodies on the western side of the Henty River.

5.3 Geological Mapping

Geological mapping carried out during 1971-72 was specifically intended to:

(i) check Rio Tinto's mapping of the area;

(ii) extend Rio Tinto's mapping by detailed examination of previously unavailable road exposures.

Mapping was conducted over Rio Tinto's grid in the southern section of the valley - however exposure is limited over much of the swampy valley. All streams within the area were geologically mapped. Roads were picked-up by tape and compass traverses.

The E.M. (Turam) anomalies outlined by Rio Tinto were found to be related to graphitic and pyritic black slate horizons.

Map 7 is a generalised geological map compiled from the detailed mapping information. The positions of the E.M. anomalies are shown. The mapped area covers a sequence of Cambrian pyroclastics and lavas with a persistent sedimentary horizon within the volcanic succession.

To the east, a sequence of variable pyroclastics predominantly lithic and crystal tuffs with a distinctive coarse, pumiceous, volcanic breccia are well exposed in road cuttings. These rocks are interpreted as underlying the slate-greywacke

sequence - based on evidence exposed near 841,700 yards N, 856,330 yards E where definite west facings were recorded in black slates overlying coarse pumiceous volcanic breccia. Elsewhere the pyroclastics appear to dip predominantly westerly although local folding may give easterly dips.

Towards White Spur Creek the coarse pyroclastics grade into a very fine grained highly siliceous "chert". The breccia often contains large angular fragments of black slate and chert in a pumiceous and feldspathic groundmass. King (1960, p.3) considered that the presence of dismembered blocks of slate indicated that the breccia stratigraphically overlies the chert and slate sequences. However, it is equally likely that minor sedimentation was taking place during the explosive volcanic episode.

The White Spur sedimentary sequence consists of black slates, greywackes, tuffaceous sandstones and siltstones which dip and face moderately west. Local folding has been observed, giving east facings and dips. However the sediments are poorly exposed in the swampy valley floor, thus preventing detailed structural analysis.

The position of two of Rio Tinto's E.M. axes (Southern No. 3a and Western No. 2 anomalies) coincides closely with black slate horizons. Syngenetic pyrite, occurring as minute euhedral cubes and as sheet-like joint face coatings, is reasonably common within the black slates but has not been observed within the greywackes or tuffaceous sandstones. The graphitic black slates, with pyrite present, could be expected to give strong electromagnetic anomalies.

Massive fine grained acid lavas and siliceous crystal tuffs have been mapped in a number of localities to the west of the sediments. King (1960) considered that these rocks were equivalent to the Hanging Wall Volcanics at Hercules and suggested a faulted contact with the sedimentary sequence. However, mapping of the massive acid volcanics, south of the area shown on Map 7, suggests that they unconformably overlie the sedimentary sequence. This interpretation fits the regional geological picture equally as well as Rio Tinto's fault structure and is preferred because of a lack of visible linears to support the fault contact.

As at Hercules, the sedimentary sequence at White Spur appears to overlie a pyroclastic horizon containing volcanic breccias, coarse tuffs chert and black slate beds. In both cases the sediments appear to be unconformably (?) overlain by a thick sequence of massive acid lavas and siliceous crystal tuffs.

No significant surface indications of mineralisation have been observed within the area. King (1960, p.5) reports that no old workings were discovered during Rio Tinto's examination of the area.

The anomalies located by Rio Tinto's Turam surveying are clearly related to graphitic and pyritic black slate horizons. Anomaly 3a was tested by the Electrolytic Zinc Company in the 1960's. D.D.H. White Spur No. 1 (refer Map 7) was drilled to a total depth of 794 ft. without intersecting mineralisation. However it would appear, from the collar position, that this hole was too short to adequately intersect the black slate horizon.

5.4 Geochemistry

It was considered worthwhile to carry out detailed geochemical analysis of rock chip samples cut across the anomalous black shale horizons in an attempt to locate and define anomalous trace element patterns which may predict likely foci of Rosebery - Hercules type stratiform lead-zinc mineralisation.

A series of chip samples were cut across Southern anomaly No. 3a and Western anomaly No. 2. The samples were analysed for Cu, Pb, Zn, Cd and Ba trace element contents. All samples gave very uniform results with no recognisable anomalies or trends.

Whilst the small amount of sampling completed does not rule out the possible usefulness of this technique, any additional sampling would require the use of a percussion drill rig to obtain samples from the poorly exposed sediments.

5.5 Conclusions and Recommendations

The stratigraphic and structural setting of the White Spur sedimentary sequence is comparable to that of the Hercules host rocks. The sequence therefore represents a potential host environment for Rosebery - Hercules type exhalative, stratiform lead-zinc mineralisation.

Conventional electric or electromagnetic geophysical methods are unsuited to the White Spur environment due to the presence of graphitic black slate horizons. Unless detailed stratigraphic studies could provide sufficient information to locate drill targets, it is envisaged that either detailed bedrock geochemistry or detailed gravity coverage would be required to adequately test the area. Rosebery and Hercules type orebodies should be detectable by precise gravity work.

The Electrolytic Zinc Company of Australasia has made a tentative approach to the Syndicate with regard to general joint venture exploration possibilities in Western Tasmania. They have demonstrated some interest in the White Spur area and are currently carrying out a small diamond drilling programme in an area west of Hercules and immediately north of White Spur.

In view of E.Z.'s considerably greater experience, and possible expertise, in the Rosebery - Hercules environment, it is considered that a joint venture approach to the White Spur area could prove advantageous. It is recommended that further investigation by the Syndicate be deferred until E.Z.'s interest in this area can be determined by negotiation.

Any investigation that the Syndicate might undertake in the White Spur area could possibly involve either detailed bedrock geochemical or gravity surveys both of which involve considerable expenditure. It is unlikely that we could rapidly acquire sufficient knowledge of the stratigraphic environment of Hercules without some information exchange with the Electrolytic Zinc Company.

6. HENTY FAULT ZONE

6.1 Introduction

The reconnaissance exploration coverage of the N.W. corner of the licence area was continued and completed during the year. Magnetometry was completed along the remaining traverse 56N but no anomalies were detected.

Geological mapping was carried out over the area extending

from the northern licence boundary, south as far as the Henty River camp (refer Map 8). This area is covered by thick, often impenetrable rain forest and in places moraine outwash deposits obscure the bedrock geology.

McKibben (1971 B) recommended a small I.P. survey over approximately 10,000 ft. of grid to test an area adjacent to the Henty Fault immediately north of the Red Hills Road. During the 1971-72 field season it became evident that additional geophysical coverage is warranted over a larger area - the small program was consequently deferred until the 1972-73 summer (refer 10.4.2).

6.2 Geological Mapping

Mapping was carried out over a period of three months during the summer field season by Mount Lyell geologist K.J. Lee with assistance from four University geology students. The results of this work are shown on Map 8.

Regionally, the area consists of a sequence of fine grained acid lavas trending N.W. - S.E. with associated lenses of pyroclastics. The rocks appear to dip steeply (80-85°) westwards and are abruptly truncated on the S.E. and E. margin by an intense shear zone associated with the major S.W. - N.E. trending Henty Fault. The fault brings typical Red Hills rhyolite/dacite lavas into the area on the eastern side of the fault zone.

On the N.W. side of the Henty Fault a prominent schistosity is developed within the less competent pyroclastic horizons whereas the more competent acid lavas are less deformed and contain little or no chlorite.

The acid lavas generally consist of a very fine grained pinkish groundmass with quartz and feldspar phenocrysts and may be referred to as "quartz-feldspar porphyries" in hand specimen. Microscopic examination shows them to be dominantly porphyritic dacites and rhyolites.

The pyroclastics are usually fine to medium grained crystal tuffs of rhyolitic or keratophyric composition. They are variably weathered making field identification somewhat dubious at times. Rhyolite lava flows and pumiceous agglomeratic horizons have been observed within the pyroclastics.

