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REPORT ON FIELD INVESTIGATIONS WITHIN  
EXPLORATION LICENCE 4/61  
WEST COAST, TASMANIA

C H C Shannon  
R W Annett  
F Enzmann  
L Vanzino

23 February 1985 - 22 May 1985

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1. GENERAL INFORMATION

During the period under review the field team was based at the Company's house at the Savage River Township.

Personnel

IMI's exploration personnel who were engaged on the licence during the period included:

Henry Shannon	Senior Geologist
Robert Annett	Project Geologist
Frank Enzmann	Field Geologist
Luke Vanzino	Field Geologist
Peter Cover	Field Foreman
Bonny Green	Field Assistant
Simon Roberts	Field Assistant
Casual Field Assistants	

Contractors

Analabs	Assays
Mines Dept. Launceston	Assays
W.M.C. Wendouree	Assays
Ashton Mining	Chromite grain examination
Associated Diamond Drillers	Diamond drilling
Barnards Farm Equipment	Bulldozing
John Dart	Line Cutting
Peter Forwood	Consulting
	Geologist
Hookway Aviation	Helicopter access
Tasmanian Geological Drafting Services	Drafting

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2. INTRODUCTION

Pursuant to the Department of Mines guidelines effective from 1 July 1982, the area of Exploration Licence 4/61 (EL 4/61) was reduced from 383sq. km to 125 sq. km on 23 February 1985. A further three years are available for continued exploration before the licence must be dropped in its entirety.

This report details the technical coverage of all activities for the 1984-85 field season within EL 4/61 based on the I.M.I. practice of submitting reports on a June to June cycle. This volume is a complete text of all information and in part duplicates, some reports and analytical results previously submitted to the Mines Department in a six monthly report by Shannon (February 1985).

Parts of some work programmes that overlapped into the adjacent I.M.I. Exploration Licence 5/84, Mt. Meredith (E.L. 5/84), are also recorded in the Relinquishment Report E.L. 5/84 submitted by Shannon (June 1985).

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3. SUMMARY

Work covered in this report partly overlaps material discussed in two previous reports for the 1984-85 field season e.g. Vanzino (1984) and Shannon (1985) which can be considered as progress reports. The latter report was prepared in conformity with a literal interpretation of the guidelines for licence areas from which portions are due for relinquishment and with the present report return is made to the practice of an annual winter report. More refined data plots of material from the earlier progress reports is incorporated here.

Completed work includes a soil sampling programme targeted on gold and based on the hypothesis that arsenic would be an effective pathfinder for gold. Reserved material from previous base metal exploration was examined and arsenic anomalies located (Vanzino 1984) and the relevant sample points resampled collecting sufficient material for gold assays, but no gold anomalies of interest were detected (Shannon 1985). Old core from the Rocky River and Specimen Reef drilling programmes was examined and assayed. In the case of RR 1 and RR 2 initial promising results were refuted in check sampling, while nothing of interest came out of the Specimen Reef drillhole assays, except that the new assay results appear inconsistent with the older ones (Shannon 1985). This work, together with most collection of stream samples and soil sampling of the Rocky River arsenic anomaly, was completed by 22.2.85 but assay results took longer to come through. Later, Long Plains South core was also examined and assayed.

Projects initiated later in the season included soil sampling and drilling at Cox's Face (south end of the Golden Ridge field) and at Specimen Reef. Interpretation of the area required also some extensive historical research, and surface and underground mapping.

Finally, the Battys Bend grid was put in and sampled.

Stream sediment work was directed to the filling of gaps in previous coverage, and follow up of anomalies. Greater emphasis was placed on the heavy mineral fraction, in particular heavy mineral concentrates were analysed. Features of interest include a cluster of high gold values to the north of Specimen Reef, including the peak value for the whole programme. At Bounds Creek attempts to track down a previous extreme value were frustrated since the anomaly did not repeat. At the Rocky River arsenic anomaly a substantial stream sediment gold anomaly was detected this season despite previous failures in the area. A substantial tungsten anomaly was detected in the "Supergrunt" area, with support in tin. An isolated tin high turned up in the Breakneck Creek area.

Sludge sampling did not turn up any new prospects.

Following work on the historical records a model for the Specimen Reef mineralisation has been worked out which in principle deciphers the area. Hopes that the drillhole SPC 6 would prove a strike extension of the historic productive ore shoot were not met, however the extensive vein swarm and alteration found at a higher level in this hole may relate to anomalous gold detected in soil sampling to the north east.

The drilling in the Cox's Face zone of the Golden Ridge field provided disappointing results with poor core recovery, and little evidence for the later, crosscutting vein set that historically yielded gold. The common pygmatic veins related to the metamorphism of the area are barren and provided problems with the drilling being easily plucked from the phyllite then grinding away the core.

Gold bearing veins could exist in the area but are likely to be comparatively sparse and, going by historical records, likely to be gold bearing only in favourable beds with limited strike length. Conversely the veins could be relatively rich. It is possible that the peak gold value found in the soils programme may be on the subcrop of ore of these veins.

The Batty's Bend project encountered difficulties with thick overburden, readily identified from rounded pebbles derived from the "Brown Plain Formation", yet a promising lead anomaly was located defined by four sample points on two lines. It is hosted in pelites immediately east of a dolomite.

Work on the Rocky River arsenic anomaly has detected minor anomalies in bedrock sampling with the power auger, which has superceded the posthole auger approach. Yet the posthole auger and shovel, large sample - loaming approach used in line 89.3 - appears a more convincing means of detecting gold in the area. Interest has fluctuated with the status of the Golden Ridge field to which it may be related. Gold is now known from a pan concentrate anomaly in the area, yet the possibility that the alluvial gold in the Rocky River has its source in the "Bowry Member", i.e. further west warrants consideration.

Carbonate horizons from the Long Plains South Drillholes were examined for metalliferous mineralisation without success. The carbonate is essentially magnesite but high in unwanted impurities relative to the Main Creek Deposit.

#### 4. GEOLOGY

The main features of the geology of the area are as follows, in current interpretation, (Fig 1.0):

##### 4.1 STRATIGRAPHY

###### 4.1.1 Precambrian

- (a) In the north west of the old E.L. area, the Rocky Cape group occurs as basement to the area. The sequence comprises siltstones with slaty cleavage with some sandstones. Certain prominent sandstone beds are ridge forming. Some basic rocks (amphibolites) occur but are thought to be intrusive. In the Donaldson area cleavage dips west at about 45°.
- (b) Unconformably overlying the Rocky Cape Group are the rocks provisionally termed "Whyte Group". At the base is a unit including conglomerate and sandstone beds which are ridge forming, though most of the sequence is pelitic. Best evidence for unconformity is at Mt. Donaldson (N. Turner pers. comm.). This unit is provisionally termed "Mt. Donaldson Formation".
- (c) Conformably overlying this unit is a sequence of two dolomite/slate units with 'volcanic' units between and above them. Slate expands at the expense of dolomite along strike to the North.

The unit is provisionally termed "Longback Formation" and includes the Savage, Bernafai and Corinna units of Spry (1964) as members.

Distinctive features are, for the lower (Savage) Dolomite, an abundance of dark autobreccia clasts in light matrix, the dark grey material being probably disrupted stromatolitic mats. Identifiable conical stromatolites (Conophyton) also occur in the unit. In contrast the upper dolomite unit is laminated but without dark stromatolitic material and contains a higher proportion of dark grey slate. No actual dolomite is known in the north of the area although some siliceous material may be an alteration product of dolomite. Dolorudite and dolarenite textures are preserved.

The volcanics contain little in the way of flows and a great deal of well bedded material which could be ordinary pelites rather than tuffs. In the north the most distinctive volcanic rock type is a fine grained volcanic breccia with flattened white pumice clasts. The matrix is grey in the lower volcanic unit and green in the upper one. In the south large masses of dark material appear flattened and stretched out during flowage.

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- (d) Conformably overlying the upper volcanics is a unit consisting largely of turbidites with some "amphibolites" attributed to basic volcanism and minor carbonates, (including magnesite) and magnetite ore. Towards the base, grey and green phyllite is common. Potentially useful markers include a resistant unit with quartz augen and amphibolites, generally magnetic, and some with abundant epidote. The sandstones are usually thin and though quartz bearing, weather in the fashion expected of labile rather than quartz rich sandstones. Some coarsely crystalline chlorite schist is found. The unit is provisionally termed "Battys Bend Formation". A pink weathering amphibolite rich unit including the magnesite and magnetite - the "Bowry Member" can be defined at the top. The unit represents a deepening of the trough of deposition relative to the previous unit.

The metamorphism of the unit succeeds in destroying fine detail in the sediments, so that facings cannot usually be determined from the turbidites. The upper boundary of the unit appears conformable.

A hypothesis under examination at the moment is that the pink weathering crystal tuffs along the Savage River Road at 548047 are the Bowry Member emerging from beneath a large syncline. If this is the case, most of the "amphibolites" can be interpreted as basic to intermediate crystal tuffs. The boundary of the known crystal tuffs with Oonah is apparently conformable.

- (e) Deposition continued with the Oonah Formation which has a different sediment source rich in quartz. Cleaved Quartz wacke turbidite, muscovite phyllite, black phyllite and minor green tuff are the usual lithologies in the lower part of the unit. The core of the hypothetical syncline contains greywacke sandstone and black slaty mudstone in relatively thick bedding units. Some facings can be determined showing that the Oonah overlies the "Battys Bend Formation".

#### 4.1.2 Devonian

The Meredith Granite is a complex pluton in which the most common rock type is porphyritic granite with potash feldspar phenocrysts. Porphyritic granite with a finer-grained groundmass is the next most common variety and occurs as dykes within the normal porphyritic granite. Greisen masses are developed mainly as wall rock alteration adjacent to tourmaline veins and areas of tourmalinisation, on the whole these are more common in the finer groundmass variety of granite. Greisen varieties include a grey-green variety in which normal granite textures are preserved, quartz-tourmaline rock and quartz-muscovite rock. It intrudes the Oonah Formation, along the east margin of the licence area.

#### 4.1.3 Permian

The Permian sediments comprise tillite and ice-rafted pebbly mudstones, bedded mudstone and minor sandstone. The boundaries of the Permian are sharp and linear and as they do not correspond with the dip and strike measurements taken in Broderick Creek they are interpreted as faults.

The sequence is tillite-mudstone-tillite, with the lower tillite found in Broderick Creek and the mudstone and upper tillite exposed from 505129 to 513133 along the IMI access track.

#### 4.1.4 Tertiary

The Tertiary age rocks associated with basalt flows consist of the basalt flows & intrusives themselves, a sub-basaltic regolith, and gravel or conglomerate either actually beneath the basalt or similar gravel of the same general character. This gravel is termed "Bullocks Head Gravel" in informal nomenclature. The gravel is best developed in the town area of Savage River. The distinctive characteristics of the "Bullocks Head Gravel" are well rounded cobbles with a high proportion of labile constituents, principally greywacke from the upper portion of the Oonah Formation, plus brown weathering decomposed clasts, some greisen, and vein quartz. The heavy mineral content includes tourmaline, monazite, topaz, garnet, and sometimes nodular pyrite and fine grained magnetite. Outcrop is limited, but the better exposures can be shown to be channel fillings.

An apparently later deposit is "the Brown Plain Gravel", which occurs as plateau cappings and pipe fillings. This sediment is relatively mature with more than 95% of clasts being vein quartz, subrounded pebbles rather than cobbles being usual. Apart from the quartz there are some greisen and sandstone clasts. There is some associated laminated lignite clay.

Heavy mineral content includes tourmaline, topaz, garnet, monazite, red cassiterite, magnetite (often altered to martite), chromite, spinel, gold and osmiridium.

#### 4.1.5 Quaternary

Alluvium of presumed Quaternary age is usual along all the major drainage lines, and is sufficiently extensive to be shown on the map in the case of larger streams.

More subtle expressions of Quaternary events are the transported soil mantles which are all but universal in all areas not actually consisting of rock outcrops. These include a residual quartz gravel found normally on the

Tertiary gravel deposits or on Precambrian rocks with abundant quartz veins, and clay matrix breccias with angular clasts of greenschist and quartz which are usually where the soils are not so dominated by vein quartz residue. Road sections on the Corinna Highway show that fossil gully fills of up to 6m are not uncommon.

The presence of such thick transported soil mantles must be taken into account in soil sampling activity.

#### 4.2 STRUCTURE

Rocks considered as basement crop out in the N.W. The remaining Precambrian is essentially east dipping, although sometimes overturned to produce local westerly dips, and with flexure in strike at Corinna and at Savage River. A major syncline may exist within the Oonah Formation but is not proven. The area further east is intruded by the Meredith Granite.

A major fault cuts through the area displacing rocks on its N.W. side northwards, and it splits to enclose an infaulted trough of Permian sediments. This fault could be a reactivated early feature but can be explained wholly as a late feature starting no earlier than the Devonian.

Complex folding exists at hand specimen and outcrop level in all the more obviously metamorphosed Precambrian but it does not necessarily have much effect on the larger structures.

#### 4.3 DATING

The dating of the N.W. Tasmanian Precambrian has a very insecure basis, with the intrusive Cooe dolerite the oldest radiometrically dated rock. Pressure for a relatively late date for the Oonah Formation comes from presumed conformity with Cambrian sediments which may be mistaken.

The Conophyton style stromatolites may indicate an age as early as upper Carpentarian for the carbonate sequence at Corinna, which would make it more prospective for lead zinc mineralisation.

5. STREAM SEDIMENT SAMPLING5.1 INTRODUCTION

An appraisal of data collected during the 1983-84 field season highlighted a number of areas for further, more detailed work. The early slow trickling return of geochemical analyses, suggested little or no correspondence in gold variation between sludges (fine grained gold) and heavy mineral concentrates (coarser gold). The three-pan sample conducted along the British Geological Survey Method was continued to acquire an homogenous data set.

For this method two samples are collected from the pan loads of gravel. First, the interstitial fines are collected by stirring the gravel with a limited amount of water while the larger pebbles are removed by hand and periodically, the slurry is decanted into a settling container (usually a large plastic bag), and the water is replaced in the pan. This is repeated until the slurry yield diminishes sharply. The remaining fines are washed away. Next, the remaining fine gravel and sand are panned down to a heavy mineral concentrate stopping reduction of the sample at the point where loss of heavy minerals becomes likely. The sample is then bagged for final separation by heavy liquid in the laboratory. Meanwhile in the container for settling fines, a dense phase settles out. The supernatant water is poured off and the dense sludge is collected in sealable plastic bags. At Base camp the sludge is further separated, transferred to kraft paper bags and dried prior to dispatch for analysis.

Fine grained resistates and particularly gold previously "washed away" during panning would be held in the sludge material while coarser resistates not contained within sampled silt bank sediments (1983/84) would remain within the panned heavy concentrates. A comparison between silt bank samples (1983/84) and sludges (1984/85) revealed a very slight increase in elemental values within the latter but not of a sufficient increase to make the two sampling techniques incompatible. Sludge and heavy mineral concentrate samples were variously analysed for the following elements:

Element	Analabs Code
Cu, Pb, Zn, Mn	101
Ag	102
As	114
Au (fire assay)	309
Au (carbon rod finish)	325
Sn, Ti, W, Cr, Nb	401/402
Polished Section Determination	1615

A full description of analytical procedures is given in Penny, Shannon and Vanzino (Aug, 1984) and Shannon (Feb, 1985). Panned heavy mineral concentrates were first separated by T.B.E. process, magnetite was electro-magnetically removed and its weight expressed as a percentage of the sinks weight. Gold was extracted by a mercury amalgamation process. Because of the variation in lithologies,

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statistical treatment of the data was not warranted. Anomalism has been defined on an "eyeball" estimate only. Anomalies thus detected are discussed in the following pages. All results and analytical report numbers are tabulated and presented in this report (App. 1.1-1.6). Stream sediment data analysis had confirmed ten areas for follow-up sampling, seventy-two samples were collected during the 1985 field season (Figs 2.0, 2.1, 2.2). Summary results are as follows:

## 5.2 AREAS SAMPLED

### 5.2.1 Bounds Creek

A cluster of strong gold values within Bounds and Breakneck Creeks (HM 172, 173, 240, 241) as discussed by Shannon (Feb 1985) was supplemented by an additional 20 stream sediment samples (HM 357-377). Results from two samples at the confluence of Breakneck Creek suggested the drainage into the Paradise River would better reveal the source of the gold.

Follow up samples were disappointing since the peak value of the previous sampling did not repeat, although the second highest value was matched. The suspected correlation of high pan concentrate gold with zinc also did not survive intact although in general terms the area of the zinc maximum corresponds with the area of maximum gold. Base metal values within the sludge samples were uniformly low (of the order 25 ppm all elements) although zinc on occasions rose to 215 ppm (HM 376), unfortunately this was not mirrored by any other element. Manganese appears somewhat patchy and neither supports the higher gold values that occasionally occur in the sludges or mercury amalgamations. Arsenic values are low (peak of 36 ppm in HM 363) while the higher values around Annett Creek appear to be the southerly strike extension of high arsenic values detected in 1984 in the Rocky River area.

The high gold values were thought to indicate a favourable horizon within the Bowry Member (Figs 2.1, 2.2, Sheet 3), which is known along strike to the north to contain gold bearing veins (c.f. Specimen Reef). A small amount of Brown Plain Formation gravels and sand was in evidence but deemed too small to produce extensive Tertiary contamination.

### 5.2.2 Rocky River

Penny et al (Aug 1984) discussed the high arsenic values aligning in a drainage system parallel to the strike of the country rocks. Past mining activities of the magnetite and possible gold bodies of the Bowry Member and to the east a strong arsenic anomaly corresponding to a horizon with known gold mineralisation further to the north (c.f. Golden Ridge) provided the stimulus for an additional twelve stream sediment samples (Fig 2.0, Sheet 3).

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Results reflected the high arsenic values of previous years, manganese in the sludge fraction was often high (HM 308, 3500 ppm) but not mirrored by high base metals, gold or arsenic values. Gold registered weakly in both the sludge and panned heavy concentrates but of such low order as to not define possible gold sources. Panned sample 354, within the strongest probably stratabound arsenic anomaly, returned a pyrite rich heavy concentrate. It was assayed directly (by Method 309) to produce a gold value of just over 1 ppm which raised the possibility that the gold was contained in the pyrite itself. But a mercury amalgamation result from the same area, received later indicates that substantial free metallic gold is present.

The easterly extension of the magnetic signature from the Bowry Member magnetite body corresponds to the high stratabound arsenic values. Although base metal values are low, the arsenic anomaly may represent a supra-ore halo, with a source somewhere at depth.

### 5.2.3 Supergrunt

The source of interest in this area is the polymetallic anomaly found in sample HM 112, early in the 1983-1984 sampling programme. This was of particular interest since it occurred in a large creek in which substantial dilution of the anomaly was possible. Subsequent work on the larger tributaries of the major creek did not turn up a source for the anomaly (Fig 2.0, Sheet 3).

For this season, work was intended to cover gaps in previous coverage with emphasis on smaller creeks on the west side which drain the granite contact area. In this zone is a circular vegetation anomaly which could conceivably represent a breccia pipe.

The creeks are not readily sampled owing to limited traction load material, and in one case a creek was omitted from the sampling coverage. In the case of sample HM 309 the petrological description given is not possible for a sample collected at the designated site, and it is suspected that a different sample (possibly HM 307) has been described in its place. This has left only one relevant petrological description for the most prospective area, HM 332.

This sample is of interest because wolframite is reported as a minor component of the heavy mineral suite. In context this amounts to an anomaly.

Assays of heavy mineral concentrates were also conducted. In this case it is probable that sample HM 309 is the sample assayed under that title, yet there are significant differences between it and sample HM 332, which cast doubt on the validity of the figures given, considering that both samples are on the same drainage line and less than 200m apart. Repeat assays have confirmed the original readings

so it is reasonably likely that the extremely high value of tungsten for sample HM 332 of 5.708% is true. It is compatible with the petrological description. Even allowing for some problems with the small size of the original sample it looks like a major anomaly well worth further work.

#### 5.2.4 Battys Bend

One sample was taken from the next catchment north of the area (Fig 2.0, Sheet 2) where high lead and zinc values had been found previously along the strike of the presumed strata bound mineralisation. Drainage is influenced by very extensive Brown Plain Formation cover yet elevated values of lead and zinc are obtained in the sample.

#### 5.2.5 Bowry Creek

Three stream sediment samples (Fig 2.0, Sheet 2) were sited on the continuation of the Bowry Member magnetite bodies and their inferred correlation to the Specimen Reef gold deposit.

Results are similar to the Rocky River and Bounds Creek areas. Manganese values are high (HM 312, 1600 ppm) with little or no correlation in gold values either in the sludge or mercury amalgamation of the heavy mineral concentrates. Zinc values in the sludge are high (145, 195 and 160 ppm) but as with the Bounds Creek area, do not correspond directly to the highest gold values. Copper values are elevated (85, 150 and 120 ppm) and may reflect a minor copper association with the adjacent magnetite body. Lead values are depressed and conform to other samples draining the Bowry Member while arsenic is surprisingly low (4, 7 & X ppm).

#### 5.2.6 Waterfall Creek & Magnesite Area

This has similar lithologies and exploration aims as the previous Bowry Creek area. Three samples were panned (Fig 2.0, Sheet 2) from creeks draining the magnesite deposit, which is part of the Bowry Member.

For sludge samples base metal values and arsenic are low while manganese is again high (HM 324 and 325, 3500 ppm) providing good correlation to the Bowry Creek samples. From pan concentrates, tin and tungsten were analysed and detected (maximum 0.5 ppm W and 370 ppm Sn) but can be explained as a contamination from the nearby Bullocks Head Formation - Brown Plain Formation. Gold registered in both sludges and mercury amalgamation but of a very low order.

020

5.2.7 Big Duffer Creek

Follow-up exploration work conducted during 1985 confirmed the zinc anomaly mentioned by Penny et al (Aug, 1984). Four stream sediment samples were collected in creeks draining and adjacent to a recent soil sampled grid (Fig 2.0, Sheet 2).

The easterly samples returned little indication of favourable gold bearing horizons to the east of the known mine workings as both base metals, arsenic, manganese and gold values were very low. Sample 355 panned adjacent to False Cox's Face returned 10750 ug of gold within a three pan sample. The sludge analysis revealed low base metals, moderate arsenic (51 ppm) and high manganese values (6000 ppm). These results are overshadowed by the more comprehensive soil sampling program. (See Golden Ridge Prospect).

5.2.8 Specimen Reef & Environs

Penny et al (Aug, 1984) records previous stream sediment sampling conducted in the area. Nine samples were collected in the 1985 season both as a check on previous sample data and to appraise favourable horizons striking to the north (Fig 2.0, Sheet 1).

H.M. series samples 348 and 353 to the north and east of the area respectively, return low values for all analysed elements except manganese (550 and 1300 ppm) and must be considered outside the most prospective ground. Samples 345-347 are immediately west and downstream of the old mine workings and collected in areas previously worked. The gold collected by mercury amalgamation is noteworthy. There is little correspondence with fine golds in the sludge, manganese values are high (775, 2900 & 6750 ppm respectively) while arsenic is low (13, 6 & 12 ppm). Samples 349 and 350 were collected at the headwaters of Davis Creek and return very promising gold values for the heavy mineral concentrates (2050 and 56150 ug). There is a slight increase in the fine gold content within the sludge but insufficient to determine this area as anything but a coarse grained gold environment. Samples 351 and 352 return gold values of 6000 and 25.8 ug in the heavy mineral concentrates from the headwaters of Broderick's Creek. In all samples containing elevated gold values, manganese remains consistently high and arsenic consistently low.

5.2.9 Pineapple Creek

A wedge of ground within the revised boundaries of E.L 4/61 centering at Pineapple Creek lies between the Specimen Reef goldfield and a gold prospect within the first major

drainage channel north within an E.L. 1/79 (Mt. Bertha) of CRAE (pers. comm. I Clementson). Two stream sediment samples (HM 343 and 344) were panned to assess its potential as a gold bearing environment (Fig 2.0, Sheet 1).

Gold values from mercury amalgamation of the heavy mineral concentrate is not specially encouraging (55 and 2.3 ug respectively). Manganese at 200 and 175 ppm is considerably lower than values at Specimen Reef. Base metals and arsenic values are low in the sludges.

#### 5.2.10 Northern Area

Ten samples were collected from suitable drainages whose catchment included parts of the soil/rock chip program immediately adjacent to the Little Donaldson River (Fig 2.0 Sheet 1).

Base metal values for samples 320-322 were very low and appear outside of the area most encouraging for base metal mineralisation. However these samples gave some of the highest manganese values (2100, 455 & 505 ppm respectively) and a correspondingly elevated high mercury amalgamation gold value (34, 45 & 8 ug). The remaining samples (HM 314-316, 319 and 323) when compared to HM 320 - 322 were enriched (by a factor of 10) in both copper and zinc, manganese was uniformly high (median 1000 ppm) although gold was relatively poor as both fines in sludges and heavy mineral concentrates. Lead and arsenic were poor throughout.

### 5.3 CONCLUSIONS AND RECOMMENDATIONS

The analysis of Cr and Ti and to a lesser extent Sn often confirmed the presence of contamination within the drainage systems for nearby Brown Plain Formation gravels and sand. Gold values both within the sludge and heavy mineral concentrate can be much affected from the fine-grained remobilised gold of these Tertiary sediments.

The 1984-85 Diamond Sampling Program suggested that high Ni values and the presence of florencite in stream sediment draining "circular features" within dolomite may relate to possible carbonatites. Selective heavy mineral samples collected in likely drainages were analysed for Niobium. The poor results did not substantiate this hypothesis.

The high gold values adjacent to the old mine workings at Specimen Reef and in the headwaters of Broderick and Davis Creeks draining the northern strike-extension of the gold horizon require further evaluation. If results from the follow-up work prove an association of elevated gold in a horizon east of the Bowry Member magnesite-magnetite bodies, further areas, such as Bounds Creek, Rocky River, Bowry Creek and Waterfall Creek, would become increasingly prospective.

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Sampling of the Supergrunt Prospect confirmed the extremely local source of polymetallic values within HM 112. Infill sampling of creeks carrying sufficient traction load material has highlighted anomalous wolframite within a possible air photo circular feature. This is a major anomaly even allowing for the small size of the original sample. Follow-up work would include stream sediment, soil and rock chip sampling.

Sampling confirmed the enrichment of copper and zinc, although arsenic values were remarkably depressed, within creeks draining the Northern copper and arsenic anomaly. Sufficient samples were collected to define the most anomalous area for the proposed style of mineralisation (Chapter 7.0). No further sampling is required.

The panned sample (355) in a tributary of Big Duffer Creek proved that coarse grained gold is still sometimes recoverable from good trap sites within ground previously worked. Results and conclusions are mentioned in Chapter 9.0 of this report.

At Battys Bend one additional sample was collected in an ongoing program to continue in the forthcoming 1985/86 field season. It is envisaged that stream sediment sampling will be extended to cover all major drainage channels within the dolomite - greenschist/phyllite horizon proved late this field season to be anomalous in lead, zinc and gold.

## 6. HEAVY MINERAL CONCENTRATE

### 6.1 INTRODUCTION

The H.M. series heavy mineral concentrates were processed through Tetrabromoethane (T.B.E.), then magnetics were removed magnetically, and the gold content extracted by mercury amalgamation. Ten samples were given petrological descriptions, and most samples were analysed for Au, Cr, Ti (W, Sn, Nb). In the case of sample HM 309 it is suspected that sample HM 307 is described. The description is incompatible with the granite source area of sample HM 309.

Chromite in the petrological descriptions and Cr in the analyses is considered to indicate Brown Plains Formation or other Tertiary gravel inputs into the heavy mineral suite. Where this is the case a gold value for example which might otherwise be considered impressive, e.g. HM 378, is almost certainly derived from the Tertiary gravels and not a local bedrock source, thus the Cr content can be utilised as a screening mechanism to identify false anomalies.

The chromium derives ultimately from a serpentinite source, and initially it was thought that titanium might prove a complimentary indicator of ultimate granite source areas for Tertiary gravel contaminated heavy mineral suites, but the assays, and also thin section petrological descriptions for the Cox's Face area indicate that "granitic" titanium minerals are common in the schists. In particular sphene is locally abundant and may be disguised in the petrological descriptions as "rock fragments".

Ilmenite is also proving more common than expected and some "chromite" may possibly be ilmenite. It is likely to be present in association with magnetite particularly in the Bowry Member. Magnetite in the Bowry Member is often so abundant in the drainages as to swamp other elements of the heavy mineral suite, which makes its removal necessary.

The data is displayed in Appendices 1.2-1.4 (heavy mineral descriptions, magnetic contents, assay values etc) and Fig 2.2 (heavy mineral concentrate analyses).

Heavy mineral provinces may be defined on the basis of this data.

### 6.2 DISCUSSION OF HEAVY MINERAL PROVINCES

#### 6.2.1 Northern Area Copper Anomaly

Elevated gold values in this area are probably of genuine local origin, but appear not large enough to be important. They are likely to be associated with the anomaly area already defined. A rise in titanium and tin contents peripheral to the area may relate to basalt cover and deep lead gravels.

6.2.2 HM 320 and HM 352

Cr greater than 2% and Sn greater than 1000 ppm. The presence of chromium discounts the tin anomaly. There may be a relationship to the boundary faults of the Permian graben feature.

6.2.3 Davis Creek

A triad of high gold values including the peak value for the whole E.L. is considered to be a genuine indication of a bedrock source. Magnetite is present only in the south and it is inferred that the magnetite bearing beds are sliced off along the boundary fault with the Wynyard Tillite. This implies further that the gold source is located east of the magnetite bearing beds, which is a feature in common with Specimen Reef.

6.2.4 Specimen Reef

Gold anomalies in this area are quite low which is explicable since the area has been thoroughly worked over.

6.2.5 Cox's Face

Despite the workings in this area, quite a strong gold anomaly was obtained. The trap site however is particularly good and some gold may have reached it from the Cox's Face sluicing operation. The tin high is unexpected. The low chromium analysis value contradicts the report of chromite in the petrological description.

6.2.6 Little Savage River - Waterfall Creek (magnesite area north)

Abundant chromite is reported either in this seasons work or previously. The indications are that circular features particularly in carbonate rock terrains are infills of karst cavities, the fill being essentially "Brown Plains Formation" gravels. The alternative possibility of carbonatite - kimberlite or other intrusives occurring in some cases gets only token support from the presence of trace amounts of florencite, octohedral zircons and the generally low niobium values.

6.2.7 Battys Bend

The heavy mineral suites in this area, both HM 378 and others previously described indicate that karst infills of "Brown Plains Formation" are present. This does not preclude a bedrock source for gold in the vicinity of the soil lead anomaly.

6.2.8 Rocky River (arsenic anomaly area)

After a string of very low order gold responses, two anomalous results have turned up which appear related to a prominent creek alignment. The difficulty of detecting gold in creeks in this area may relate to previous working of the area or input of fresh quartz gravel since the fire. A paradox is that relatively high gold values occur in places in superficial quartz gravel cover.

6.2.9 Bounds Creek

A spot high value which was located on both the creek alignment mentioned above and the suspected prospective zone at the top of the Bowry Member was followed up with only low order support resulting. Effects of previous working are possible in this area. Chromite is noted in previous petrological description.

6.2.10 Breakneck Creek Tin

A cluster of samples including one of 2.4% Sn, suggest a local source for tin at this point. There is a possibility that "Brown Plains" contamination exists despite low chromium content. The area is along strike from the drillholes RR 1 and RR 2 which contained a carbonate bed with massive pyrite bodies resembling the forms usual in replacement type cassiterite sulphide deposits, although lacking tin in this case. The high tin value in the Rocky River near its junction with the Whyte need not relate to this area, since the tin here can derive from the Meredith Granite. The anomaly is considered suitably positioned for a carbonate hosted cassiterite sulphide tin deposit.

6.2.11 Supergrunt

Sample HM 332 shows a strong tungsten anomaly with support in tin. The anomaly could be related to a faint vegetation anomaly nearby, which is to be examined for breccia pipe style mineralisation.

## 7. NORTHERN AREA ARSENIC ANOMALIES

### 7.1 INTRODUCTION

I refer the reader to the report by Vanzino (1984) titled "Additional Report on the Soils Geochemistry of the Northern Area of Exploration Licence 4/61". This report noted that "the re-assaying of samples has been successful in defining three major arsenic anomalies for follow up investigations". These are:

1. The Central Copper Anomaly;
2. The cluster of high values on the eastern end of Line 16.7; and
3. The anomalism associated with the inferred dolomite bed.

The recommendation of the report was "that further soil sampling of the strongly anomalous zones be conducted to ascertain if arsenic has a sympathetic relationship with gold".

Follow up soil sampling and stream sediment sampling took place during the months of December 1984 and January 1985. A total of 222 soil samples were taken within these strongly anomalous zones. The break up being:

- 160 samples in the Central Copper Anomaly/Inferred Dolomite;
- 29 samples on Line 16.7/16.4; and
- 33 samples in the Southern Copper Anomaly (App. 2.1).

It was decided to resample the original sample points (i.e. 25m spacing). The reason for this being, that any significant gold results could be directly related to the original arsenic value obtained. It was felt subsequent soil sampling i.e. 10m spacing, would be conducted if gold values warranted it. Stream sediment sampling of creeks draining the anomalous areas was also undertaken (HM 313-316, 319, 322, 323, 334. Fig 2.0, Sheet 1).

In the central copper anomaly the pattern of arsenic distribution is one of distinct pods forming a narrow zone, the trend of which is NNE/SSW. Follow up rock chip sampling in conjunction with geological mapping was undertaken along the Little Donaldson River. The purpose of this was to verify any southerly extensions of this zone as well as noting any promising geological features such as acidic dykes, alteration zones or shearing (rock chip sample nos. 85/0049-85/0054).

As noted in Section 12.2 of this report, a different sample preparation technique was utilised, hence all samples were re-assayed for Copper, Lead Zinc and Arsenic. Silver was re-assayed using a more sensitive analytical method. A uranium/gold association was mooted (Malcolm Frost, C.S.I.R.O. pers. comm) following the determination of uranium in the Specimen Reef Core.

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Manganese was assayed due to its absorption capabilities for other elements (i.e. lead). Manganese content was also found to vary in sympathy with gold in the Specimen Reef Core, though not with complete consistency (see Shannon - IMI Quarterly Report 23.8.84-22.11.84).

## 7.2 RESULTS

### 7.2.1 The Central Copper Anomaly

In a word - poor. All arsenic values were depleted in comparison with the original anomaly (at least in part owing to the change of sample technique from -80 mesh to whole sample pulverised to -200 mesh). Fig 3.4 shows the strongly anomalous 1985 values contoured. However the 1984 threshold value (38 ppm) was used to determine whether a sample was anomalous or not (see Vanzino 1984 Appendix A). Thus the shape and extent of the original anomaly is confirmed regardless of the diminished values. Uranium values were generally 1.5 ppm, 3 peak values of 17.5, 9.5 and 16.5 ppm were located within the arsenic rich zone (14.7N/49375-425E) but stratigraphically lower than the strongest arsenic values. A uranium value of 19.3 ppm at 14.1N/49400E is coincident with an arsenic peak.

Forwood (1985) suggests that the association of arsenic with lead may be useful as an indicator of gold mineralisation, however lead values were consistently less than 10 ppm. A peak value of 25 ppm is coincident with uranium and arsenic peaks at 14.7N/49425E. Copper and zinc values were depleted in comparison to the original sampling programme due to the sample preparation technique employed. Silver values in the vast majority of cases failed to register, with a peak of 0.9 ppm within the arsenic rich zone at 14.6N/49425E. Barium and antimony values were low and nil respectively. Manganese values exhibited a large and erratic range hence statistical treatment would prove worthless. An "eyeball" estimate of all values greater than 1250 ppm shows manganese flanking the arsenic rich zone (Fig 3.4). Gold values were persistently poor with the peak value of 8 ppb being recorded at 14.0N/49425E. Interestingly this value receives minor support from a small cluster of lead values 25, 20 and 20 ppm (Figs 3.0-3.3).

In the field, no visible gold was detected in the pan. Analysis of pan concentrates revealed above background gold but no notable anomalies.

Stream sediment geochemistry and rock chip sampling failed to support gold or any gold indicator elements - even base metals were diminished. No structural complexities were evident from geological mapping.

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7.2.2 Line 16.7 N, Northern Copper Anomaly

The cluster of high arsenic values amongst a barren background was found to have diminished arsenic values and virtually no gold. All other elements were low. Ironically the few rare antimony registrations were in this area.

7.2.3 Inferred Dolomite Unit, Central/Southern Copper Anomaly

Within the inferred extent of the dolomite bed, the values obtained were generally low. Highlights were:

- a peak copper value of 550 ppm at 14.8/50025
- a peak manganese value of 5950 ppm at 14.6/49950
- trace of silver registrations

The peak arsenic value of 390 ppm which was recorded in McAuliffe Creek at 11.1/49675 was not substantiated the second time around (Fig 5.8). The remaining elements gave poor or low values with gold always < 2ppb. The outcrop of pyritic quartz dolomite in the Little Donaldson River (13.8N, 49.92E) was rock chip sampled, returning a value at 5ppb gold. Assay values for all other elements were low (Appendix 9.1).

Vanzino (1984) noted "a highly anomalous zone approximately 200m wide centered upon Line 10.1/49100" within the green and grey slate/phyllite unit. The results from further sampling were poor in all elements and failed to confirm the original arsenic anomaly (Figs 5.0-5.10)

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8. SPECIMEN REEF8.1 COMMENTARY OF SPECIMEN REEF HISTORICAL RECORDS

The history of the mine can be reconstructed in part from the five references in contemporary Mines Department reports. Of these, three record actual visits to the mine during the period when it was a live prospect (Appendix 3.1).

The first reference, Thureau (1884) describes an actual visit occurring some years after underground development had begun. At this stage there were two adits now termed 1 and 2 but then termed upper and lower or main adit respectively. No. 1 adit had essentially reached its completed form except for winzes and shafts presumably put in later. No. 2 was in process of construction, it had been put through as far as the reef itself and the reef was being followed in the hope of intersecting the gold bearing shoots observed in the No. 1 adit.

A remarkable feature of No. 1 adit was the deposition of ferric hydroxide gunge from the outflow of No. 1 adit. The gunge is now associated only with the lower adits which now dewater the area of No. 1.

At present the entrance of No. 1 adit is caved in but its site can be inferred from the dump outside the former entrance. A section of the inner workings is accessible via the underlay shaft, although the procedure is dangerous and unpleasant. Part of the underlay shaft is affected by roof fall, a pitch of 5m must be negotiated and the horizontal passages are waist deep in water. The timber lining is in poor condition.

No. 2 adit is open up to a rockfall just short of the corner where the reef was met. The floor is under about 0.7m of sloppy ferric hydroxide gunge.

There is some possibility that some of the figures reported to Thureau are exaggerated. The vertical separation between adits 1 and 2 is about 24m, not 33m (109 feet). But perhaps the ground above No. 1 adit (c. 10m) is counted twice.

Certain of Thureau's observations can be confirmed, such as the change in strike of strata in No. 2 adit, and minor faults with black gouge clay near the collapse.

The attitude of the lode cannot be determined from Thureau's records. A precise average strike for the load of N38degE (magnetic, 1884) is given for the section of No. 2 adit then accessible where it follows the lode, but no dip is given. For the upper (No. 1) adit, all that is said concerning the reef itself is that "underlay of the reef is to the east", which is permissible if the direction of the adit is considered a "mine north". The point he is trying to make is that the lode is not gold bearing throughout, but in shoots which are

not oriented along the true dip direction but along an apparent dip direction running approximately south. The diagram "longitudinal section of Specimen Reef" is intended to illustrate this concept (App. 3.1, Thureau). The terms "underlay" and "dip" in old usage corresponds to "dip" and "pitch" in modern terms.

He also notes that the hanging wall of the lode was a firm sandstone and the footwall a softer, metamorphic slate. Yet the vein transects bedding. The "sandstone" makes sense if interpreted as silicified alteration material.

The next reference (Montgomery, 1890) implies a visit to the area but not necessarily to the underground workings. Mention is made of a winze connecting 1 and 2 levels only. Much work was going on but on surface works ancilliary to the battery. He does give a description of the ore "clinkers" which matches very well the black, gold bearing oxide material found in S.P.C. 1 Diamond drill hole.

The final official visit to the mine was reported on by J. Harcourt Smith (1897). Some initial comments imply that the mine may have changed hands and have been left idle for a period, probably after completion of any stoping done between 1 and 2 levels, and was now in the hands of new proprietors whose hopes were riding on results from No. 3 adit.

The situation at the time of Smith's visit was that No. 3 adit, (then under construction) was in the same sort of position that No. 2 was in during Thureau's visit; they had tunnelled into intersect the lode, and were following it with a drive but had not yet come to payable ground. Smith was unable to check the workings in No. 2 owing to a rockfall which blocked the drive, but the winze referred to by Montgomery was open and he was able to examine the short drives from it at the 60 foot level. The payable ground above No. 1 level had been stoped out to the surface. He makes no mention of any production having taken place from below No. 1 level apart from mentioning White's winze. He appears to have been reluctant to repeat stories about production that he could not verify for himself, and also to use rounded off measurements which introduce an element of unreliability into the reconstructed plan of the workings (Fig 6.0). Like Thureau, he gives only a generalised description for attitude of the lode: "the reef ... underlays rather flat to the S.E."

No. 3 adit in 1985 is effectively buried by a ferric hydroxide sludge deposit. During operations the creek was diverted into a water race and a very low gradient tramway dug out of the original bed. Since the area was abandoned aggradation of sediment has occurred to bury even the top of the adit, although since removal of a tree blocking the outlet in April 1985, it is now possible to poke a stick into open space a little below water level, inside the adit. The line of the adit can be inferred from a nearby shaft.

Twelvetrees, who took over from Smith as government geologist appears never to have got to Specimen Reef. He gives a brief mention (Twelvetrees, 1900) of the newly constructed road to Specimen Reef from the Bullocks Head, which implies that the mine was operating at

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the time, next (Twelvetrees, 1903) the same road is described as "formerly" going to Specimen Reef. From this it can be deduced that the mine was finished.

There has been a lot of work in the area which is not reported on in the references cited, notably various shafts, and extensive alluvial workings extending to the junction of Specimen Creek and Davis Creek. McPhee's adits, located south of Specimen Creek 50m below the McPhee's Creek junction could be considered out of the Specimen Reef area.

It seems likely that generally speaking, works that exist in the area but are not included by Smith (1897) were put in after his visit. These include the remarkable underlay shaft which gives access to No. 1 level beyond the stoped out area, which would then have been in imminent danger of collapse. The policy of timbering all the walls and backs of the workings in the area indicates a certain nervousness on the part of those involved in the work. A timbered recess near the point of entry to No. 1 level extends below water level, and is thought to be another winze leading to No. 2 and No. 3 levels.

No. 4 adit and a probable winze leading from it makes most sense if considered a device to avoid the caved area of No. 2 level noted by Smith (1897). The caving probably affected the deep shaft which may have originally been put in for ventilation during the inferred production episode based on No. 2 adit.

Doubtless work proceeded on No. 3 adit, subsequent to Smith's visit, but the mine cavity and waterlogged timber in S.P.C. 4 appear (since accurate survey data became available) to be from a parallel drive 25m away from the main one. The associated zone of alteration corresponds to the gold bearing vein in S.P.C. 1. The main Specimen Reef in S.P.C. 4 is now interpreted as some minor veins at 67-68m and 68.8-69m which are largely clogged with chlorite, perhaps from a vein sediment which impaired porosity from an early stage in the vein's development. [Thureau (1884) notes that the vein was recognizable but non-ore at the nearby start of the No. 2 drive.]

The material interpreted as the main reef in S.P.C. 4 is so poor that it would be understandable of the miners to put in exploration drives, thinking they had lost the lode. The thin best rich vein found also in S.P.C. 1 at C.140m would have been worth following.

The extent of workings from No. 3 adit can be deduced in part from the mullock dump, which is in the form of a linear embankment along the old creek bed extending from below the dam almost to the battery, and comparable in volume to the No. 2 dump. Its method of construction means that the material furthest away was the last to come out of the mine, and it includes masses of banded brown carbonate and quartz implying a vein thickness of at least 20cm.

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## 8.2 STRUCTURAL MODEL OF SPECIMEN REEF

The historical records do not provide a dip measurement for Specimen Reef, but do provide one concise strike measurement, and distances from adit to lode by which two points at different heights on the reef can be determined. From this limited data a structure contour map has been compiled from which the dip can be deduced from  $\tan \text{gradient} = \text{dip}$  i.e.  $\tan 0.71 = 35.36^\circ$  (Fig 6.1). Strike is  $047^\circ$  true and dip to the South East. The section of horizontal drive accessible from the underlay shaft also plots reasonably well on the model.

One rough measurement of  $030^\circ$  mag (1897) is disregarded since although it is stated to be on the lode in adit No. 1, it is more reasonable to suppose that this was taken in the entrance section approaching the lode itself, and at a slight angle to it.

All old magnetic bearings were shifted  $2^\circ$  to allow for drift of the magnetic field.

## 8.3 INTERPRETATION OF DRILLHOLE RESULTS

The model has application in interpreting drillhole results since by projecting all drillholes along the lode's strike direction it can be seen if the hole was positioned to test the lode. Initially drillholes in the 1982 program were targeted on geophysical features not necessarily related to the Specimen Reef lode (Figs 6.11-6.14).

In Fig 6.2, the model is shown with true dip on Specimen Reef and the drillholes are shown foreshortened by projection onto the section lines.

### 8.3.1 Section 1

Drillhole SPC 6 is shown in relation to inferred and actual drives, winzes and stopes in the vicinity of the underlay shaft.

There is no prominent vein in the predicted position, but there is a relatively thick vein of some 10cm, displaced by a minor fault at 98m, some 5m above the predicted position. However in this hole numerous veins with associated alteration higher up the hole are thought to represent splits of the Specimen Reef, with a tendency of the set to shift east to a parallel en echelon vein set.

It is also possible that minor faults have shifted the veins over to the east. The fit is quite adequate given the rough estimate for adit No. 3.

### 8.3.2 Section 2

Drillholes SPC 1, SPC 4 and SPC 5 are shown in solution to workings known and inferred in the vicinity of No. 2 adit.

In this area the model is likely to be rather accurate, and thus it forces a reinterpretation of the data from that of Penny et al, (1984).

The main Specimen Reef can be identified with the anomalous gold value of 0.1 ppm in the 46-48m interval of SPC 1, and with a 1m zone of silicification with chlorite - carbonate veins at 67-68 in SPC 4. The poor mineralisation encountered here in No. 3 level explains the inferred offset drive to a point 25m N.W., in which another vein and zone of silicification was picked up and followed for some distance - possibly with good results since the gold intersection at 140m in SPC 1 plots adequately as the same parallel vein.

Drillhole SPC 5 is nowhere near the prospective zone.

### 8.3.3 Section 3

Drillholes SPC 2 and SPC 3 are shown in relation to the No. 3 adit.

SPC 3 stops well short of the prospective zone.

SPC 2 is an embarrassing example of a hole that would have been dealt with differently if the present interpretation had been known at the time. The end of the hole plots just 15 metres past the predicted intercept of Specimen Reef.

It would be expected to pass through a second lode of interest noted by Smith (1897) which may be represented by veins anomalous in Cu, Ag and As from 63-67m. Specimen Reef itself is probably represented by a white carbonate vein, anomalous particularly in Mn at 109.5 - 109.7m, but barren of gold.

## 8.4 POSSIBLE INFLUENCES ON MINERALISATION

The ore shoots are described as occurring where the vein was comparatively thick, yet the vein could be three feet wide and yet barren in the initial sections of the drives since the gold bearing clinkers are in the centre of the veins in which they occur, it seems necessary for the veins to have remained open up till a very late stage for gold ore to be deposited. Thus the ore control could be purely connected to the structure of the vein alone, but there is a distinct possibility that the wall rock has an influence on mineralisation with the well bedded strata exposed in No. 2 adit and the road between SPC 1 and SPC 2 adit being unfavourable, and the vaguely volcanic looking, poorly bedded rocks between SPC 1 and the Pipeline road containing favourable host beds. A wall rock control can account for the southerly pitch of ore shoots since the normal strike direction of the enclosing strata is N-S.

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If wall rock control of mineralisation exists at Specimen Reef it would be a point in common with the Golden Ridge area in which wall rock control was a fixed belief of both Twelvetrees and the contemporary miners.

A wall rock control need not be conspicuous but it does appear that, (assuming it is a wall rock control), the beds hosting the principal target ore shoot of the original workings lie not far to the east of a marker bed, which is exposed in both access tracks and in the No. 2 adit. The characters of the marker are relatively fresh, waxy looking green phyllite and associated sandstone showing graded bedding. Beds east of the marker are often green in the weathered road exposures. Beds west of the marker are more often brown weathering and may contain disseminated magnetite.

#### 8.5 CONCLUSIONS

SPC 6 adequately tested its section of Specimen Reef. However, Specimen Reef has not yet been encountered in a form the old records would recognise as typical. The most prospective area (the southerly pitching ore shoot, 50m long in No. 1 level) has not been tested yet, the target size is now rather smaller than it was.

#### 8.6 SOIL SAMPLING ANOMALY, 11.2 LINE

Given the trends established from the Specimen Reef model, the high gold values of Line 11.2 are along strike from the No. 5 adit, a small working testing a "line of mineralisation"? well east of the main Specimen Reef. Some veins expressed as open cavities were encountered below 45m in SPC 6 and are thought to relate to the same set. On soils evidence this zone appears the most prospective ground in the area (Figs 6.3-6.10, App. 3.6).

## 9. GOLDEN RIDGE PROSPECT

### 9.1 COMMENTARY ON HISTORICAL DATA

The area was visited on two occasions by Twelvetrees and reported on in two documents, Twelvetrees (1900) and Twelvetrees (1903). The second report is more detailed and gives a rough map of some of the workings, and names for them in use at the time.

For the Cox's Face area, the first report (Twelvetrees, 1900) describes a 300 foot tunnel which can be identified with Battys adit. Next it describes a discovery of 12 ounces of gold at the surface and a short, shallow drive nearby - located on the opposite side of the ridge to Batty's. This must be Crockford's Tunnel. Confusion begins in the next sentence which appears to describe workings in the Big Tunnel - Thureau's tunnel area of his 1903 map - but which are not shown on that map. This area is on Savage River Mines ground (Fig 7.0).

The shaft at the South end of Cox's Face, and the Wet Adit below it are the subject of comments in Twelvetrees (1903). At that time the shaft was under construction and the Wet Adit a proposal.

Two other adits are shown south of Cox's Face, of these Foster's Tunnel was located but the logical site for Davis' Tunnel appears to have been abandoned before work got underground (App. 4.1).

### 9.2 COMMENTARY ON COX'S FACE DRILLING AND GEOLOGY

The core recovery at Cox's Face was very poor except in part of G.R.2, such vein material as was recovered belongs essentially to the ptygmatic quartz vein set related to metamorphism of the area, rather than to the one set of late cross cutting veins described by the discoverers, Weetman and Crockford, as related to Twelvetrees (1903). These are soft and crumbly and in areas of poor core recovery would come up as cuttings, hence the policy of analysing cuttings from the drilling program (Figs 7.2 - 7.5).

Such cross cutting veins as were visible in the better core recovery section of GR 2 did not have wall rock alteration such as is prominent at Specimen Reef.

"Cox's Formation" itself could be recognised readily at Cox's Face, Battys adit, Crockfords Tunnel and in the open stopes and flooded adits below Big Tunnel on the S.R.M. ground. The "formation" is a zone unusually rich in black pyritic phyllite following the thickest tuff beds in the area, both lithologies being distinct from the normal quartzwacke, mica phyllite and black phyllite beds of the surrounding area (Fig 7.1).

Twelvetrees' map (1903) is wrong in correlating Cox's Formation in the Thureau's Tunnel area, it actually comes in at a point well to the west, near the entrance of Big Tunnel.

Although the productive vein set may be difficult to find by the turn of the century method of E-W exploration adits, (since the vein's strike direction was a parallel with the tunnel), the indications are that the veins are not common.

The mixed success of the field appears to be the result of long accumulation of gold in the surface wash and creek beds while the lighter minerals were carried over the top of the various trap sites. The presence of chromite in the trap site of HM 355 implies that some heavy minerals from a vanished cover of Brown Plains Formation gravel are still hanging around. So the implication is that the alluvial work contains the concentrated residue of gold from as much as several tens of metres of rock.

The gold at Cox's Face can be accounted for as the concentration in trap sites of gold from a destroyed vein originally not far above the present surface. (An interesting possibility is that the peak gold value of the soil sampling program has actually picked up this hypothetical vein.)

The comparative richness of the workings stems from the alignment of the gully with the most favourable wall rock control. But the appearance of stratigraphic control is not the same as an essentially stratiform, bedrock source for the gold. Both the original mining and the drilling program were based on this concept, now considered to be wrong, but whereas it didn't matter in the case of a sluicing operation as it does with underground or open cut mining.

### 9.3 SOIL SAMPLING

#### 9.3.1 Previous Work

A single scout line of 1.3 km was surveyed and soil-sampled at 25 metre intervals during the 1983-84 field season, Penny et al (Aug., 1984). Discrete zones of elevated arsenic and accompanying copper and lead values were interpreted, as corresponding to both Cox's and Weetman and Crockford's Formations. Further infill lines were proposed to completely delineate the anomalous zones.

#### 9.3.2 Work Completed 1985

A review of E.L 4/61 by P. Forwood (1984, unpub. memo) suggested a stronger approach towards identifying major gold bearing horizons and to actively explore these areas in preference to other base metal shows. Information from many reports around the turn of the century ( App. 4.1) confirmed both extensive hard rock and alluvial workings for gold in the Golden Ridge area.

A reconnaissance of the area south from the Savage River Mine lease identified various adits and shafts from past literature (Fig 7.0). A detailed grid, originating from the regional 1983-84 soil-sample line, was surveyed to cover most of the known workings. Cross-lines of variable length at 20 metre intervals from a north-south baseline extended from just south of Crockfords Tunnel in the north to 20 metres south of False Cox's Face in the south (fig 7.6). Soil samples were collected at 5 metre intervals. The accessible mine workings including Battys, Wet and Talking Adits were channel sampled at 5 metre intervals (App 9.1).

An all weather track from the Savage River High School was upgraded to the base of the Golden Ridge, approximately 1 km. A four-wheel drive track was bulldozed south to complete access to proposed drill-sites. Detailed surveying from a known point (Savage River Town Lease Boundary Peg) revealed the original scout-line to be displaced approximately 30 metres east and 114 metres north relative to the AMG co-ordinates on the survey pegs.

Initial geological mapping of the mine workings and cuttings from the bulldozing delineated Cox's Formation, a dark pyritic rich pelite adjacent to a red-orange weathering tuff (?) of variable thickness. Further data was drawn from the C-horizon soil sampling program, in which samples were collected with a modified Stihl power auger at depths up to 1.5 metres. Visible rock chips were often grey phyllites or more rarely green-grey phyllites reflecting the underlying Oonah quartz-micaceous phyllites. Outcrop was poor except in the mine workings, a gossanous pitted clay with green slate found close to the Talking Adit may correlate with the green mafic schists found in drill holes GR 1 and GR2.

Elevated gold results (method 325 Analabs) were not coincident to Cox's Formation. Registrations of gold were consistent over the entire grid but of a low order. A relatively sustained zone of higher gold values between 1940 - 2000N, 49.6E peaking at 25 ppb (1975N) may reflect a surface expression of the occasional, slightly higher gold values within the mafic schists of GR 1. A point source of 438 ppb gold adjacent to Cox's Formation at 49.565E, 1820N may be an expression of the auriferous southerly dipping vein (Fig 7.7).

Base metal values were low and erratic (Fig 7.8). Zinc consistently registered in the south-western portion of the grid correlating with the known high zinc values in the sludges from nearby sampled creeks. Manganese values were often high, 2.2% at 1820N, 49.550E but were not coincident with high gold values. Both copper, lead and zinc values are below the limit of detection immediately east of the mapped Cox's Formation indicating the underlying "sandy" or "zebra rock" unit, a quartz-micaceous phyllite.

## 10. BATTY'S BEND GRID

### 10.1 INTRODUCTION

A cluster of three stream sediment samples collected from a minor tributary of the Savage River during the 1984/85 field season returned weak arsenic and copper values but highly anomalous lead and zinc, Penny et al (Aug, 1984). The sampling indicated that both lead and zinc values increased upstream from its confluence with the Savage River, at the western end of Battys Bend. The headwaters of the creek drain a carbonate lithology and lead-zinc mineralisation in this context is reasonably common, e.g. Mississippi Valley, U.S.A.

A grid of three east-west (AMG) crosslines, each 400 metres long, extend from a north-south base line some 700 metres long, starting from just north of the Savage River (Fig 8.0). Soil sampling and where necessary rock-chipping were implemented at 25 metre spacings. One stream sediment was taken (HM 378) and described elsewhere in this report (Stream Sediment Sampling).

### 10.2 RESULTS

The soil sampling program was severely hindered by a covering of Brown Plain Formation type gravels and sand. This may either lie "in situ" or represent a transported soil mantle of impenetrable thickness (greater than two metres). The most northern cross-line 98.00N, part of the baseline and the western ends of the two remaining cross-lines were most affected (Fig 8.1).

Copper values are generally low throughout the grid although the baseline from 97350-97525N has values to 205 ppm (97425N) with corresponding high manganese values (up to 1300 ppm). Copper values drop to below the limit of detection over the dolomite.

Lead and zinc although registering low values over most of the grid show two clear anomalies:

- (i) Line 97.7N between 43700-43650E has both high lead (2750, 375 and 350 ppm) and accompanying zinc (285, 100 and 320 ppm) values. Manganese and barium are high but reveal no direct correspondence, while silver registers to a peak at 43675E of 2.5ppm. Gold records its highest value within this zone of 28ppb at 43650E.
- (ii) Line 97.5N between 43675-43650E (includes sample 43660E) has lead values of 30, 95 and 405 ppm while zinc mirrors this enrichment with values of 130, 370 and 270 ppm. Manganese and barium reveal no correspondence and silver fails to register. Gold is equally poor.

Manganese values are erratic but drop slightly within the two lead-zinc anomalies and remain low within the dolomite. Arsenic is

low throughout the grid (average 10 ppm) and shows a slight drop in value over the dolomite. Barium is highly erratic and reveals no useful trends. Gold generally registers low values but has peaks of 23 and 28 ppb along the baseline at 97500 and 97525N and mirrors the lead-zinc enrichment previously described (Figs 8.2 - 8.9).

### 10.3 CONCLUSIONS AND RECOMMENDATIONS

In retrospect the distribution of sampling points tested so far leaves a gap in the regional coverage for much of the prospective zone, owing to the awkward position of the Savage River itself. Air photo interpretation of the area outlines a strike length of 5-6 km of the favourable horizon which can be tested by soil sampling and stream sediment sampling of smaller than usual gullies.

The western margin of the two anomalies correspond to the beginning of the Brown Plain Formation gravels and sand. The two anomalies occur along the contact between a greenschist/phyllite and dolomite with stronger values within the former rock type. The results are sufficiently encouraging to warrant further work, especially with a method to penetrate the gravels and sand immediately west of the high lead-zinc values. Further gridding of infill lines, soil sampling (both hand-held power and mobile power - auger), rock chipping and ground geophysics are envisaged for the 1985/86 field season.

## 11. TIMBS CREEK ARSENIC-LEAD ANOMALIES

### 11.1 INTRODUCTION

The Timbs Creek soil sample traverse, completed during the 1983-1984 field season, comprises of a single scout line 3350m in length. Penny et al (1984) noted three (3) arsenic-lead anomalies that were flanked by anomalies in copper and zinc. The authors suggested the possibility "that the copper and zinc represent halo effects around a mineralised body, represented by the lead-arsenic area". It was further suggested that such zones have potential for gold mineralisation.

Follow up soil sampling over two days in February 1985 collected 23 soil samples from the three anomalous zones. These samples were taken from the original sample points to ascertain if any significant gold results could be attributed to the original arsenic and lead values. It was felt the single scout line could be enlarged if gold values warranted.

### 11.2 RESULTS

The lead and arsenic values obtained confirmed the existence of the original anomalies, however the gold results were exceedingly poor with a peak value of 5 ppb at two locations (49475E, 49625E). Manganese values proved worthless due to its large range and erratic distribution (Figs 9.0 - 9.2).

### 11.3 RECOMMENDATION

No further investigation is warranted.

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## 12. ROCKY RIVER ARSENIC PROSPECT

### 12.1 INTRODUCTION

Previous work is mentioned in both Penny et al (Aug, 1984) and Shannon (Feb, 1985). The grid is located in the presumed source area of the substantial stream sediment arsenic anomalies, in an easily accessible area of button grass plain.

Three lines at 400 metre spacing and approximately 1100 metres long were sampled every 25 metres. Initial orientation from a loaming programme confirmed the C-horizon as returning the best geochemical responses while results from the interstitial material, in the overlying transported residual quartz gravel were subdued Penny et al (Appendix 11, 1985). Statistical treatment revealed eight composite element anomalies of which anomalies 1, 2 and 5 are the most important and required follow-up work, Penny et al (Fig 10.0):

1. Arsenic - copper - lead. This contains the highest values for these elements and therefore represents the best anomaly.
2. Arsenic - weak copper - weak lead. This is the most persistent anomaly. The copper and lead are present at the southern end. There is minor tin and silver as well.
3. Arsenic - weak copper - lead - zinc. There is some silver in all lines. Barium supports this anomaly. This may represent Pb - Zn - Ag mineralisation (vein).

The loaming produced a very small pan concentrate from which the gold content was extracted by mercury amalgamation. Shannon (Feb, 1985) notes that a composite from three sample points, i.e., approximately 60 litres of quartz gravel, produced 67.5 ug of gold, the strongest anomaly. The method had the virtue of detecting background gold concentration, but the anomalies relative to the background and in absolute terms are not particularly large, nor do they correspond to the anomalies of indicator elements defined above (Fig 10.1).

### 12.2 1985 FIELD SEASON

Three infill lines at 89.3, 89.7 and 90.1N and a further four detail lines at 89.68, 89.72, 90.08 and 90.12N were surveyed and sampled at 25 and 10 metre intervals respectively (Figs 10.2, 11.0) a total of 3.34 km of cut-line and 197 soil samples.

Line 89.3N sampled both the overlying transported residual quartz gravels and the soil C-horizon. The panning of the residual quartz gravels was stopped when results showed only background gold concentrations. A Stihl power auger, with a drilling depth capacity of 2 metres was used to speed up the sampling

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of the soil C-horizon which was taking anything up to 25 minutes per sample. This augering method was successful although care had to be taken to avoid passing straight through the C-horizon boundary. Lines 89.7, 90.1N and all detail lines were sampled using the power auger.

A shift in emphasis concentrated efforts towards the gold potential of a number of prospects with E.L. 4/61 on the advice of P. Forward (unpub. memo). At the suggestion of analytical laboratory staff, P. Dzwonozyk, Analabs (pers. comm.) all samples for the Rocky River Project (including line 89.3N) were not sieved but the whole sample pulped to -200 mesh, split and assayed for gold using the sensitive 325 method, an aqua regia digestion with carbon rod finish.

The stream sediment data suggests that the gold was indeed of a coarse grain size (higher gold values consistently occurred in the heavy panned concentrates and not in the finer grained sludge samples) and that the procedure of sieving to -80 mesh and retaining the finer fraction for analysis, i.e. last year's method and an orthodox procedure to enhance base metal elements, could only result in a subdued gold value. The whole sample when pulverised avoids the preferential removal of gold from any grain size through sieving, although a loss in sensitivity for base metals occurs. The 1985 sample values for base metal elements are subdued relative to previous work although their registrations and differing associations can still be correlated to previous work.

### 12.3 RESULTS

The 1985 data is conformable to the eight proposed composite anomalies suggested by Penny et al, 1984 (4.3.1, Plate 3). Slight elemental variations occur between lines but the broad associations and their overall trend, which approximates to the general strike of the rocks, is unchanged (Figs 10.3 - 10.14).

#### 12.3.1 Anomaly 1

The strong arsenic - copper - lead anomaly continues to the north on line 90.1N with a peak arsenic value of 600 ppm (50675E) supported by equally anomalous copper, lead, zinc and manganese values (250, 100, 50 and 140 ppm). Adjacent samples are slightly lower in value but give considerable support to the peak values. Line 89.7N continues this association at 50600E with an arsenic value of 99 ppm and copper, lead, zinc values of 25, 45 and 5 ppm. Impenetrable gravels on line 89.3N mask the effect of this association to the south. Recovered gold from a panned heavy concentrate (interstitial gravels) peaks at 55 ug on line 89.3N at 50525E supported by 24 ug at 50550E. Gold obtained from the soil C-horizon barely registers within this zone on both 89.7 and 90.1N.

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12.3.2 Anomaly 2

Arsenic values support the continuation of the most persistent composite anomaly, arsenic - weak copper - weak lead, to the north on line 90.1N. A broad zone of arsenic enrichment virtually continues from the maximum arsenic value at 50675E (600 ppm) to 50900E. Within this zone values are somewhat lower peaking at 41 ppm at 50825E and 53 ppm arsenic at 50875E. Weak copper, lead and zinc values support the anomaly reaching a peak at 50825E (90, 40 and 10 ppm). Line 89.7 mirrors the results of 90.1N, arsenic values remain high from composite anomaly 1 producing a broad zone of arsenic enrichment to 50900E. An outstanding arsenic value of 630 ppm at 50700E is supported by values of 65 and 88 ppm arsenic at 50725E and 50850E, the remaining arsenic values are lower but sustained. Both copper and lead register within the zone while zinc occasionally rises to support these elements to a maximum value of 45 Cu, 10 Pb and 35 Zn ppm at 50725E. The high arsenic value of 88 ppm is supported by copper, lead, and zinc values of 30, 20 and X ppm at 50850E. Line 89.3 contains a narrow zone between 50700 - 50775 E of composite anomaly 2, arsenic peaking at 50700E (100 ppm) and 50750E (52 ppm) is weakly supported by either copper or lead. Gold recovered from pan concentrates, within and adjacent to the zone, on line 89.3N are disappointing reaching a maximum of 3.25 ug at 50725E. Gold in soils is also low, with no registrations on line 89.3N, minor occurrence to a maximum of 2 ppb on line 89.7N and a peak value of 6 ppb at 50825E on line 90.1N, which corresponds to a good arsenic value (41 ppm) and high copper, lead and zinc values (90, 40 and 10 ppm).

12.3.3 Anomaly 5

The association arsenic - weak copper - lead - zinc, can be seen within a zone between 50325 - 50400E on line 90.1N. This varies slightly from the composite anomaly as copper appears too enriched to be classed "poor". Arsenic with a median value of 18 ppm is supported by high lead and zinc values. Lead peaks at 205 ppm (50350E) and is supported by copper, zinc and arsenic values of 90, 85 and 21 ppm. Peak values for zinc and arsenic (235 and 33 ppm) occur at 50375E and are supported by copper and lead values of 80 and 50 ppm. Copper values remain high between 50400 - 50450E on line 89.7N where high lead and zinc values constitute anomaly 5. Arsenic averages 18 ppm and is similar to line 90.1N. Copper, lead, zinc and arsenic all peak at 50450E with values of 245, 25, 5 and 38 ppm. Line 89.3N does not conform well with the suggested composite plan but lead, zinc and silver give registrations on both edges of the horizon at 50375E (20, 115, X ppm) and 50250E (5, X, 0.2 ppm). This may represent part of a broad zone between composite anomalies 3 and 7 both having a lead, zinc and silver component. Gold extracted from mercury amalgamations on line 89.3N are poor with little correspondence although

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24.5 ug at 50375E coincides with high lead and zinc values. Gold assayed from the soil C-horizon fails to register on line 89.3N and peaks at 5 ppb at 50425E (89.7N) and 50375E (90.1N). As mentioned by Penny et al (1984) barium supports this anomaly on all lines.

#### 12.4 INFILL LINES

Gold within the soil C-horizon was anomalous in two areas:-

- (i) A sustained registration of gold peaking at 13 ppb between 50800 - 51000E on line 90.1N, probably associated and adjacent to the composite anomaly 2,
- (ii) A high gold value of 95 ppb at 50300E on line 89.7N supported by values of 4 ppb between 50250 - 50350E, and associated with the extension of anomaly 3 from line of 89.3N.

To confirm any extension of these values infill lines at 20 metre spacings from the original lines were surveyed and sampled at 10 metre intervals. Results confirm both areas to contain elevated gold values. The original high results were not repeated although elsewhere along the infill lines gold values did reach 25 ppb (90.08N, 50850E), 10 ppb (90.08N, 50900E) and 14 ppb (89.68N, 50310E). Silver at 0.1 ppm and weak copper, lead and zinc values accompanied these results. Line 89.72N between 50350 - 50370E was anomalous in copper, lead and zinc with peak values of 835, 120 and 600 ppm at 50350E (Figs 11.1 - 11.9).

The early return of some data suggested that higher gold values flanked the strong arsenic anomalies of composite anomaly 1. Seven sites along this zone were chosen (Fig. 10.1) to collect a 50 kg sample of material directly above and partially including the C-horizon which past orientation surveys reveal as the interval returning highest gold responses. The material was loamed and panned to a heavy mineral concentrate, gold was extracted by mercury amalgamation. The results were exceedingly poor.

#### 12.5 CONCLUSIONS AND RECOMMENDATIONS

Soil sampling confirmed a strong arsenic anomaly. Gold values, from both soil and panned heavy concentrates of the residual quartz gravels, were poor, the strongest anomaly of 95 ppb failing to repeat on infill lines. Base metal results were more encouraging with composite anomalies extending the length of the grid. Copper, lead and zinc values are sufficiently high in places to warrant further investigation.

The Rocky River Prospect lies within the Onah Formation, a unit of low magnetic activity which could be sufficiently disturbed by a magnetic quartz-carbonate clinker swarm or base metal-pyrrhotite/magnetite body. A ground magnetometer survey sampling at 10 metre intervals over the entire grid would reveal any anomalous magnetic signatures.

### 13. MAGNESITE

#### 13.1 STATUS

The magnesite resource centred on Main Creek is contained in a composite carbonate mass which appears to contain some hundreds of millions of tonnes of carbonate material in which magnesite predominates.

The drilling done so far has not yet defined a portion of the deposit to indicated ore status. Work has been temporarily suspended owing to the need to evaluate the remainder of EL 4/61 in a limited time, and it is considered that the present amount of drilling completed provides an adequate measure of the resource when it is considered that there is no immediate prospect of bringing it into production. The quantity known to be present is adequate to cover any reasonably anticipated disposable level of production, and thus quantity is not a limiting factor on development. There would however be value in defining the portion of the deposit best situated for initial development.

Drilling so far has comprised four diamond drillholes and 24 airblast holes. The nature of the deposit is determined from consistent features of the four diamond drillholes, which show that the deposit is a stratiform carbonate lens, with greenschist interbeds amounting to 10% of MC 1 and MC 2 expanding to 50% in the northernmost drillhole, MC 27. It is thought that the Bowry Creek deposit is a faulted continuation of the Main Creek lens. Another magnesite deposit at the Savage River Mine is considered to lie on the same stratigraphic horizon.

A feature of the deposit revealed in MC 1, MC 2 and MC 27 is a systematic change in iron content from east to west. Essentially the western third of the deposit - about 100m stratigraphic thickness in MC 1 and MC 2 and 50m in MC 27 is less than 1% Fe. This portion of the deposit is the logical target for a selective mining operation. The alternative which may make virtually the whole deposit minable would be the successful commercial application of the C.S.I.R.O. carbon dioxide leach process.

The central problem of viability for the deposit is competition from established mines of the same type. Deposits in Manchuria, can produce material with 0.25% Fe content, and there are deposits in Brazil which can match the Main Creek quality. The C.S.I.R.O. process alternative, while not costed, is likely to prove energy intensive on the scale of a seawater magnesia plant and thus of comparable cost, even if a somewhat purer end product can be expected.

Other problems are that the deposit is covered with a thick overburden and is located in a valley necessitating steam diversion at an early stage of operations. It is difficult to start small and work up to bigger production. The deposit's principal potential asset, that of extremely cheap access to the coast via the Savage River pipeline, may prove in practice to be unavailable.

Subsequent to the previous drilling exercise ending in 1983, several drill pads were prepared largely predicated on the idea of producing complete sections across the carbonate body from sites where starting problems would be minimised. (Very difficult ground is anticipated for drillholes started in the weathered overburden overlying the carbonate.) Nevertheless with emphasis shifting to actual proving of the resource, it may be necessary to prepare sites intended to prove up the western low iron zone to indicated resource status.

Analyses of the carbonates intersected in the old Long Plains South Magnetite Project drill core were made in the 1984-85 field season. The predominant carbonate is high iron magnesite, which is to be expected at the eastern edge of the carbonate body.