In a number of places intense shearing, possibly associated with the Henty Fault zone has converted rhyolitic fragmentals to a schistose quartz-sericite-chlorite or quartz-sericite rock showing close similarities to the schist on the Consolidated Mining Lease at Mount Lyell. Disseminated pyrite mineralisation, with minor traces of chalcopyrite is present in these schistose pyroclastics in a number of localities.

6.3 Mineralisation

Most sulphide mineralisation observed in the area is confined to the pyroclastics. In general, only minor pyrite and chalcopyrite occur within the acid lavas, although two small shafts and a narrow trench were developed on sparse malachite-chalcopyrite showings in rhyolite/dacite lavas on the eastern side of the Henty Fault zone, immediately north of the Red Hills Road (refer Map 8).

Finely disseminated pyrite mineralisation, with minor chalcopyrite and magnetite occurs in fragmental quartz-sericite schists of probable rhyolitic affinity in a number of localities.

A small shaft in quartz-chlorite schists adjacent to the Henty Fault zone on the N.W. Road contains massive pyrite-chalcopyrite-magnetite mineralisation as a local concentration. Chip sampling results from a costean cut across this zone in 1970-71 revealed 40 ft. of 1.22% Cu.

Of particular interest, is a zone of highly sheared quartz sericite schists containing disseminated pyrite exposed in road cuttings at 847,000 yards N, 359,800 yards E (refer Map 8). The style of mineralisation is identical to that commonly observed in the Prince Lyell - Cape Horn zone at Mount Lyell.

Recommendations for the further detailed evaluation of the mineralisation within the vicinity of the Henty Fault zone are given in Section 10.4.2.

7. ULTRAMAFIC BODIES

7.1 Introduction

Two ultramafic bodies were outlined during the 1968-69 field season; one in the extreme south-west of the licence area, the other in a rugged, inaccessible section of the Henty River Gorge. Newnham (1969, 1970) gives details of previous work conducted over these ultramafic bodies.

The extensive ultramafic body in the S.W. corner of the licence area warranted geological and geochemical investigation to assess its potential as a host for economic Cu-Ni and asbestos mineralisation.

The Henty River ultramafic body was of interest in that minor amounts of millerite and an apple-green nickel silicate are

present in metasediments adjacent to the ultramafic mass.

7.2 Henty River Ultramafic Body

This ultramafic body is a small outcrop of highly sheared, serpentinised pyroxenite exposed in a steep gorge of the Henty River adjacent to its confluence with White Spur Creek (refer Map 3).

The body is largely composed of sheared black-green serpentinite containing rare remnant blocks of pyroxenite, and intrudes a sequence of mudstones, siltstones and minor pyroclastics of the Dundas Group. The Henty Fault forms the western boundary of the ultramafic body, cutting it off abruptly against sheared pyroclastics of the Mt. Read Volcanics.

A narrow zone of country rocks adjacent to the eastern contact of the ultramafic body is extensively silicified and recrystallised with strong calcite/dolomite veining. A mineralogical examination conducted by Central Mineralogical Services in 1969 identified the altered halo rocks as cherty carbonate metasediments consisting of layers and lenses of carbonate alternating with microcrystalline quartz.

A bright green silicate mineral occurs within the silicified metasediments. Talc (soapstone) occurs locally, with minor specks of pyrite and rare bright whitish sulphide specks. Microscopic examination has identified patches of apple-green, hydrated nickel silicate with fibrous to micaceous habit occurring between quartz grains in some layers. The petrological report records euhedral opaques (some of them prismatic) in thin section.

In polished section, ther are many very small crystals of pyrite (maximum size of aggregates = 0.3 mm) and very small prismatic crystals of millerite (NiS) up to 0.10 mm long. The sulphides were considered to be epigenetic by Central Mineralogical Services.

A number of chip samples of the serpentinite and the surrounding silicified metasediments were collected and analysed for Cu, Ni, Co content. The ultramafic averaged 650 ppm Cu, 1940 ppm Ni, 90 ppm Co whilst samples from the altered contacts averaged 500 ppm Cu, 1580 ppm Ni, 70 ppm Co.

Newnham (1969) collected two rock samples and one soil sample adjacent to the ultramafic body -- these gave Ni values up to 2700 ppm with a Cu : Ni ratio of 1 : 7. The nickel contents agree well with values recorded over the body by the more recent sampling.

The trace element contents for Cu, Ni, Co in the ultramafic body are not highly anomalous. However the Ni content of the altered metasediments is anomalously high - the presence of considerable amounts of hydrated nickel silicate (garnierite (?)) in these rocks may explain the Ni content although it is unlikely that the conc. HNO_3 attack used in sample preparation would dissolve a silicate structure. The presence of microscopic prismatic needles of millerite could explain some of the Ni content of the metasediments.

The extent of the contact aureole is limited, being a maximum of 40 ft. wide in the river section studied. The small outcrop size of the body, together with its narrow metamorphic aureole suggest that the ultramafic intrusion may be quite small. The extremely inaccessible position of this body together with its possible small size render the area of low priority as an exploration target.

7.3 S.W. Ultramafic Body

7.3.1 Introduction

Newnham (1969) recorded the presence of an extensive gabbro body in the S.W. corner of the Tyndall licence area. This ultramafic appears to have intruded a sequence of shales and tuffaceous sediments.

Newnham notes that the outer margins of the body are generally medium grained with a coarser grained central core which is partially serpentinised in places. Serpentinisation has, in general, not wholly affected the pyroxenes within the gabbro.

Magnetic readings recorded over the gabbro body by Newnham (1969) are high and variable, reflecting the presence of magnetite.

7.3.2 Geological Mapping

Geological mapping during 1971-72 was aimed at fully outlining the intrusion and detailing petrological variations. It was shown that the body is much more extensive than previously known (refer Map 3), being up to 1 mile wide by 1½ miles long and extending across the western boundary of E.L. 9/66.

Little variation in petrology was observed over the limited outcrop available - dense bush covers considerable portions of the ultramafic body and a deep soil cover is usually developed. However, mapping indicates that the body is essentially a medium grained gabbro with locally coarser sections towards the core of the body. Serpentinisation is not widespread - however, narrow discontinuous zones of partially serpentinised gabbro are present in the narrow northern "neck".

The northern contacts of the body appear to be intrusive into shales and cherty siltstones. On the southern boundary, contact relationships are not well known - the ultramafic passes into a complex sequence of basic volcanics, crystal tuffs and sediments. The western boundary of the body extends across the E.L. 9/66 boundary and contacts with Crimson Creek Formation siltstones are inferred.

7.3.3 Geochemistry

A series of rock chip samples were taken in an E-W traverse across the entire ultramafic body. The chip samples were taken over 100 ft. intervals for a total distance of 5,100 ft. along the old logging tramway which extends in an E-W direction over the gabbro.

The analytical results give an average trace element content for Cu, Ni, Co in the gabbro of:
170 ppm Cu, 350 ppm Ni, 44 ppm Co
and a Cu : Ni ratio generally between 1 : 1 and 1 : 3.

No highly anomalous Ni values were recorded, the highest being 1140 ppm Ni towards the centre of the body.

7.3.4 Conclusions and Recommendations

No asbestos, apart from rare slip fibres on slickensided joints was observed within the ultramafic body.

Whilst geological mapping cannot define all petrological variations within the ultramafic mass due to lack of adequate exposure, geochemical results from a sample traverse through the entire body do not reflect any variations in trace element backgrounds

in the gabbro. No evidence of sulphide mineralisation, apart from very minor pyrite, was observed.

In view of the general petrology and unaltered state of the ultramafic body, together with the background geochemical results obtained in sampling, any further work to investigate this gabbro body would appear unwarranted.

8. REGIONAL MAPPING

8.1 Introduction

Geological mapping of several important areas within the Mt. Read Volcanics was continued throughout the year. This work is aimed at extending and re-analysing detailed knowledge of the geological succession within the Mt. Read Volcanics. It is anticipated that completion of a comprehensive re-appraisal of the volcanic environment will enable more explicit assessment of the potential for the location of Mount Lyell or Rosebery type volcanic sulphide deposits within the Mt. Read Volcanics.

New interpretations of the volcanic sequence have been developed from work on the Consolidated Mining Lease at Mount Lyell and further south in the Mt. Huxley and Jukes - Darwin areas. It is envisaged that these new findings could lead to the evolution of new concepts regarding the stratigraphic setting and regional environment of sulphide deposits within the volcanics.

Mapping carried out during 1971-72 was essentially aimed at continuing detailed geological mapping of Mt. Read Volcanics in the Tyndall area to "tie-in" with work being conducted further south.

Whilst important progress was made during the year, much remains to be done to complete detailed re-analysis of the Mt. Read Volcanics within the Tyndall licence area. The continuation of this mapping program is recommended and discussed in Section 10.4.4.

Mapping was concentrated in three main areas during the year:

1. Henty Camp - Howard's Anomaly - Basin Lake area.
2. Mt. Read area.
3. N.E. corner of E.L. 9/66.

8.2 Henty Camp - Howard's Anomaly - Basin Lake Area

During 1971-72, detailed geological mapping by Mount Lyell staff in the Queenstown area allowed some mappable stratigraphic units to be recognised within the Mt. Read Volcanics. In particular a striking unit of banded keratophyric lapilli tuffs and agglomerates was recognised in the Comstock Valley and was shown to unconformably overlie sheared and mineralised Mt. Read Volcanics in the vicinity of the Comstock Mine. The unconformity has been traced for some distance to the N.W. along the S.W. slopes of Mt. Sedgwick.

An identical sequence of banded pink and green keratophyric tuffs and agglomerates was recognised south east of Howard's Anomaly and can be traced north almost to Henty Camp (refer Map 3).

Detailed mapping of the Owen - Cambrian contact zone from Newton Creek to Henty Camp was carried out by student R.A. Poltock in August, 1971. He showed that the keratophyric tuff unit is overlain by Jukes Breccia which passes upwards into a Lower Ordovician sedimentary sequence containing finely laminated siltstones and sandstones at the base of the Owen Conglomerate.

Mapping south of Howard's Anomaly has further defined an extensive hornblende andesite body which is identical to the Crown Hill andesite intrusions N.E. of Queenstown.

A series of three costeans, totalling 1,600 feet, was constructed in the Howard's Anomaly area to improve outcrop in critical areas. Unfortunately extremely deep, clayey soil and very boggy conditions did not permit as much exposure as was anticipated.

The weathered exposures provide useful geological information but did not explain the presence of an I.P. anomaly. This area was tested in the 1970-71 year by D.D.H. Howard's Anomaly No. 2 which intersected weak, fine grained pyrite at the southern end of an I.P. anomaly.

A number of river traverses around the Howard's Anomaly area were remapped. However, further work is required to adequately analyse the geology of the volcanics in this area. This work will continue during 1972-73.

8.3 Mt. Read Area

Geological mapping was continued periodically on the S.W. slopes of Mt. Read north of White Spur Creek. The mapping was carried out as routine inspection of all new road and logging track exposure provided by logging operations being conducted in this area.

The geology exposed is similar to that outcropping on the Mt. Read Plateau with rock types being dominantly rhyolitic and keratophyric lavas or very siliceous feldspathic or quartz-feldspathic crystal tuffs.

Whilst the area appears to be of low potential, thorough geological coverage will assist the detailed regional geological assessment of the Mt. Read Volcanics in the Queenstown - Rosebery area. Mapping will be continued during 1972-73 as new exposure is available.

8.4 N.E. Corner of E.L. 9/66

8.4.1 Introduction

The N.E. corner of the Tyndall licence area lies on the E and S.E. slopes of Mt. Murchison in heavily timbered, rugged terrain. A narrow belt of Mt. Read Volcanics, bordered to the east by Precambrian quartzites of the Sticht Range, extends north from Lake Selina into this area.

During the year, a one-day helicopter excursion was carried out in the Anthony Creek area, east of Mt. Murchison to complete geological and stream sediment sampling coverage of all major drainage systems in the area.

This approach permitted four geological teams to map and sample separate stream traverses and thus provide rapid reconnaissance geological coverage of the N.E. corner.

8.4.2 Geological Mapping

The geology of the area is shown on Map 10.

On the eastern side of the area, highly contorted Precambrian quartzites form the Sticht Range. The Precambrian rocks are well exposed in Anthony Creek

Gorge where they are unconformably overlain by a 500 - 1,500 ft. thick sedimentary sequence containing conglomerate, quartz sandstone and black shale units. This sequence dips and faces uniformly west at about 50 - 75°. The sediments are undeformed and show preservation of fine laminae and sedimentary structures.

Exposures in Anthony Creek indicate that the sediments are overlain, apparently conformably, by Mt. Read Volcanics. Consequently, their stratigraphic position suggests that the sequence may be a correlate of the Lower Cambrian Success Creek Group.

The basal unit of the Mt. Read Volcanics is a coarse crystal tuff (?) containing large (2 mm) clear, rounded quartz grains in a black green chloritised matrix. This unit is overlain by a thick sequence of fine grained acid lavas of rhyolitic/dacitic composition, which extends westwards to the Owen Conglomerate on Mt. Murchison.

The acid lavas are intruded by Murchison Granite in the northern most stream traversed. At the margins of the granite recrystallisation is present in the surrounding lavas, indicating an intrusive origin for the granite body.

8.4.3 Mineralisation

The Mt. Read Volcanics mapped were, in general, devoid of sulphide mineralisation apart from scattered pyrite blebs.

However minor pyrite, galena, chalcopyrite and magnetite were observed in acid lavas on three stream traverses. This mineralisation appears to occur at a distinct stratigraphic level which is the direct northern extension of the Selina zone of mineralisation.

The stream sediment and colluvial geochemical sampling conducted in the area indicated a small Cu, Pb, Zn geochemical anomaly corresponding to part of the zone of mineralisation.

The nature of the mineralisation observed is very similar to that intersected by diamond drilling at Selina - consisting dominantly of coarse grained pyrite with magnetite veining and minor specks of chalcopyrite and galena.

8.4.4 Conclusions and Recommendations

A belt of acid lavas extends from the Selina area into the north-eastern section of the Tyndall licence area. These rocks appear identical to those mapped further south in the Selina zone.

Minor mineralisation has been recorded in the lavas at a stratigraphic level considered equivalent to that of the known Selina mineralisation. The style of mineralisation is identical to that commonly observed at Selina.

It is considered that the detailed assessment of the Selina mineralised zone should be completed prior to any additional investigation being undertaken to evaluate the mineralisation recorded further to the north.

9. AERIAL PHOTOGRAPHIC SURVEY

An aerial photographic survey was carried out under contract by the Tasmanian Lands Department in three areas of Western Tasmania for the Syndicate and individual Syndicate companies.

As part of the photographic coverage an area of 223 square miles extending from Mt. Huxley to Mt. Murchison, and including the entire Tyndall licence area, was flown in colour. The photography was carried out in early February, 1972 at an altitude of 14,375 ft. ASL giving a photo scale of approximately 1 : 18,000.

Photointerpretation studies are in progress and will significantly assist in detailed analysis of the Mt. Read Volcanics. The use of colour negatives has provided far greater resolution of structures and trends within the volcanics than was possible on pre-existing black and white photography.

10. RECOMMENDATIONS FOR 1972-73 EXPLORATION PROGRAMS

10.1 Summary

Total expenditure on E.L. 9/66 over a period of six years has been $542,970. This expenditure has allowed several exploration targets to be defined and tested in detail by diamond drilling. Of the targets tested two, notably the Selina area and the Howard's Anomaly area, remain of interest as potentially mineralised environments.

Twelve diamond drill holes, totalling 8,705 feet, have been drilled; of these five holes (total footage 2,562½ ft.) were completed in 1971-72.