## 14. ASSAYS OF OLD DRILL CORE

### 14.1 LONG PLAINS SOUTH DRILLING

Sections of carbonate rock core from the old drilling program, originally done to evaluate the Long Plains South iron ore deposit, have been stored since then in the Mines Department store in Hobart. In the original drilling the carbonate rock was considered an oddity convenient for indicating that drilling had penetrated the iron ore.

The initial high gold values detected in the Rocky River No.1 and No.2 drillholes led to the concept that the Long Plains holes, which are arguably in the same stratigraphic position, would be prospective for gold. The justification for this concept evaporated when the Rocky River gold positives were refuted in a series of check assays, but by this stage the program was underway. With the decision taken to cut core for assay, comprehensive assays were undertaken to cover also the possibilities of useful magnesite and an outside possibility of replacement tin mineralisation.

#### 14.1.1 Results

There was no indication of metalliferous mineralisation in any of the samples.

With regard to the carbonate, the rock is essentially an iron, dolomite and silica rich magnesite that is much inferior to the Main Creek material. However the samples are exclusively from the eastern margin of the deposit and if the trends found universally in the Main Creek deposit are repeated here better grade material is possible further to the west.

In general the magnesite rock sampled contains less than 40% MgO, and more than 5% CaO, 4% Fe<sub>2</sub>O<sub>3</sub> and 5% SiO<sub>2</sub>

### 14.2 ROCKY RIVER DRILL CORE

Selective sections of rock core from two drillholes, from an earlier program to evaluate the Rocky River iron ore deposit, were sampled for possible gold and replacement tin mineralisation within carbonate horizons. An early report by Twelvetrees (1900) lists a variety of minerals, some of them of economic value, within the adjacent magnetite lens exploited at the turn of the last century.

Sampled sections within Rocky River 1 and 2 included carbonate horizons rich in pyrite, magnetite and chlorite as well as the more typical greenschist with or without magnetite. Although the core was in a poor state the sampled horizons were representative of the best areas for possible gold and tin mineralisation.

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14.2.1 Results

The initial returned gold values were considered suspect when assaying suggested that a carbonate sample rich in pyrite, magnetite and chlorite returned no detectable gold while an adjacent less altered and less mineralised carbonate returned 5 ppm gold.

A re-assay of all the samples confirmed these suspicions. No gold values repeated and the high 5 ppm gold returned below the detectable limit. The most promising carbonate rich in pyrite, magnetite and chlorite, sample R1007, returned the highest gold value of 0.042 ppm.

Tin mineralisation was disappointing, most samples returning below the detectable limit.

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15. PROPOSALS FOR FURTHER WORK15.1 GOLD15.1.1 Specimen Reef area

Although drilling results so far have not been greatly encouraging, the section containing the ore shoot originally mined has not yet been tested at depth.

The soil gold anomaly detected in line 11.2 appears to be along strike from the vein complex detected at an unexpectedly high level in SPC 6 drillhole. It also relates easily to the minor adit termed No. 5. More detailed soils work and a drillhole proposed here.

15.1.2 North of Specimen Reef

The cluster of pan sample gold results, centred on Davis Creek North in this area is the most convincing gold result in the stream sediment program. A soil sampling grid is proposed for this area of initially six 200m spaced lines.

15.1.3 Rocky River Magnetite area

In this area large nuggets were found in the alluvium, which can be considered as "stream sediment positives which have been destroyed". The Rocky River arsenic anomaly area has not been confirmed as an original major gold source so it seems possible that this area is the source, making the gold occurrence a repetition of Specimen Reef, i.e. hosted in Bowry Member rocks, and without a strong associated arsenic anomaly. This belt of country was an alluvial gold producer along the strike of the Bowry Member through to Finlay Creek, although the most gold was obtained in the Rocky River itself, and it would include the Bounds Creek gold anomaly.

In the area of Rocky River and its tributaries, pan sampling is probably messed up by extensive prospecting activity. A reasonable approach would be to put in soils lines with emphasis on the portion of the strata roughly corresponding to Specimen Reef i.e. between the magnetite and the start of the Oonah Formation.

Three scout lines are proposed - but to yield priority to the Specimen Reef work.

15.2 LEAD-ZINC15.2.1 Battys Bend Prospect

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The soils results from Battys Bend are definitely encouraging considering the difficulty of sampling the area, particularly the dolomites. The mineralisation now appears to lie in grey and green pelitic sediments between the dolomite and the overlying volcanics, and mapped as part of the volcanics. This portion of the sequence is interesting since it is the start of deepening water conditions, conducive of basins in which sulphide ores can survive.

The horizon is not well covered in stream sediment work south from Battys Bend, largely because the Savage River is on top of it, nevertheless detailed stream sediment work on all gullies in the prospective area is to be conducted, plus infill and extensions of the soil sampling grid. It is fortunate that the phyllite which hosts the anomaly is less severely affected by Brown Plains and superficial gravel cover.

As an immediate follow-up geophysical surveys should be run over the existing grid. This is an area where magnetics will at least give stratigraphic signatures and in which electrical techniques are likely to work.

### 15.3 COPPER-ZINC

#### 15.3.1 Northern Area

The Northern anomaly has reached the stage where soils work can yield little further information. Later results have shown lower base metal values than those of the original sampling but the change in sample preparation from sieved -80 mesh to pulverised whole rock is largely responsible for this. Magnetics can be run cheaply but it will be essential to test the more promising sections of the western and eastern zones with an electrical method since it is the presence of a bedrock conductor which is critical. An important part with the eastern zone is that the area including the peak copper value is truncated by alluvium and probably extends under this cover.

### 15.4 TIN-TUNGSTEN

#### 15.4.1 Supergrunt

The high 5.708% tungsten value of HM 332 has established part of the Supergrunt anomaly, which may relate to an air-photo circular feature, as very prospective. The low order values of HM 335 downplays the immediate area around HM 112 which last year gave high polymetallic values. Follow-up work to confirm the area around HM 332 as anomalous for tungsten would include stream sediment, rock and soil sampling.

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#### 15.5 PENNY CREEK MAGNETIC ANOMALY

This area has a prominent aeromagnetic anomaly and modest Pb - Zn geochemical response in stream sediments. Tertiary gravel cover is likely to be a problem. It is proposed to put in a 1km x 500m grid to follow up the anomaly with priority to magnetic and electrical geophysical techniques. Soil sampling will be conducted in areas without excessive superficial cover.

#### 15.6 MAGNESITE AREA

To meet the Mines Department retention area requirements some further drilling will be required. For most of this work, tracks and drill sites have already been prepared but they will probably need to be touched up with a dozer.

What is required is three completed sections across the Main Creek lens. These can be achieved with:

- (a) a drillhole to complete the section begun by MC2, for which a site is prepared; and
- (b) a drillhole to complete the section begun by MC28. This hole will require a new prepared site and may encounter drilling difficulties with overburden. An alternative site has been prepared to the North of MC 28. The section at MC 27 is completed.

It will also be necessary to get overburden thickness measurements in the MC 28 area. For this drilling, it would be advisable to use a rig capable of water circulation rotary action or at least reverse circulation air blast, since past experience of conventional air blast rigs has shown that they can encounter their technical limits in this area.

053

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APPENDIX 1.0STREAM SEDIMENT SAMPLING

## A.1.1 Stream Sediment Analysis Data - Sludges

236.1.08.2918	HM 307-348	Sludges
236.1.08.2965	HM 349-377	Sludges
236.1.08.3013A	HM 378	Sludges

## A.1.2 TBE Separation and Mercury Amalgamation of Gold

236.1.08.2957B	HM 307-355	TBE Separation and Mercury Amalgamation
236.1.08.2982B	HM 335, 356-358, 371-377	" " " "
236.1.08.3013B	HM 378, 354	TBE and Fire Assay

## A.1.3 Heavy Mineral Panned Concentrate - Field Observations

## A.1.4 Heavy Mineral Panned Concentrate - Analysis

236.1.08.2957B	HM 132-378	Various
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## A.1.5 Stream Sediment - Sample Location, Remarks

## A.1.6 Mineralogical Examination of 10 Heavy Mineral Concentrates

Perth 999.0.01.37387

## APPENDIX 1.1

## STREAM SEDIMENT ANALYSIS DATA - SLUDGES

SAMPLE NUMBER	ELEMENTS								
	Cu	Pb	Zn	Mn	Ag	As	Sn	W	Au
307	75	25	170	3100	x	12	-	-	x
308	100	30	245	3500	x	12	-	-	x
309	10	25	25	75	-	22	5.0	3.0	x
310	15	20	30	70	-	4	-	-	0.001
311	40	25	10	70	-	15	-	-	x
312	85	10	145	1600	-	4	-	-	x
313	115	15	175	835	x	3	-	-	x
314	140	5	145	1200	x	10	-	-	x
315	140	15	155	1200	x	3	-	-	0.001
316	170	15	165	1000	x	5	-	-	0.003
317	150	10	195	1850	-	7	-	-	0.007
318	120	35	160	235	-	x	-	-	0.003
319	15	20	50	625	x	10	-	-	0.001
320	10	10	40	2100	x	5	-	-	0.004
321	10	15	35	455	x	5	-	-	0.003
322	60	30	85	505	x	40	-	-	x
323	115	20	105	765	x	12	-	-	0.001
324	40	15	160	3500	-	5	3	0.5	0.003
325	65	40	270	3500	-	3	x	0.5	x
326	60	20	215	760	-	3	x	x	0.001
327	30	10	170	125	-	7	-	-	0.003
328	25	15	25	390	x	17	-	-	x
329	35	20	65	275	x	10	-	-	0.003
330	15	15	40	135	x	14	-	-	0.001
331	10	30	30	330	x	110	-	-	0.005
332	5	20	20	70	-	23	8	21.0	0.012
333	x	20	10	30	-	17	5	2.0	0.006
334	100	15	105	795	x	10	-	-	x
335	x	20	10	230	0.1	22	10	30.0	0.003
336	15	35	35	430	x	54	5	1.5	0.004
337	10	25	35	235	x	25	-	-	0.001
338	10	15	35	125	x	17	-	-	0.009
339	45	10	130	1600	x	7	-	-	0.002
340	25	60	85	785	x	85	-	-	0.002
341	85	45	130	2900	x	50	-	-	0.002
342	30	10	35	460	-	6	-	-	x
343	35	15	30	200	-	9	-	-	0.001
344	15	5	10	125	-	3	-	-	0.003
345	105	25	105	755	-	13	-	-	0.003
346	70	25	195	2900	-	6	-	-	0.003
347	145	30	545	6750	-	12	-	-	0.005
348	25	10	60	550	x	4	-	-	x
349	40	15	125	1200	x	9	-	-	0.010

SAMPLE NUMBER	ELEMENTS								
	Cu	Pb	Zn	Mn	Ag	As	Sn	W	Au
350	25	10	105	590	x	4	-	-	0.008
351	10	5	30	475	x	7	-	-	0.001
352	10	10	35	715	x	3	-	-	x
353	25	15	150	1300	x	32	-	-	x
354	-	-	-	-	-	-	-	-	-
355	40	25	80	6000	x	51	-	-	0.002
356	x	20	15	80	0.2	9	15	x	0.008
357	20	x	40	185	x	10	-	-	x
358	30	20	40	395	x	18	-	-	x
359	75	15	85	1750	x	10	-	-	x
360	60	10	100	990	x	11	-	-	x
361	10	5	25	315	x	20	-	-	x
362	10	10	60	735	x	11	-	-	x
363	x	5	5	25	x	36	-	-	x
364	x	5	5	65	x	26	-	-	x
365	5	10	15	45	x	12	-	-	0.001
366	5	5	15	220	x	17	-	-	0.005
367	10	x	20	50	x	11	-	-	0.002
368	5	5	15	145	x	5	-	-	x
369	15	x	20	345	x	4	-	-	0.005
370	15	10	5	35	x	4	-	-	x
371	55	10	190	2700	x	5	-	-	x
372	25	5	60	665	x	3	-	-	x
373	30	10	75	880	x	12	-	-	x
374	70	15	95	3050	x	10	-	-	0.001
375	35	5	140	700	x	15	-	-	x
376	130	30	215	2950	x	28	-	-	0.002
377	35	15	90	425	x	24	-	-	x
378	40	25	160	910	x	5	10	8	0.002
<u>Method</u>	101	101	101	101	102	114	402	401/124	325

NOTE: x denotes below limit of detection

- not analysed

059

074060

A.1.2

SAMPLE NUMBER	INITIAL WT (g)	SINKS WT (g)	SINKS WT %	MAGS WT (g)	MAGS WT %	NON-MAGS WT (g)	GOLD RECOV (mg)
351	29.3	6.4	21.8	0.05	0.1	6.3	6000
352	25.5	7.1	27.8	0.05	0.1	7.0	25.8
353	14.1	3.1	22.0	0.25	8.1	2.8	1.3
354*	9.9	1.5	15.2	0.05	3.3	1.4	2150
355	50.8	3.5	6.9	0.05	1.4	3.4	10750
356	65.3	19.2	29.4	0.1	0.52	19.1	x
357	31.5	11.5	36.5	5.8	50.4	5.7	25
358	14.3	2.5	17.5	1.2	48.0	1.3	20.5
359	16.3	1.2	7.3	0.7	58.3	0.5	0.5
360	70.3	56.4	80.2	33.7	59.8	22.7	x
361	22.5	0.7	3.1	42.9	0.4	0.25	
362	12.0	0.2	1.7	0.1	50.0	0.1	x
363	109.3	7.1	6.5	0.1	1.4	7.0	x
364	107.2	5.4	5.0	0.1	1.9	5.3	x
365	51.7	0.6	1.1	-	-	0.6	x
366	59.0	0.3	0.1	0.1	33.3	0.2	x
367	68.6	0.7	0.1	0.1	14.3	0.6	x
368	86.4	0.3	0.1	0.1	33.3	0.2	x
369	SLUDGE SAMPLES ONLY						
370	SLUDGE SAMPLES ONLY						
371	54.3	10.9	20.1	1.9	17.4	9.0	5.0
372	85.4	37.5	43.9	10.5	28.0	27.0	150.0
373	42.0	5.4	12.9	1.0	18.5	4.4	5.5
374	67.6	21.3	31.5	5.1	23.9	16.2	5.0
375	78.2	27.8	35.6	1.9	6.8	25.9	325.0
376	62.1	16.1	25.9	6.9	42.9	9.2	19.0
377	62.6	8.6	13.7	0.1	1.2	8.5	0.25
378	43.2	32.6	75.5	1.2	3.7		7000.0

NOTE: 1. Samples 'lost' during analysis

x indicates below limit of detection (0.25 mg)

\* Sample 354, panned heavy concentrate analysed using method 309 returned 1.02 ppm Au (3225) equivalent to three-pan sample.

## APPENDIX 1.3

HEAVY MINERAL PANNED CONCENTRATE FIELD OBSERVATIONS

SAMPLE NUMBER	DESCRIPTION
307	Magnetite, haematite
308	Magnetite, haematite
309	Topaz?, monazite
310	Oonah assemblage - (very little heavy mineral; rock fragments, fine grained garnets, pyrite, often too hard to identify in the field)
311	Oonah assemblage
312	Magnetite
313	Haematite, Magnetite, Epidote
314	Haematite, Magnetite, Epidote
315	Haematite, Magnetite, Epidote
316	Haematite, Magnetite, Epidote
317	Haematite, Gold
318	Haematite, Gold
319	Magnetite
320	Magnetite
321	Magnetite
322	Magnetite, Haematite, Epidote
323	Magnetite
324	Magnetite
325	Magnetite, Haematite, Ruby Tin - Tertiary Gravels
326	Magnetite, Haematite, Ruby Tin - Tertiary Gravels
327	Not recorded
328	Magnetite
329	Not recorded
330	Oonah assemblage
331	Oonah assemblage
332	Monazite, Ruby Tin
333	Monazite
334	Magnetite, Haematite, Epidote
335	Monazite, Tourmaline
336	Oonah Assemblage
337	Oonah Assemblage
338	Oonah Assemblage
339	Magnetite, Haematite
340	Oonah Assemblage
341	Magnetite
342	Magnetite, Haematite, Ruby Tin (?)
343	Magnetite
344	Minor Magnetite
345	Magnetite, Haematite
346	Magnetite, Haematite
347	Magnetite, Haematite
348	Magnetite
349	Magnetite, Haematite
350	Magnetite, Haematite
351	Magnetite, Haematite
352	Magnetite, Haematite
353	Magnetite, Haematite

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SAMPLE NUMBER	DESCRIPTION
354	Pyrite
355	Pyrite, Gold
356	Monazite, Tourmaline
357	Magnetite, Garnet (?)
358	Oonah Assemblage
359	Magnetite
360	Major Magnetite, Haematite
361	Oonah Assemblage, Garnet
362	Oonah Assemblage
363	Oonah Assemblage
364	Oonah Assemblage, Pyrite
365	Oonah Assemblage
366	Oonah Assemblage
367	Oonah Assemblage
368	Oonah Assemblage
369	Silts only
370	Silts only
371	Minor Magnetite
372	Major Magnetite, Pyrite
373	Oonah Assemblage
374	Minor Magnetite
375	Oonah Assemblage
376	Magnetite
377	Oonah Assemblage, Pyrite
378	Chromite, Gold, Osmiridium

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062

074063

## APPENDIX 1.4

## PANNED HEAVY MINERAL CONCENTRATE ANALYSIS

SAMPLE NUMBER	Cr ppm	Ti ppm	W ppm	Nb ppm	Sn ppm	Cr %	Ti %	W %	Sn %
132			x	25	470				
135			x	20	400				
139				* 0.008					
140			x	35	20				
194		7450	x	9					
195			x	60	220				
196			x	45	430				
197		7950	x	25	200				
198			x	35	170				
307	5900		x	60	1100		9.99		
308				*0.005		0.39	8.67	0.007	0.094
309						0.32	5.50	0.050	0.046
313						0.37	2.82		0.028
314	6750		x	10	9		1.49		
315	1850	6000	x	10	15				
316	3400	12000	x	25	9				
318						1.39	6.32		0.007
						2.2	5.11		0.110
321	1550		x	200	20		8.91		
322						1.6	8.64		0.018
323	6100		x	35	20		3.11		
324			x	110	70	3.98	6.08		
325			x	50	370	28.3	1.86		
326			x	20	370	29.1	1.34		
327						1.01	3.34		0.007
328	3400		200	200	340		9.75		
329	6250		110	30			2.82		1.099
330						0.1	0.53		0.004
332						x	0.46	5.708	0.555
334	3100		x	15	10		1.44		
338	130	1050	x	x	140				
339	310		200	200		9.68			
340						0.07	3.13		0.016
341						0.02	7.59		0.004
342	620		100	100			5.78		2.404
343	6600		130	200	260		13.37		
345						0.05	17.7		
346	370		x	20	25		3.18		
347						x	2.16		
348						0.17	4.17		
349	1050		x	15	45		3.49		
350	4050		x	55	260		8.01		
351						0.46	8.23		0.006

063

074064

A.1.4

SAMPLE NUMBER	Cr ppm	Ti ppm	W ppm	Nb ppm	Sn ppm	Cr %	Ti %	W %	Sn %
352						2.62	5.98		0.111
354						0.27	4.79		0.009
355						0.24	4.79		0.027
METHOD	401	401	401	401	402	408	409	403	403

## NOTE:

\* Nb% Detection 0.003, Method 403.

x Below limit of detection.

SAMPLE NUMBER	TiO2 %	Cr2O3 %	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sn ppm	W ppm
378	2.46	52.3	20	15	1400	0.6	4	1350	x
METHOD	405	405	101	101	101	102	114	402	401

## APPENDIX 1.5

## STREAM SEDIMENT SAMPLE LOCATION

SAMPLE NUMBER (H.M.)	CREEK/RIVER	LOCATION		REMARKS
		N	E	
307	Cataract Ck (Trib of Rocky)	89.40	49.65	Repeat of H.M. 67
308	Cataract Ck (Trib of Rocky)	89.30	49.43	Repeat of H.M. 47 - Gold Present
309	Trib of Upper Rocky River	88.65	52.55	
310	Big Duffer Ck	01.15	50.10	
311	Trib of Big Duffer Ck	01.45	49.80	
312	Trib of Bowry Ck	97.30	47.85	Rocky Ck bed downstream of of small waterfall
313	Trib of Little Donaldson R.	49.22	14.50	Rock Ck bed
314	Trib of Little Donaldson R.	49.88	14.60	Rocky Ck bed
315	Trib of Little Donaldson R.	49.10	13.90	Boulder cascade
316	Trib of Little Donaldson R.	49.35	13.85	Rocky Ck bed downstream of of small waterfall
317	Bowry Creek	48.05	97.70	Rock Ck bed downstream of small waterfall
318	Trib of Bowry Ck	48.10	97.60	Rocky Ck bed downstream of small waterfall
319	Trib of Little Donaldson	50.00	14.35	Boulder cascade
320	Trib of Little Donaldson	50.70	14.10	Boulder cascade
321	Trib of Little Donaldson	50.80	14.20	Boulder cascade
322	Trib of Little Donaldson	16.50	50.39	Base of small waterfall
323	Trib of Little Donaldson	13.60	49.70	Basal cascade
324	Trib of Savage River	00.20	46.20	Base of waterfall
325	Trib of Savage River	00.25	46.30	Boulder cascade
326	Trib of Savage River	00.15	46.60	Gravelly Creek bed
327	Big Duffer Ck	01.65	49.30	Boulder cascade
328	Trib of Rocky River	89.30	49.25	Base of waterfall
329	Rocky River	89.60	49.10	Rocky Ck Bed
330	Trib of Wilson's Ck	90.25	51.35	
331	Trib of Wilson's Ck	90.25	50.70	
332	Trib of Rocky River	87.80	52.70	
333	Trib of Rocky River	87.78	52.70	
334	Trib of Little Donaldson	15.50	50.40	Gravelly Ck bed
335	Trib of Rocky River	87.35	52.60	Plunge pool
336	Trib of Rocky River	88.15	50.70	Repeat (H.M. 96) Rocky Ck bed
337	Trib of Rocky River	87.93	50.98	Repeat H.M. 50
338	Trib of Rocky River	87.45	51.25	
339	Trib of Breakneck Ck	88.50	49.35	
340	Trib of Rocky River	88.10	50.05	Repeat H.M.95 Rocky Ck bed downstream of waterfall
341	Nolan Ck	89.00	49.65	Bench between very large waterfall

065

SAMPLE NUMBER (H.M.)	CREEK/RIVER	LOCATION		REMARKS
		N	E	
342	Breakneck Ck	88.55	49.30	
343	Trib of Pineapple Ck	16.25	53.75	Gravelly Ck bed
344	Pineapple Ck	16.30	53.80	Gravelly Ck bed
345	Trib of Specimen Ck	11.06	51.90	Gravelly Ck bed
346	Trib of Specimen Ck	11.12	51.35	Gravelly Ck bed
347	Specimen Ck	11.11	51.50	Rocky Ck bed
348	Head waters of Broderick Ck	14.10	52.85	Rocky Ck bed (pan conc. 100m W road silt " 100m E road)
349	Trib of Davis Ck	11.80	51.30	Rocky Ck bed
350	Davis Ck	11.85	51.25	Rocky Ck bed
351	Trib of Broderick Ck	12.75	51.15	Rocky Ck bed
352	Broderick Ck	12.80	51.10	Boulder cascade
353	Kaysers Ck	11.30	52.45	Boulder cascade
354	Trib of Wilsons Ck	89.65	50.70	No sludge taken. Rpt of HM147
355	Trib of Little Duffer at Cox's Face	01.97	49.61	Downstream of plunge pool
356	Trib of Rocky River	89.24	53.17	Downstream of plunge pool
357	Paradise River	85.10	49.00	Rocky Ck bed
358	Trib of Paradise River	84.98	49.15	Base of small waterfall
359	Trib of Paradise River	85.20	49.35	Rocky Ck bed
360	Trib of Paradise River	85.40	49.30	Base of small waterfall
361	Paradise River	85.50	49.35	Point bar gravels
362	Trib of Paradise	85.34	49.55	Gravelly Ck bed
363	Trib of Annett Creek	86.36	50.14	Boulder cascade
364	Trib of Annett Creek	86.34	50.26	Pool within cascade
365	Annett Creek	86.04	50.26	Pool within cascade
366	Trib of Annett Creek	86.01	50.28	Pool within cascade
367	Paradise River	85.79	50.19	Point bar behind large boulder
368	Trib of Paradise River	85.84	50.03	Boulder cascade
369	Trib of Paradise River	85.82	49.87	Silts only
370	Trib of Rocky River	87.10	50.35	Bank silts
371	Trib of Bounds Creek	86.65	49.34	Minor cascade
372	Trib of Bounds Creek	86.63	49.31	Outflow of plunge pool
373	Trib of Bounds Creek	86.53	49.49	Boulder cascade
374	Bounds Creek	86.55	49.44	Outflow of plunge pool
375	Trib of Bounds Creek	86.46	49.48	Boulder cascade
376	Trib of Bounds Creek	86.21	49.46	Potholes within waterfall
377	Trib of Bounds Creek	85.82	49.58	Rocky Ck bed
378	Trib of Longback Creek	98.10	43.60	Fissures in lee of boulder

APPENDIX 2.0NORTHERN AREA ARSENIC ANOMALIES

- A.2.1 Soil Sample Data - Geochemical Analyses - Analabs
- |                |                                       |
|----------------|---------------------------------------|
| 236.1.08.2885B | 10.1N - 16.7N, Road Traverse          |
| 236.1.08.2885D | Rock Chip 10.1N 48950, 49025,050,375E |
- A.2.2 Soil Sample Data - Location, Horizon, Colour, Remarks

067

074068

## APPENDIX 2.1

## NORTHERN AREA - ARSENIC ANOMALIES

LOCATION		ELEMENTS (ppm)										REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Sb	U	Au	
16.7	50825	160	x	60	260	x	10	90	x	0.2	x	
	50800	130	x	45	280	x	3	140	x	1.0	x	
	50775	65	5	20	65	x	96	125	x	1.6	x	
	50750	80	x	15	45	0.1	51	75	x	1.9	x	
	50725	170	5	10	60	x	84	80	x	2.0	x	
	50700	145	x	45	535	x	45	160	2	1.0	x	
	50675	115	10	50	670	0.1	100	70	x	1.5	x	
	50650	100	x	45	395	x	100	20	x	1.3	x	
	50625	120	x	30	115	x	82	15	3	1.9	x	
	50600	245	x	20	35	x	49	70	6	4.9	x	
	50575	155	15	45	85	x	3	25	x	1.2	x	
50550	160	x	30	170	x	5	35	x	1.0	x		
16.4	51000	5	x	x	5	0.1	x	30	x	0.6	x	
	50975	10	x	x	x	0.1	14	120	x	1.6	x	
	50950	20	x	x	x	0.1	2	90	x	0.9	x	
	50925	30	x	5	5	x	53	155	x	1.2	x	
	50900	5	x	5	15	x	6	55	x	0.5	x	
	50875	45	45	20	30	x	78	80	x	1.5	x	
	50850	185	5	75	1500	x	14	65	x	1.6	0.005	
	50825	10	x	x	x	0.1	15	115	x	0.8	x	
	50800	5	x	x	x	0.1	x	115	x	1.3	0.002	
	50600	5	x	x	x	0.1	1	110	x	1.7	x	
	50575	5	x	x	x	0.1	x	85	x	1.4	x	
	50550	15	x	x	x	0.1	44	80	x	1.4	x	
	50525	x	x	x	x	x	1	35	x	0.2	0.006	
	50500	x	x	x	5	x	3	45	x	0.7	x	
	50250	215	5	45	125	x	43	35	x	0.6	0.002	
	50225	285	x	65	85	x	10	10	x	0.8	0.001	
	50200	120	x	25	100	x	17	*560	x	1.2	0.003	
14.8	50150	30	5	x	x	0.2	45	75	x	1.5	x	
	50125	10	x	x	x	0.1	x	110	x	1.3	x	
	50100	40	5	10	25	x	44	140	x	0.7	x	
	50075	115	5	10	305	x	32	145	x	1.2	x	
	50050	90	x	10	65	x	12	*560	x	2.5	x	
	50025	550	x	10	75	x	37	*4100	x	4.0	x	
	50000	130	x	45	875	x	2	150	x	0.6	x	
	49975	160	5	70	330	x	23	155	x	2.3	x	
	49950	220	x	55	455	x	10	155	x	0.7	x	
	49925	225	5	70	705	x	2	55	x	0.9	I/S	
	49900	190	x	100	1150	0.1	x	40	x	x	0.002	

068

074069

A.2.1

LOCATION		ELEMENTS (ppm)										REMARKS	
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Sb	U	Au		
14.8	49875	310	x	35	260	x	9	*560	x	x	0.001		
	49850	380	40	65	570	x	78	*480	x	1.1	x		
14.7	50125	15	10	15	5	x	2	90	x	1.5	x		
	50100	5	5	5	10	x	2	95	x	1.2	x		
	50075	325	5	20	830	x	43	95	x	1.5	0.001		
	50050	85	15	25	65	x	45	90	x	1.5	0.001		
	50025	20	x	20	65	x	x	105	x	0.4	0.002		
	50000	195	x	115	1150	x	x	30	x	0.2	0.002		
	49975	205	5	80	635	x	2	65	x	0.3	0.001		
	49950	165	x	100	220	x	1	120	x	0.1	0.002		
	49925	185	5	60	885	x	3	120	x	0.2	x		
	49900	300	x	60	930	x	x	40	x	x	x		
	49875	345	x	25	365	x	x	55	x	0.6	x		
	49850	175	10	15	1900	x	42	35	x	x	0.001		
	49825	260	5	70	425	x	17	*640	x	1.0	0.001		
	49800	135	5	45	270	x	1	*780	x	0.4	x		
		49550	355	5	80	3950	x	x	20		0.6	x	
		49525	170	10	110	580	x	x	30	x	0.7	0.003	
		49500	415	x	40	4800	x	x	70	x	0.7	0.003	
		49475	85	10	110	450	x	8	55	x	1.3	0.003	
		49450	85	15	105	525	x	56	60	x	1.6	0.003	
		49425	170	25	90	385	x	58	125	x	16.5	0.004	
		49400	340	5	215	1150	x	12	90	x	9.5	0.001	
		49375	200	10	100	990	x	34	115	x	17.5	x	
		49350	295	5	180	2350	x	7	40	x	1.5	x	
	49325	130	10	100	940	x	x	55	x	1.6	0.001		
	49200	230	x	90	775	x	x	25	x	0.5	0.001		
	49175	310	x	135	2050	x	x	55	x	0.3	0.001		
	49150	125	5	55	365	x	x	130	x	1.1	x		
	49125	95	25	100	400	x	x	*1250	x	1.5	x		
	49100	85	15	70	765	x	2	*1250	x	1.3	x		
	49075	95	160	300	265	x	3	*820	x	0.4	0.001		
	49050	120	10	115	345	x	x	115	x	0.5	x		
	49025	170	20	135	810	x	x	60	x	0.4	x		
14.6	50000	130	x	75	735	0.1	x	75	x	x	0.002		
	49975	185	x	65	255	x	1	95	x	0.2	x		
	49950	330	x	135	5950	0.1	23	*720	x	0.3	x		
	49925	230	x	105	1950	x	x	50	x	0.1	x		
	49900	280	x	120	1100	0.1	x	40	x	x	x		
	49875	170	x	130	1100	0.5	x	35	x	x	x		
	49850	235	5	45	875	x	3	30	x	0.8	x		
	49825	130	x	110	295	x	x	90	x	0.4	0.002		
	49800	265	x	120	1050	0.1	21	*850	x	1.2	x		
	49775	175	x	55	1550	x	x	45	x	0.2	0.001		

LOCATION		ELEMENTS (ppm)										REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Sb	U	Au	
14.6	49600	250	x	70	1350	x	x	100	x	x	0.001	
	49575	300	x	90	3250	x	x	35	x	x	x	
	49550	205	x	25	715	x	x	65	x	x	0.003	
	49525	185	x	75	435	0.1	1	65	x	0.2	0.001	
	49500	85	x	80	620	0.1	x	50	x	0.2	0.001	
	49475	150	5	65	1400	x	6	45	x	x	x	
	49450	130	x	40	425	x	38	60	x	0.2	0.001	
	49425	75	5	60	250	0.9	11	*1300	x	0.4	0.001	
	49400/1	45	5	95	475	0.2	18	1050	x	x	0.002	
	49400/2	65	x	80	460	x	15	730	x			
	49375	105	10	90	450	x	5	150	x	0.8	0.001	
	49350	70	5	75	425	0.1	12	165	x	0.4	0.002	
	49325	270	5	175	1300	0.1	x	55	x	0.3	0.002	
	49300	385	5	145	2550	x	x	160	x	x	0.002	
	49275	175	5	115	3650	0.1	3	110	x	0.6	0.003	
	49250	310	5	110	2150	x	x	80	x	0.4	0.004	
	49225	170	10	130	2400	x	2	100	x	0.7	0.003	
	49200	155	5	105	800	x	x	25	x	0.2	0.003	
	49175	135	10	110	1250	x	x	65	x	0.3	0.005	
	49150	95	10	105	645	x	4	160	x	x	0.005	
49125	110	5	95	640	x	1	70	x	0.8	0.003		
49100	130	15	120	800	x	4	*830	x	x	0.002		
49075	70	15	90	470	x	1	*830	x	0.2	0.003		
49050	90	10	85	465	x	1	*810	x	0.7	0.001		
49025	55	15	95	590	x	5	*1200	x	0.1	x		
14.5	49600	370	x	75	2250	x	x	35	x	x	0.002	
	49575	395	x	100	1400	x	x	105	x	x	0.003	
	49500	280	x	85	1850	x	x	80	x	x	0.001	
	49525	175	x	90	470	x	44	70	x	0.2	0.001	
	49500	445	x	115	1950	x	4	50	x	0.7	0.003	
	49475	70	x	65	170	0.1	16	135	x	x	0.003	
	49450	45	x	90	400	x	9	*940	x	x	x	
	49425	40	x	110	535	x	3	95	x	x	0.003	
	49400	350	x	145	2050	x	2	55	x	0.1	0.003	
	49375	315	x	110	2450	x	x	40	x	0.2	0.006	
14.4	49525	95	5	65	685	0.1	23	*1450	x	x	0.001	
	49500	210	x	90	1000	x	5	110	x	0.2	0.004	
	49475	130	10	90	770	x	27	*760	x	0.4	0.002	
	49450	70	10	130	420	x	17	65	x	x	0.003	
	49425	130	x	115	1050	x	3	80	x	0.2	0.003	
	49400	80	x	120	950	x	5	90	x	0.4	0.004	
	49375	130	x	110	735	0.1	3	115	x	0.3	0.003	
	49350	280	x	125	1700	x	x	90	x	0.1	0.001	
14.3	49500	390	x	125	805	x	x	30	x	0.2	x	
	40475	260	5	90	1050	x	1	60	x	0.2	x	
	49450	285	5	145	2050	x	4	45	x	0.2	0.003	

070

074071

A.2.1

LOCATION		ELEMENTS (ppm)										REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Sb	U	Au	
14.3	49425	100	15	80	300	0.1	16	75	x	x	x	
	49400	NOT SUBMITTED										
	49375	60	5	105	840	x	3	70	x	0.3	x	
	49350	120	5	100	830	x	4	95	x	0.7	0.002	
	49325	235	x	135	1350	x	1	40	x	0.4	0.002	
14.2	49450	320	10	95	1450	x	5	75	x	0.3	0.002	
	49425	260	x	45	505	x	7	75	x	1.4	0.002	
	49400	225	5	130	1450	x	19	105	x	1.7	0.002	
	49375	85	x	110	180	x	18	40	1	0.2	0.002	
	49350	110	x	150	775	x	5	75	x	x	0.004	
14.1	50325)											
	50300)	QUARTZ MICA SAND LAYER - UNABLE TO PENETRATE										
	50275)											
	50250	15	20	5	10	x	4	80	x	0.9	x	
	50225	20	x	10	10	x	7	150	x	1.0	0.002	
	50200	50	x	10	5	x	13	60	2	1.1	x	
	50175	x	x	10	5	x	7	135	x	1.8	0.002	
	50150	x	x	x	5	x	14	100	2	3.0	x	
	50125	160	x	60	260	x	7	115	x	1.1	x	
	50100	NOT SUBMITTED										
	50075	15	x	5	5	x	26	50	x	0.6	x	
	49475	450	x	140	665	x	x	125	x	0.1	x	
	49450	160	x	55	255	x	18	*350	x	0.8	0.002	
	49425	205	10	225	1050	x	34	*800	x	19.3	0.001	
	49400	110	x	125	1250	x	14	75	x	1.2	0.005	
	49375	130	10	120	355	0.1	13	130	x	4.2	x	
	49100	175	x	125	1300	x	3	140	x	1.0	x	
	49075	175	15	125	1550	x	3	175	x	1.1	0.001	
	49050	145	30	105	590	x	6	165	x	1.9	0.002	
14.0	49550	245	x	70	1550	x	1	80	x	x	x	
	49525	320	15	85	675	x	18	105	x	x	0.004	
	49500	415	5	160	1050	x	7	40	x	0.1	0.002	
	49475	295	20	130	615	x	7	85	x	0.3	0.002	
	49450	115	20	45	460	x	12	*1250	x	33.5	x	
	49425	255	25	120	1250	x	18	95	x	4.5	0.008	
	49400	115	5	60	490	x	7	70	x	0.9	x	
	49375	190	x	120	1100	x	5	40	x	1.0	x	
	49125	220	x	140	1750	x	1	65	x	0.6	0.002	
	49100	175	x	110	805	x	1	55	x	0.4	0.001	
	49075	195	x	85	1250	x	x	30	x	0.3	0.001	
	49050	235	x	55	1100	x	3	25	x	0.4	x	
	49025	145	x	75	970	x	1	30	x	x	x	

071

A.2.1

LOCATION		ELEMENTS (ppm)										REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Sb	U	Au	
13.6	49900	275	x	120	880	x	x	30	x	0.2	0.004	
	49875	220	x	90	540	x	4	40	x	1.0	0.001	
	49850	180	x	65	1300	x	4	25	x	2.1	0.001	
	49825	405	x	35	1050	x	24	30	x	11.5	x	
	49800	130	5	25	725	x	71	110	x	6.8	0.001	
ROAD	1250	10	10	5	25	x	12	45	x	0.7	x	
TRA-	1225	45	x	10	95	x	25	35	x	1.4	x	
VERSE	1200	20	x	x	10	x	17	75	x	1.1	x	
	1175	35	5	5	125	x	35	15	x	1.4	0.001	
	1150	80	x	20	105	x	25	65	x	0.9	x	
	1125	340	5	75	1800	x	1	35	x	0.6	0.006	
	1100	130	5	95	345	x	7	70	x	0.9	x	
	1075	220	10	105	1250	x	26	80	x	1.1	x	
	1050	300	5	105	675	x	48	60	x	1.9	x	
	1025	80	15	40	550	x	21	115	x	0.7	x	
	1000	90	15	30	65	x	12	60	x	1.0	0.003	
	0925	90	x	25	215	x	11	*670	x	0.7	0.006	
	0800	175	x	70	675	x	6	*660	x	1.3	0.002	
	0575	105	40	70	25	x	7	45	x	1.2	x	
	0550	175	10	60	45	x	40	30	x	1.5	0.003	
11.1	49700	10	5	10	15	x	8	100	x	0.8	x	
	49675	45	5	20	55	x	65	85	x	2.1	x	
	49650	105	5	40	630	x	1	30	x	1.3	0.005	
	49625	5	5	10	15	x	16	65	x	0.8	x	
	49600	60	x	20	90	x	10	65	x	0.6	0.003	
	49400	230	5	110	1850	x	x	75	x	0.7	0.004	
	49300	60	x	35	810	x	x	50	x	1.1	x	
	49275	330	5	45	150	x	22	100	x	4.6	0.004	
	49250	135	x	40	190	x	14	95	x	1.9	x	
	49225	215	x	70	750	x	16	130	x	1.5	x	
49200	150	x	115	1650	x	7	105	2	1.1	0.001		
10.1	49375											
	49350	175	x	115	2150	x	9	130	x	1.0	0.002	
	49325	270	x	150	1100	x	1	55	x	0.8	0.004	
	49300	140	x	75	1900	x	22	135	x	1.4	x	
	49275	120	x	85	555	x	12	95	x	0.7	0.001	
	49250	145	x	80	1200	x	1	30	x	0.4	x	
	49225	190	x	65	370	x	1	30	x	0.4	0.003	
	49200	160	x	90	1150	x	x	45	x	x	0.001	
	49175	125	x	50	555	x	8	115	x	0.2	0.002	
	49150	230	x	50	475	x	7	55	x	0.6	0.002	
	491125	180	x	35	190	x	12	180	x	1.2	0.002	
	49100	125	x	35	1200	x	14	180	x	0.7	0.002	
	49075	135	x	70	230	x	17	195	x	0.6	0.001	

072

074073

A.2.1.