A number of areas of potential, in particular the White Spur area and the Henty Fault zone, remain to be fully investigated by combined exploration techniques. In addition, a complete re-appraisal of the geological succession within the Mt. Read Volcanics is in progress and when completed should enable a more explicit assessment of the potential for favourable environments for Mount Lyell and Rosebery type sulphide deposits to be located within the volcanics.

A budget of $76,000 has been proposed for Mt. Tyndall E.L. 9/66 during the 1971-73 year. It is planned to:

(i) continue detailed geological mapping of the Cambrian volcanics on the western side of the Tyndall Range;

(ii) conduct a combined geological, geophysical and geochemical survey of an area of potential adjacent to the Henty Fault zone;

(iii) continue trace element geochemical and geological studies of the Selina zone of pyrite mineralisation;

(iv) if warranted, conduct a drilling program of up to 2,500 ft. to test targets developed by the above exploration activities.

10.2 Staffing

It is recommended that a staff of one geologist and two field assistants be available for work connected with E.L. 9/66 throughout the year. From December to March this number should be increased to a total of two geologists and four field assistants. It is envisaged that during the summer field season three of the field assistants will be University geology students.

10.3 Access and Camp Construction

No additional access road development is required in 1972-73. Minor amounts of road repairs will be necessary in some areas and a small amount of road construction may be required to permit access to drill sites.

A total of 71,500 feet of gridding is recommended in the Henty Fault zone. A total of 39,500 ft. of this amount will require re-cutting and clearing of existing traverse lines whilst 32,000 ft. of new track cutting will be required (refer 10.4.2).

The established camps at Henty, Rolleston and White Spur are satisfactory in size and standard and no expansions or alterations are envisaged in 1972-73.

10.4 Exploration Programs

Exploration activities planned for 1972-73 are aimed at continuing the detailed evaluation of two main areas and towards completing a comprehensive re-appraisal of the geological succession within the Mt. Read Volcanics in the Tyndall licence area.

The recommended programs can be appropriately discussed under the following headings:

1. Selina area
2. Henty Fault zone
3. White Spur area
4. Regional geological mapping

10.4.1 Selina Area Program

Detailed geological mapping and petrological investigation is recommended for the area between traverses 136N to 88N to assess the possibility of metasomatic alteration of the Cambrian volcanics increasing south of traverse 120N. Whilst outcrop is restricted in the area, petrological studies on available material may provide critical information on rock alteration effects.

Ph. D. student J.L. Walshe (refer Section 10.5) is currently conducting detailed trace element studies on Co, Ni contents in the Selina pyrites. If this work is encouraging, it may define trends which would allow prediction of drilling targets.

If sufficient encouragement is received from both surface geological studies and detailed geochemical analysis, a further diamond drill hole would be required to provide a conclusive test of the potential of the Selina pyrite zone. At this stage, however, no firm recommendation for additional diamond drilling is warranted.

10.4.2 Henty Fault Zone Program

Geological mapping (refer 6.2) has delineated an area containing scattered showings of disseminated pyrite in acid pyroclastics adjacent to a major fault zone on the S.E. and E slopes of Mt. Read.

The area is heavily timbered and in places thick humus or moraine cover obscures much of the bedrock. Soil sampling geochemical methods are not considered to be entirely satisfactory as a means of thoroughly

evaluating the potential for sulphide mineral deposits in such an area.

It is recommended that a pole-dipole time-domain I.P. coverage be conducted over the area to delineate any sulphide mineralisation. Zones of disseminated sulphides outcrop in a number of localities indicating that surface weathering effects are likely to be minimal.

A grid of 71,500 feet of traverse lines (refer Map 9) would give a line spacing of approximately 600 ft. This grid is based on existing lines of the Mt. Read Grid. A total of 32,000 ft. of the present grid will require clearing and re-pegging. In addition, 11 new traverse lines (totalling 39,500 ft.) will require cutting and pegging prior to the survey.

The entire grid will be geologically mapped and surveyed by magnetic and I.P. techniques. Any anomaly located by I.P. should be investigated by a careful soil sampling geochemical survey as a potential means of discriminating I.P. anomalies.

It is recommended that potential zones delineated by geophysical, geochemical and geological investigation should be drilled prior to the end of the 1972-73 year in order to complete the testing of the zone in this financial year.

10.4.3 White Spur Area

As discussed in Section 5.5, further investigation of the White Spur area is likely to involve expensive techniques. At this stage, it is considered appropriate

to defer further exploration activities by the Syndicate until the attitude of the Electrolytic Zinc Comapny towards joint venture investigation of the White Spur area is known.

No firm recommendations are given for the 1972-73 program at this stage.

10.4.4 Regional Geological Mapping Program

Detailed geological mapping studies of the Mt. Read Volcanics succession should be continued during 1972-73 to enable completion of a thorough re-appraisal of the volcanic environment in the Queenstown - Rosebery area.

A considerable amount of new data and new ideas have developed during the last five years in regard to the detailed geology of the Mt. Read Volcanics particularly around Mount Lyell. This information needs to be critically analysed and extended into the broader regional context. For this reason, it is considered of considerable importance to continue the remapping of the volcanics in the Tyndall area.

Geological mapping is planned for the belt of volcanics on the western side of the Tyndall Range in two main areas:

(i) S.W. and southern slopes of Mt. Read on Howard's timber roads.

(ii) Henty Camp to Basin Lake area.

10.5 Research Grant

An amount of $2,000 has been budgetted (refer 10.6) during 1972-73 as a research grant to Ph. D. student J.L. Walshe to study the trace element geochemistry of sulphide mineralisation within the Mt. Read Volcanics (with particular reference to the Tyndall area).

Mr. Walshe has recently completed a First Class Honours degree in Geology at the University of Tasmania and has approached The Consolidated Syndicate for financial assistance in a Ph. D. investigation of trace element distribution in some Western Tasmanian mineral deposits. His Honours thesis topic involved a geochemical study of trace element (principally Co, Ni) distribution in mineralised zones of the southern part of the Mount Lyell Consolidated Mining Lease. In particular, he discovered a very interesting correlation of high Co, low Ni substituted in pyrite associated with copper bearing mineralised zones.

A significant aspect of Mr. Walshe's project involves investigation of various volcanic pyrite deposits within the Mt. Read Volcanics in Western Tasmania, to determine whether Co-Ni distribution may be used to discriminate barren pyrite deposits from copper bearing pyrite deposits. Initially he proposes to carry out detailed studies of trace element distributions in the Prince Lyell and Cape Horn orebodies to test and extend his current findings. Subsequently he intends to extend the investigation to a number of known pyrite deposits in the Tyndall licence area.

A particularly important aspect of this work is the investigation of the Selina pyrite zone. Present drilling results offer insufficient encouragement to justify further drilling or to enable prediction of critical drilling targets. It is

envisaged that a study of the patterns of trace element distributions in the pyrites may reveal trends and gradients similar to those already demonstrated in the Prince Lyell ore zone and thus predict further drilling targets.

Mr. Walshe's program of investigation has been appraised by local Syndicate Sub-Committee members and is fully endorsed. An amount of $2,000 has been budgetted as an initial grant towards the cost of the study, as follows:

$500 as three periodic salary grants

$500 granted to cover analytical costs.

10.6 Budget 1972-73

A total Consolidated Syndicate budget of $143,500 has been proposed for 1972-73. The budget is comprised as follows:

Mt. Tyndall E.L. 9/66	$ 76,000
Pieman E.L. 48/70	$ 47,500
New Area Evaluation	$ 20,000
	$143,500

It is probable that a budget revision will be made for the Pieman area, in the light of recent developments in that licence area. Bell (1972) has proposed a total Pieman Joint Venture budget of $36,000; The Consolidated Syndicate's share being thus $18,000.

Appendix I is a cost breakdown of the Mt. Tyndall budget for 1972-73. Detailed explanatory notes on the breakdown of individual expenditure categories are given by McKibben (1972) to which the reader is referred.