LOCATION		ELEMENTS (ppm)										REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Sb	U	Au	
	49050	105	x	60	195	x	17	*600	x	0.3	0.003	
	49025	160	x	60	85	x	26	100	x	0.3	0.001	
	49000	150	5	110	585	x	9	*540	x	1.6	0.001	
	48975	70	10	125	200	x	4	60	x	0.4	0.001	
	48950	95	10	85	255	x	14	160	x	2.0	0.003	
	48925	80	10	90	870	x	4	70	2	0.5	0.004	
	49900	100	10	145	800	x	1	45	x	0.1	0.002	
	48875	130	x	130	805	x	1	50	x	0.2	0.002	
	48850	195	x	110	490	x	1	45	x	1.0	0.002	
ROCK CHIPS												
10.1	49375	140	5	70	205	x	38	180	x	x	x	
	49150	290	5	70	820	x	x	20	x	x	0.001	
	49050	35	25	55	195	x	21	*1150	x	0.2	0.001	
	49025	70	5	65	160	x	8	*2400	x	0.2	0.001	
	48950	80	5	145	530	x	9	*2650	x	x	0.001	

METHOD	101	101	101	101	102	114	120	117	126	325	
DETECTION	5	5	5	5	0.1	1	5	1	0.1	0.001	

\* DENOTES SAMPLES ASSAYED BY 401

I/S DENOTES INSUFFICIENT SAMPLE

x DENOTES ELEMENT CONCENTRATION IS BELOW DETECTION LIMIT

## APPENDIX 2.2

## NORTHERN AREA - ARSENIC ANOMALIES

LOCATION	DEPTH	HORIZON	COLOUR	ROCK CHIPS	REMARKS		
						N	E
16.7	50825	0.80	C	GREY BROWN	SLATE		
	50800	0.50	C	PALE GREEN	GREEN PHYLLITE		
	50775	0.60	C	YELLOW/ORANGE BROWN	SLATE		
	50750	0.60	C	YELLOW/ORANGE BROWN	SLATE		
	50725	0.50	C	YELLOW/ORANGE BROWN	SLATE		
	50700	1.30	C?	CREAM BROWN	SLATE		
	50675	0.80	C	ORANGE BROWN	SLATE		
	50650	0.50	C	GREY YELLOW	SLATE		
	50625	0.40	C	YELLOW ORANGE BROWN	SLATE		
	50600	0.80	C	CREAM BROWN	NO CHIPS PRESENT	LAMINATED CLAY	
	50575	0.40	C	YELLOW BROWN	SLATE		
	50550	1.50	B	ORANGE CLAYS		MAX DEPTH OF AUGER	
	16.4	51000	0.40	C	PALE BLUE GREY	BLUE SLATE	VEIN QUARTZ PRESENT
		50975	0.40	C	YELLOW GREY	SLATE	
50950		0.50	C	PALE BLUE GREY	BLUE SLATE		
50925		0.40	C	YELLOW BLUE GREY	BLUE SLATE		
50900		0.80	C	BLUE GREY	NO CHIPS PRESENT		
50875		0.30	C	ORANGE BLUE GREY	BLUE SLATE		
50850		0.70	C?	DARK YELLOW BROWN	NO CHIPS		
50825		0.40	C	YELLOW BLUE GREY	SLATE & QUARTZITE		
50800		0.60	C	BLUE GREY	BLUE SLATE		
50600		0.50	C	BLUE GREY	BLUE SLATE		
50575		0.30	C	CREAM GREY YELLOW	SLATE		
50550		0.60	C	BLUE GREY	BLUE SLATE	FE STAINED CHIPS	
50525		0.70	C	CREAM GREY	SLATE		
50500		0.30	C	BLUE GREY	BLUE SLATE		
50250		0.50	C	CREAM BLUE	SLATE		
50225	0.30	C	CREAM BLUE	SLATE			
50200	0.40	C	BLUE GREY	BLUE SLATE	HEAVILY FE STAINED		

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
14.8	50150	0.40	C	CREAM GREY	GREY SLATE	
	50125	0.20	C	BLUE GREY	GREY SLATE	SAMPLE TAKEN 10M SOUTH OF LINE
	50100	0.80	C	ORANGE BROWN	GREY SLATE	
	50075	1.00	C	ORANGE BROWN	GREY SLATE	
	50050	0.80	C	ORANGE BROWN	GREY SLATE	
	50025	0.90	C	ORANGE BROWN	GREY SLATE	
	50000	0.90	C	ORANGE BROWN	LIGHT GREY SLATE	
	49975	0.30	C	GREY BROWN	GREEN GREY SLATE	
	49950	0.80	C	BROWN	GREY SLATE	
	49925	0.90	C	RED BROWN	SLATE	SPECULAR HEMATITE IN JOINTS
	49900	1.00	C	GREY BROWN	GREEN GREY SLATE	
	49875	0.70	C	GREY BROWN	GREY SLATE	
	49850	1.00	C	GREY BROWN	BLUE GREY SLATE	
	14.7	50125	0.20	C	GREY YELLOW	BLACK SLATE
50100		0.25	C	BLUE & YELLOW	BLUE SLATE	
50075		0.90	C	ORANGE BROWN	GREY SLATE	
50050		0.80	C	YELLOW BLUE	BLUE SLATE	
50025		0.70	C	GREY YELLOW	GREY SLATE	
50000		1.20	C	RED BROWN	SLATE	
49975		1.15	C?	ORANGE BROWN	GREY SLATE	
49950		1.10	C	GREEN BROWN	PALE GREEN SLATE	
49925		1.10	C	GREEN BROWN	GREEN GREY SLATE	
49900		0.80	C	YELLOW GREEN	PALE GREEN SLATE	
49875		0.90	C	DEEP RED BROWN	SLATE	
49850		0.80	C	DEEP RED BROWN	SLATE	
49825		0.60	C	RED BROWN	RED YELLOW SLATE	
49800		0.80	C	BROWN	BLACK/BLUE SLATE	
49550		1.00	C	RED BROWN	FE STAINED SLATE	
49525		0.50	C	BROWN GREEN	GREY SLATE	
49500		1.10	C	MOTTLED RED BROWN	SLATE	FOLIATED CLAYS
49475		0.30	C	BROWN GREY	GREY SLATE	
49450		1.00	C	BROWN	BLUE GREY SLATE	RELICT TEXTURE IN QUARTZ VEIN FLOAT
49425		0.80	C	RED BROWN	FE STAINED SLATE	
49400		1.20	C	GREEN	GREEN SLATE	
49375		1.20	C	BROWN GREY		
49350		0.60	C	ORANGE	SLATE	
49325		0.60	C	PURPLE BROWN	SCHIST	
49200		0.50	C	TAN GREEN	CHLORITE MICA SCHIST	
49175		0.80	C	TAN RED	CHLORITE MICA SCHIST	
49150		0.70	C	TAN GREEN	CHLORITE MICA SCHIST	
49125	0.70	C	TAN GREEN	CHLORITE MICA SCHIST		
49100	0.30	C	TAN GREEN	CHLORITE MICA SCHIST	HEAVILY WEATHERED SAMPLE	

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
14.7	49075	0.70	C	TAN GREEN	CHLORITE MICA SCHIST	
	49050	0.90	C	TAN GREEN	CHLORITE MICA SCHIST	
	49025	0.80	C	ORANGE BROWN	SCHIST	
14.6	50000	1.20	C	CREAM BROWN		LIGHT & CRUMBLY
	49975	1.10	C	ORANGE RED GREEN	GREEN GREY SCHIST	
	49950	1.10	C	ORANGE BROWN	BROWN SCHIST	BLACK HORIZONS
	49925	0.90	C	BROWN GREY GREEN	BLUE GREY SCHIST	
	49900	0.70	C	GREEN ORANGE BROWN	BUFF SCHIST	
	49875	0.70	C	YELLOW ORANGE		CRUMBLY
	49850	1.40	C	ORANGE RED	BLUE GREY SCHIST	
	49825	1.40	C	LIGHT BROWN	SCHIST	MICACEOUS
	49800	1.25	C	LIGHT BROWN		CRUMBLY
	49775	0.90	C	BROWN ORANGE GREEN	PURPLE SHALE	
	49600	1.40	C	RED GREEN	GREY ORANGE SCHIST	
	49575	1.25	C	RED BLACK		CLAYED
	49550	0.80	C	TAN	PURPLE YELLOW SCHIST	
	49525	0.60	C	GREEN ORANGE	GREEN GREY SCHIST	
	49500	0.80	C	GREEN BROWN	GREEN SCHIST	
	49475	0.60	C	ORANGE RED	RED GREEN SCHIST	
	49450	0.90	C	YELLOW PINK		
	49425	0.50	C	BROWN ORANGE	GREY SCHIST	TRACE QUARTZ
	49400/1	0.30	B-C	BROWN		HIT BOULDER
	49400/2	0.50	C	BROWN ORANGE	GREY SCHIST	
49375	0.60	C	YELLOW ORANGE	GREY SCHIST		
49350	1.00	C	YELLOW ORANGE	GREY SCHIST	QUARTZ CHIPS	
49325	0.80	C	BROWN GREEN	GREEN SCHIST		
49300	0.70	C	BLUE GREEN YELLOW			
49275	0.90	C	GREEN ORANGE	GREEN SCHIST		
49250	0.60	C	ORANGE BROWN	GREEN SCHIST	YELLOW BANDING	
49225	1.00	C-B	YELLOW BLUE GREEN	BLUE GREEN SCHIST		
49200	1.20	C	GREEN TAN	CHLORITE MICA SCHIST		
49175	0.70	C	GREEN TAN	CHLORITE MICA SCHIST		
49150	1.50	B	ORANGE BROWN	CHLORITE MICA SCHIST	TRANSPORTED CLAY	
49125	0.80	C	GREEN GREY TAN	CHLORITE MICA SCHIST	VEIN QUARTZ	
49100	0.80	C	CREAM TAN	CHLORITE MICA SCHIST		
49075	0.50	C	CREAM TAN	CHLORITE MICA SCHIST		
49050	0.80	C	CREAM GREY	GREY SCHIST		
49025	0.50	C	GREY TAN	GREY SCHIST		
14.5	49600	1.10	C	LIGHT FRIABLE SANDY CLAY	GREEN GREY SCHIST	PURPLE RED IN C HORIZON
	49575	0.80	C	GREY BROWN	GREY SCHIST	

LOCATION N E	DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
14.5	49550	1.10	C	PINK RED	DARK GREEN GREY TUFF
	49525	0.90	C	ORANGE GREY	GREY BROWN SCHIST
	49500	1.40	B	RED BROWN	GREY GREEN PHYLLITE
	49475	1.00	C	ORANGE GREEN	GREEN GREY SCHIST
	49450	0.60	C		LIGHT GREY PHYLLITE
	49425	0.40	C	BLUE GREY	BLUE GREY SCHIST
	49400	1.10	C		LIGHT GREY PHYLLITE CRUMBLY
	49375	1.30	C	BROWN GREEN	GREEN GREY SCHIST
14.4	49525	0.30	C	GREY BLUE BROWN	MICACEOUS GREY BLUE SCHIST
	49500	1.00	C	BROWN	LIGHT GREY PHYLLITE NUMEROUS ROCK CHIP HORIZONS
	49475	1.50	C	TAN CREAM	CREAM WHITE SLATE
	49450	0.40	C?		GREY GREEN PHYLLITE
	49425	0.80	C	GREY BLUE RED	GREY BLUE SCHIST
	49400	0.60	C?		DARK GREY PHYLLITE BANDED PHYLLITE
	49375	0.70	C	BROWN GREY	GREY SCHIST
	49350	1.40	B/C	ORANGE BROWN	LIGHT GREY PHYLLITE
14.3	49500	0.80	C	ORANGE GREEN GREY	GREEN GREY SCHIST
	49475	0.80	C		LIGHT GREY GREEN DARKER CARBONACEOUS PHYLLITES HORIZONS
	49450	1.10	C	RED BROWN	PHYLLITES
	49425	0.60	C	ORANGE TAN	CREAM GREY SCHIST
	49400	0.50	C	OR.-GREEN/GREY	BLUE GREY SCHIST
	49375	0.50	C	GREY BLUE	GREY BLUE SCHIST
	49350	0.80	C	LIGHT BROWN	DARK BLUE BLACK PHYLLITES
	49325	0.90	C	CREAM GREEN	GREEN SCHIST
14.2	49450	0.90	C	ORANGE RED	GREEN GREY SCHIST
	49425	0.85	C	LIGHT BROWN RED	RED PHYLLITES
	49400	0.80	C	TAN	GREY SCHIST
	49375	0.30		TWO HOLES UNABLE TO PENETRATE PAST 0.30M. BANDED GREEN PHYLLITES WITH CROSSCUTTING FE OXIDE LAMINAE	
	49350	0.70	C	BLUE GREY BROWN	BLUE GREY SCHIST
14.1	50325)			TERTIARY SAND LAYER (QUARTZ/MICA) UNABLE TO PENETRATE	
	50300)				
	50275)				
	50250	1.40	C?	MOTTLED YELLOW NO CHIPS CREAM	
	50225	1.40	C	PALE BLUE	PALE BLUE SLATE
	50200	1.10	C	DARK GREY	DARK GREY SCHIST CARBONACEOUS
	50175	0.30	C	WHITE PALE BLUE	PALE BLUE SLATE
	50150	0.30	C	WHITE PALE BLUE	PALE BLUE SLATE
	50125	0.20	C	WHITE PALE BLUE	PALE BLUE SLATE

LOCATION		DEPTH	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E	(M)				
14.1	50100	0.80	C	DARK GREY	DARK GREY SCHIST	CARBONACEOUS
	50075	1.50	B	ORANGE		MAX DEPTH OF AUGER
	49475	0.40	C	BROWN GREY	GREY SCHIST	
	49450	0.60	C	CREAM BROWN	SHALE	VEIN QUARTZ
	49425	0.50	C	CREAM BROWN	SHALE	
	49400	0.70	C	TAN CREAM	GREEN SCHIST	
	49375	0.80	C	TAN CREAM	CREAM SHALE	
	49100	1.50	C?	RED BROWN	PHYLLITE	
	49075	1.50	C	RED BROWN	LIGHT GREY PHYLLITE	
	49050	1.30	C?	RED BROWN		
14.0	49550	0.50	C	PURPLE RED BROWN	GREY SLATE	
	49525	1.00	C	ORANGE RED	GREY SLATE	
	49500	0.50	C	GREEN TAN	GREY SLATE	
	49475	0.60	C	GREY GREEN	GREY BLUE SCHIST	
	49450	0.60	C	CREAM GREY	CREAM GREY SCHIST	
	49425	0.50	C	CREAM BROWN	CREAM BROWN SCHIST	
	49400	0.60	C	BROWN GREY	GREY SCHIST	
	49375	1.00	C	CREAM GREY	GREY SCHIST	
	49125	1.20	C	ORANGE BROWN		
	49100	0.85	C		GREY GREEN PHYLLITE	
	49075	0.40	C?		LIGHT GREEN CHIPS	
	49050	0.80	C	BRIGHT RED	CHLORITE FLAKES	
	49025	0.75	C		GREY GREEN PHYLLITE	
13.6	49900	1.4	C			
	49875	1.5	C/B			
	49850	1.35	C?			
	49825	1.30	C	BROWN GREEN	NO CHIPS	WHITE POWDERY MATERIAL PRESENT
ROAD	1250	0.70	C	LIGHT SANDY BROWN	WEATHERED QUARTZITE	SANDY TEXTURE
TRAV- ERSE	1225	0.20	C	LIGHT SANDY BROWN	WEATHERED QUARTZITE	
	1200	0.40	C	ORANGE BROWN		
	1175	0.60	C	ORANGE BROWN		SANDY TEXTURE
	1150	0.60	C	LIGHT GREY	LIGHT GREY PHYLLITE	QUARTZ VEINING
	1125	0.15	C	BROWN RED	Fe STAINED OCHRE SHALES	FRIABLE SOIL
	1100	0.30	C	BROWN RED	DK RED BROWN SHALES	FRIABLE SOIL
	1075	0.10	C	BROWN RED	LIGHT GREY PHYLLITE	FRIABLE SOIL
	1050	0.20	C	RED	Fe STAINED BROWN SHALES	FRIABLE SOIL
	1025					
	1000					

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A.2.2.

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS	
N	E						
13.6	0925	0.20	C	BROWN GREEN	MICACEOUS SHALES		
	0800	0.90	C	BROWN ORANGE	DK GREY SHALE		
	0575	0.60	C	OCHROUS	MICACEOUS	FRIABLE	
	0550	0.20	C	OCHROUS	BLOCKY SHALES	FRIABLE	
11.1	49700	1.50	B	BROWN CLAYS	NO CHIPS	MAX DEPTH OF AUGER	
	49675	1.50	C	BROWN CLAYS	PHYLLITE/SCHIST		
	49650	1.30	C	LT GREY BLUE	NO CHIPS		
	49625	1.20	C	TAN ORANGE	Fe STAINED QUARTZ	GREEN CLAY BLEBS	
	49600	1.20	C	ORANGE CLAY WITH GREEN AND PINK HORIZONS			
	49400	1.50	B/C	GREY CLAYS	NO CHIPS	MINOR PINK CLAYS	
	49300	1.20	C	GREY CLAYS	LIGHT GREEN CHIPS	MINOR PINK CLAYS	
	49275	1.30	B/C	BROWN CLAYS	LIGHT GREEN TUFF		
	49250	1.30	C?	5 HOLES AUGERED, ONLY 1 COULD PENETRATE Fe ENCRUSTED QUARTZ PEPPLES			
	49225	1.20	C?	LT OCHRE BROWN	NO CHIPS	FLOAT ROCK OF SILI- CEOUS GREY SHALE	
	49200	0.60	C	LT OCHRE BROWN	NO CHIPS		
	49375					R.C. SAMPLE	
	10.1	49350	0.20	C	GREEN BROWN	LAMINATED GREEN PHYLLITES	
		49325	0.20	C	GREEN BROWN	LAMINATED GREEN PHYLLITES	
49300		0.30	B	ORANGE BROWN	LIGHT GREY CHIPS		
49275		0.25	C		FOLDED AND LAMINATED PHYLLITES		
49250		0.70	C	LIGHT GREY	NO CHIPS	FRIABLE SOIL	
49225		0.90	C	GREEN BROWN	NO CHIPS		
49200		0.90	C?	GREEN BROWN	LIGHT GREEN TUFF?	PROBABLY FLOAT	
49175		1.20	C	ORANGE RED	GREY GREEN SHALE		
49150		1.20	C	GREEN BROWN	LIGHT GREEN TUFF?	ROCK CHIP SAMPLE TAKEN	
49125		0.90	B/C	BROWN CLAYS	LT GREEN PHYLLITE	PROBABLY FLOAT	
49100		1.0	B/C	ORANGE GREY	BLACK SLATE		
49075		1.50	B	BROWN	LIGHT GREY SLATES		
49050		1.20	B/C	CREAM ORANGE		ROCK CHIP TAKEN	
49025		1.20	B/C		LIGHT GREY SLATES	ROCK CHIPS TAKEN - PROBABLY FLOAT	
4900		1.40	C		LT GREY PHYLLITES		
48975		1.00	C	CREAM GREY	GREY PHYLLITE		
48950		0.60	C	ORANGE BROWN	GREY SLATE	ROCK CHIP TAKEN	
48925	0.50	B	BROWN				
48900	0.50	C	GREY BROWN	GREY SLATE			
48875	0.60	C	GREY BROWN	GREY PHYLLITE			
48850	1.0	C	GREY BROWN	GREY PHYLLITE			

APPENDIX 3.0SPECIMEN REEF

- A.3.1. Old Reports: Montgomery, Thureau, Smith, Twelvetrees
- A.3.2. Drill Core Description, Specimen Reef DDH85 SPC6
- A.3.2.1 Geochemical Analyses DDH85 SPC6
- |               |               |      |             |
|---------------|---------------|------|-------------|
| Analabs       | 236.1.08.3080 | SPC6 | 0-42.5m     |
|               | 236.1.08.3087 | SPC6 | 42.5-76.5m  |
|               | 236.1.08.3097 | SPC6 | 76.5-128.4m |
| WMC Wendouree | 20-6-85       | SPC6 | 42.5-128.4m |
- A.3.3 Drill Core Description, Specimen Reef DDH SPC1
- A.3.3.1 Geochemical Analyses DDH SPC1
- |         |                |      |
|---------|----------------|------|
| Analabs | 236.1.08.2824B | SPC1 |
|---------|----------------|------|
- A.3.4 Drill Core Description, Specimen Reef DDH SPC2
- A.3.4.1 Geochemical Analyses DDH SPC2
- |         |                |      |
|---------|----------------|------|
| Analabs | 236.1.08.2824B | SPC2 |
|---------|----------------|------|
- A.3.5 Drill Core Description, Specimen Reef DDH SPC4
- A.3.5.1. Geochemical Analyses DDH SPC4
- |         |                |
|---------|----------------|
| Analabs | 236.1.08.2885A |
|---------|----------------|
- A.3.6 Specimen Reef Soil Samples - Location, Horizon, Colour and Remarks
- A.3.6.1. Geochemical Analyses
- |         |                |        |               |
|---------|----------------|--------|---------------|
| Analabs | 236.1.08.3023  | 11.1 N |               |
|         | 236.1.08.2982A | 11.2 N | 52475-375 E   |
|         | 236.1.08.3039A | 11.2 N | 52325-51850 E |
|         | 236.1.08.2957A | 11.3 N | 51875-52475 E |

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APPENDIX 3.1

OLD REPORTS

081

\* CAPE CU. \*  
p. XLV.

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\* SPECIMEN  
REEF

✓ *Specimen Reef, Hall's Creek.*—A good deal of work was done here some years ago, including the bringing in of a water race about four miles long, and the erection of a six-head battery driven by a water-wheel. Three tunnels have been put in, and altogether over 2000 feet of driving has been done. No. 1 tunnel, bearing N. 30 E., was driven along the reef for about 300 feet and connected with the surface by several rises. At about 80 feet from the entrance a winze was sunk on the reef which underlays rather flat to the S.E., to connect with the No. 2 level 100 feet below, and at 60 feet down an opening was made in either end and short drives put in north and south. The north end shows about a foot of dark carbonate of iron, which is said to be the matrix in which the best gold occurs here. The drive south shows only traces of the lode, with blue pug on the footwall. Above the tunnel for some distance beyond the winze the ground has been stoped to the surface, which is here only 25 to 30 feet above, and some rich patches of gold were obtained. No. 2 tunnel has a total length of about 1000 feet, including 300 feet from the entrance to the lode. Just beyond where the lode was struck the ground had come away from the back and blocked the drive.

In No. 3 tunnel, which is about 100 feet below No. 2, the lode was cut at about 500 feet, and has been followed 200 feet to the north. When I saw it the lode was about 3 feet wide, rather broken with bunches of quartz and a little carbonate of iron. The intention is to drive under what is known as White's winze from No. 2 level, some 400 feet ahead of the present face, where a very rich shoot of stone is said to have gone down under foot, but could not be followed on account of water. Another good shoot may be cut at any time, and the present proprietors certainly deserve success for their pluck in doing so much dead work in face of great difficulties. Another formation carrying quartz and carbonate of iron was cut in the main tunnel about 60 feet beyond the present drive, but no work has been done on it. The gold found in this mine is said to be generally covered with oxides of iron and manganese occurring in black lumps locally termed "clinkers." Simple battery treatment would probably result in a big loss, and grinding and pan-amalgamation would be necessary. In places there is a good deal of pyrites which is also said to assay well for gold, and to save this considerable additions and repairs will have to be made to the battery, but very little can be done in this way until better means of access are provided.

158 m  
100' = 126.3 m.

19 m

## HEAZLEWOOD AND WHITE RIVER DISTRICTS.

The greater portion of the rocks of these fields consists of igneous rocks of very varying composition and structure, ranging from acidic through basic to ultra-basic. In the western portion of the field they are generally coarsely crystalline, but to the east are fine-grained to compact, and throughout the field have been more or less chemically altered to serpentine.

Messrs. Twelvetees and Petterd have recently made an extended microscopical examination of some of the rocks from this neighbourhood, and have identified the following varieties:—Hornblende-granitite, Porphyritic diabase, Augite syenite, Gabbro of several types, and several varieties of the Pyroxenite and Peridotite families. These rocks are probably of several different ages, but prolonged examination in the field and careful microscopical and chemical examination would be necessary to determine their relations to one another and the sedimentary rocks, through which they have intruded in numerous dykes and bosses. The sedimentary strata, consisting of limestones, sandstones, and slates of Silurian age, are best seen to the west of the Godkin line of lode, narrowing going north and cutting out altogether on the other side of the Heazlewood River, but widening to the south. Narrow belts are also seen further east separated by igneous dykes, the slates near the contact being frequently porcellanised and altered to hornstone.

The main line of contact on the west crosses the Waratah-Corinna track, near the 18-mile peg from Waratah, and the slate country to the west of this should be well prospected, being very favourable for the occurrence of lodes.

The only work that was going on in the Heazlewood District at the time of my visit was on Section 1758-91st, 80 acres, owned by the Lord Brassey Nickel Company, situated on a high hill to the north of the Heazlewood Bridge. Several small veins containing nickel ores have been found on this and the adjoining section to the south.

A shaft, now full of water, was sunk at the top of the hill on an E. and W. vein, and some good ore was obtained. The nickel is chiefly in the form of sulphide of nickel and iron, and I have been unable to detect any trace of arsenic in it with the blowpipe. It is of a light bronze colour, and in powdered form is attracted by the magnet, resembling pyrrhotite, but clean samples are said to have assayed as high as 40% nickel. Mr. Petterd informs me that he has submitted samples to the well known mineralogist, Professor Dana, of the United States, who has pronounced it to be a new mineral, and the name "Heazlewoodite" has been proposed for it. So far as could be seen,

\* CAPE CU. \*  
p. XLV.

## xlvi

\* SPECIMEN  
REEF

✓ *Specimen Reef, Hull's Creek.*—A good deal of work was done here some years ago, including the bringing in of a water race about four miles long, and the erection of a six-head battery driven by a water-wheel. Three tunnels have been put in, and altogether over 2000 feet of driving has been done. No. 1 tunnel, bearing N. 30 E., was driven along the reef for about 300 feet and connected with the surface by several rises. At about 80 feet from the entrance a winze was sunk on the reef which underlays rather flat to the S.E., to connect with the No. 2 level 100 feet below, and at 60 feet down an opening was made in either end and short drives put in north and south. The north end shows about a foot of dark carbonate of iron, which is said to be the matrix in which the best gold occurs here. The drive south shows only traces of the lode, with blue pug on the footwall. Above the tunnel for some distance beyond the winze the ground has been stoped to the surface, which is here only 25 to 30 feet above, and some rich patches of gold were obtained. No. 2 tunnel has a total length of about 1000 feet, including 300 feet from the entrance to the lode. Just beyond where the lode was struck the ground had come away from the back and blocked the drive.

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158 m  
100' = 126.3 m.

19 m

## HEAZLEWOOD AND WHYTE RIVER DISTRICTS.

The greater portion of the rocks of these fields consists of igneous rocks of very varying composition and structure, ranging from acid through basic to ultra-basic. In the western portion of the field they are generally coarsely crystalline, but to the east are fine-grained to compact, and throughout the field have been more or less chemically altered to serpentine.

Messrs. Twelvrees and Potterd have recently made an extended microscopical examination of some of the rocks from this neighbourhood, and have identified the following varieties:—Hornblende-granite, Porphyritic diabase, Augite syenite, Gabbro of several types, and several varieties of the Pyroxenite and Peridotite families. These rocks are probably of several different ages, but prolonged examination in the field and careful microscopical and chemical examination would be necessary to determine their relations to one another and the sedimentary rocks, through which they have intruded in numerous dykes and bosses. The sedimentary strata, consisting of limestones, sandstones, and slates of silurian age, are best seen to the west of the Godkin line of lode, narrowing going north and cutting out altogether on the other side of the Heazlewood River, but widening to the south. Narrow belts are also seen further east separated by igneous dykes, the slates near the contact being frequently porcellanised and altered to horastone.

The main line of contact on the west crosses the Waratah-Corinna track, near the 18-mile peg from Waratah, and the slate country to the west of this should be well prospected, being very favourable for the occurrence of lodes.

The only work that was going on in the Heazlewood District at the time of my visit was on Section 1758-91m, 80 acres, owned by the Lord Brassey Nickel Company, situated on a high hill to the north of the Heazlewood Bridge. Several small veins containing nickel ores have been found on this and the adjoining section to the south.

A shaft, now full of water, was sunk at the top of the hill on an E. and W. vein, and some good ore was obtained. The nickel is chiefly in the form of sulphide of nickel and iron, and I have been unable to detect any trace of arsenic in it with the blowpipe. It is of a light bronze colour, and in powdered form is attracted by the magnet, resembling pyrrhotite, but chem. samples are said to have assayed as high as 40% nickel. Mr. Potterd informs me that he has submitted samples to the well known mineralogist, Professor Dana, of the United States, who has pronounced it to be

100 Journals + papers of  
 083  
 TWEEDHEADS, W. H. Report on the Mineral Fields  
 between Waratah & Corinna  
 Survey for Mines Report 1899-1900.

REPORT ON THE MINERAL FIELDS BETWEEN WARATAH AND CORINNA.

As within Encl/ce Outlined.

Government Geologist's Office, Launceston,  
 30th June, 1900.

I HAVE the honour to submit this Report of my inspection of the line of mineral country extending from the township of Waratah, at Mount Bischoff, to Corinna, on the River Pieman, a distance of 40 miles S. and W. from Waratah, by track and road. The geology and mineral features of this district have been reported upon by former Government Geologists (Messrs. G. Thureau, Montgomery, and J. Harcourt Smith), but since then some of the mines have been opened out and developed, and this circumstance, taken in connection with the present more favourable market rates for metals generally, has rendered a renewed inspection of the area desirable, with the view, more particularly, of ascertaining whether its geological and mineralogical characters are such as to encourage the hope of its becoming any important factor in the mineral output of the Colony.

*Topography.*

The township of Waratah is about 2000 feet above sea-level, at the base of and to the south of Mount Bischoff, which rises 500 feet above the Waratah plateau. This is the town for the famous Mount Bischoff Tin Mine, which has its working faces on the mount to within a short distance of the summit, and its ore-dressing floors in the valley below the township. The road from Waratah to Corinna first runs south-west over basaltic table land for four or five miles, and then proceeds westward, crossing the southern end of the Magnet Range, rising about a couple of hundred feet to the saddle of the hill, and then the turn-off into the Magnet Mine, about 7 miles from Waratah. High land rises here on both sides of the road, for the Magnet Range is continued south-west into the Magnet Range. The road then descends 330 feet in 10 miles to the Whyte River Bridge. At the hotel crossing the bridge the old Godkin tram runs off south-west to the Washington Hay, Confidence, and Godkin group of tin and iron mines. Near the hotel is a flat (the 10-mile flat) worked for tin, and on the ridge some stanniferous iron ores are being explored by the Khaki Tin Company. The road continues west to the Heazlewood through hilly, hilly country. At 13 miles, Jupp's tin mine is passed, where a track turns off south to the Whyte River Gold Mine and the Result and Discoverer sections (the Result is the old Bell's Reward). The Godkin and Godkin Extended can also be reached this way. The track, as far as I went along it—to the Discoverer—is a good one. It was first made by the Government as a pack-track, and afterwards widened for drays by the Bell's Stewart people. Drays can get along, but the track would be all the better for a little adjusting in places. On the main road, five minutes west of Jupp's, a footpath through the swamp leads past the Pinnacles Mine across the Heazlewood River to the Nickel Hill, where the Lord Nelson and Jupp's nickel workings are situated, on the top of a somewhat conical hill, 700 feet above the river. A mile or so further west along the main road is the old ore-shed at the Heazlewood Mine. A track here goes south to the

Jupp's copper shows, the Castray River gold-workings, and the Mount Hope, formerly Mount Stewart, Mine. This track is five miles long, and, in some parts, is in bad condition for packing, besides which, I think, a better route might have been followed, so as to avoid some of the steep gradients. The main road to Corinna continues falling down to the Heazlewood Bridge, which is 800 feet below Jupp's, and 1700 feet below the 7-mile peg. The road here crosses the river at 16 miles from Waratah, and skirts the Bald Hill for three miles further west, as far as the roadmakers have got with the construction. On my return at the end of March, the men were giving up work for the season. From the creek at this end a path leads to where Major Hughes' party are washing sand for osmiridium, in the Savage River. The Bald Hill, as its name implies, is now bare of trees, excepting a patch at the western end, which covers some basalt. At the 19-mile, the pack-track leaves the Bald Hill serpentine, and enters slate and sandstone country, well-timbered, from which it emerges on to the treeless button-grass table-land known as Long Plain; 1100 feet above the sea. This plain forms the watershed between the Savage River on the one hand, and the Whyte River on the other, and is famous for the quantity of gold obtained from its detrital capping. At 24 miles from Waratah a newly-made track goes northward to the Specimen Reef gold-workings on Hall's Creek, and 100 yards further west are the Bullock's Head and shelter hut. Here a path turns N. across the plain, and in a mile reaches H. H. Gill's sections, formerly Weetman and Crossford's, where a fair quantity of crystallised gold, perhaps 500 to 600 ozs., has been won.