041

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APPENDIX I

MT. TYNDALL E.L. 9/66 BUDGET 1972-73

ITEM	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
Salaries	1,200	1,200	1,500	1,200	1,200	2,150	3,500	3,500	3,500	2,150	1,200	1,500	1,200	25,000
Materials	100	100	100	100	200	200	200	200	200	200	200	100	100	2,000
Outside Services					1,000	2,000	2,000	2,000	1,000					8,000
Diamond Drilling							5,000	5,000	5,000	5,000				20,000
Geophysics									3,000	3,000				6,000
Geology	800		400		400		800		400		400		800	4,000
General Costs	150	150	150	150	300	300	300	300	300	300	300	150	150	3,000
Hire of Equipment	100	100	100	100	200	200	200	200	200	200	200	100	100	2,000
Capital	3,000			3,000										
TOTALS	5,350	1,550	2,250	4,550	3,300	4,850	12,000	11,200	13,600	10,850	2,300	1,850	2,350	76,000
Each Company's One Third Share	1,783	517	750	1,516	1,100	1,617	4,000	3,733	4,534	3,617	766	617	783	25,333

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———————— ; 1971 : Proposed Red Hills Drilling Program.

Memorandum - The Consolidated Syndicate.

72-882

NORTH WESTERN TASMANIA

LOCALITY MAP 1

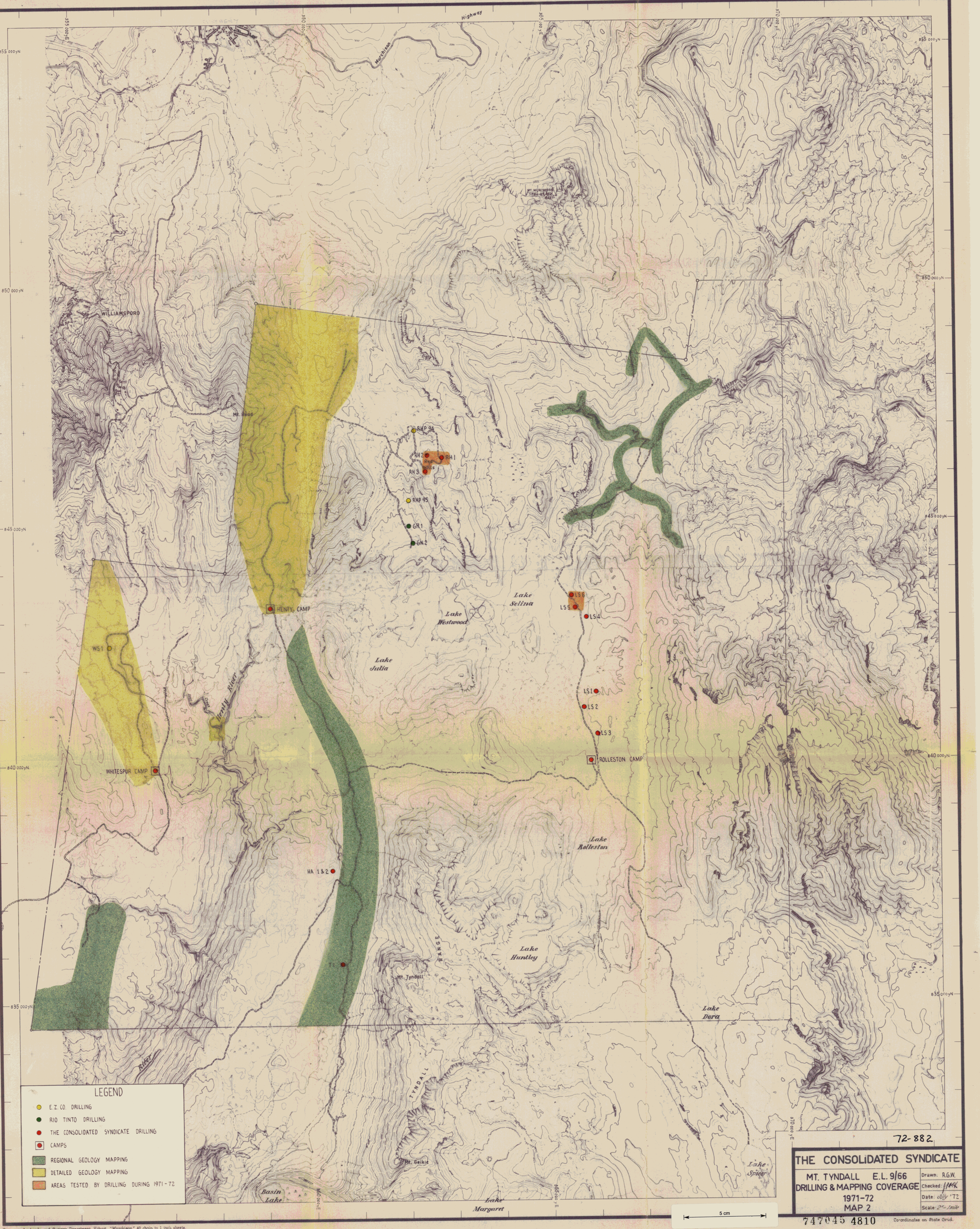
SCALE: 1:500,000

C. Grim
ROBBINS ISLAND
Stanley
Smithton
Rocky Cape
Marrawah
Table Cape
Wynyard
BURNIE
Penguin
ULVERSTONE
DEVONPORT
ARTHUR RIVER
NELSON BAY
Balfour
KENNETH BAY
Sandy Cape
Waratah
Mainoa
Savage River
PIEMAN JOINT VENTURE
Cradle Mt.
Pieman Head
Conical Rock
E.L. 48/70
39 S.M.
PIEMAN RIVER
Corinna
Tullah
Rosebery
Granville Harbour
SPL 27
EL 9/66
66 S.M.
Zeehan
Trial Harbour
EL 41/71
48 S.M.
EL 10/69
45 S.M.
QUEENSTOWN RIVER
Queenstown
Strahan
KING RIVER
C. Sorell
Derwent Bridge
TO HOBART

747044

5 cm

4809



72-882

THE CONSOLIDATED SYNDICATE	
MT. TYNDALL E.L. 9/66	Drawn: R.G.W.
DRILLING & MAPPING COVERAGE	Checked:
1971–72	Date: July '72
MAP 2	Scale: 2" = 1 mile

5 cm

747045 4810

Co-ordinates on State Grid.

Base map by Lands and Surveys Department, Hobart. "Murchison" 40 chain to 1 inch sheets.

Highway

FAULT

HENTY

WILLIAMSPORD

Mt. Read

Mt. Murchison 1346 m

Lake Julia

Lake Westwood

Lake Selina

Lake Collerson

Lake Huntley

Lake Margaret

Lake Spicer

Mt. Tyndall

Mt. Geikie

TYNDALL RANGE

Co-Pb-Zn-Ag Tyndall Mine

Selina Workings Py-Cu

Dora Workings Py-Cu

N

855 000yN

850 000yN

845 000yN

840 000yN

835 000yN

355 000E

360 000E

365 000E

370 000E

375 000E

LEGEND

- QUATERNARY: SWAMPS
- QUATERNARY: GLACIALS (FLUVIOGLACIALS, MORAINE)
- ORDOVICIAN: OWEN CONGLOMERATE, JUKES BRECCIA
- CAMBRIAN: MT READ VOLCANICS: UNDIFFERENTIATED
- CAMBRIAN: DUNDAS GROUP: UNDIFFERENTIATED SEDIMENTARY IN GENERAL
- LOWER CAMBRIAN: SANDSTONES, SILTSTONES, CONGLOMERATES
- PRECAMBRIAN: STICHT QUARTZITE
- INTRUSIVES: GABBRO
- INTRUSIVES: SERPENTINITE
- MURCHISON GRANITE
- ACID EXTRUSIVES (RHYOLITES, KERATOPHYRES)
- BASIC INTRUSIVE (HORNBLENDE - ANDESITE)
- PYROCLASTICS (TUFFS, AGGLOMERATES)
- SHALES AND SANDSTONES
- KERATOPHYRIC TUFFS AND AGGLOMERATES
- DORA AGGLOMERATE

- Approximate geological boundary
- Bedding
- Schistosity
- Major Fault Inferred
- Mine (Operating or Abandoned)
- Access Roads

5 cm

72-882

THE CONSOLIDATED SYNDICATE

MT. TYNDALL EL 9/66
MAP 3
GEOLOGICAL MAP

Drawn: R.G.W.
Checked: J.P.M.K.
Date: July '72
Scale: 2" = 1 mile

Base map by Lands and Surveys Department, Hobart. "Murchison" 40 chain to 1 inch sheets.