At the western end of this plain the track descends into the wooded, broken country of the valley of the Whyte River, about 14 miles from Corinna. The bridle-track, for a distance, here, was bad. At 12 miles from Corinna, the roadmakers were constructing the road towards Waratah. The way in which the road was being formed was none of the best, and I doubt whether it will stand much traffic. When I was there I heard talk of impending stoppage of the work, owing to exhaustion of the Parliamentary vote. This would leave a gap of 10 miles bridle track between the two ends of the road, and if the intervening distance is not made available for wheeled traffic, the work already done loses much of its usefulness. At present, the consumer at the Corinna end has to pay more for his store than the one at the Waratah end, notwithstanding that the sea freight to Corinna, from Launceston, is only 50 per ton, against £3 a ton railway freight from Waratah to Waratah. The completion of the road will undoubtedly bring an improvement in this respect. Mines in this remote part of the island, where the cost of living, risks, and conditions, are so unfavourable, deserve every encouragement. If adventurers are ready to accept the risks, their work should be facilitated in every way: and it is only by continuous prospecting that the mineral resources of these fastnesses can be explored.

Report on the mineral resources between  
Waratah and Long Plains.  
Twelvemonths, 1903.

## LONG PLAINS GOLD

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Some of the more remote mines labour under the disadvantage of both distance and poor tracks. When the discoveries are situated at any distance from the main road, the drawbacks of costly transport make themselves felt.

A good road exists from Waratah to the 18-mile, at the end of the Bald Hill; but between that and the Corinna end of the road there is a gap of nearly 10 miles, supplied with a bridle-track—not at all a bad one for horses or foot travelling, but imposing a costly freightage on all who have to get stores that way. It was said that a sum had been earmarked to defray the cost of bridging this gap, but the work was not continued owing to the suspension of operations at the claims along the route. Any mining enterprise which is now started along here will be heavily handicapped by parking costs.

The general geology of the whole district was discussed in my report of the 30th June, 1900. In the present report geological considerations will be touched upon under the headings of the separate mines.

### LONG PLAINS.

These form the high tableland between the Whyte River on the east and the Savage River on the west, both of which have cut deep channels—some times stupendous gorges—in the country in their south-westerly flow to the River Pieman. The plateau is, on the whole, tolerably level, though in places gently undulating, and has a general height of from 1100 to 1200 feet above sea-level. The plain itself, where traversed by the track from Waratah to Corinna, is grassy and treeless, timber being found only where creeks scum the country; but east of the Whyte, the Meredith Range is closely timbered, and the country between the western edge of the plain and the Savage River is also wooded.

A superficial layer of detrital quartz, from 1 to 5 feet in thickness, rests upon the edges of the country rock, which latter consists of laminated sandstones and quartz schists. In places these detrital stones cohere rather firmly, forming what is locally called cement. The formation is, however, strictly one of quartz, sand, and pebbles, and is not cemented by any secondary silicious deposit. The stones are angular, and water-worn pebbles are not common among them. This drift cannot be described as alluvial; the term detrital would describe it more appropriately. It has undeniably been derived from the weathering of the underlying schists, &c., which are profusely laminated with quartz. The latter

thus liberated and broken up forms the bulk of the drift. The rounded pebbles which have been found in it occasionally have been believed to be survivals from an alluvial covering supposed to have been subsequently carried away. It is more probable that the presence of these is due to former creeks or rivers. There is a body of wash at the head of Townsend's Creek or Madman's Hill, half a mile north of Gill's section, and about 1200 feet above sea-level. This suggests a wider covering of alluvial than is seen now, but it may be only the remnant of a former watercourse. If this country had been under a wide sheet of water in Tertiary times, the wash would have contained stones of granite from the Meredith Range, the same as happens on Brown's Plains, but these have not been observed here. That the country was at that time connected with the Meredith Range is shown by 2 or 3 feet of granite wash occurring on the track for two or three hundred yards at the Big Creek, in the timbered country between Long Plains and the Bald Hill. This wash contains some tin ore (in trivial quantities) and tourmaline, and was evidently deposited before the valley of the Whyte River, which now separates it from the Meredith Range, was excavated. This excavation has, of course, removed the bed of the former stream. But there is nothing in the nature of the drift on the Long Plains generally to necessitate a reference of its source to other than the underlying rock of which the plains consist.

At 24 miles from Waratah and 16 from Corinna is the Bullock's Head, the remnant of a bovine cranium on a stake, which has been a familiar landmark for the last twenty years. It marks the turn-off to Gill's gold sections, and formerly to the Specimen Reef. The Long Plain extends here eastward for half a mile over rolling country, and then connects by a saddle with the Golden Ridge (Gill's), a spur which extends for a mile in a direction bearing a few degrees east of north.

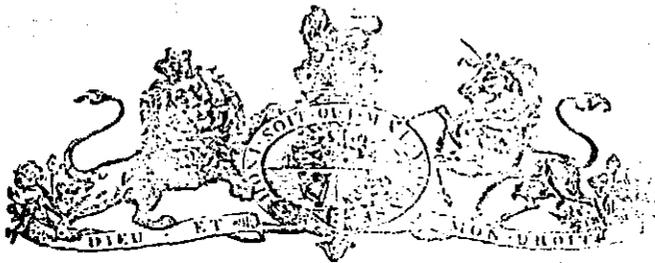
This is the ridge on which Weetman and Crockford made their gold discoveries twenty years ago. It runs through the gold sections for upwards of 50 chains, terminating north at Riley's Creek and south at Cox's Face. The rocks are thinly bedded or cleaved quartz, micaceous, talcose, and graphitic schists, slates, and crystalline sandstone, striking a little east of north, and dipping at very high angles a little south of east. They are here also covered with a layer of angular stones of quartz, derived from the underlying bedrock.

The creeks on the west foot of the ridge are Gray's and Little Duffer Creeks; on the east side is Jarman's Creek.

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REPORT on the Specimen Reef, near Mount Cleveland.

April, 1884.

This is situate west north-west of Waratah, at a distance of about thirty-two miles along the newly formed track. The geological features of the country observed on that line of communication consist of, near the Arthur River, metamorphic schists, here and there overlaid by basaltic sheets; at the Magnet range, those upper volcanic rocks rest upon a thick stratum of "liguite," probably, as in other similar places, covering a deep diluvial wash or "lead." On the open plains further on, the continuation of that sharp-angled quartz detritus, so peculiar to the Western mining districts, is found to be covered with a swampy and peaty soil, frequently several feet in thickness, and which prevails so greatly on Long and Brown's Plains and on the south side of the Pieman River to within a few miles of North Mount Heemskirk.

Several tributaries of the Savage River, near its head, were crossed in travelling, in which those characteristic Pliocene drifts and gravel beds, so frequently found in the Victorian and other gold fields, occurred *in situ*, capped in places by outliers of basalt. These creeks have yielded some gold, but as the scrub is so excessively dense and almost impossible to penetrate, the results of the prospectors' labours have up to the present time remained an unsolved problem to a very considerable extent, though it is well known that some of those workings have enabled these miners to become possessed of considerable amounts of coarse and very heavy gold every season since first attention was drawn to the Pieman or Corinna Gold Field. There cannot be any doubt but what my opinions as expressed in my Report No. 82, 1881, pages 5 and 6, under the head of "*Permanency*," regarding the extent of such auriferous deposits on the Long Plains and from there to the west north-west of Mount Cleveland, have been borne out by these later discoveries. It remains, however, to be observed that those discoveries are, as yet, partaking of the nature of indications for the existence of a much larger gold field as yet undisturbed, and scarcely impinged upon by the picks of the miners.

✓ Check  
 H's report.

The vicinity of the Specimen Reef is very mountainous, and the "gulches" and "ravines" feeding the main creeks are most precipitous, and have a very rapid fall towards the Savage River. The formation is Silurian in part, but the metamorphic schists prevail largely, and they are very similar to those observed at Mount Victoria. Within three miles of the reef itself these metamorphic schists occur as contorted slates and sandstones, micaceous in parts, and they are traversed by irregular bands and interlacing veins of white, and infrequently blue veined, barren quartz.

As illustrated by the diagrams enclosed—the longitudinal section of Specimen Reef Creek (which empties into Hall's Creek)—that watercourse has a very steep descent, which did not permit any extensive or deep accumulation of recent (pleistocene) gravels. Gold-bearing quartz, and from time to time rich specimens, having been found in those circumscribed gravel beds by the prospectors, Messrs. Thunder and Greenaway, they were eventually rewarded by the discovery of the present Specimen Reef, which yielded, I am informed, about 40 ozs. of free gold from the specimens found at or close to its outcrop.

*The Workings.*—These disclose in the upper tunnel soft yellow sandstones and light bluish slates, stained by the peroxide of iron, as the country rock. Besides that, all water exuding from the reef, as it was followed in this adit, deposits considerable quantities of ochreous sediment, indicating a continuous decomposition of sulphurets by chemical and atmospherical reactions. That this decomposition had been in progress for very long periods in the past is proved by the occurrence of a coarse quartz detritus, forming a breccia of irregular and angular composition, held together by or cemented with brown iron ores ("limonites") overlying the outcrops or their vicinity on the reef. The upper tunnel passed, I am informed\* about 30 feet beneath the spot in the creek in which the prospectors first met with the outcrop of the reef, and at that part of the workings it was said those

\* It may be stated that during the whole of my examinations under the guidance of the Mining Manager, I did not see, or was shown, any gold; the only evidence of gold-bearing stone having been observed was from specimens exhibited at Launceston, the office at Waratah, and the quartz presented to the Mining Manager here, and those submitted for assay.

rich specimens were found which were publicly exhibited, the total length of this adit being a little over 300 feet. In that distance the two shoots of gold measure 160 feet and 12 feet in length each, and they are separated by a narrow and very poor portion 40 feet along the course of the lode. The underlay of the reef is to the east, and the shoots of gold-bearing stone are dipping ~~northerly~~ <sup>westerly</sup> at an angle of inclination less than 45 degrees, so that on this upper tunnel there remain 30 feet of backs to slope out.

The lower or main adit has been commenced further down the same creek, at such depth as to give about 109 feet of backs to the bottom of the upper adit, or 139 feet altogether. The lode formation was met with at 290 feet, and from there the reef has been followed along its course, the adjacent strata observing a bearing of N. 54 E. So far gold had not yet been seen in this tunnel, as, owing to the dip of the shoots of gold intersected above, a good distance would have yet to be driven for same, unless other shoots not yet discovered were found at that increased depth. The general appearance of the reef is very good, it being composed of a whitish coloured quartz, having at the same time a laminated appearance from the pyrites with which it is so heavily charged; it appears that the latter are highly auriferous, resulting after their decomposition in the production of a blackish friable powder, in which the gold occurs in filigree forms and also in very solid heavy lumps of, by all appearances, a very high quality. The strike of the lode averages north 38° east in the enclosing strata, which bears at the mouth of the adit nearly due north by south. The vein-stone is pretty compact, from a few inches to nearly three feet in width; the more attenuated parts being generally very poor, and the wider carrying the gold in shoots. Frequently the lode is very loose, and when undrained requires much care in working, as the vein-matter is then inclined to "run," filling up the adit to a considerable extent. The "caps," so to speak, or the vein-matter, on approaching the shoots of gold are generally indicated by the larger admixture of carbonates of iron ("siderites") with the vein-stone, which latter assumes thereupon quite a different appearance.

In the upper level or adit it may be mentioned the sulphurets have either disappeared altogether after decomposition, leaving a cellular and porous blackish quartz, in which the heavy gold sometimes predominates, or, in that vein-stone, strongly impregnates the whole of the reef at such places. At the lower adit, it may be observed,\* the gold was seen as embedded or associated with solid sulphurets remaining, as having not suffered from any such decomposition.

The lode has been faulted to an inconsiderable extent once or twice; the "slides" at these interruptions of the more regular course of the lode are distinguishable by the occurrence of black and unctuous clay-veins with some gritty quartz cutting across the country rocks. Generally at this greater depth the lode formation was found to be very similar to other gold-bearing reefs; the hanging-wall was composed of a hard sandstone, whilst the foot-wall consisted of a somewhat softer metamorphic slate. Up to the time of my visit gold had not been observed in driving this lower level; there was, however, every indication for such to be met with shortly, and the reef was charged with an unusually large percentage of iron, and also some copper pyrites.

This reef, or auriferous quartz lode, which is so far the only one as yet discovered to date, forms a well defined and strongly developed metalliferous deposit of very considerable promise for its future permanency, and there appears, in my opinion, nothing wanting but suitable crushing and gold-saving machinery to render the working of it a profitable concern, if managed intelligently and worked persistently.

Water as a motive power is readily obtainable in the neighbourhood, and as the fall of the creeks is so great, the supply promises to be intermittent; the adoption of turbines (Leffel's), instead of the ordinary ponderous water-wheel appears as more preferable, because the former are so much more easily transported, and erected at less cost, and they produce with a given head and quantity of water a very considerable percentage of more motive power than any other water motor.

From the general features of the surrounding country, there appears every likelihood, if once the dense scrub is made more accessible for prospecting, of the existence of other reefs in that locality; and there is no doubt whatever, in my opinion, that the undeveloped belt of auriferous quartz having materially contributed to the enrichment of the alluvial (pleistocene) and diluvial (pliocene) gold deposits occurring on Long Plains, Bauera, Riley, and Smith's Creeks, Rocky River, Brown's Plains, and Middleton's Creek.

G. THUREAU, F.G.S.

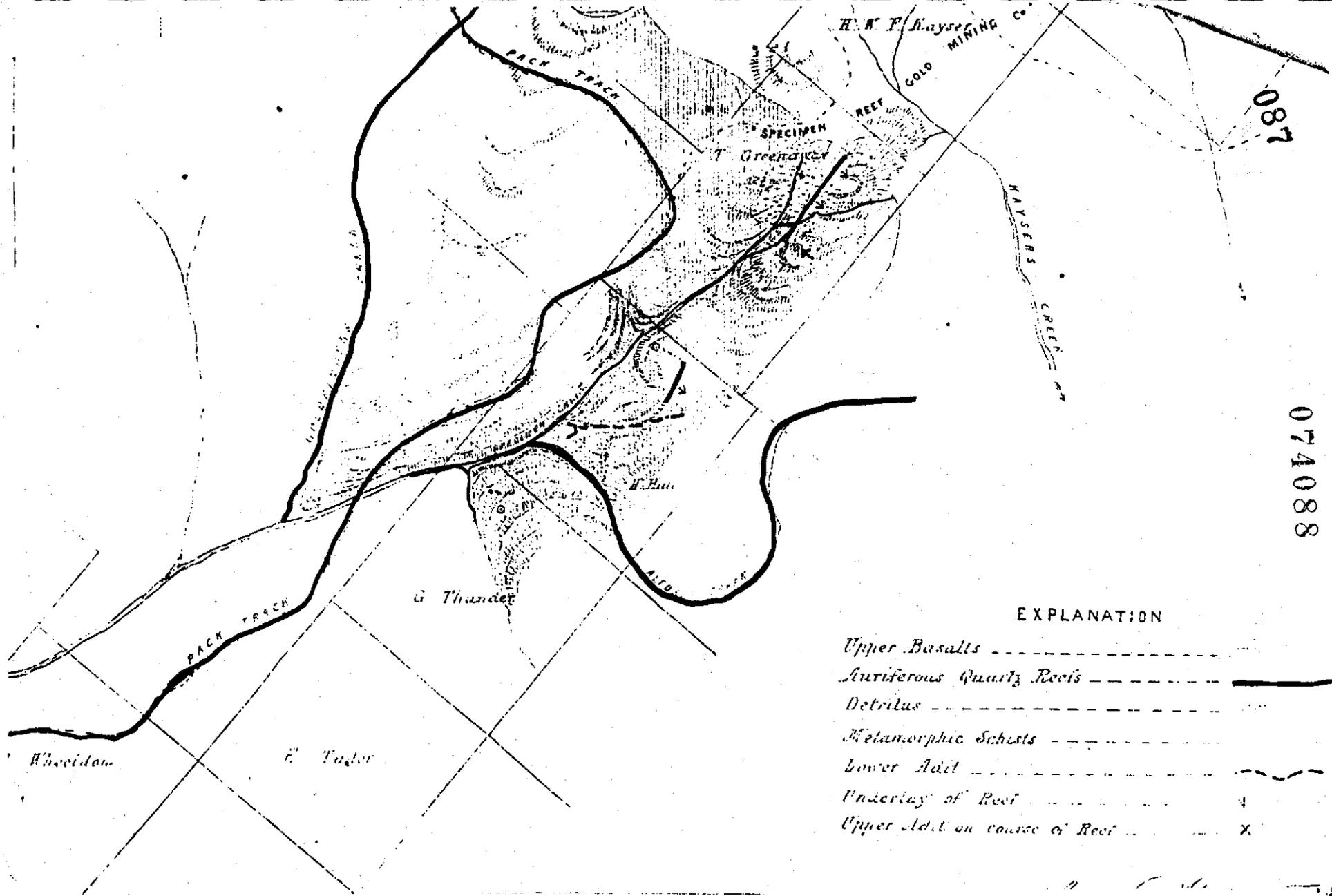
Memo.—New Minerals discovered on this goldfield:—

"White Aragonite," in radiating acicular groups, in Serpentine, near Alford's Store, Pieman Track.

"Titaniferous Iron Ore" in granitoid (micaceous) rock near Pieman River.

Asbestiform "Actinolite" of a light greenish colour, in quartz, from the head of the Whyte River, Long Plains.

\* Since this Report was taken in hand, or after the survey of Speerian Reef, I was instructed to also visit the West Coast; in the mean time rich gold quartz had been found at the lower adit.

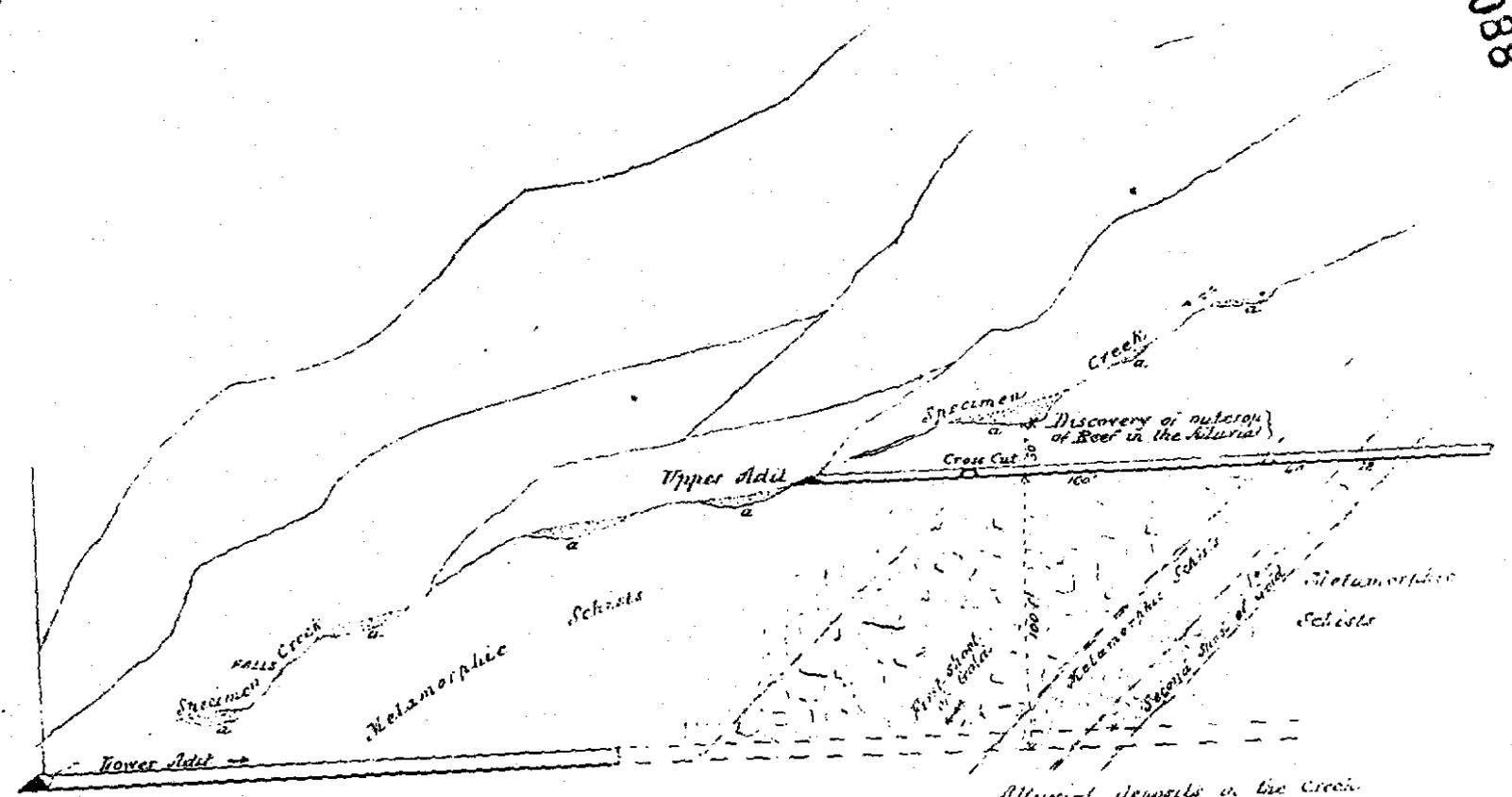


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LONGITUDINAL SECTION OF SPECIMEN REEF.

a a a Alluvial deposits in the Creek.

John S. Thurman F.S.

Office of Mines

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development makes it premature to form any decided opinion as to the future of the field, but the prospects are encouraging, and numerous further discoveries may reasonably be anticipated. Many of the present claims are taken up on outcrops of gossan, which may or may not turn out to be lodes. Time and work must decide. I visited only a few of the claims, but saw enough of the field to satisfy myself that a detailed examination of it twelve months hence would be quite soon enough to give an idea of its value. Till some work has been done to prove the lodes their prospects must be very much a matter of speculation.

See page 10

*Webster and Bennett's*, (2305-87 and 2306-87).—These prospectors have taken up two 80-acre sections, not yet shown on the maps, on the line of a strong gossan outcrop, striking N. 20° W. As the outcrop can be distinctly traced in a definite line up hill and down dale for quite half a mile, there can be little question as to its belonging to a lode. The gossan is composed of limonite, hematite, oxides of manganese, quartz, and a little kaolin and pyrites. It is on an average from 15 to 20 feet wide, and assays are said to have given from 3 to 12 ounces of silver to the ton. The line of lode is intersected by two creeks from which adits may be driven on the course of the lode, proving it very easily. One adit has been begun, but so far is still in gossan. From 100 to 700 feet of backs can be got on different parts of the lode by adits from the creeks. As far as yet proved the lode has been worthless except for flux, but it is well worth prospecting in the hope of coming upon valuable ore. If such is found in it, the working facilities are so good that it should be a good mine. The hill to the south of the adit shows volcanic tuffs and breccias in places. The country seen in the creeks is sandstone and slate.

See page 10  
See page 10  
See page 10

*Mellor's Section*, 1724-87.—In this ground two outcrops of iron and manganese gossan have been found, both running about N.E. and S.W., but badly defined. I did not like the nature of either of these gossans, and think they ought to have been deeply trenched through or driven upon at a shallow level before trying to cut them at considerable depth, as is now being done. A tunnel is being driven to cut one of them at about 250 feet below the outcrop. This will have to go about 600 feet, and the 132 feet now driven have been through hard slate and sandstone country. A quartz reef which crops out on the hill-side should be cut by this adit before the lode supposed to underlie the gossan is met with. To test the other gossan outcrop a drive has been begun, which will reach the line of the surface deposit in about 150 feet, and will then be about 100 feet below the surface. The presence of serpentine rocks in close proximity to the eastern boundary of the section creates a suspicion that the iron ore may have come from them, in which case it would be a mere surface deposit. The work in progress will settle the question in time, but it would have been wiser to have driven a shallow level first. The ground is most favourable for such a course.

*Lambie and Davies' Sections*, (2298-87 and 2297-87).—These two prospectors have been more fortunate than the preceding in finding galena ore on the surface in three places. In the north part of 2297-87 a lode (No. 1) is cut alongside a creek. It strikes N. 35° W., and underlays N.E. about 4 to 1. It is composed of from six to ten inches of galena with crystals of cerussite (carbonate of lead) and baryte, and is exposed by a trench for about two chains. This lode lies almost in the bed of the creek, and cannot be worked by an adit at the place where it has been struck. In the south-east corner of the same section, about 8 chains from the southern and 4 chains from the eastern boundary is another lode (No. 2), which may perhaps prove identical with No. 1. Its course is N. 45° W., and the lode is from 24 inches to 30 inches wide where cut, and shows about 8 inches of galena. The gossan capping contains crystals of carbonate of lead. The lode is running right into a high hill, and a level driven along its course would have good backs above it. In the north-east corner of the same section, about 8 chains from the east, and 4 chains from the north boundary, is a very large outcrop, bared for quite 12 feet in width, and traced up-hill for quite a chain. It carries galena, gossan, and carbonate of lead. Its apparent course is about N.W. and S.E. This has every appearance of being a strong lode. A little to the south of it a branch lode, 4 feet wide, carrying galena and green pyromorphite, and running N. 10° W., is cut across on surface. These lodes can be splendidly tested by driving right into a high hill on their course. About a chain from the western boundary of the section there is a huge gossan outcrop, carrying chromate of lead. Nothing has been yet done on this, but it deserves to be prospected. The property has a very good prospect before it, and will be much heard of before long.

*Page's Section*.—Fine crystals of chromate of lead have been found in a gossan outcrop in a section whose number I could not identify. The outcrop is a large one, but nothing has been done to it beyond clipping off a few pounds of samples. I had heard so much about the splendid prospects of this lode that the reality was disappointing. "Indications" and talk do not make a mine, however good the one and tall the other; and a prospector finding a lode like this should do something to open it before presenting it to the public.

There is a considerable quantity of serpentine in parts of the Mount Dundas field,—some of it of very good colour. When the district is opened up it is very probable that serpentine fit for ornamental purposes will be found. So beautiful a stone ought not to be neglected. Very pretty serpentine rocks are also found in the Heazlewood District, and are worthy of attention from lapidaries and architects.

MOUNT HEEMSKIRK DISTRICT.

From inquiries made at Zechar and Trial Harbour, I ascertained that nothing of consequence was being done on this tin-field, and that it was almost, if not quite, deserted. It was therefore not visited on this occasion.

THE SPECIMEN REEF, HALL'S CREEK.

For a year or more past no work has been done in the mine on this reef, the energies of the owners being directed towards the erection of a battery and the construction of water-races, dams, and tramways. These are now finished, and crushing should begin as soon as there is water enough. Two levels have

been driven on the reef, and a winze has connected them, so that the ground is ready for stoping. Some extremely rich stone has been obtained from this mine,—the gold being mostly mixed with oxide of iron and manganese in black lumps, locally called "clinkers." Carbonate of iron and iron pyrites are somewhat common in the quartz. It has never been possible to give this reef a fair trial until now, for want of a battery. A few months' work in the mine will now afford a good test of the value of the portion open. There has been so much gold got in the surface portion of the mine that there is good hope of payable quartz continuing to be found below. The reef is small, but there are considerable natural facilities for sending the quartz to the battery, which will serve in some measure to make up for this. A tramway has been made from the mouth of the lower level to a short heading to the battery. This comprises six heads of stamps, driven by a 24-h. water-wheel. After the ordinary copper tables, one of Alvey's Amalgamators and Concentrators has been provided. As might be expected from the inaccessibility of the place, the battery is full of make-shifts,—a berdan liner, for example, serving for the entire berdan. Storage for tailings ought to be provided. The battery will do to test the stone for a time, but something much better will be required for regular work. Better modes of access to the claim are also urgently required, so that stores and tools may be taken to it in reasonable time and at reasonable cost. The owners propose to try to find a suitable line for a track directly through to the Heazlewood, which seems practicable enough, though the country is dreadfully broken by deep ravines,—that of the Savage River being the worst.

N<sup>o</sup> 2 tunnel

#### HEAZLEWOOD DISTRICT.

The geological features of this district are of great interest, and deserve a much closer examination than I was able to give them on this occasion. The central portion of the field is composed of silurian sandstones and limestones, and these are flanked on the western side by a wide belt of serpentine, and on the east by greenstones. The serpentine rock is a metamorphosed highly crystalline plutonic rock, in places inclining to gabbro, but requiring minute and extended microscopical and chemical examination to determine its original nature. Schiller-spar is somewhat common in it, and parts of the rock containing this mineral are very beautiful. Fine crystals of chromite occur plentifully in a creek running through the Heazlewood and South Heazlewood Companies' ground, evidently derived from the serpentine. It appears also to contain a good deal of nickel, as much of the vein-stone in the Heazlewood lode is stained bright green by traces of nickel compounds, and the hydrated carbonate of nickel (zaratite) has been found in joints of the serpentine in sufficient quantity to induce hopes of its proving of commercial value. From an examination of the occurrence of this ore on Sections 2124-87 and 2125-87, I do not think that there is much chance of the ore being obtained in quantities sufficient to pay. It is found in joints of the serpentine, and nice specimens are readily obtained; but I saw no sign of a true lode of it, or any indication that it was present in workable quantity. The sections taken up for nickel are on the top of the high hill, north of the Heazlewood River from the Heazlewood Bridge.

There appear to be two main lines of lode in this district, one extending through the Heazlewood Extended, Heazlewood, and No. 1 South Heazlewood Companies' holdings, and the other traversing those of the Whyte River, Bell and Smith's, Godkin Extended, and Godkin Companies. Outside of these two main lines the only workings of consequence are those for gold, near the Castray River. Alluvial gold has been worked by sluicing, with fair results, in past years in several of the creeks running into the Whyte River. An old bed of the Castray River runs to the north-west through Sections 1937-87 and 1938-87. This has been sluiced with very good results up to a certain point, where it became poor. At this point prospecting has discovered the gold in its matrix, and the operations now in progress are to work this. It is a fine grained brown sandstone bed striking about N.N.W., and dipping easterly 30°. The bed is about 2½ feet thick, and lies between clayey beds. The gold is rounded and water-worn. A great deal of magnetic iron sand is with the gold when panned out from this stuff. Very good prospects are obtainable throughout the whole of the bed so far as it has been tried. I cannot yet say what is the geological age of this auriferous sandstone, not having made a sufficient examination of the neighbouring silurian rocks to determine its relation to them. A considerable extent of it has been proved auriferous, and it is well worth trying. The prospectors had a small hand-power battery, with which they crushed a few tons of sandstone, the yield being very good. I should recommend any company taking this ground in hand to make sure of having a sufficient amount of pay-dirt in sight before erecting crushing machinery, as from its nature the deposit may be expected to vary very much in quality. For crushing the stone a heavy sort of peddling machine would be sufficient, or a Dodge Pulveriser. This last is a sort of iron churn, which rapidly disintegrates any soft rock like the sandstone in question. Such a machine would be much cheaper and do much more work than a stamping battery. A battery of light stamps running very fast, and with a short drop, would be much preferable to an ordinary quartz-mill for this sort of stuff. Great attention will have to be paid to the amalgamation of the gold, as loss will be liable to occur from its fineness, from its becoming coated with clay, from its being naturally coated with iron oxide, and from the turbidity of the water used, this last resulting from the amount of clay in the sandstone. Long blanket strakes, well attended to, will probably prove the most efficient gold-savers. The workings are on Section 74-85.

*Heazlewood S.L. Mine.* (Sections 1300a and 1310a).—The owners of this property have done a great deal of work in prospecting it on the surface and by means of shallow workings, with somewhat variable success. It has been demonstrated that a main lode extends in a north-north-westerly direction through both sections, and several small veins parallel to the main lode have also been discovered. On the latter no work of consequence has been done. In the southern section (1310a) the main workings are not far from the south boundary. A lode (known as No. 4) cut in the creek near this has a very prominent-looking outcrop of galena and gossan, but has not yet been worked; course, N. 18° W. The main line of lode has two branches in this part of the holding, forming parallel lodes about 18 feet apart, running about N.N.W. through serpentine country. Between the two lodes the country is full of veins of calcite, and much infiltrated with lode matter, so that the two lodes may almost be considered to be one. A cross-cut has been

DRILL CORE DESCRIPTION  
SPECIMEN REEF DDH - SPC6

FROM M	TO M	INTERNAL RECOVERY			GEOLOGICAL DESCRIPTION & REMARKS
		M	M		
42.5	44.2	1.7	1.7	100%	Cream/green/grey psammitic meta volcanic with 30% mafic (chlorite or actinolite) mineralogy. Contains cream/grey silicic alteration bands with numerous quartz-carbonate veins (1mm-30mm thick). These veins contain creamy pink carbonate and large pyritic crystal blebs. Several cross-cutting fracture filled quartz pyrite veinlets occur and a zone (43.2-43.6) of disseminated pyrite is also present.
44.2	47.4	3.2	3.05	95%	Cream/green/grey psammitic meta volcanic with silicic alteration bands and disseminated pyrite. A major alteration zone with a 25 cm cavity occurs at 45.3-46m. Numerous thin (1-2mm) carbonate and quartz veinlets and several vuggy quartz-carbonate veinlets are present.
47.4	50.4	3.0	2.9	97%	Psammitic meta volcanic containing numerous carbonate and quartz-carbonate veinlets. Some veinlets are vuggy others contain alteration haloes or pyritic accumulates. The meta volcanic becomes contorted and foliated between 48.8-50.4m. This zone contains numerous thick pygmatic quartz vein and chloritic contorted blebs. At 48m a 10cm vein occurs.
50.4	52.1	1.7	1.6	95%	Foliated greenschist with traces of disseminated pyrite, minor carbonate and quartz-carbonate veinlets. Contain two veins 5-10cm thick at 50.4 and 51m. Some pygmatic quartz is also present.
52.1	52.6	0.5	0.4	80%	Puggy green/black clay grades into a foliated greenschist which contains pygmatic vein quartz.

092

074093

A.3.2.

DRILL CORE DESCRIPTION  
SPECIMEN REEF DDH - SPC6

FROM M	TO M	INTERNAL RECOVERY			GEOLOGICAL DESCRIPTION & REMARKS
		M	M		
42.5	44.2	1.7	1.7	100%	Cream/green/grey psammitic meta volcanic with 30% mafic (chlorite or actinolite) mineralogy. Contains cream/grey silicic alteration bands with numerous quartz-carbonate veins (1mm-30mm thick). These veins contain creamy pink carbonate and large pyritic crystal blebs. Several cross-cutting fracture filled quartz pyrite veinlets occur and a zone (43.2-43.6) of disseminated pyrite is also present.
44.2	47.4	3.2	3.05	95%	Cream/green/grey psammitic meta volcanic with silicic alteration bands and disseminated pyrite. A major alteration zone with a 25 cm cavity occurs at 45.3-46m. Numerous thin (1-2mm) carbonate and quartz veinlets and several vuggy quartz-carbonate veinlets are present.
47.4	50.4	3.0	2.9	97%	Psammitic meta volcanic containing numerous carbonate and quartz-carbonate veinlets. Some veinlets are vuggy others contain alteration haloes or pyritic accumulates. The meta volcanic becomes contorted and foliated between 48.8-50.4m. This zone contains numerous thick ptygmatic quartz vein and chloritic contorted blebs. At 48m a 10cm vein occurs.
50.4	52.1	1.7	1.6	95%	Foliated greenschist with traces of disseminated pyrite, minor carbonate and quartz-carbonate veinlets. Contain two veins 5-10cm thick at 50.4 and 51m. Some ptygmatic quartz is also present.
52.1	52.6	0.5	0.4	80%	Puggy green/black clay grades into a foliated greenschist which contains ptygmatic vein quartz.

FROM M	TO M	INTERNAL RECOVERY			GEOLOGICAL DESCRIPTION & REMARKS
		M	M		
52.6	53.4	0.8	0.65	81%	Foliated black/grey/cream/orange carbonate talc rich greenschist very crumbly with traces of disseminated pyrite and minor vein quartz.
53.4	54.2	0.8	0.8	100%	A cream/grey alteration zone, highly silicic with numerous vUgs and cavities, contains traces of disseminated pyrite and minor carbonate veinlets.
54.2	55.8	1.6	1.6	100%	Meta-volcanic with quartz-carbonate veinlets and some alteration. Contains minor pyrite in some of the veinlets.
55.8	56.4	0.6	0.6	100%	As above but grades into a foliated greenschist zone.
56.4	58.3	1.9	1.9	100%	Foliated greenschist with minor thin quartz veinlets and disseminated pyrite. Grades into a meta-volcanic with minor carbonate and quartz carbonate veinlets, some containing large pyrite crystals.
58.3	60.1	1.8	1.7	95%	Cream/black/grey meta-volcanic which contains numerous veins and veinlets of carbonate and quartz carbonate. Some veins are vuggy and pyritic others are surrounded by alteration zones of variable thickness. Disseminated pyrite is present and at 60-60.1m a cream/pink pyritic carbonate vein occurs. Talc is present along some fractures while some thin cross-cutting fractures are infilled by pyrite.
60.1	62.4	2.3	2.3	100%	As above but with highly fractured zones after 60.7. Partial to total alteration occurs in the alteration zones and talc predominantly infills the fractures. After 61.7m a zone of total alteration occurs which contains several thick carbonate veins.

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A.3.2.

FROM M	TO M	INTERNAL RECOVERY			GEOLOGICAL DESCRIPTION & REMARKS
		M	M		
62.4	64.6	2.2	2.2	100%	A zone of total to partial alteration with numerous carbonate veinlets, vugs and some vuggy pyrite quartz veins. Contains talc infilled fractures and disseminated pyrite aligned to the foliation.
64.6	66.4	1.8	1.75	97%	Partial to totally altered meta volcanic grades into a foliated carbonate rich greenschist which contains numerous vuggy quartz lenses parallel to the foliation some of the quartz lenses contain disseminated pyrite. A very crumble zone occurs between 66 and 66.4m.
66.4	67.1	0.7	0.7	100%	A foliated carbonaceous greenschist with quartz lenses and traces of disseminated pyrite.
67.1	68.2	1.1	1.1	100%	As above but with less carbonate and fewer quartz veins and some talc.
68.2	69.7	1.5	1.5	100%	Foliated greenschist grades into a slightly foliated meta-volcanic. The meta volcanic contains several thin carbonate veinlets, and some thick quartz carbonate veins. Pyrite is in disseminated form but also occurs as blebs in fractures.
69.7	71.2	1.5	1.4	96%	Talc-carbonate schist with traces of disseminated pyrite. At 70.3 two quartz-carbonate veins cross-cut the cleavage. These 3-4cm thick veins contain blotchy pinkish-orange carbonate selvaged by some pyritic accumulates. After 70.5 a highly altered zone occurs which is fractured and contains quartz-carbonate veins and minor pyrite.
71.2	71.9	0.7	0.7	100%	Creamy/pink/grey/green talc-carbonate schist, containing disseminated pyrite

FROM M	TO M	INTERNAL RECOVERY			GEOLOGICAL DESCRIPTION & REMARKS
		M	M		
					and pyritic stringers. Several thin quartz-carbonate veins occur between 71.2-71.5m.
71.9	73	1.1	1.1	100%	Talc carbonate schist containing very minor graphitic laminae, disseminated pyrite and a few thin (<5mm) quartz-carbonate veins. Grades into a psammitic zone with 1% disseminated pyrite.
73	74	1.0	0.75	75%	Psammitic-talc schist with minor disseminated pyrite. Grades into a zone which contains numerous quartz-carbonate veins. Some veins contain patches of fine pyrite.
74	74.4	0.4	0.35	88%	A puggy cream/green/grey talc-mica schist with traces of graphite.
74.4	75.5	1.1	0.8	74%	Light grey/green carbonaceous-talc schist with traces of disseminated pyrite. Contains several puggy zones and some quartz-carbonate veinlets.
75.5	76.5	1.0	1.0	100%	Carbonaceous-talc schist grades into a silicic carbonate zone with numerous cream/pink quartz carbonate veinlets. Between 76.3 and 76.5m graphitic patches occur. Disseminated pyrite occurs throughout the sample.
76.5	80.4	3.9	3.9	100%	Zone of total alteration, containing silica, white and creamy carbonates, talc and chlorite (actinolite?) rich mineral assemblage. The alteration minerals occur in a blotchy form within a highly fractured but cohesive sample. Several thick 1-2cm quartz-carbonate veins cross-cut the alteration. Pyrite occurs in massive form, as stringers and as accumulates in fractures, pyrite forms up to 5% of some zones of the sample. A minor

FROM M	TO M	INTERNAL RECOVERY			GEOLOGICAL DESCRIPTION & REMARKS
		M	M		
					red-mineral possibly rhodochrosite occurs as a replacement mineral in some carbonates.
80.4	83.4	3.0	2.95	97%	<p>80.4-82m highly altered meta-volcanic with patches of quartz-carbonate and a carbonate rich matrix. Contains silicic zones and minor cross-cutting quartz-carbonate veins. A red mineral replaces the carbonate in several veins. Pyrite occurs as small blebs, predominantly in the cross-cutting veins. Small blotches of chloritic relic volcanic material occurs in the altered zone.</p> <p>82-83.4m slightly foliated green/grey chlorite talc? meta-volcanic. Highly silicic slightly carbonaceous with cross-cutting quartz-carbonate veins (&lt;3cm thick). Disseminated pyrite occurs as small and large blebs throughout the sample. The cross-cutting veins contain a network of an unknown black bladed mineral (psilomelane?) and an unknown red mineral.</p>
83.4	86.4	3.0	3.0	100%	<p>Grey-violet silicic and slightly carbonaceous meta-volcanic with folded chloritic remnants. Between 83.55 and 83.95 similar quartz-carbonate veins and veinlets occur. They contain a network of an unknown black mineral which forms &lt;20% of the veins; minor amounts of an unknown red mineral and 5 &amp; 10% pyritic accumulates. The veins are linked by stingers containing pyrite and the black mineral. Between 84.4 and 85m quartz-carbonate patches and a 3cm vein occurs. This zone contains between 5-15% pyrite in large accumulates and very minor amounts of the unknown red and black minerals. At 85.3-85.7 a</p>
					<p>Dip of vein set at  83.4m - 40°  84.4m - 45°  85.4m - 50°</p> <p>* Thin Section at 83.85m</p>

FROM M	TO M	INTERNAL RECOVERY M M			GEOLOGICAL DESCRIPTION & REMARKS
					thick quartz-carbonate vein occurs. The vein contains minor pyritic blebs and traces of the black and red minerals along its selvages. Between 85.7 and 86.4 there are numerous quartz carbonate veins which contain the unknown red and black minerals. This zone contains some fracturing infilled by carbonate and randomly distributed pyritic accumulates.
86.4	89.4	3.0	3.0	100%	Alteration zone similar to the above intersection. Contains grey/violet siliceous and slightly carbonaceous meta-volcanic; with pyritic blebs, chloritic patches and networks of thin carbonate rich veinlets. The zone contains several thin quartz-carbonate veins and minor amounts of the blackish and red minerals in massive and disseminated form. Traces of a green mineral.
					Dip of vein set at 86.45 - 35° 89.2 - 40°
89.4	92.4	3.0	3.0	100%	As above but containing patches with slightly altered green chloritic meta-volcanic. Also containing pyritic zones ( 5% pyrite) particularly in areas of silicification and in some of the quartz-carbonate veins. At 90.7m a 2.3cm pyritic (20% pyrite) quartz carbonate vein with the unknown red and black minerals occurred. Many of the carbonate veins >2cm thick contain a creamy-pink carbonate and traces of chalcopyrite occurs in thin veinlets. Minor talc.
					Dip of vein sets at 89.6 - 89.7m - 40° & 14° 90.2m - 65° & 43° 92.3m - 55°
92.4	93.7	1.3	1.3	100%	This interval contains two silicified zones at 92.1-92.85, and 93.3-93.7m; which contain several 1-2cm thick quartz-carbonate veins with two carbonates, pyritic blebs and black mineralization. Between the silicic zone slightly altered
					Dip of vein sets at 92.9m - 16°

FROM M	TO M	INTERNAL RECOVERY			GEOLOGICAL DESCRIPTION & REMARKS
		M	M		
					green-chlorite meta-volcanic with disseminated pyrite and numerous quartz-carbonate veins occurs.
93.7	95.4	1.7	1.7	100%	The interval contains 50% silicic-carbonate alteration. Total alteration occurs at 94.4-94.7m and at 94.8-95.1m the alteration zones are linked by silicification which traces the foliation. The first alteration zone contains a 3-4cm thick quartz-carbonate vein (possible equivalent of auriferous vein in SPC1) which contains large pyritic accumulates and massive black mineralization. Both form between 10-15% of the vein. The second alteration zone contains numerous thin creamy-carbonate veins.
95.4	98.4	3.0	3.0	100%	The interval contains 50% silicic-carbonate alteration. Numerous <2cm thick carbonate veins are surrounded by silicic alteration haloes up to 15cm thick. Disseminated pyrite occurs throughout fault displaced carbonate vein occurs at 98m. This 6cm thick quartz-carbonate vein contains minor quantities of pyrite and black mineralization.
					Dip of vein sets at 98m - 40°
98.4	100.7	2.3	2.3	100%	As above but containing numerous 2cm thick, white, quartz carbonate veins, some containing pyrite and the red-black mineralization.
					Dip of vein sets at 99.6m - 50° 99.8m - 32°
100.7	102.4	1.7	1.7	100%	Foliated green-chloritic meta-volcanic with thick ptigmatic quartz veins, 10% silicic carbonate alteration and disseminated pyrite. Several carbonate veins occur with or without silicic haloes. Traces of cpy? ( different pyrite phase).

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A.3.2.

FROM M	TO M	INTERNAL RECOVERY			GEOLOGICAL DESCRIPTION & REMARKS
		M	M		
102.4	104.4	2.0	2.0	100%	As above.
104.4	107.3	2.9	2.9	100%	Foliated green chloritic meta-volcanic with numerous 1-2cm thick carbonate veins, some veins contain two carbonates and inclusions of country rock. Minor pygmatic vein-quartz, minor disseminated pyrite.
	Dip of vein sets at 105.8m - 18° 106.9m - 20° 197.2m - 28°				
107.3	110.4	3.1	3.1	100%	Foliated meta-volcanic with zones containing 5% pyrite as large blebs. Very minor carbonate veins. At 108.5 a 1cm thick quartz-carbonate vein with two carbonates cross-cuts the foliation.
	Dip of vein sets at 108.6m - 8°				
110.4	113.4	3.0	3.0	100%	Foliated meta-volcanic containing disseminated pyrite. About 10 thin quartz carbonate veins cross-cut the foliation.
113.4	116.4	3.0	3.0	100%	Foliated meta-volcanic containing pygmatic vein quartz and disseminated pyrite. At 15m a 1cm cr-or carbonate vein with a 15cm silicic aureole grading pyritic alteration zone occurs. There are also several thin quartz-carbonate veins some with narrow silicic alteration bands.
	Dip of vein sets at 115m - 16°				
116.4	119.4	3.0	3.0	100%	As above but with fewer pygmatic veins and a silicic-carbonate alteration zone at 17.6m. The 10cm alteration zone contains several thin quartz-carbonate veins and a 1cm cr-or carbonate vein.
119.4	122.4	3.0	3.0	100%	Foliated meta-volcanic containing numerous quartz-carbonate veins and veinlets some with narrow silicic haloes. At 120.9 a silicic alteration zone occurs which contains disseminated pyrite and numerous thin quartz-carbonate veinlets.
122.4	125.4	3.0	3.0	100%	The silicic alteration zone ends

FROM M	TO M	INTERNAL RECOVERY M M		GEOLOGICAL DESCRIPTION & REMARKS	
125.4	128.4	3.0	3.0	100%	<p>at 125.5m. Between 122.5 and 123m several narrow carbonate veins occur, at 123m a 10cm silicic zone occurs. After 123m the foliated meta-volcanic contains few carbonate veins.</p> <p>Foliated meta-volcanic with pygmatic vein quartz and disseminated pyrite. Some pyritic accumulations to foliation and very few thin carbonate veins.</p>
	Dip of vein sets at 125m - 45°				

GEOCHEMICAL ANALYSESSPECIMEN REEF - D.D.H. 85 SPC 6

SAMPLE INTERVAL	ELEMENTS (ppm)						Analabs Au	WMC Au
	Cu	Pb	Zn	Mn	As			
SLUDGE								
0 - 1.9	105	10	85	320	39	X		
1.9 - 4.9	95	10	55	230	40	X		
4.9 - 7.9	85	5	60	290	41	X		
7.9 - 10.9	90	10	70	355	45	X		
10.9 - 13.9	50	10	75	290	40	X		
13.9 - 16.9	25	10	55	170	16	X		
19.9 - 22.9	10	5	30	115	3	X		
22.9 - 25.9	10	X	40	150	2	X		
25.9 - 28.9	20	X	35	160	4	X		
28.9 - 30.9	40	X	35	150	7	X		
30.9 - 34.9	80	X	30	95	6	X		
34.9 - 37.9	70	X	40	205	30	X		
37.9 - 40.9	55	5	45	300	29	X		
40.9 - 42.5	40	X	35	300	13	X		
CORE								
42.5 - 44.2	20	X	30	285	6	X	X	
44.2 - 47.4	50	X	25	360	3	X	X	
47.4 - 50.4	5	X	35	415	9	X	X	
50.5 - 53.4	60	5	100	1300	15	X	X	
53.4 - 56.4	35	X	25	190	3	X	X	
56.4 - 58.3	120	X	20	310	14	X	X	
58.3 - 60.1	30	X	20	290	7	X	X	
60.1 - 62.4	175	X	15	280	15	X	X	
62.4 - 64.6	70	X	15	620	12	X	X	
64.6 - 67.1	245	X	50	920	12	X	0.03	
67.1 - 69.7	260	X	180	720	6	X	0.02	
69.7 - 73.0	50	X	110	1450	15	X	<0.02	
73.0 - 76.5	60	X	30	645	11	X	0.02	
76.5 - 77.6	15	5	10	800	10	X	0.03	
77.6 - 78.5	10	X	5	600	10	X	0.02	
78.5 - 79.5	20	X	5	475	6	X	0.03	
79.5 - 80.4	15	X	5	680	18	X	X	
80.4 - 81.4	10	X	5	750	4	X	X	
81.4 - 82.4	35	X	10	765	8	X	X	
82.4 - 83.4	5	X	15	315	4	X	X	
83.4 - 84.4	20	X	10	660	16	X	X	
84.4 - 85.4	105	X	5	975	11	X	X	
85.4 - 86.4	15	X	10	575	20	X	X	
86.4 - 87.4	5	X	5	630	11	X	0.03	
87.4 - 88.4	5	X	5	575	9	X	X	

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A.3.2.1

SAMPLE INTERVAL	ELEMENTS (ppm)						
	Cu	Pb	Zn	Mn	As	Analabs Au	WMC Au
88.4 - 89.4	5	X	5	530	11	X	X
89.4 - 90.4	25	X	15	845	10	X	X
90.4 - 92.4	25	X	10	685	9	X	X
92.4 - 94.5	5	X	15	405	11	X	0.02
94.5 - 94.76	10	X	15	975	11	X	0.02
94.76 - 96.4	15	X	10	480	8	0.01	0.04
96.4 - 97.9	5	X	10	530	8	X	0.02
97.9 - 98.2	5	X	10	1500	5	X	0.02
98.2 - 99.8	5	X	15	435	7	X	X
99.8 - 102.4	85	X	15	490	10	X	X
102.4 - 104.4	420	X	20	540	4	X	X
104.4 - 106.4	15	X	25	390	4	X	X
106.4 - 109.4	95	X	30	520	7	0.02	X
109.4 - 112.4	185	X	45	620	6	X	X
112.4 - 115.4	5	X	35	530	8	0.01	X
115.4 - 117.4	5	X	30	455	8	0.01	X
117.5 - 119.4	10	X	20	385	8	X	X
119.4 - 120.4	5	X	20	390	3	X	X
120.4 - 121.4	5	X	10	685	10	0.02	X
121.4 - 128.4	5	X	65	625	4	0.01	X
122.4 - 125.4	30	X	35	915	7	X	X
125.4 - 128.4	5	X	40	644	2	X	X

METHOD	101	101	101	101	114	309
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NOTE

\* Analabs Method 309 Fire Assay/AAS finish 20 ppb limit of detection.

\* WMC Method 309 aqua region/AAS finish 20 ppb limit of detection.

X Below limit of detection (<0.02ppm)

SPECIMEN CREEK DDH - SPC1  
DIAMOND DRILL HOLE LOG

SAMPLE NUMBER	INTERVAL (m)	DESCRIPTION
SP1001	48-50	Slightly foliated mica greenschist; mod hematite; trace of disseminated pyrite and pyritic casts; minor quartz carbonate veins // to foliation.
SP1002	50-52	Slightly foliated mica greenschist; hematite rich zones, trace of disseminated pyrite; numerous ptygmatic quartz veins.
SP1003	52-54	As above but with silicified zones.
SP1004	54-56	Slightly silicified meta-andesite; minor quartz veins with traces of carbonate; mod hematite, trace of pyrite.
SP1005	56-58	Meta-andesite grading into greenschist, minor quartz veins, traces of pyrite.
SP1006	58-60	Foliated greenschist with meta-andesite bands; thick quartz veins with traces of carbonate; mod disseminated pyrite.
SP1007	60-62	Meta-andesite with silicic zones and quartz carbonate veins; minor greenschist with ptygmatic vein quartz; disseminated pyrite and chalcopyrite.
SP1008	62-64	Meta-andesite with narrow silicified carbonate zones; disseminated pyrite; thin quartz pyrite stringers, minor greenschist.
SP1009	64-66	Meta-andesite with thin cross cutting of quartz carbonate veins; moderate disseminated pyrite and chalcopyrite.
SP1010	66-68	Meta-andesite with silicic and greenschist zones, minor thin ptygmatic quartz veins; minor thin foliated and cross cutting quartz carbonate veins; disseminated pyrite and a trace of pyritic stringers.
SP1011	68-70	Foliated greenschist with minor as above and moderate hematite.
SP1012	70-72	Zonated greenschist and meta-andesite. Narrow ptygmatic quartz veins occur in the greenschist. Thick (approx 2cm) quartz carbonate veins with associated pyrite occur in the andesite. Minor disseminated pyrite.
SP1013	72-74	Greenschist grading into a meta-andesite. A quartz vein with carbonate blebs and pyritic selvages forms a contact between the andesite and schist. Pyrite accumulates in fractures and in a narrow zone // to foliation.

SAMPLE NUMBER	INTERVAL (m)	DESCRIPTION
SP1014	74-76	Meta-andesite with minor quartz stingers and a thick (1/2cm) quartz-carbonate vein; traces of disseminated pyrite.
SP1015	76-78	Meta-andesite with minor greenschist, containing silicic zones and a 5cm quartz band; ptygmatic quartz veins with associated carbonate blebs; minor disseminated pyrite.
SP1016	78-80	Meta-andesite; numerous quartz carbonate hematite veins // to foliation and along fractures; pyrite also forms accumulated blebs within fractures. Minor disseminated pyrite; minor ptygmatic quartz within greenschist zones.
SP1017	80-82	Meta-andesite, with quartz carbonate zones, ptygmatic vein quartz and a zone of 2-5cm thick containing two bands of massive pyrite and chalcopyrite.
SP1018	82-84	Meta-andesite grading into greenschist; numerous small ptygmatic quartz veins containing carbonate blebs and hematite; minor 2-3cm thick quartz carbonate veins; trace of disseminated pyrite.
SP1019	84-86	Meta-andesite; slightly silicic; mod hematite; minor quartz veins; moderate disseminated pyrite.
SP1020	86-88	As above but with quartz carbonate veins which lack specific orientations and a zone of disseminated pyrite.
SP1021	88-90	As above.
SP1022	90-92	Meta-andesite with minor greenschist and a silicic zone; minor thin quartz carbonate veins and one 2-5cm thick quartz vein.
SP1023	92-94	Meta-andesite with minor greeschist; contains a 2-5cm quartz vein and several quartz carbonate hematite fracture filling veinlets. Several fractures contain pyrite and large pyritic blebs are common.
SP1024	94-96	Meta-andesite, minor quartz veinlets, moderate pyritic blebs and some fracture filling pyrite.
SP1025	96-98	Meta-andesite, containing a zone of greenschist rich in ptygmatic quartz veinlets, and a 5cm zone with vein quartz, fuchsite?, pyrite and carbonate.
SP1026	98-100	Meta-andesite with disseminated pyrite; containing 1-2cm thick quartz carbonate veins and fracture filled quartz veinlets; some veins contain large pyritic accumulates.

C 105

A.3.3.1

SPECIMEN CREEK - DDH SPC 1

INTER- VAL	SAMPLE NUMBER	ELEMENTS (ppm)										
		Cu	Pb	Zn	Ni	Mn	Ag	As	Sn	Ba	Au	Se
48-50	SP1001	215	x	75	50	380	x	x	x	170	0.002	x
50-52	SP1002	40	x	65	60	510	0.1	2	x	40	x	x
52-54	SP1003	355	x	35	50	755	0.1	3	x	20	0.006	0.04
54-56	SP1004	65	x	20	70	330	x	6	x	25	x	0.08
56-58	SP1005	50	x	30	65	380	0.1	13	x	90	0.002	x
58-60	SP1006	5	x	35	50	355	0.1	7	x	20	x	x
60-62	SP1007	5	x	20	85	295	0.1	7	x	x	0.002	0.04
62-64	SP1008	25	x	20	125	280	0.1	8	x	x	x	0.08
64-66	SP1009	50	x	15	50	305	0.1	7	x	x	0.003	x
66-68	SP1010	95	x	20	105	400	0.1	6	x	x	0.003	x
68-70	SP1011	35	x	30	50	310	0.2	7	x	x	x	x
70-72	SP1012	80	x	30	85	380	x	8	x	x	x	0.16
72-74	SP1013	80	x	25	90	390	0.1	12	x	x	0.017	x
74-76	SP1014	75	x	90	45	345	0.1	12	x	x	0.003	x
76-78	SP1015	20	x	115	75	620	0.1	7	3	35	0.004	x
78-80	SP1016	40	x	105	45	505	0.1	8	4	40	x	0.12
80-82	SP1017	25	x	70	105	490	x	11	x	140	x	x
82-84	SP1018	25	x	65	55	575	0.1	5	x	95	x	0.04
84-86	SP1019	20	x	20	140	560	0.1	4	x	70	0.003	x
86-88	SP1020	25	x	10	215	520	0.2	6	x	40	0.002	x
88-90	SP1021	25	x	50	50	495	0.2	7	x	60	0.004	x
90-92	SP1022	55	x	60	130	375	0.1	3	x	35	0.007	x
92-94	SP1023	140	5	220	55	415	0.1	7	x	x	0.002	x
94-96	SP1024	45	5	245	115	390	0.1	4	3	x	0.002	x
96-98	SP1025	35	x	170	60	410	x	5	x	x	0.002	x
98-100	SP1026	75	x	425	50	515	0.1	5	x	25	0.003	x

Method	101	101	101	101	101	102	114	401	120	325	115
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x Below the limit of detection

## SPECIMEN CREEK - DDH SPC 1

INTER- VAL	SAMPLE NUMBER	ELEMENTS (ppm)										
		Cu	Pb	Zn	Ni	Mn	Ag	As	Sn	Ba	Au	Se
(M)												
48-50	SP1001	215	x	75	50	380	x	x	x	170	0.002	x
50-52	SP1002	40	x	65	60	510	0.1	2	x	40	x	x
52-54	SP1003	355	x	35	50	755	0.1	3	x	20	0.006	0.04
54-56	SP1004	65	x	20	70	330	x	6	x	25	x	0.08
56-58	SP1005	50	x	30	65	380	0.1	13	x	90	0.002	x
58-60	SP1006	5	x	35	50	355	0.1	7	x	20	x	x
60-62	SP1007	5	x	20	85	295	0.1	7	x	x	0.002	0.04
62-64	SP1008	25	x	20	125	280	0.1	8	x	x	x	0.08
64-66	SP1009	50	x	15	50	305	0.1	7	x	x	0.003	x
66-68	SP1010	95	x	20	105	400	0.1	6	x	x	0.003	x
68-70	SP1011	35	x	30	50	310	0.2	7	x	x	x	x
70-72	SP1012	80	x	30	85	380	x	8	x	x	x	0.16
72-74	SP1013	80	x	25	90	390	0.1	12	x	x	0.017	x
74-76	SP1014	75	x	90	45	345	0.1	12	x	x	0.003	x
76-78	SP1015	20	x	115	75	620	0.1	7	3	35	0.004	x
78-80	SP1016	40	x	105	45	505	0.1	8	4	40	x	0.12
80-82	SP1017	25	x	70	105	490	x	11	x	140	x	x
82-84	SP1018	25	x	65	55	575	0.1	5	x	95	x	0.04
84-86	SP1019	20	x	20	140	560	0.1	4	x	70	0.003	x
86-88	SP1020	25	x	10	215	520	0.2	6	x	40	0.002	x
88-90	SP1021	25	x	50	50	495	0.2	7	x	60	0.004	x
90-92	SP1022	55	x	60	130	375	0.1	3	x	35	0.007	x
92-94	SP1023	140	5	220	55	415	0.1	7	x	x	0.002	x
94-96	SP1024	45	5	245	115	390	0.1	4	3	x	0.002	x
96-98	SP1025	35	x	170	60	410	x	5	x	x	0.002	x
98-100	SP1026	75	x	425	50	515	0.1	5	x	25	0.003	x

Method	101	101	101	101	101	102	114	401	120	325	115
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x Below the limit of detection

SPECIMEN CREEK DDH - SPC 2  
DIAMOND DRILL HOLE LOG

SAMPLE NUMBER	INTERVAL (m)	DESCRIPTION
SP2001	33-37	Leached material, includes sericite schist, quartz clots, quartz mica carbonate? schist.
SP2002	37-39	Leached material, includes sericite schist with ptygmatic quartz veinlets.
SP2003	39-41	As above.
SP2004	41-43	Leached material, includes sericite schist with carbonate bands.
SP2005	43-45	As Above.
SP2006	45-49	Leached material, includes micaceous greenschist with ptygmatic vein quartz.
SP2007	49-51	Graphitic phyllite with alternating bands of albite and minor pyrite in adjacent quartz veins.
SP2008	51-53	As Above.
SP2009	53-55	As above but chloritic; minor chlorite albite talc greenschist; minor pyrite.
SP2010	55-57	Chlorite-albite greenschist; numerous ptygmatic quartz veins; yellow FeO staining from pyrite.
SP2011	57-59	As above.
SP2012	59-61	As above.
SP2013	61-63	As above.
SP2014	63-65	Chlorite albite greenschist, small ptygmatic quartz veinlets; pyrite and chalcopyrite occurs in numerous leached albite carbonate veins.
SP2015	65-67	As above with large cpy and py inclusions, minor silicic andesite, minor disseminated pyrite.
SP2016	67-69	Meta-andesite and chlorite-albite greenschist containing ptygmatic quartz and pyritic pseudomorphs.
SP2017	69-71	Meta-andesite with patches of ptygmatic vein quartzed sericite chlorite albite greenschist.

SAMPLE NUMBER	INTERVAL (m)	DESCRIPTION
SP2018	71-73	Chlorite albite greenschist with bands of meta-andesite; ptygmatic quartz veins; minor pyrite; moderate carbonate alteration within quartz veins.
SP2019	73-75	Meta-andesite containing ptygmatic quartz veins, pyritic inclusions and minor carbonate veins.
SP2020	75-77	As above.
SP2021	77-79	Chlorite-albite greenschist with disseminated pyrite; contorted vein quartz and minor carbonate veins.
SP2022	79-81	Chlorite albite greenschist, with ptygmatic vein quartz, silicic zones, disseminated pyrite, leached carbonate blebs and pyrite in foliation bands.
SP2023	81-82.2	Chlorite albite greenschist with FeO staining, ptygmatic vein quartz, containing zones of silicic and carbonate alteration; disseminated pyrite and pyritic blebs.
SP2024	82.2-84	Meta-andesite, silicified with zones rich in vein quartz and minor disseminated pyrite.
SP2025	84-85	Meta-andesite with large pyritic blebs; numerous quartz veins and silicic carbonate alteration.
SP2026	85-87	Meta-andesite, strongly foliated near quartz veins, with numerous small quartz veins containing carbonate blebs.
SP2027	87-89	Meta-andesite with numerous quartz veins (40% ptygmatic); minor carbonate and elongated pyrite.
SP2028	89-91	As above.
SP2029	91-93	Meta-andesite with disseminated pyrite, numerous quartz veins and minor pyrite carbonate zones.
SP2030	93-94.45	Meta-andesite with disseminated pyrite, silicic with zones of vein quartz containing pyrite and carbonates.
SP2031	94.45-95.45	Meta-andesite, silicic, with pyritic and pink tinted carbonate zones.
SP2032	95.45-97	As above.
SP2033	97-98	As above with minor chlorite albite schist.
SP2034	98-100	Silicic meta-andesite, containing disseminated pyrite, ptygmatic vein quartz and minor carbonates.

SAMPLE NUMBER	INTERVAL (m)	DESCRIPTION
SP2035	100-102	Silicic meta-andesite, with zones of vein quartz, minor carbonates; cpy and py disseminations and inclusions.
SP2036	102-104	Meta-andesite containing numerous quartz veins with carbonate and pyrite, minor greenschist, moderate disseminated pyrite.
SP2037	104-106	Meta-andesite, with numerous quartz veins, minor carbonates and disseminated pyrite.
SP2038	106-108	Meta-andesite, with small greenschist zones; numerous quartz veins containing carbonate and plagioclase. Minor zones with disseminated cpy 6 py.
SP2039	108-109.525	Meta-andesite with disseminated pyrite, vein quartz, carbonate and minor greenschist.
SP2040	109.525 - 109.675	White carbonate vein.
SP2041	109.675-112	Meta-andesite; disseminated pyrite; vein quartz, carbonate and minor greenschist.
SP2042	112-114	As above.
SP2043	114-116	Meta-andesite, with disseminated pyrite, numerous small quartz veins and carbonate blebs.
SP2044	116-118	Meta-andesite; numerous quartz veins which contain carbonate blebs; minor zones of silicification, minor disseminated pyrite.
SP2045	118-120	Meta-andesite; numerous small quartz veins; pyritic zones with large pyrite crystals close to quartz veins; moderate disseminated pyrite.

## SPECIMEN CREEK - DDH SPC 2

INTER- VAL	SAMPLE NUMBER	ELEMENTS (ppm)										
		Cu	Pb	Zn	Ni	Mn	Ag	As	Sn	Ba	Au	Se
(M)												
33-37	SP2001	30	5	95	35	245	0.1	4	7	280	0.003	x
37-39	SP2002	35	15	175	45	250	0.1	5	5	280	0.003	0.06
39-41	SP2003	35	30	155	60	275	0.1	3	x	420	0.017	x
41-43	SP2004	20	5	165	40	245	0.1	3	x	240	0.004	x
43-45	SP2005	35	5	170	55	305	0.1	2	3	440	x	x
45-47	SP2006	100	5	300	45	425	0.1	2	3	450	x	x
47-49	SP2007	70	x	195	85	350	0.2	5	x	580	x	0.24
49-51	SP2008	95	x	85	75	380	0.2	1	x	520	0.002	x
51-53	SP2009	75	x	140	50	420	0.1	4	x	300	x	x
53-55	SP2010	205	350	740	85	465	0.2	x	x	30	x	0.08
55-57	SP2011	65	5	50	55	435	0.2	x	x	55	0.003	x
57-59	SP2012	30	x	35	60	355	0.2	x	x	35	0.003	x
59-61	SP2013	40	x	60	50	470	0.2	x	4	45	0.002	x
61-63	SP2014	765	x	140	90	325	0.5	9	x	50	0.003	x
63-67	SP2015	245	5	145	90	300	0.53	15	x	360	0.002	0.04
67-69	SP2016	15	x	25	100	330	0.1	x	x	200	0.002	x
69-71	SP2017	20	x	40	50	375	0.1	x	x	180	0.002	0.04
71-73	SP2018	30	5	30	50	465	0.3	1	x	290	0.004	x
73-75	SP2019	40	5	45	95	425	0.1	x	x	560	x	x
75-77	SP2020	25	x	85	85	410	0.2	1	3	490	x	x
77-79	SP2021	80	15	45	55	380	0.2	x	x	460	x	0.08
79-81	SP2022	85	15	25	95	365	0.1	2	x	500	0.002	x
81-82.2	SP2023	15	10	35	55	765	0.3	4	3	280	0.002	0.04
82.2-84	SP2024	5	10	10	120	365	0.3	x	x	x	0.004	x
84-85	SP2025	5	5	15	55	540	0.3	1	x	20	0.003	x
85-87	SP2026	15	10	20	85	435	0.3	x	x	45	0.008	x
87-89	SP2027	35	15	20	60	290	0.2	1	x	50	0.002	x
89-91	SP2028	15	5	15	95	250	0.1	x	x	x	0.003	x
91-93	SP2029	110	10	20	65	525	0.2	3	x	x	0.002	0.04
93-94.5	SP2030	45	5	15	105	365	0.2	x	x	x	0.002	x
94.5-												
95.45	SP2031	5	10	15	50	400	0.2	x	x	x	x	0.12
95.45-												
97	SP2032	5	x	15	100	460	0.2	x	x	x	x	x
97-98	SP2033	5	5	20	60	415	0.2	x	5	55	0.002	0.04
98-100	SP2034	25	5	55	95	290	0.2	x	x	470	0.004	x
100-102	SP2035	150	10	50	55	415	0.1	6	x	340	0.002	x
102-104	SP2036	35	10	340	110	350	0.2	4	x	540	0.003	0.08
104-106	SP2037	40	10	70	55	420	0.2	3	x	500	x	x
106-108	SP2038	105	10	105	95	475	0.1	10	x	340	x	x
108-												
109.525	SP2039	240	10	45	50	525	0.2	4	x	210	x	x

INTER- VAL	SAMPLE NUMBER	ELEMENTS (ppm)										
		Cu	Pb	Zn	Ni	Mn	Ag	As	Sn	Ba	Au	Se
(M)												
109.525												
- 109.675	SP2040	330	20	15	50	3850	0.2	3	3	x	0.002	x
109.675												
-112	SP2041	40	x	45	85	400	x	1	4	450	x	x
112-114	SP2042	65	x	50	60	635	0.2	22	x	80	x	0.04
114-116	SP2043	50	x	50	90	360	0.1	8	x	330	x	x
116-118	SP2044	175	x	45	50	370	x	4	x	400	x	x
118-120	SP2045	40	x	30	110	310	0.1	6	x	140	x	x

Method                    101    101    101    101    101    102    114    401    120    325    115

x            Below the limit of detection

SPECIMEN CREEK DDH - SPC 4  
DIAMOND DRILL HOLE LOG

SAMPLE NUMBER	INTERVAL (m)	DESCRIPTION
SPC4000	25-27	Brown yellow FeO stained foliated greenschist containing narrow lensoid quartz and pyritic patches; grading into a grey green meta-andesite with pyritic casts in band like zones and in fractures.
SPC4001	27-29	Green grey meta-andesite, with aligned mafics and disseminated pyrite casts; mod FeO staining.
SPC4002	29-31	Meta-andesite, with mafic acidic banding; moderate FeO staining; disseminated pyrite and minor thin cross cutting quartz veins.
SPC4003	31-33	As Above.
SPC4004	33-35	Chloritic meta-andesite; with cross cutting quartz veins, some associated with specular hematite; disseminated pyrite; minor FeO staining.
SPC4005	35-37	Meta-andesite, with pygmatic quartz veins, pyrite and hematite zones and minor cross cutting quartz veins.
SPC4006	37-39	Greenschist with pygmatic quartz veins and disseminated pyrite. Grades into a meta-andesite with disseminated pyrite and cross cutting quartz veins.
SPC4007	39-41	Meta-andesite with foliated zones; disseminated pyrite and hematite; minor fractures and cast remnants.
SPC4008	41-43	Meta-andesite with disseminated pyrite, contains minor thin cross cutting quartz veins with pyrite casts and specular hematite.
SPC4009	43-45	Meta-andesite with disseminated pyrite and 1cm thick cross cutting quartz pyrite veinlets. Grades into foliated hematitic greenschist with minor pyrite and magnetite.
SPC4010	45-47	Greenschist with pygmatic vein quartz, minor disseminated pyrite, minor quartz carbonate veins and minor hematitic bands.
SPC4011	47-49	Foliated greenschist, pygmatic veins quartz; several large quartz carbonate pyrite veins with hematitic selvages; moderate hematite bands, minor pyrite and pyrite casts.
SPC4012	49-51.5	Foliated greenschist with pygmatic vein quartz, minor pyrite and some large quartz lenses.