4811

Co-ordinates on State Grid.

747046

RESISTIVITY Ohm/m.

CHARGEABILITY m.s.

RECEIVER 1 — CHARGEABILITY
RESISTIVITY

RECEIVER 2 — CHARGEABILITY
RESISTIVITY

VERTICAL MAGNETIC INTENSITY (IN GAMMAS)

-690
-480
3210
6010
2160
1560
2010

VERTICAL MAGNETIC INTENSITY (IN GAMMAS).

GEOCHEMICAL SOIL SAMPLING (IN P.P.M.)

420
1040
Cu
Pb
Zn

GEOCHEMICAL SOIL SAMPLING (IN P.P.M.)

HEIGHT ABOVE SEA LEVEL

3000 W.
2900 W.
2800 W.
2700 W.
2600 W.
2500 W.
2400 W.
2300 W.
2200 W.
2100 W.
2000 W.

LEGEND

- SOIL & RUBBLE.
- CHLORITISED ACID VOLCANICS.
- RHYOLITE.
- QUARTZ - HORNBLENDE PORPHYRY

N.A.

D.D.H. SELINA N°5

SECTION LOOKING NORTH

PLAN

MAGNETIC NORTH

747047

5 cm

72-882

THE CONSOLIDATED SYNDICATE

LAKE SELINA GRID
LINE 128 N.
GEOPHYSICAL GEOCHEMICAL & DRILLING RESULTS

DRAWN.	R.G.W.
TRACED.	R.G.W.
CHECKED.	J.P.M.K.
DATE.	20-7-'71
SCALE.	1" = 50'

MAP 4

4812

Ohm/m.

CHARGEABILITY m.s.

Reciever 1 — Chargeability
Resistivity
Reciever 2 — Chargeability
Resistivity

VERTICAL MAGNETIC INTENSITY (IN GAMMAS)

5860 5860 6060 11060

HEIGHT ABOVE SEA LEVEL

LEGEND

- ACID VOLCANICS
- BRECCIATED ACID VOLCANICS
- QUARTZOSE TUFF
- FINE GRAINED TUFF
- HORNBLENDE QUARTZ PORPHYRY

HEMATITE — Cu 0.03 — Fe 3.60 — 0.04 1.40 — N.A.

MAGNETITE — N.A.

SECTION LOOKING NORTH

D.D.H. SELINA N°6

PLAN

MAG. NORTH

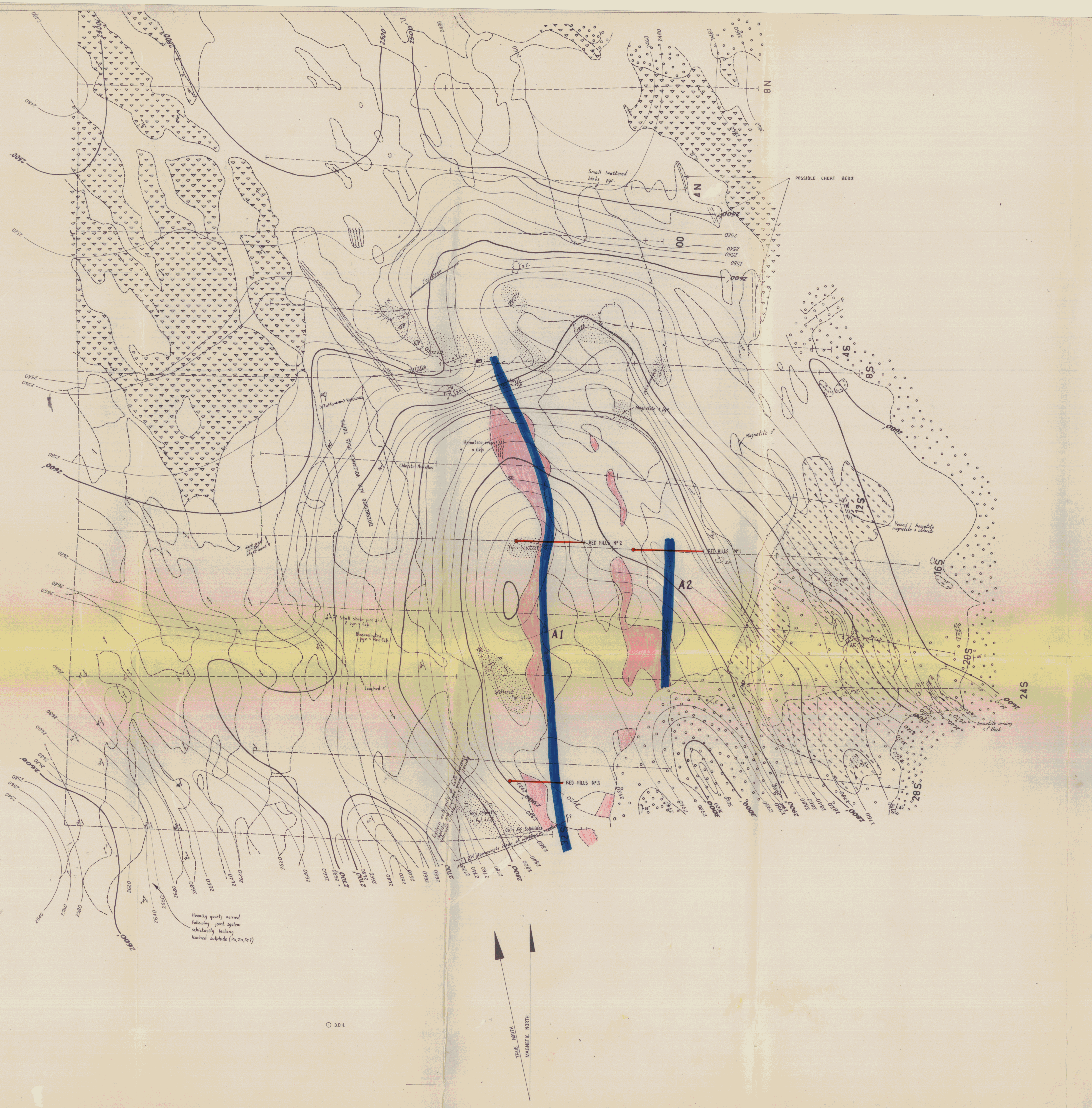
747048

5 cm

72-882

THE CONSOLIDATED SYNDICATE	DRAWN. R.G.W.
	TRACED. R.G.W.
	CHECKED. J.P.M.C.K.
LAKE SELINA GRID	DATE. 17-9-71
LINE 136 N.	SCALE. 1" = 50' 1:600
GEOPHYSICAL AND DRILLING RESULTS	MAP 5