SAMPLE NUMBER	INTERVAL (m)	DESCRIPTION
SPC4013	51.5-62	Foliated greenschist with large pyritic blebs; 1-2cm thick quartz carbonate veins and pyrite casts.
SPC4014	62-64	Foliated greenschist grading into a meta-andesite; contains metasomatic pyritic vein quartz; some large quartz lenses and traces of disseminated py.
SPC4015	64-66	Greenschist containing a 10-15cm thick silicic zone with carbonate blebs and minor disseminated pyrite.
SPC4016	66-68	Greenschist, partly silicic with carbonate blebs, disseminated pyrite, minor quartz veinlets and a carbonate chlorite vein.
SPC4017	68-70	Greenschist with apparent original bedding, pygmatic vein quartz, minor disseminated pyrite and minor cross cutting quartz carbonate veins.
SPC4018	70-72	Greenschist, containing lensoidal quartz veins with carbonate blebs; moderate disseminated pyrite and traces of fracture filled veinlets.
SPC4019	72-74	As above.
SPC4020	74-76	Greenschist with quartz carbonate alteration, disseminated pyrite and quartz rich zones with hematite pyrite selvages.
SPC4021	76-78	Greenschist with disseminated pyrite; quartz carbonate pyrite zones; hematite stained fractures and hematitic selvage alteration.
SPC4022	78-80	As above with highly fractured meta-andesite between 78.5 and 79m; the fractures contain carbonate and hematite.
SPC4023	80-82	As above grading into a pink grey white carbonate alteration zone 1-1.5m thick.
SPC4024	82-84*	Quartz carbonate altered greenschist with talc rich zones, highly fractured. Grades into a greenschist containing pink carbonate in fractures.
SPC4025	84-86	Greenschist with thick boudin quartz veins; carbonate filled fractures and traces of disseminated pyrite.
SPC4026	86-88	As above with a thick cross cutting carbonate vein, chlorite rich zones and minor talc

\* 1.5m of core missing.

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SAMPLE NUMBER	INTERVAL (m)	DESCRIPTION
SPC4027	88-90	Greenschist containing a 20cm thick zone of vein quartz; lensoidal vein quartz and several cross cutting carbonate veins; fractures are carbonate and quartz rich.
SPC4028	90-92	Greenschist, containing minor lensoidal vein quartz and minor cross cutting carbonate veins.
SPC4029	92-94	Greenschist, containing a silicic carbonate altered zone; minor thin carbonate veins; minor pygmatic vein quartz and minor disseminated pyrite.

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## SPECIMEN CREEK - DDH SPC 4

DEPTH (M)	SAMPLE NUMBER	ELEMENTS (ppm)								
		Cu	Pb	Zn	Ni	Fe%	Mn	Ag	As	Au
25-27	SPC4000	20	x	50	40	4.05	205	x	5	x
27-29	SPC4001	35	x	25	35	2.80	130	x	5	x
29-31	SPC4002	40	x	25	50	2.45	130	x	3	0.005
31-33	SPC4003	85	x	20	40	2.85	170	x	5	x
33-35	SPC4004	70	x	25	70	3.35	245	x	2	x
35-37	SPC4005	50	x	20	40	3.50	285	x	4	x
37-39	SPC4006	35	x	20	80	3.05	280	0.1	4	x
39-41	SPC4007	40	x	20	80	2.80	245	0.1	9	0.003
41-43	SPC4008	75	x	25	40	3.25	285	0.1	7	0.002
43-45	SPC4010A	170	x	30	45	3.60	295	x	8	x
45-47	SPC4010B	135	5	40	55	4.45	345	x	5	0.003
47-49	SPC4011	115	x	35	75	3.50	225	x	17	0.002
49-51.5	SPC4012	90	x	40	35	2.70	130	x	5	x
51.5-62	SPC4013	20	5	65	65	4.80	285	x	6	x
62-64	SPC4014	5	x	70	65	4.20	310	x	2	0.003
64-66	SPC4015	5	x	55	45	3.25	250	x	x	0.002
66-68	SPC4016	10	10	30	60	2.70	275	x	5	0.002
68-70	SPC4017	15	5	20	45	2.20	370	x	7	x
70-72	SPC4018	5	5	40	65	4.10	300	x	4	0.002
72-74	SPC4019	15	5	45	65	4.25	315	x	2	0.002
74-76	SPC4020	65	x	30	45	2.40	170	x	7	0.003
76-78	SPC4021	15	x	30	80	3.15	220	x	4	x
78-80	SPC4022	10	5	25	95	3.20	345	x	10	x
80-82	SPC4023	10	x	20	55	4.60	610	x	9	0.003
82-84	SPC4024	20	x	15	140	2.85	615	x	4	x
84-86	SPC4025	65	x	75	55	3.90	510	x	2	x
86-88	SPC4026	95	x	70	110	3.90	475	x	11	0.002
88-90	SPC4027	125	10	60	110	4.10	490	x	13	x
90-92	SPC4028	35	5	40	50	4.90	685	x	4	x
92-94	SPC4029	140	x	70	80	5.10	875	x	21	x

Method	101	101	101	101	101	101	102	114	325
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x Below the limit of detection

## SPECIMEN REEF SOIL SAMPLES

LOCATION		DEPTH	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E	(M)				
11.1	51900	1.00	C	LT BROWN CLAY		
	51925	0.75	C?	RED BROWN		CRUMBLY
	51950	1.20	C	LT GREEN BROWN		CLAYEY
	51975	1.00	C	LT GREEN BROWN		FRIABLE
	52000	0.50	C	KHAKI YELLOW		
	52025	0.45	C?	ORANGE BROWN		
	52050	1.20	C	KHAKI BROWN	VEIN QUARTZ	
	52075	1.00	C	GREEN BROWN		
	52100	0.30	C	PALE GREEN BROWN		POWDERY
	52125	0.25	C	BROWN		POWDERY
	52150	1.00	C?	BROWN		
	52175	0.20	C	GREEN GREY		POWDERY
	52200	0.40	C	PALE GREEN BRWN		
	52225	1.40	C?	DEEP ORNGE BRWN		FLEKS OF KAOLIN
	52250	0.80	C	DEEP ORNGE BRWN		
	52275	1.20	C	PALE BTLE GREEN		FRIABLE
	52300?					
11.2	51850	0.70	C	BROWN GREEN	GREENSCHIST	BANDED CLAYS
	51875	0.60	C	RED		BANDED CLAYS
	51900	1.00	C	MILD GREY BROWN		
	51925	0.80	C?	BROWN GREEN		BASE OF SLOPE SAMPLE
	51950	1.50	B	ORANGE CLAY		TRANSPORTED CHIPS
	51975	1.10	C?	BLACK RED		LAMINATED
	52000	1.50	B	ORANGE CLAY		MASSIVE
	52025	1.20	B	BROWN GREEN	GREENSCHIST	
	52050	1.30	C	PALE GREY YELLOW		BANDED
	52075	1.00	C	BROWN GREEN	GREENSCHIST	RED LAMINAE
	52100	0.70	C	DARK GREY	DK GREY SCHIST	MICA RICH
	52125	1.25	C	CREAM RUSTY BRWN		
	52150	0.90	C	PALE BLUE	PALE BLUE SLATE	
	52175	1.00	C	CREAM RUSTY BRWN	GREENSCHIST	
	52200	1.50	B	ORANGE CLAYS		MASSIVE
	52225	0.80	C	RED BROWN	GREENSCHIST	
	52250	0.65	C	RED BROWN	GREENSCHIST	
	52275	0.70	C	DARK GREEN	DK GREEN SCHIST	
	52300	0.70	C	CREAM KHAKI	GREENSCHIST	FOLIATED
	52325	1.50	C	GREEN	GREENSCHIST	
	52350		NO	SAMPLE - PIPELINE ROAD		
	52375	1.50	B	ORANGE CLAYS	SCHIST	TRANSPORTED CHIPS
	52400	1.10	C	MOTTLED GREEN	GREENSCHIST	
	52425	1.00	C	MOTTLED GREEN	GREENSCHIST	
	52450	1.25	B	ORANGE CLAYS	GREENSCHIST	TRANSPROTED SCHIST
	52475	0.50	C	DARK GREY	DK GREY SCHIST	GRAPHITIC?

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
11.3	51875	0.50	C	PURPLE CLAYS	WEATHERED SCHIST	
	51900	1.50	B	ORANGE CLAYS		TRANSPORTED SCHIST CLASTS
	51925		NO	SAMPLE TAKEN - IN CREEK BED		
	51950	1.50	B	ORANGE		
	51975	1.30	C	RED GREEN MOTTLED CLAYS	WEATHERED SCHIST	FOLIATED CLAYS
	52000	1.30	C	BANDED GREEN ORANGE CLAYS		
	52025	1.50	B	MID BROWN CLAYS		
	52050	0.70	C	FAWN YELLOW	PALE GREEN PHYLLITE	FOLIATED CLAYS
	52075	0.40	C	GREEN CLAYS	DK GREEN MICA RICH SCHIST	
	52100	0.70	C	PURPLE PALE YLW	PHYLLITE	
	52125	1.00	C	PALE YLW WHITE	PALE GREEN PHYLLITE	FOLIATED CLAYS
	52150	1.20	C	CREAM GREEN		BANDED CLAYS
	52175	1.30	C	CREAM WHITE	MICA SCHIST	
	52200	1.50	C	CREAM BROWN	GREENSCHIST	
	52225	1.50	C		GREENSCHIST	FOLIATED
	52250	1.30	C	YELLOW GREEN	TALC SCHIST	
	52275	0.60	C	CREAM WHITE	GREENSCHIST	
	52300	1.20	C	GREEN GREY	MICA SCHIST	
	52325	1.40	C	GREEN CLAYS	WTHRD GREENSCHIST	YELLOW BANDING BANDED
	52350	1.20	C	YELLOW CLAYS		
	52375	1.10	C	YELLOW GREEN	GREENSCHIST	
	52400	0.80	C	WHITE GREY BANDED	MICACEOUS	
	52425	0.50	C	WHITE GREY BANDED	BLUE GREY SCHIST	
	52450	0.80	C	GREEN CLAYS	BLUE GREEN SCHIST	
	52475?	1.50	C	GREEN CLAYS	OLIVE GREEN SCHIST	

SOIL SAMPLE DATA  
SPECIMEN REEF SERIES

LOCATION		ELEMENTS (ppm)								REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Au	
11.1	51900	130	x	75	2150	x	5		0.003	
	51925	70	x	15	115	0.1	4		0.005	
	51950	310	x	50	55	x	6		0.003	
	51975	100	205	40	135	x	50		0.005	
	52000	15	5	45	95	x	10		0.002	
	52025	30	15	35	50	0.1	14		0.014	
	52050	85	5	15	15	x	61		0.013	
	52075	200	x	35	240	x	10		0.001	
	52100	20	x	45	170	0.1	3		x	
	52125	20	x	50	200	x	1		0.002	
	52150	65	x	45	420	x	22		x	
	52175	25	x	15	220	x	7		0.001	
	52200	20	x	65	520	x	3		x	
	52225	50	x	5	5	x	26		0.004	
	52250	85	x	20	35	x	7		0.001	
	52275	20	x	120	290	x	4		0.002	
	52300	35	15	80	490	x	31		x	
11.2	51850	25	5	50	555	x	13		0.004	
	51875	180	15	35	545	x	15		0.009	
	51900	90	15	20	110	x	5		0.001	
	51925	90	20	320	3600	x	8		x	
	51950	170	15	35	140	x	19		0.003	
	51975	150	20	35	3700	x	15		0.003	
	52000	175	30	20	605	0.1	4		0.002	
	52025	170	25	10	45	x	61		0.005	
	52050	15	x	x	10	x	19		0.002	
	52075	40	10	40	90	0.1	16		x	
	52100	40	5	55	355	0.2	4		0.003	
	52125	15	5	45	135	x	10		0.001	
	52150	80	x	25	85	x	21		0.004	
	52175	210	x	5	50	x	13		0.003	
	52200	240	5	25	40	x	13		0.001	
	52225	30	10	75	365	0.1	16		x	
	52250	15	x	20	190	x	5		0.001	
	52275	40	10	95	990	0.2	5		0.001	
	52300	40	20	80	140	x	5		0.001	
	52325	45	5	40	390	x	7		x	
	52350			NO SAMPLE PIPELINE ROAD						
52375	145	x	40	125	x	18	20	0.054		
52400	25	x	145	395	x	1	55	0.070		
52425	95	x	10	5	x	40	35	0.006		
52450	90	x	15	125	x	34	45	0.015		
52475	30	x	15	15	x	10	40	0.006		

LOCATION		ELEMENTS (ppm)								REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Au	
11.3	51875	5	35	35	10	x	22		0.001	
	51900	290	35	25	155	x	19		0.010	
	51925	170	x	60	610	x	8		0.003	
	51950	110	x	25	135	x	11		0.003	
	51975	70	10	15	70	x	19		0.002	
	52000	150	x	40	275	x	7		0.002	
	52025	275	x	70	580	x	13		0.002	
	52050	130	65	20	10	x	19		0.004	
	52075	105	15	5	25	0.1	27		0.006	
	52100	35	x	30	110	0.1	8		0.004	
	52125	35	x	5	15	x	7		0.001	
	52150	5	x	5	35	0.1	4		0.002	
	52175	5	x	10	10	0.1	1		0.003	
	52200	30	x	10	5	0.1	3		0.001	
	52225	35	x	100	780	x	6		0.005	
	52250	10	x	45	200	0.1	3		0.003	
	52275	5	x	55	300	0.2	3		0.001	
	52300	15	x	50	325	0.1	5		0.004	
	52325	35	x	55	480	x	10		0.001	
	52350	225	x	110	115	x	20		0.002	
	52375	80	x	125	665	0.1	5		0.001	
	52400	10	x	360	1200	0.1	59		0.003	
	52425	70	x	490	720	0.2	12		0.004	
	52450	30	x	195	540	0.2	7		0.005	
	52475	35	x	70	345	0.1	12		0.006	

Method                    101    101    101    101    102    114    120    325

x                    below the limit of detection

APPENDIX 4.0GOLDEN RIDGE PROSPECT

- A.4.1. Old Reports
- A.4.2. Drill Core Description, Golden Ridge DDH85 GR1
- A.4.2.1. Geochemical Analyses DDH85 GR1
- |                |     |            |
|----------------|-----|------------|
| 236.1.08.3039B | GR1 | 14 - 27.8M |
| 236.1.08.3045D | GR1 | 27.8 - 62M |
| 236.1.08.3051  | GR1 | 62.0 - 77M |
- A.4.3 Drill Core Description, Golden Ridge DDH85 GR2
- A.4.3.1. Geochemical Analyses DDH85 GR2
- |               |     |                   |
|---------------|-----|-------------------|
| 236.1.08.3051 | GR2 | 0 - 32.1M         |
| 236.1.08.3062 | GR2 | 32.1 - 70.0M      |
| 236.1.08.3087 | GR2 | 59.3 - 68.8M CORE |
- A.4.4 Drill Core Description, Golden Ridge DDH85 GR3
- A.4.4.1 Geochemical Analyses DDH85 GR3
- |               |     |              |
|---------------|-----|--------------|
| 236.1.08.3062 | GR3 | 0 - 20.3M    |
| 236.1.08.3070 | GR3 | 20.3 - 50.0M |
- A.4.5. Golden Ridge Soil Samples - Location, Horizon, Colour and Remarks
- A.4.5.1 Geochemical Analyses
- |                |       |                |
|----------------|-------|----------------|
| 236.1.08.3005  | 49.6E | 1.97 - 1.995N  |
| 236.1.08.2982A | 49.6E | 1.84 - 1.965N  |
| 236.1.08.3013A | 1.98N | 49605 - 49700E |
|                | 1.96N | 49605 - 49650E |
|                | 1.92N | 49555 - 49645E |
|                | 1.90N | 49560 - 49640E |
|                | 1.88N | 49560 - 49640E |
|                | 1.82N | 49540 - 49575E |
| 236.1.08.3005  | 1.84N | 49530 - 49595E |
|                | 1.94N | 49605 - 49700E |
|                | 1.96N | 49655 - 49700E |
|                | 1.86N | 49540 - 49595E |

APPENDIX 4.1

OLD REPORTS

EXTRACT FROM: TWELVETREES, W.H. ——— OS/158  
 (Sec. Div. Mines Dept.) REPORT ON THE MINERAL FIELDS BETWEEN  
 Ixi WARATAH AND CORINNA 1899-1900.

Lord Brassey and Lacey's sections, and are of no use whatever to the Roy's Lock holders. The line of the principal vein is in a diagonal direction across the section, but its continuity must not be assumed without proof. For satisfactory prospecting, the nickel-bearing properties on this hill ought to be amalgamated. One drawback to mining work is the absence of good timber. The serpentine nourishes only stunted trees.

In the triangle formed by the Corinna Road, Heazlewood River, and 13-mile Creek is one of the hills called "The Pinnacles." On the W. side of the creek, about 40 feet up the hill, a short tunnel has been driven W., in actinolite rock, to cut a copper formation, but was suspended before reaching it. On the side of the hill lumps of oxidised lode stuff are visible. Native copper has been found in the creek below. It is to the E. of the Heazlewood line of lode, and is probably connected in some way with the contact of hornblende rock with serpentine. N. of this, just below the junction of the 13-mile Creek with the Heazlewood River, there is a low ridge, running N.W., and separated from the Pinnacles by the river. This hard spur has caused the river to make a wide loop, and charted in the map of mineral-sections. The rock is renite, very rich in hornblende, and has, most likely, some relation to the actinolite rock at the Pinnacles.

Long Plains Gold Mine <sup>within</sup> E-4/61.

This used to be known as Weetman and Crockford's, and is now held under lease, in the name of H. H. Gill. The reward claims comprise 2-85 (15 acres) and 3-85 (16 acres), on the Long Plain, about a mile in from the Bullock's Head, or 16-mile peg from Corinna—24 miles from Waratah. At the time of my visit, Mr. T.M. Grath was in charge, and courteously showed me round. The only other man on the claim was Chris. Janssen, who was fossicking in the creek. The mine is on a spur of the Long Plains, about 1100 feet above sea-level, lightly timbered and surrounded by button-grass country. This ridge runs about N. 10° E., and, like the surface of all the plain, is covered with quartz detritus, which has been called alluvial. It is, however, in no sense of the term an alluvial deposit, for the fragments, large and small, are angular in outline, and not a waterworn pebble can be seen among them. In places, there is a prodigious quantity of this covering, which varies from 2 feet to 5 feet in thickness, lying on the vertical edges of the schists or quartzose slates. From this layer of detritus, a good deal of gold has been won from time to time—at least 600 ozs., and perhaps more. The metal is generally found, not lying on the bed-rock, as in alluvial deposits, but on the top of a cemented upper part of the detritus. It has been noticed that when gold occurs upon this cement layer it is most likely to be found below it also. The cement, resembling a breccia of angular pieces of reef quartz, bound by a siliceous paste, is plentiful all over the Long Plain. It is very likely of the same age as the cemented alluvial on Brown's Plain, near Corinna. Now, at the Long Plain Mine it is very easy to see where this quartz came from. Between the laminae of the schists there are everywhere thin sheets of quartz from  $\frac{1}{4}$  inch to 2 $\frac{1}{2}$  inches thick, and even a greater thickness has been attained where lenticular patches have been formed in the schist. Wherever gold occurs in the schist outside of any veins, it is contained in bands of soft decomposed schist or sandstone, well within the range of surface water, which, owing to the vertical lamination of the country, may descend to a very considerable depth. The gold is found in ragged, peculiar forms. Hollow skeletal, coralloid,

crustiform shapes prevail, with a frosted appearance. The specimens are very light, and enclose much quartz, occasionally slate, and sometimes both quartz and slate. In one instance, I noticed a piece of gold enwrapping small pebbles or grains of quartz and green schist, a strong indication that the gold crystallised after the stones had been detached from their parent rock. This, I believe, explains the origin of the specimen gold for which the claim has been so famous. It has been produced by the re-crystallisation in the superficial covering of gold dissolved out of the quartz particles, set free by the disintegration of the bed-rock. incessant dissolution of gold is probably going on in all quartz mines in the upper part of auriferous quartz reefs, and the Long Plains quartz lenticles, which ever gold-bearing, are not likely to form any exception to the rule. But the organic matter of the button-grass soil may be expected to act as a powerful precipitant, giving any such gold from its solution, and has, no doubt, given to the encrusting gold the peculiar sponge-like and hollow forms so common in the specimens found here. Consequently, wherever the quartz underneath is gold-bearing, patches of auriferous detritus may be expected in the neighbourhood. The idea entertained on the spot is, that sinking in the solid below these points ought to result in the discovery of payable gold: I think this by no means follows. The gold precipitated at surface may have been collected from a wider and a comparatively poor area underground.

Cox's face on this property is an open cut in the schist, in a couple of benches about 25 feet in height altogether. The silvery schist is split up into thin, often wavy laminae, between which are sheets of quartz, mostly lenticular. A band of soft decayed quartz schist is said to have yielded the most gold. The quartz in the lenticles is pure, white, dense, and looks unfavourable for gold. I was told, however, that from 70 to 80 ounces had come from this face, with a very primitive arrangement for washing, and altogether too little water for proper sluicing. A tunnel 100 feet long has been driven into the hill from the E., and intersect the formation exposed in Cox's face, but it is believed not to be far enough in. It passes through greenish quartzose, soft slates, or schists. About 50 feet in, a manhole has been cut into the north side, where there is a band of decayed slate, which looks as if it might contain something. Further in, a seam of red and yellow clay, 2 inches to 5 inches thick, has given gold on assay. Just behind the end there is a 16-inch band of rather soft graphitic slate, which has not been tested for gold. The face is in talcose schist. A south drive, 15 feet, has been put in from this tunnel, with no result.

On the western side of the spur, opposite this tunnel, 12 ounces of gold were found in prospecting at surface. A short drive was begun a few feet lower down, but it is very shallow. On this side of the hill a small tunnel has been put in, from which a short drive was extended N.: nothing was obtained from the drive beyond a few colours. The tunnel is in talcose schist. There is an upper cutting, from which a winze descends over 200 feet, as far as 38 feet below the lower of two tunnels below this cutting. The winze is said to go down on two veins, and to have yielded gold. No. 2 tunnel, beneath this, was too wet to enter. It is said to have been driven 1000 feet into the hill, cutting Cox's formation and two or three others, but with no result, except colours only. No. 3 tunnel, still lower down, has been extended 400 feet, cutting a thin vein, which was driven upon N. Where this was intersected it looks like a mere joint. Higher up it was said to be good, but poor when they knocked off work. I was

told the greatest width it attained between the two tunnels was a foot.

The claim appears to have been well prospected in different directions, and of course this work can be continued, but it is difficult to see where the rock warrants any considerable outlay. There are no signs of solid reefs existing at any reasonable depth, and I believe money would only be frittered away looking for them. On the other hand, any day may witness a rush to these plains on the discovery of new patches, with rich surface precipitates. These will almost certainly be found, but, most probably, accidentally. The gold is of excellent quality, realising £4 to £4 1s. per ounce.

All the neighbouring creeks have yielded gold. Over 4000 ounces are said to have been collected on these plains, and the gold seems to have come from more than one source. We have a quartz source, as above; but it has also been found in direct association with magnetite and carbonate of iron. This part of Long Plains is just to the E. of the Rocky River and Rio Tinto magnetic belt of country. The whole belt of country between the Rocky and Savage rivers, and up Hall's Creek, deserves a thorough geological examination.

#### Within E4/61

#### Cape Copper Mine (Mt. Donaldson Section)

# This property is charted as Heaps and Simpson's two sections, 1627-93x (79 acres), and 1024-93x (80 acres), on the 9-mile Creek, which falls into the Whyte River, just east of the latter section. The company has made a narrow cart-road, about  $\frac{1}{2}$  mile long, for connecting the mine with the Corinna main road, at a point about  $9\frac{1}{2}$  miles from the township. This road terminates at the top of a steep incline tramway, 9 chains in length, which descends the rather precipitous side of the gorge, 350 feet down. The mine-works are in the creek, 80 or 100 feet below the camp. Both sides of the creek are lofty and steep; and this mine, placed at the bottom of the dark narrow gorge, cut almost canyon-like in the table land, occupies as strange and romantic a position as any I have seen.

The country-rock may be classed in two groups. The upper and eastern part of the hill consists of quartz schist, inclined to be micaceous. It is light in colour. The schist in the creek, to the south and west, is dark grey and green, and carries copper pyrites. Its foliation planes are glossy with graphite, which, on being rubbed, leaves plumbeous marks on the fingers. A little loose porous fibrous graphite (graphitoid?), of remarkable lightness, has been found in a seam in No. 1 level, near the entrance; and a mass of plumbago mud, resembling soot, occurs in the gneiss, just above the schist, in the short trial crosscut from creek (above the adit). Some of the schist is massively bedded, especially towards the junction of the creek with the Whyte River. Here dark, and sometimes glistening, crystals of hornblende may be seen in the rock with the naked eye. The rock is one of the crystalline schists, largely actinolitic, is non-felspathic, and requires extended chemical examination before its exact nature can be broadly determined. For the present, it can only be vaguely termed "hornblende schist." Wherever the foliation is not complete the formation of lenticles and leaders of quartz is most marked. Then, where the quartz leaders and the schist carry iron pyrites, copper pyrites are also apt to occur, though, so far, the latter ore has not been found in any quantity outside the old prospecting shaft in the graphitic schist in the bed of the creek. All through the mine a soft band of this schist is being followed, as a guide in tracking the ore formation. This

formation and the enclosing schists run parallel with one another; and, although the soft band is rather constant, I look upon it as indicating a plane of weakness, allowing easy percolation of water, rather than anything of the nature of a fissure, the existence of which is altogether conjectural. The whole mass of schist has a strike N. 20° W., and a normal dip to the N.E., though the latter varies in direction here and there. I believe the whole group of schists will be eventually found to belong to the Cambrian or pre-Cambrian rocks; but the evidence is not sufficient, at present, to enable a definite conclusion to be arrived at.

The first work done on the property seems to have been a small shaft, sunk in an extraordinary position, viz., in the bed of a creek not more than 12 feet wide. The early prospectors sank this to a depth of 22 feet in graphitic schist carrying quartz, barytes, and good copper pyrites. The late Mr. J. Harcourt Smith quotes samples of the pyrites as assaying 28% copper, 8 dwts. gold, and 10 oz. silver per ton. Mr. F. J. Rich, the present manager, continued the sinking down to 31 feet, leaving the formation in bottom, consisting of a couple of somewhat solid bands of copper pyrites, 3 or 4 feet wide, and 2 feet of mineralised rock. Influx of water stopped further sinking. I saw a few hundredweights of the copper ore from the shaft. It was being sorted and bagged, and I estimated its content at from 20 to 25% copper. As all the ore has come from this awkwardly-placed shaft, the only course open for the company is to get underneath it as quickly as possible, and the management is doing this in the best way. A new shaft is being sunk on the eastern side of the creek, a few fathoms from the old one. The schist is running parallel with the creek, so that drives will be opened out up the creek, first at a depth of about 60 feet, the same level as No. 1 tunnel, and again at a farther depth of 80 feet, where the main adit will communicate with it when driven far enough. The strata dip easterly, therefore the new shaft is on the east side of the creek. This is the most important and necessary work at present proceeding on the mine. It will prove the value of this course of ore in particular, and, I may add, the value of the mine as a whole; for, if the contemplated drives do not disclose anything worth working, the outlook will be far from bright, as I do not see any other point which offers any strong inducement for further prospecting. The one thing about the work in the creek at this shaft which is encouraging and invites perseverance is that fair-quality metal has unquestionably been won here, and the solid quartz, with abundant iron pyrites and a little barytes, are favourable indications. The Whyte River flows over a horizontal schist bottom, in a narrow gorge, 16 feet vertical below the main adit. The adit is driven 212 feet, first in the massive hornblende schist, then cutting the graphitic schist all the way to above. The schist here has a westerly dip, and is some with vertical and horizontal strings and veins of quartz, but the drive has yielded nothing so far except a few thin veins of iron pyrites.

About 65 feet above the adit, a short trial crosscut has been put in from the creek. Up to now it has been passing through the heavy overburden of schist detritus which rests upon the bed-rock, but in the face the schist is just now beginning to show in the sole.

No. 1 level is 90 feet above the adit, and has been driven 320 feet, first in grey, and then in graphitic schist. The end is a soft seam of this schist, which has been followed all along. The schist right across the face is veined with horizontal and vertical leaders of quartz, 1 inch and 2 inches wide. Samples of iron pyrites have been obtained from this level, but no copper ore.

MAIN ADIT = ADIT

CLOSED TO WHYTE

# cf. Rocky River Mineral Chart Map.

Nine Mile Creek 79 acre block No. 163 M

1903

074125

# TWELVE TREES, W. H. 2

## REPORT ON THE MINERAL FIELDS BETWEEN

WARATAH AND LONG PLAINS

Some of the more remote mines labour under the disadvantages of both distance and poor tracks. Many are situated at any distance from the main road, the drawbacks of costly transport make themselves felt.

A good road exists from Waratah to the 18-mile at the foot of the Bald Hill; but between that and the Corinna end of the road there is a gap of nearly 10 miles, supplied with a bullock-track—not at all a bad one for horses or foot travellers, but imposing a costly freightage on all who have to go across that way. I was told that a sum had been appropriated to defray the cost of bridging this gap, but the work was not continued owing to the suspension of operations on the claims along the route. Any mining enterprise which is now started along here will be heavily handicapped by working costs.

The general geology of the whole district was discussed in a report of the 30th June, 1900. In the present report only such considerations will be touched upon under the headings of the separate mines.

### LONG PLAINS.

These form the high tableland between the Whyte River on the east and the Savage River on the west, both of which have cut deep channels—sometimes stupendous gorges—in the country in their south-westerly flow to the River Piebald. The plateau is, on the whole, tolerably level, though in places gently undulating, and has a general height of from 1100 to 1200 feet above sea-level. The plain itself, as traversed by the track from Waratah to Corinna, is grassy and treeless, timber being found only where creeks cross the country; but east of the Whyte, the Meredith Range is closely timbered, and the country between the western edge of the plain and the Savage River is also wooded.

A superficial layer of detrital quartz, from 1 to 5 feet in thickness, rests upon the edges of the country-rock, which latter consists of laminated sandstones and quartz schists. In places these detrital stones cohere rather firmly, forming what is locally called cement. The formation is, however, strictly one of quartz, sand, and pebbles, and is not cemented by any secondary silicious deposit. The stones are angular, and water-worn pebbles are not common among them. This drift cannot be described as alluvial; the term detrital would describe it more appropriately. It has undeniably been derived from the weathering of the underlying schists, which are profusely laminated with quartz. The latter

thus liberated and broken up forms the bulk of the drift. The rounded pebbles which have been found in it occasionally have been believed to be survivals from an alluvial covering supposed to have been subsequently carried away. It is more probable that the presence of these is due to former creeks or rivers. There is a body of wash at the head of Townsend's Creek or Madman's Hill, half a mile north of Gill's section, and about 1200 feet above sea-level. This suggests a wider covering of alluvial than is seen now, but it may be only the remnant of a former watercourse. If this country had been under a wide sheet of water in Tertiary times, the wash would have contained stones of granite from the Meredith Range, the same as happens on Brown's Plains, but these have not been observed here. That the country was at that time connected with the Meredith Range is shown by 2 or 3 feet of granite wash occurring on the track for two or three hundred yards at the Big Creek, in the timbered country between Long Plains and the Bald Hill. This wash contains some tin ore (in trivial quantities) and tourmaline, and was evidently deposited before the valley of the Whyte River, which now separates it from the Meredith Range, was excavated. This excavation has, of course, removed the bed of the former stream. But there is nothing in the nature of the drift on the Long Plains generally to necessitate a reference of its source to other than the underlying rock of which the plains consist.

At 24 miles from Waratah and 16 from Corinna is the Bullock's Head, the remnant of a bovine cranium on a stake, which has been a familiar landmark for the last twenty years. It marks the turn-off to Gill's gold sections, and formerly to the Specimen Reef. The Long Plain extends here eastward for half a mile over rolling country, and then connects by a saddle with the Golden Ridge (Gill's), a spur which extends for a mile in a direction bearing a few degrees east of north.

This is the ridge on which Weetman and Crockford made their gold discoveries twenty years ago. It runs through the gold sections for upwards of 50 chains, terminating north at Riley's Creek and south at Cox's Face. The rocks are thinly-bedded or cleaved quartz, micaceous, talcose, and graphitic schists, slates, and crystalline sandstone, striking a little east of north, and dipping at very high angles a little south of east. They are here also covered with a layer of angular stones of quartz, derived from the underlying bedrock.

The creeks on the west foot of the ridge are Gray's and Little Duffer Creeks; on the east side is Jarman's Creek.

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The schists have the same strike and dip as those on the plain further east, but appear to be generally more talcose and graphitic than those. There is no evidence of unconformity between the two, and both probably belong to the same geological system, a marked difference, however, being that the Golden Ridge schists are proved to be auriferous. No fossils have been found in any of them, hence their age remains uncertain for the present.

The country changes at the Main Creek on the west, the Brown and Savage Rivers belt of amphibole schists coming in there, with deposits of magnetite, pyrrhotite, and copper pyrites. This belt has a normal strike of west of north.

To the east the quartz schists of the Long Plains lie between the Golden Ridge and the granite of the Meredith.

The Golden Ridge belt, as defined by the creek channels on each side, is about a quarter of a mile wide. It may possibly extend 10 chains further west to Main Creek, in the latitude of the Reward sections, but I could not explore that part of the country in the time at my disposal. In any case this zone is that which has furnished the gold for which the locality is famous.

Main Creek and all its affluents have carried gold, Smith's Creek was the richest on the field, though, according to Messrs. Weetman and Crockford, the heaviest gold was got in Gray's, namely, one nugget over 5 ozs. These gentlemen tell me that they always heard that Gray's Creek turned out about 500 ozs.; that Riley's was the poorest, being only payable in patches; that some payable patches were got in Duffer's; and that Main Creek was payable for a few chains below where Riley's empties into it. Mr. Batty told me that Jarman's and Hungry Jack and all the creeks along the Golden Ridge have returned gold. The bank ledges show purchases of about 5000 ozs., the greater part of which would be received from Long Plains, the remainder coming from Brown's Plains, Savage, Pieman, and Castray creeks. This, too, only represents a fraction of the gold known, it is believed that most of it was taken to Victoria in 1852. The late Mr. J. Harcourt Smith obtained information to the effect that between 20,000 and 30,000 ozs. may be accounted as the total Long Plains produce.

The gold found in the creeks is, of course, water-worn, but is also found in the angular quartz drift on the hillsides, as well as much of that occurring in softened zones of the schist, which is spongy, and semi-crystalline, showing all the signs of precipitation from secondary solution. Some of the gold in the drift on the hill has been deposited by surface precipitation; some of it, no doubt, has been liberated from the

schists in its present form. The nuggets and patches met with underground may be ascribed to the circulation of waters carrying gold in solution into zones of rock favourable for its precipitation.

The absence of quartz reefs has always puzzled prospectors, and although a good deal of quartz occurs in the form of laminae, veinlets, and irregular bunches, it does not appear to be the source of the gold. The occurrence of auriferous pyrites points to pyritic veins being the original carriers of the gold. It might be thought that these veins ought to be either very numerous or very rich to have furnished all the gold that has been won. It must be borne in mind, however, that the superficial drift represents ages of denudation, and has yielded the bulk of the gold hitherto. A comparatively small proportion has been won from underground. Messrs. Weetman and Crockford tell me that their experience was: (1) That all their veins had a strike approximately east and west, with a southerly underlie; (2) that these veins were gold-bearing only while passing through a greenish (chloritic) schist; (3) that the veins were always gossanous in this schist, but widened out, and carried a good deal of quartz when they entered the hungry-looking micaceous schist, which is the prevailing rock (in this rock they never carried a trace of gold); (4) that the veins were not persistent, but died out, and were replaced by others, and so on.