4813



LEGEND

- SWAMP AND SOIL COVERAGE.
- CONGLOMERATE SCREE.
- OWEN CONGLOMERATE.
- JUKES BRECCIA.
- BLACK SHALES – SLIGHTLY PYRITIC AND INTERBEDDED WITH TUFFS AND GREY SILTSTONES.
- ACID VOLCANICS – SHEARED CONTAINING ABUNDANT HEMATITE, CHLORITE, MAGNETITE WITH PYRITE AND CHALCO.
- QUARTZ SERICITE SCHIST – POSSIBLY VERY SHEARED COARSE ACID TUFF.
- QUARTZ PORPHYRY.
- HEMATITIC ACID VOLCANICS – MAUVE TO DARK RED – HEMATITE AND MAGNETITE IN VEINS AND NODULES – LITTLE SULPHIDE SEEN ASSOCCIATED WITH THIS.
- ACID VOLCANICS – INCLUDING VERY FINE QUARTZ → MEDIUM GRAINED FELDSPAR AND QUARTZ PORPHYRY LENSES, THESE ROCKS NOT GENERALLY AFFECTED BY SHEARING.
- TUFFS AND AGGLOMERATE BOTH BEING SHEARED.
- TUFF – FINE GRAINED – GREY TO ORANGE (WITH PEPPER AND SALT APPEARANCE)
- AGGLOMERATE – BLOCKS OF FINE PINK ACID VOLCANICS <15" – MATRIX, INDETERMINATE AND VERY CHLORITIC WITH SMALL PINK PARTICLES WHICH MAY POSSIBLY BE FELDSPARS.
- HEMATITE, CHLORITE, MAGNETITE CONTAINING PYRITE AND CHALCO.
- ADIT.
- COSTEAN.
- GEOLOGICAL BOUNDARY.
- DIAMOND DRILL HOLES

747049

5 cm

72-882

MAPPED BY: R. POLTOCK.

THE CONSOLIDATED SYNDICATE	DRAWN. R.P.
	TRACED. R.G.W.
RED HILLS AREA	CHECKED. JPMcK
	DATE. 21-1-71
GEOLOGICAL MAP	SCALE. 1" : 200'
	MAP 6

4814

855,000 Yds.E.

856,000 Yds.E.

857,000 Yds.E.

844,000 Yds.N.

843,000 Yds.N.

842,000 Yds.N.

855,000 Yds.E.

ACID LAVAS AND TUFFS

4

SILTSTONES, GREYWACKES, TUFFACEOUS SANDSTONES AND BLACK SHALES

1

2

3A

3B

ACID LAVAS AND TUFFS

BOUNDARY

LEASE

WHITE SPUR No.1

TUFFS AND VOLCANIC BRECCIA

TUFFS AND VOLCANIC BRECCIA

SILTSTONES, GREYWACKES, TUFFACEOUS SANDSTONES AND BLACK SHALES

TUFFS AND VOLCANIC BRECCIA

ACID LAVAS AND TUFFS

2200

2400

2600

2000

1800

N

5 cm

LEGEND

4 RIO TINTO TURAM ANOMALY AXIS

DIAMOND DRILL HOLE (E.Z.Cu)

THE CONSOLIDATED SYNDICATE

WHITE SPUR AREA

GEOLOGICAL MAP

MAP 7 72-882

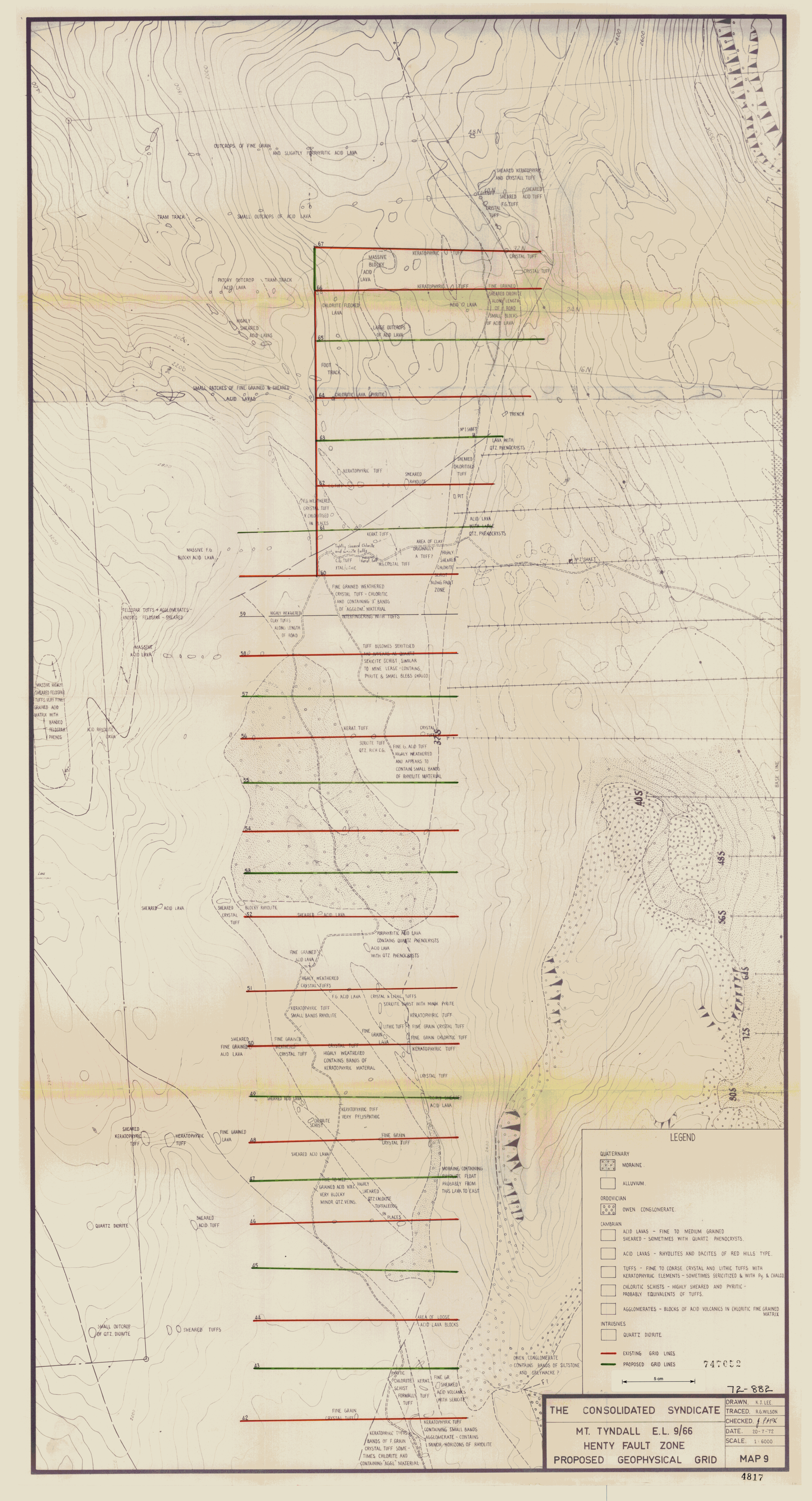
DRAWN	J.P.McK.
TRACED	R.G.W.
CHECKED	J.P.McK
DATE	JULY '72
SCALE	1:6,000

747050

4815


QUARTZ DIORITE
SMALL OUTCROP OF QTZ. DIORITE
SHEARED TUFFS
LEGEND
QUATERNARY
MORAINE.
ALLUVIUM.
ORDOVICIAN
OWEN CONGLOMERATE.
CAMBRIAN
ACID LAVAS - FINE TO MEDIUM GRAINED SHEARED - SOMETIMES WITH QUARTZ PHENOCRYSTS.
ACID LAVAS - RHYOLITES AND DACITES OF RED HILLS TYPE.
TUFFS - FINE TO COARSE CRYSTAL AND LITHIC TUFFS WITH KERATOPHYRIC ELEMENTS - SOMETIMES SERICITIZED & WITH Py. & CHALCO.
CHLORITIC SCHISTS - HIGHLY SHEARED AND PYRITIC - PROBABLY EQUIVALENTS OF TUFFS.
AGGLOMERATES - BLOCKS OF ACID VOLCANICS IN CHLORITIC FINE GRAINED MATRIX
INTRUSIVES
QUARTZ DIORITE
747051
5 cm
72-882
THE CONSOLIDATED SYNDICATE
MT. TYNDALL E.L. 9/66
HENTY FAULT ZONE
GEOLOGICAL MAPPING
DRAWN. K.J. LEE.
TRACED. R.G.WILSON
CHECKED. J.R.McK
DATE. 20-7-72
SCALE. 1 : 6000
MAP 8

4816


OUTCROPS OF FINE GRAIN AND SLIGHTLY PORPHYRITIC ACID LAVA
TRAM TRACK
SMALL OUTCROPS OF ACID LAVA
PATCHY OUTCROP ACID LAVA
TRAM TRACK
HIGHLY SHEARED ACID LAVAS
SMALL PATCHES OF FINE GRAINED & SHEARED ACID LAVAS
FOOT TRACK
LARGE OUTCROPS OF ACID LAVA
CHLORITE FLECKED LAVA
MASSIVE BLOCKY ACID LAVA
KERATOPHYRIC TUFF
CRYSTAL TUFF
SHEARED KERATOPHYRIC AND CRYSTAL TUFF
SHEARED ACID TUFF
SHEARED F.G. TUFF
CRYSTAL TUFF
FINE GRAINED SHEARED CHLORITE ALONG LENGTH OF ROAD
SMALL BLOCKS OF ACID LAVA
ACID LAVA
CHLORITIC LAVA (PYRITIC)
TRENCH
No 1 SHAFT
LAVA WITH QTZ PHENOCRYSTS
SHEARED CHLORITISED TUFF
SHEARED RHYOLITE
PIT
ACID LAVA WITH LARGE QTZ. PHENOCRYSTS
No 2 SHAFT
HIGHLY SHEARED CHLORITE SCHIST ALONG FAULT ZONE
AREA OF CLAY ORIGINALLY A TUFF?
KERAT TUFF
Tuffy sheared Chlorite and sericite tuffs
F.G. CRYSTAL TUFF
C.G. TUFF
FINE GRAINED WEATHERED CRYSTAL TUFF - CHLORITIC AND CONTAINING 3' BANDS OF AGGLOM. MATERIAL INTERFINGERING WITH TUFFS
HIGHLY WEATHERED CLAY TUFFS ALONG LENGTH OF ROAD
TUFF BLOCMES SERITISED AND APPEARS AS QUARTZ SERICITE SCHIST SIMILAR TO MINE LEASE - CONTAINS PYRITE & SMALL BLEBS CHALCO
KERAT TUFF
CRYSTAL TUFF
SERICITE TUFF QTZ RICH C.G.
FINE G. ACID TUFF HIGHLY WEATHERED AND APPEARS TO CONTAIN SMALL BANDS OF RHYOLITE MATERIAL
PORPHYRITIC ACID LAVA CONTAINS QUARTZ PHENOCRYSTS
ACID LAVA WITH QTZ PHENOCRYSTS
FINE GRAINED ACID LAVA
HIGHLY WEATHERED CRYSTAL TUFFS
F.G ACID LAVA
CRYSTAL & LITHIC TUFFS
SERICITE SCHIST WITH MINOR PYRITE
KERATOPHYRIC TUFF SMALL BANDS RHYOLITE
KERATOPHYRIC TUFF
LITHIC TUFF
FINE GRAIN CRYSTAL TUFF
FINE GRAIN CHLORITIC TUFF
FINE GRAINED WEATHERED CRYSTAL TUFF
FINE GRAIN LAVA
KERATOPHYRIC TUFF
CRYSTAL TUFF HIGHLY WEATHERED CONTAINS BANDS OF KERATOPHYRIC MATERIAL
CRYSTAL TUFF
SHEARED ACID LAVA
HIGHLY SHEARED ACID LAVA
KERATOPHYRIC TUFF VERY FELSPATHIC
CHLORITE SCHIST
FINE GRAIN CRYSTAL TUFF
SHEARED ACID LAVA
MORAINE CONTAINING GRANITE FLOAT PROBABLY FROM THIS LAVA TO EAST
FINE TO MED GRAINED ACID VOLC VERY BLOCKY MINOR QTZ VEINS.
HIGHLY SHEARED QTZ CHLORITE TUFFACEOUS IN PLACES
AREA OF LOOSE ACID LAVA BLOCKS
OWEN CONGLOMERATE CONTAINS BANDS OF SILTSTONE AND GREYWACKE ?
PYRITIC CHLORITE SCHIST FORMALLY TUFF
KERAT.
FINE GR SHEARED ACID VOLCANICS WITH SERICITE
FINE GRAIN CRYSTAL TUFF
KERATOPHYRIC TUFF CONTAINING SMALL BANDS AGGLOMERATE - CONTAINS MINOR HORIZONS OF RHYOLITE
KERATOPHYRIC TUFFS BANDS OF F GRAIN CRYSTAL TUFF SOME TIMES CHLORITE AND CONTAINING AGGL MATERIAL
SHEARED KERATOPHYRIC TUFF
SHEARED FINE GRAINED ACID LAVA
QUARTZ DIORITE
SHEARED ACID TUFF
SMALL OUTCROP OF QTZ. DIORITE
SHEARED TUFFS
MASSIVE F.G. BLOCKY ACID LAVA
FELSPAR TUFFS + AGGLOMERATES - KNOTTED FELDSPARS - SHEARED
MASSIVE ACID LAVA
MASSIVE HIGHLY SHEARED FELDSPAR TUFFS VERY FINE GRAINED ACID MATRIX WITH BANDED FELDSPAR PHENOS
ACID RHYOLITE LAVA
SHEARED ACID LAVA
SHEARED CRYSTAL TUFF
SHEARED BLOCKY RHYOLITE
SHEARED ACID LAVA
67
66
65
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
48N
32N
24N
16N
40S
48S
56S
64S
72S
80S
BASE LINE
LEGEND
QUATERNARY
MORAINE.
ALLUVIUM.
ORDOVICIAN
OWEN CONGLOMERATE.
CAMBRIAN
ACID LAVAS - FINE TO MEDIUM GRAINED SHEARED - SOMETIMES WITH QUARTZ PHENOCRYSTS.
ACID LAVAS - RHYOLITES AND DACITES OF RED HILLS TYPE.
TUFFS - FINE TO COARSE CRYSTAL AND LITHIC TUFFS WITH KERATOPHYRIC ELEMENTS - SOMETIMES SERICITIZED & WITH Py & CHALCO
CHLORITIC SCHISTS - HIGHLY SHEARED AND PYRITIC - PROBABLY EQUIVALENTS OF TUFFS.
AGGLOMERATES - BLOCKS OF ACID VOLCANICS IN CHLORITIC FINE GRAINED MATRIX
INTRUSIVES
QUARTZ DIORITE
EXISTING GRID LINES
PROPOSED GRID LINES
747092
5 cm
72-882
THE CONSOLIDATED SYNDICATE
MT. TYNDALL E.L. 9/66
HENTY FAULT ZONE
PROPOSED GEOPHYSICAL GRID
DRAWN. K.J.LEE
TRACED. R.G.WILSON
CHECKED. J.PAIK
DATE. 20-7-72
SCALE. 1:6000
MAP 9
4817

MINOR CHALCO, PYRITE, GALENA.

PYRITIE, MAGNETITE HIAEMATITE

PYRITE VEINLETS

PYRITE, MAGNETITE

5 cm

QUATERNARY

2 SCREE AND MORAINE

ORDOVICIAN

62 OWEN CONGLOMERATE

61 JUKES BRECCIA

MT READ VOLCANICS

39 TUFF - AGGLOMERATE

39 ACID LAVAS

36 BEDDED CHERT

SEDIMENTARY SEQUENCE

47 CONGLOMERATE

47 SANDSTONE

47 SHALE

9 PRECAMBRIAN QUARTZITE

19 MURCHISON GRANITE

747053

72-882

THE CONSOLIDATED SYNDICATE	DRAWN. J.P.McK.
	TRACED. R.G.W.
	CHECKED. J.P.McK.
	DATE. 24-7-72
MT. TYNDALL E.L. 9/66 NORTH EAST CORNER GEOLOGICAL MAPPING	SCALE. 1:6000
	MAP 10

4818