Messrs. Weetman and Crockford began work here in the winter of 1883, and found the first gold-bearing vein in the latter end of 1884. In 1885 they were granted two reward leases, afterwards held by the Weetman and Crockford Gold Mining Company, and now in the name of H. H. Gray. Messrs. Weetman and Crockford have kindly given me an account of their operations, and I cannot do better than reproduce it in their own words:—

Most of the creeks had been worked out when we got there, so we turned our attention to the sources of all the good gold we heard had been got. Starting in Gray's Gully, where we were told that the gold died out, we picked up a light trail going up the hill on the east side of the gully, and followed it until we came to a patch of 60 ozs. of heavy crystallised gold, about abreast of the mouth of No. 1 tunnel. Between there and the top of the ridge we found three gold-bearing veins, or sets of veins, for there were generally two or three together. The vein afterwards worked by the company was the only one from which we got payable gold. We always believed that it was the source of the patch which we got just below it, though the veins almost

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on the ridge were the strongest, but never carrying other than fine gold. We drove on the first-mentioned vein, and won a few ounces of heavy gold in the first 2 or 3 feet, but continued driving 30 or 40 feet on it without obtaining a colour. We then left the district for several months, but returning, sank a winze right under where we got the gold. We followed the underlie of the vein, getting a few colours on the way down, until we reached 35 feet, when we opened out, and in a few feet of driving won 30 or 40 ozs. of gold. As it was very erratic, we put in a tunnel (the company's No. 1 tunnel), and after driving 100 feet, we cut very good gold, and heavier than any we had got before), about 15 feet below the winze. The veins here were stronger and more numerous, and the prospects extraordinarily good. It was at this stage that the property passed from us to the Weetman and Crockford Company. Had we brought our tunnel another 12 feet lower we should have struck a dead blank. The company started to follow the veins on the underlie from our tunnel, and sank only a few feet when they lost the gold. They had a long blank, but came eventually on another small patch, from which they got 20 or 30 ozs. (by handing.)

We also found a small vein at the head of Jarman's claim, after working payable alluvial right to it from where the gold was lost in the creek. When we cut the vein we got over 3 ozs. in the first dish, but it gradually died out at about 6 feet down, and although we sank 40 feet further, we got no colour again. We found another vein in the same way on the track going down to Duffer's Creek, south of the Howard leases, but although we got 6 ozs. on the cap, and followed it down for 40 or 50 feet, getting colours, we never got another patch. We may add that the 20-ozs. patch which we got on the hillside, there was also over 6 ozs., 12 dwts., and another 5 ozs.

After Messrs. Weetman and Crockford's operations, several companies essayed mining in different parts of the belt. The Frenchmen are said to have prospected towards the northern end of it for several years prior to 1889, and were doing fine driving a tunnel, known now as the Frenchmen's Tunnel. The Weetman and Crockford Gold-mining Company, the South Weetman and Crockford Prospecting Association, the Weetman and Crockford South Extended, the No. 1 North Weetman and Crockford Gold-mining Company, the Go-ahead Gold-mining Company, the Long Plains Gold-mining Company, Limited, the Long Plains Extended, the Long Plains Mining Syndicate, are the titles of various associations which have had a more or less transitory exist-

ence, supported by the hope of discovering the source of the rich coarse gold.

The Weetman and Crockford Gold-mining Company was formed in December, 1888, with a nominal capital of £30,000, to work the two Reward claims. It continued work till 1889, puddling the auriferous dirt, when, having spent £2500, it was considered that other means of treating the stuff was necessary, and work was then abandoned.

The No. 1 North Weetman and Crockford Company drove into the spur at the northern end, intersecting iron and copper pyrites in Riley's Creek, which assayed, according to the report at the time (possibly exaggerated), up to 25 dwts. gold per ton. In July, 1889, it was decided to suspend, pending the Weetman and Crockford Company's clean-up, and I cannot learn that the North ever resumed operations.

It must be admitted that the isolated discoveries and surface yields all through the periods, both of Messrs. Weetman and Crockford, and of subsequent owners and workers, have been such as to stimulate search.

Thus Mr. H. H. Gill detached a nugget weighing 27 dwts. from a short drive (No. 6) on the western slope. The late Mr. J. Thureau in 1894 reported an assay by the Government Analyst of stone returning 50 ozs. per ton, though this must have been an altogether unsuitable sample, as well as two ordinary assays of 18 to 19 dwts., and a bulk assay of Gill's lode-stuff made at Footscray, in Victoria, yielding 2 oz. 17 dwts. gold, 34 ozs. silver, and 1% per cent. copper. In January, 1896, Mr. Thureau again reported trials of a formation west of Riley's Creek, the friable matrix giving 7 ozs. 12 grs. gold for five loads washed. During his examination, half a pan was washed, with the result of a piece weighing 1 dwt. and some smaller pieces. Mr. David Jones in 1898 stated that, to his knowledge, 50 ozs. of gold were obtained from the Cox's face formation, besides smaller discoveries.

On the South Extended section Mr. George Boetner broke out of a micaceous slate formation, with small quartz veins, 8 or 10 lbs. of dirt, and washed it, with the following results, reported at the time:—One nugget weighing 24 dwts., several smaller ones from 2 dwts. downwards; in all, a little over 1½ ozs. gold.

I was shown a place on the section adjoining Weetman and Crockford's, where I was told that one dish gave 6 ozs. of gold, one of the nuggets weighing over 2 ozs.

The late F. Bennett, who was managing operations for the Burnie Company at Cox's face, showed me some rough, unsorted gold specimens obtained from the batter of the face

pector who lives on the Reward claims, and has fossicked there for many years, showed me a spot below the house, where he got a 5-ozs. nugget, and told me that he had found two or three pieces of gold, weighing an ounce each. I was told that the largest nugget found in the neighbourhood was obtained by Gray's party in Gray's Creek, and weighed 8 ozs.

Mr. Gill tells me that the late Mr. Buddon, who managed for the Long Plains Syndicate, got 3 ozs. of gold from three dishes of stuff from the bottom of the underclay winze in the Big tunnel. From the same source I learned that Mr. Stafford picked out a 2 ozs. 7 dwts. nugget from a stope west of Riley's Creek; and that another 2½-ozs. nugget was got by Blingworth on the way up to Jarman's.

On the edge of the approach to Jarman's tunnel, and in the surface of the soft schist, Mr. Batty found a 3-ozs. nugget of crystallised gold. Jarman's Gully, which runs into Riley's Creek, was a very rich one. Mr. Batty states that he made as much as £16 in one morning's work there.

These instances show that gold has been distributed over the hill in very rich concentrations. It is no wonder that numerous attempts have been made to find some main run of the precious metal.

There seem to be four principal gold-bearing formations on this hill, approximately parallel to each other, and following the strike of the country-rocks.

The western belt is Weetman and Crockford's formation, immediately east of which is Cox's formation, which runs through the sections in a direction 10° to 15° east of north and west of south. This is a zone of slaty quartz and talcose schists, about 50 feet wide.

The next formation eastwards is Jarman's, and some distance further east is Gill's formation, 70 to 80 feet wide, consisting of graphitic and other schists, charged with iron pyrites, and carrying gold, silver, and copper.

The boundaries of these formations are not well-defined; but each is essentially a belt of country-rock in which gold has been met with, either in veins or distributed in the planes of schistosity.

The various tunnels have been driven into the hill across these formations, but have not been successful in opening up any permanent run of gold-bearing material.

Thureau's tunnel (charted No. 3), or, as it is called locally, the Blacksmith's Shop tunnel, is on the west side of the hill, about 100 feet below the huts, and has been driven south-east for nearly 800 feet. I understand that the

Weetman and Crockford Company started it under the management of the late Mr. W. Buddon. The Weetman and Crockford formation was struck about a chain in, and a short drive north put in on it below the surface shows. This drive is in curly, green schist, interlaminated with quartz. A couple of narrow crosscuts were driven east without results; also a shallow shaft was sunk in stuff which gave colours only. In the main tunnel the same formation is seen for 12 feet in width, carrying leaders of quartz following the curves of the schist. Other flat leaders in this tunnel seem to have been gouged out for gold. Before coming to Tarry's drive north in this tunnel, Mr. Gill says he widened the adit at a place where there is a development of quartz seams, and got some gold out of the mullock. Tarry's drive north from this tunnel is in dark schist, associated with white clay. A crosscut west from it shows quartz seams conformable with the curves of the schist; the rock is ferruginous and stained green. The drive is heading north toward Jarman's, and a few yards further would bring it below where gold was got in Jarman's tunnel. Towards its end it was driven partly in a white clay, which has been recommended for paint, turning intensely white under heat. Tarry's drive is probably in Jarman's formation; but between Weetman and Crockford's and this, the main tunnel passed through a wide band of clayey matter, which appears to represent Cox's formation. Sluicing tests of it, however, do not seem to have yielded anything beyond colours.

The Long Plains Mining Syndicate (English) continues the tunnel beyond Tarry's drive, and in a few yards it entered a large body of graphite-quartz schist impregnated with pyrites. After emerging from this soft white clay schist is passed through for about 20 feet, succeeded by ordinary contorted schist, which continues for 15 feet to the surface. It is difficult to ascertain the width of the mineral formation here, as the country-rock is softened, but it has been reported as being 75 feet, which includes the whole belt of altered rock. The more strongly mineralised part seemed to have a width of about 20 feet. I am uncertain whether this is identical with Gill's lode at Riley's Creek, the data are not quite sufficient for identifying it.

*Big Tunnel*.—Further down the slope of the hill is No. 4, the Big tunnel, 80 feet below No. 3. The syndicate drove this south-easterly to Weetman's formation, and then sank an underclay shaft in a south drive to a depth of 22 feet. A few fathoms above Thureau's tunnel, and at the entrance to Weetman and Crockford's short adit, a winze had been sunk to Thureau's tunnel, and thence down to the Big tunnel.

opposite the south drive mentioned above. It was at the bottom of this winze that Mr. Buddon is said to have got gold from three dishes. A couple of veins carried the gold in the winze, which is supposed to be in Weetman's formation. At the entrance to the tunnel Mr. Gill got over 2 ozs. in a dish, including a 25-dwts. nugget, all from schist, with quartz attached. This tunnel has been driven about 300 feet, but not quite far enough to intercept Cox's formation.

*Jarman's Tunnel* (No. 8).—This is on the east side of the hill, with a long approach driven west, but the tunnel itself is driven south about 250 feet, in an opposite direction to Tarry's drive in Thureau's tunnel. These two drives are in a small zoning zone parallel to and between Cox's formation and Gill's lode. A little way in Jarman's tunnel 8 or 9 ozs. of gold were obtained from a small patch, and a winze was sunk. The formation is wavy schist, with lenticles of quartz. The tunnel followed down in the winze, and coarse gold obtained from the ferruginous parts of the schist 26 or 27 feet from the surface. The Government Analyst's assay note of gold found from this in September, 1895, is:—Gold, 1 oz. 18 dwts. 18 grs., 18 dwts.

*Tarry's Tunnel*.—This is further north, and is also in the schist rock, but was started just east of the line of Cox's formation, which it has thus missed. After being driven south-easterly for 150 feet, a short drive south was made to see about the strike of Jarman's formation, but with no result. I do not know.

*Bennett's Tunnel* (No. 10).—This is some distance south of the hill, and on the west slope of the hill (on one of Bennett's sections). It was driven below where gold was got—down to the dish—but the underground work was, I understand, fruitless.

*Wetman's Tunnel* (No. 9).—This is driven opposite to the preceding, on the east side of the hill, but lower down, and does not show the extension of No. 10. It first goes through a thin bed of reddish clay, and intersects the formation (Weetman's or Cox's), which, however, has not yielded anything beyond colours.

*Leys and Foster's Tunnels*.—These are situate 500 feet further south, and have been driven in opposite directions, over 100 feet each way, but appear to be outside the line of Cox's or Weetman's formation.

*Cox's Face*.—This is a few chains north of the preceding tunnels, and is on the south section of Bennett's. It is an open-cut for over a chain into the hill, between 30 and 40 feet high, exposing a bed or section of contorted, silvery, micaceous and granitic schist, interleaved with seams

lenticles of quartz. These all dip at a high angle to the south-east. From first to last, I understand, about 80 ozs. of gold have been taken from this face by washing. Mr. Gill and the late Mr. Thureau turned less than half a sluice-head of water on, and washed the schist for a few hours, obtaining by sluicing 3½ dwts. coarse crystalline and some fine gold. A rather decomposed yellowish part of the formation exists on the west side of the face; it is locally called the lode, and the best gold is said to have been obtained from it, though the gold is not confined to this portion of the formation. Sluicing the face debris was going on at the time of my visit, with indifferent results. It is intended to drive into the face at 40 feet from the top, and cross-cut through the formation. A shaft was being sunk with the idea of opening out and driving under the open-cut. A few colours of gold had been obtained from the shaft. A trial on a good scale will be made, and until then the value of the formation can hardly be defined. I was informed that the gold found in the face came from soft carbonates of iron seams. It seemed to me also that the rusty patches in the lenticles of quartz might represent auriferous pyrites.

This face is at the south end of the Golden Ridge, and the line of its strike all along the crest of the hill, has been taken to be a line of lode, and has been the objective of all the tunnels referred to above. I am hardly prepared to say that this is a definite and independent line. I am rather disposed to think that there are several discontinuous and parallel belts in the hill, varying in some parts of their course for the deposition of the lode. The transverse sections of the hill from west to east consist now one and now another of these belts. Thus situated the central line of schists is mineralised, and then called Cox's formation; sometimes the schists west of this have yielded gold, and bear the name of Weetman's formation. To the east of the central line another belt exists, Jarman's or Tarry's formation. Further east again is Gill's lode or formation.

*Falls Tunnel, on Riley's Creek*.—This is lower down, and east across Gill's lode towards Jarman's Creek. It has 19 feet of approach, and about 30 feet have been driven in the solid. At the entrance at creek-level there is a strong development of pyrites in graphitic schist, associated with veins and bunches of white quartz. The tunnel passes right through the formation, which is succeeded in the end by laminated quartz schist. At 20 feet in, a winze has been sunk 17 feet, and a crosscut driven across a wide lode. Inside the entrance of the tunnel is a short drive along the

lode zone, which some ore, consisting of copper and iron sulphides, copper and lead carbonates, was assayed by Mr. W. Dixon, Footscray, returning 2 ozs. 17 dwts. 12 grs. gold, 34 ozs. 15 dwts. 20 grs. silver per ton, and 11.2 per cent. copper.

The iron pyrites contains a little gold, for a sample of it which I took was assayed by the Government Analyst, and yielded 2 dwts. gold per ton and a trace of silver.

The formation in this adit is more like a lode than I have seen elsewhere on these properties.

*Falls Tunnel, on Riley's Creek.*—This is lower down, and a couple of chains further north. It is also driven east and across a lode zone: the end is over 250 feet in, and in schist. At the entrance, the country is contorted graphitic schist, seams with quartz. Some distance in, leaders of quartz cross the strata, and green copper stains indicate the presence of a lode or deposit. A small vein of copper pyrites was cut here. Further in, a zone of quartz and pyrites crosses the level, running with the schist, and has been opened upon north and south without any particular development. This would correspond in position with Gill's vein in Riley's tunnel, but whether it is the same as that one towards the end of Thureau's tunnel is doubtful. I am almost inclined to think that if the latter formation is persistent, it is still ahead of the end of the Falls tunnel. A sample which I took from the pyrites in this tunnel was assayed by Mr. W. F. Ward, Government Analyst, and yielded 4 dwts. gold per ton, and a trace of silver.

There is a larger development of quartz connected with the mineral at the northern end of the field, and though the quartz may not be auriferous, its associated minerals may be, and this indicates the desirability of more exploratory work. But this cannot be undertaken without a proper provision of capital. The machinery site has been chosen at the junction of Riley's and Gray's Creeks, and a tunnel driven from there to come under the Falls adit would be over 1000 feet in length. It would intersect Cox's formation in its course, but I fear the work would be of a magnitude out of proportion to present prospects. At the same time, choice must be made between long adits and deep-sinking, for the results of all the shallow trials already made support the view that if anything is to be found underground, it must be sought at a depth. The numerous discoveries which have been made make it pretty certain that there must be gold below the present workings, but how much or how little has to be proved. The distance existing between Cox's face and the central tunnel's is considerable.

and suggests a similar distance underground along which gold-bearing veins may be found to extend. Whether the deep deposits are in narrow pyritic veins, or in larger bodies of quartz impregnated with pyrites, it is impossible to say. What can be said now is that these schists are gold-bearing, but not payable at the present depth of workings. My opinion is that not much change will be found until the rock below creek-level is reached.

More than one plan of working the properties has been put forward. My view is that adit-driving will leave matters pretty well where they are at present, and that to get to the source of all this precipitated gold, it will be necessary to resort to shaft-sinking. The ground above water-level is simply a zone of distribution: the primary deposits must be looked for in depth.

*Pari passu* with this work, an attempt might very well be made to ascertain whether it would not also be profitable to treat the hill-drift *en masse*. There are no doubt many places on the ridge and slopes where patches of auriferous dirt have escaped notice, and these would be brought to light under a system of systematic working. There would, however, have to be some scheme for water before launching out on a large scale. Meanwhile the hillside should be marked out in sections, and carefully sampled in bulk. This should place the owners in a position to see whether the hill-drift justifies a larger expenditure, and during the work something might be learned of the different runs of gold-bearing material.

*Lynch's Tunnels.*—These are a few chains north of Riley's Creek. Work had been suspended shortly before my visit, and I was at a disadvantage in forming an opinion.

The lower tunnel has been driven north-westward at about 60 feet in, in a friable sandy and quartzose formation, and then following this on its course. The country-rock consists of micaceous and talcose schists, and the end of the drive is in friable ferruginous quartz sand, with some lumpy quartz in the roof. Half-way in the tunnel, I noticed a lump or lenticle of quartz 7 inches thick, and outside were several large blocks from 8 to 10 inches thick.

The upper tunnel is further up the creek, and has been driven in decomposed talcose schist, with irregular veins of quartz. Half-way in, a parallel tunnel has been driven on a seam of quartz in the same soft schist rock.

The indications for gold are promising, but the metal is more likely to be associated with the rusty country-rock than with the quartz. On the surface above the lower

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tops of trees.

### RIO TINTO.

The Rio Tinto lodes, as seen on the Savage River, consist of masses of magnetite, hematite, and pyrrhotite encased in hornblende and serpentinous schist (miscalled diorite), which forms a belt of considerable width (over half a mile), striking a little west of north. It extends to 4 or 5 miles north of the Savage, and 10 miles south of it, to the Rocky River district. Owing to the deflection of the needle by the large masses of magnetic iron, the compass is of little use near the Rio Tinto Mine. Mr. David Jones has recorded a local attraction of as much as  $180^{\circ}$ \*. At intervals all along this line deposits of magnetic iron ores and copper pyrites occur, accompanied by characteristic minerals (nickel, cobalt, talc, tremolite, asbestos, dolomite, &c.), which seem to be the action of identical mineralising agents throughout the belt.

The Rio Tinto lode was originally discovered by Surveyor-General Spry. It was imagined at the time that the appearance was, or might be, the exposure of a tin ore deposit, and when this anticipation was not realised, the lode was left severely alone for some time. However, little prospecting was carried on subsequently, and the lode fell into the hands of two associations, one of which, the Orhizza Gold-mining Company, began work on the north side of the Savage River, and the other, the Savage River silver-prospecting Company, carried on operations on the south bank.

The Orhizza Company, either wholly or in part, drove two tunnels at about 15 feet above the river on the course of an immense formation of hematite and magnetite, containing iron carbonate, iron pyrites, pyrrhotite, and a little copper pyrites, with variable proportions of silver and gold. The tunnels are nearly half a mile below the Savage River bridge. They were driven northerly, and they are within 30 feet of each other, consequently they are closely parallel adits. One (No. 2) follows the eastern side or wall of the formation for about 100 feet; the other, the western tunnel (No. 1), is driven 180 feet. From the former a crosscut has been driven 40 feet north-westerly towards the latter, passing through lode-matter all the way (magnetic iron ore, iron and copper pyrites, with a little asbestos).

\* An Extensive Iron Formation, West Coast of Tasmania, D. Jones. Trans. Aust. Inst. M. E. Vol. V. 1898, p. 122.

ways. The western tunnel is in lode-stuff but mixed at first with dolomite, followed by solid iron ore and pyrites alternating with graphitic or talcose schists.

The whole lode, judging from its exposure in the north bank, appeared to be, together with intercalated schists, about 300 feet in width, and forms a bold ridge over 700 feet in height, cleft by the Savage River. The country-rock on the west side of the lode is greatly decomposed, but appears to be hornblende schist of the Rocky River type.

The Savage River Company started work on the south river in the beginning of 1891, driving a crosscut to intersect the lode at a depth of 400 feet. Artificial lode-stuff was met with after about 50 feet of driving, and the company published assays of samples from the lode as follows:—

No. 1.—8 dwts. 20 grs. gold; 4 ozs. 4 dwts. silver; 22-25 per cent. copper.

No. 2.—Iron pyrites containing 1 oz. 19 dwts. gold; 5 ozs. silver.

Assays from the lode-capping were published as follows:—1 oz. 16 dwts. gold; 5 ozs. silver; 1 oz. 10 dwts. gold; and one containing 5 per cent. lead and 10 per cent. silver.

From these and other assays (certainly not representative samples) the inference was drawn that a large body of payable lode-stuff existed between the tunnel and the river. A deep tunnel near river-level was planned, and a tramway was already spoken of to connect the lode with the Pieman down the valley of the Savage, at a distance of 11 miles.

I cannot find in the records of that time any of the above companies having discovered remains of this great deposit, and the next stage in the operations here was the formation of the Rio Tinto Company, No Liability, in 1895, with a nominal capital of £15,000 (£8,000 paid up). It began work in 1896, and continued operations for a couple of years. The Chairman's report of 14th November, 1898, states that altogether 1500 feet had been driven, of which 1000 feet had been on ore (this must be interpreted as including lode-matter). The conclusion arrived at was that it was necessary to sink on the lode to test the value of the unleached portions of the various deposits. The presence of chalcopyrite in vein form in the magnetite at the bottom of the winze was considered as strongly encouraging deeper mining. By this time £13,390 had been expended, and it

DRILL CORE DESCRIPTION  
GOLDEN RIDGE DDH85 -GR1

FROM M	TO M	INTERVAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
5.0	6.0	1	0.20	15-20	Vein quartz with carbonate blebs occurs in a light grey mica phyllite with psammitic layering.	
6.0	8.0	2	0.80	40	Well laminated quartz-mica phyllite with minor intercalations of graphitic pelites, typical section of "sandy unit".	
8.0	9.3	1.30	1.03	69	Dominantly laminated quartz-mica phyllites with intercalated horizons of graphitic pelites as either laminae or 9cm wide units.	
9.3	9.3				Sweated concordant to foliation vein of quartz-feldspar (?)	
9.3	9.5	0.20	0.10	50	Sandy unit.	
9.5	11.0	1.50	0.11	7	Typical quartz-mica phyllite of the Sandy unit.	
11.0	11.5	0.50	0.25	50	Vein Quartz with graphitic blebs occurring in quartz mica phyllites and graphitic pelites.	
11.5	12.6	1.10	0.80	73	Early vein quartz within graphitic pelites grading into blocky typical grey quartz-mica phyllites with minor concordant quartz veining.	
12.6	14.0	1.40	1.20	86	Dominantly quartz-mica phyllites with minor intercalated graphitic pelites, occasional vuggy quartz veining parallel to foliation.	
14.0	14.15	0.15	0.15	100	Typical "Sandy unit".	
14.15	15.0	0.85	0.37	44	Weathered graphitic pelite heavily veined with concordant and discordant vuggy quartz.	x
15.0	16.0	1.00	0.16	16	Vein quartz with minor feldspar blebs within graphitic pelite.	x

FROM M	TO M	INTERVAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
16.0	16.3	0.30	0.08	27	Vuggy vein quartz minor smears of graphitic pelite.	x
16.3	17.0	0.70	0.00	0	No recovery.	x
17.0	17.6	0.60	0.24	40	Vuggy quartz veins within highly weathered contorted graphitic pelites, minor iron staining within quartz laminae of graphitic pelite.	x
17.6	18.0	0.40	0.12	30	Pug of grey black clay derived from graphitic pelite, minor iron staining and quartz veins.	x
18.0	18.7	0.70	0.20	29	Minor black pug within lightly iron stained quartz mica phyllite of the "Sandy unit".	x
18.7	19.3	0.60	0.28	47	Quartz mica phyllite alternating with banded dark graphitic pelites both with minor iron staining.	x
19.3	20.0	0.70	0.00	0	No core recovery	x
20.0	20.5	0.50	0.25	50	Iron stained vein quartz within weathered quartz mica phyllites and quartz mica phyllite clays.	x
20.5	21.0	0.50	0.44	88	Quartz-mica phyllite with increasing graphitic pelite composition at depth, minor iron stained quartz veins.	0.01
21.0	21.5	0.50	0.50	100	Slightly more pelitic quartz mica phyllite, minor quartz feldspar and minor iron staining.	x
21.5	23.0	1.50	0.30	20	Sandy unit grading at depth into graphitic pelite which in part altered to a light grey clay.	x
23.0	23.5	0.50	0.35	70	Typical laminated quartz mica phyllite comprising the "Sandy unit".	x
23.5	24.1	0.60	0.49	82	Sandy unit weathered to a light grey pug extending at depth into a more pelitic and quartz veined phyllite. Iron staining.	x

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
24.1	24.7	0.60	0.44	73	Sandy unit with horizons of graphitic pelite and light grey pug.	x
24.7	25.3	0.60	0.33	55	Light grey phyllite with minor quartz concordant to foliation. Red to brown iron staining.	x
25.3	26.0	0.70	0.00	0	No core recovery.	x
26.0	26.6	0.60	0.13	22	Iron stained vein quartz.	x
26.6	27.2	0.60	0.33	55	Slightly graphitic quartz mica phyllite with quartz feldspar veins.	x
27.2	27.8	0.60	0.38	63	Weathered graphitic pelite with interbedded laminae of quartz. Orange brown iron staining.	x
27.8	28.1	0.40	0.05	13	Iron stained quartz veins.	x
28.1	29.0	0.90	0.43	48	Black graphitic pelite with very minor concordant quartz veins. Pyrite evident as fine disseminated crystals to layered anhedral horizons sub-parallel to the foliation. At depth quartz veining discordant and very iron rich.	x
29.0	30.0	1.00	0.07	7	Graphitic pelite heavily veined sub-parallel to foliation. Red brown iron staining very evident. Easterly edge of Cox's Formation?	x
30.0	31.0	1.00	0.20	20	Pebble sized fragments of iron stained quartz veins.	x
31.0	32.0	1.00	0.07	7	Graphitic pelite within quartz feldspar veins, minor iron staining.	x
32.0	32.9	0.90	0.00	0	No core recovery.	x
32.9	33.4	0.50	0.00	0	No core recovery.	x
33.4	34.1	0.70	0.42	60	Black graphitic pelite with pyrite, either fine dissemination or anhedral layers. Minor quartz veining, parallel to foliation containing fine grain pyrite.	x

FROM M	TO M	INTERNAL M	RECOVERY M %	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
34.1	35.0	0.90	0.25 27	Black pyritic pelite altering at depth from a black pug to a mottled red brown clay.	x
35.0	36.2	1.20	0.28 23	quartz mica phyllite in fine laminae of graphitic pelite. Horizon of intense weathering producing a tan clay.	x
36.2	37.4	1.20	0.00 0	No core recovery.	x
37.4	38.0	0.60	0.00 0	No core recovery.	x
38.0	38.8	0.80	0.46 57	Red brown variant of the sandy unit with horizons of black graphitic pelite. Very minor quartz veining. Occasional weathering to light grey brown clay.	x
38.8	40.8	2.00	0.67 33	Typical sandy unit with horizons exhibiting brown red staining. Grey brown clay horizon, 13cm thick at 39.0m. Vuggy quartz feldspar vein at 40.5m.	x
40.8	42.2	1.40	0.10 7	Vuggy vein quartz with smears of pyritic phyllite.	x
42.2	42.5	0.30	0.17 56	Vuggy vein quartz, minor red brown iron staining within graphitic pelite.	x
42.5	43.0	0.50	0.00 0	No core recovery.	0.01
43.0	44.0	1.00	0.20 20	Vuggy pyritic quartz veins, minor iron staining within black, partly pyritic pelite.	x
44.0	45.0	1.00	0.71 71	Black pyritic pelite, minor quartz laminae parallel to foliation.	0.02
45.0	46.2	1.20	0.40 33	As above with a quartz feldspar vein containing anhedral pyrite.	x
46.2	46.9	0.70	0.60 85	Typical quartz mica phyllite of the sandy unit. Horizons of vuggy quartz feldspar veins sub-parallel to foliation.	x

A.4.2.

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
46.9	48.1	1.20	0.25	20	As above.	x
48.1	49.3	1.20	0.75	62	Typical grey, quartz mica phyllite.	0.03
49.3	50.0	0.70	0.70	100	As above	x
50.0	51.2	1.20	0.89	74	As above.	x
51.2	53.0	1.20	0.57	48	Pyritic graphitic pelite horizons within predominantly quartz mica phyllite. Small vuggy quartz vein with very minor pyrite.	x
53.0	54.2	1.20	0.84	70		x
54.2	56.0	1.80	0.00	0	No core recovery.	x
56.0	57.7	1.70	0.39	23	Grey quartz mica phyllite, minor quartz veins showing smears of pyrite.	x
57.7	58.0	0.30	0.11	37	Grey quartz mica phyllite and black pyritic pelites.	x
58.0	58.3	0.30	0.05	17	Light green foliated basic volcanic, possibly tufaceous, conformable to other sediments, white porphyroblasts often smeared parallel to foliation of feldspars.	x
58.3	59.0	0.70	0.29	41	Volcanic unit in part weathered to green clays, minor vuggy quartz veins	x
59.0	60.2	1.20	0.35	29	Volcanic unit with smeared feldspar altering to pale brown clays (?) Quartz, very vuggy in part, veins conformable (?) increasing with depth.	x
60.2	61.4	1.2	0.44	37	Volcanic unit partly weathered grading (?) into black pyritic pelite which is heavily veined in vuggy quartz.	x
61.4	62.0	0.60	0.60	100	Typical green volcanic unit increasing amounts of brown non-carbonate alteration product parallel to foliation.	x
62.0	62.5	0.50	0.33	66	As above with traces of pyrite along foliation.	x

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
62.5	63.3	0.80	0.58	73	Black pyritic pelite showing minor kink folding, fine laminae of quartz and possible minor feldspar parallel to foliation.	0.01
63.3	65.0	1.70	1.60	94	Foliated black pyritic pelite, very minor quartz and pyrite laminae sub-parallel to foliation.	x
65.0	65.5	0.50	0.35	70	Black pyritic pelites with minor quartz-feldspar-pyrite veins.	x
65.5	66.1	0.60	0.60	100	Black pyritic pelite grading at depth into green volcanic unit, in part pyrite. Quartz veining evident in volcanic unit with accompanying part weathering.	x
66.1	67.1	1.00	1.00	100	Green basic volcanic unit, fine laminae of quartz and light brown alteration product.	x
67.1	68.0	0.90	0.55	61	Green volcanic unit showing alteration to compact unit with blotchy porphyroblasts of feldspar, little foliation.	x
68.0	68.3	0.30	0.30	100	Weathered green volcanic unit to green clay.	x
68.3	70.2	1.90	1.70	90	Blotchy altered green volcanic unit grading into foliated volcanic unit, at 69m sharp contact into black pyritic pelite with minor quartz laminae parallel to foliation. Vuggy quartz veining with minor pyrite sub-parallel within pelites.	x
70.2	71.0	0.80	0.80	100	Black pyritic pelites with quartz veining concordant and cross-cutting 70.2 quartz feldspar and accessory minerals producing "gossanous vein"	x
71.0	71.8	0.80	0.76	95	Black pelites grading into horizon of quartz mica phyllites somewhat darker than normal "sandy unit".	x
71.8	72.5	0.70	0.70	100	Black pyritic pelite heavily veined with quartz laminae parallel to foliation.	0.02

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
72.5	73.3	0.80	0.80	100	As above.	x
73.3	74.0	0.70	0.30	43	As above, minor quartz veins.	x
74.0	74.8	0.80	0.80	100	Black pyritic pelite heavily veined in part by sub-parallel quartz.	x
74.8	75.8	1.00	1.00	100	Black pyritic pelite with horizons of more quartz mica phyllite units, major quartz veining with minor accessory pyrite. 75.6 sub-parallel vein similar to 70.2, no carbonate.	x
75.8	76.3	0.50	0.13	26	Black pyritic pelite.	x
76.3	77.0	0.70	0.18	26	Possible green volcanic unit with minor interbedded black pyritic pelites.	x

GEOCHEMICAL ANALYSES  
GOLDEN RIDGE - DDH85 GR1 (SLUDGE)

SAMPLE INTERVAL (m)	ELEMENTS (ppm)					
	Cu	Pb	Zn	Mn	As	Au
14-15	20	x	40	45	3	x
15-16	20	x	30	30	1	x
16-16.3	25	10	35	30	2	x
16.3-17	20	x	20	20	2	x
17-17.6	40	x	35	30	2	x
17.6-18.1	50	x	35	50	2	x
18.1-18.7	40	x	30	35	4	x
18.7-19.3	20	x	20	30	5	x
19.3-20	30	x	15	20	4	x
20-20.5	60	5	45	30	3	x
20.5-21	40	10	40	35	6	0.01
21-21.5	30	5	30	35	3	x
21.5-23	45	x	40	50	6	x
23-23.5	85	x	100	55	14	x
23.5-24.1	60	x	50	55	7	x
24.0-24.7	50	5	40	45	12	x
24.7-25.3	55	15	70	90	11	x
25.3-26	40	5	35	55	6	x
26-26.6	170	5	35	40	53	x
26.6-27.2	105	x	65	60	21	x
27.2-27.8	115	x	50	50	21	x
27.8-28.1	130	x	60	80	10	x
28.1-29	170	5	75	115	12	x
29-30.2	135	5	45	60	20	x
30.2-31	190	5	75	85	19	x
31-32	150	x	60	70	9	x
32-32.9	140	5	75	70	22	x
32.9-33.4	115	5	65	60	23	x
33.4-34.1	140	5	80	125	16	x
34.1-35	165	5	85	125	14	x
35-36.2	150	x	60	120	19	x
36.2-37.4	155	x	55	125	16	x
37.4-38	145	10	80	115	21	x
38-38.8	150	20	95	170	17	x
38.8-40.8	100	20	60	140	17	x
40.8-42.2	95	15	65	140	14	x
42.2-42.5	100	20	85	115	18	x
42.5-43	95	10	75	125	16	0.01
43-44	90	x	75	180	18	x
44-45	100	15	85	160	24	0.02
45-46.2	90	25	85	170	23	x
46.2-46.9	105	30	105	205	210	x
46.9-48.1	110	60	80	170	320	x
48.1-49.3	80	15	85	135	46	0.03

SAMPLE INTERVAL (m)	ELEMENTS (ppm)					
	Cu	Pb	Zn	Mn	As	Au
49.3-50	65	15	90	105	25	x
50-51.2	60	15	75	135	32	x
51.2-53	55	10	60	120	19	x
53-54.2	55	10	60	105	30	x
54.2-56	60	10	70	100	20	x
56-57.7	60	20	90	120	30	x
57.7-58.3	70	15	75	130	30	x
58.3-59	80	20	95	220	24	x
59-60.2	105	10	110	460	17	x
60.2-61.4	130	15	125	740	33	x
61.4-62	100	10	110	645	31	x
62-62.5	105	15	115	1130	x	x
62.5-63.3	65	20	75	890	x	0.01
63.3-65	75	20	90	910	x	x
65-65.5	90	15	105	930	x	x
65.5-66.1	75	15	80	740	x	x
66.1-67.1	70	10	75	1010	x	x
67.1-68	85	15	75	1060	x	x
68-68.3	90	10	105	1110	x	x
68.3-70.2	90	15	115	1020	6	x
70.2-71.0	90	15	85	750	x	x
71.0-71.8	90	10	85	730	3	x
71.8-72.5	65	15	100	690	x	0.02
72.5-73.3	55	6	110	680	x	x
73.3-74	45	7	80	520	x	x
74-74.8	50	x	90	510	10	x
74.8-75.8	50	7	105	580	x	x
75.8-76.3	60	10	90	630	6	x
76.3-77.0	50	5	110	750	x	x
METHOD	101	101	101	101	114	309 (CAIRNS)

x Below the limit of detection

A.4.3.

DRILL CORE DESCRIPTION  
GOLDEN RIDGE DDH85 - GR2

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
4.5	5.2	0.70	0.20	29	Quite graphitic quartz mica phyllite of the sandy unit, little foliation. Minor quartz veining and pug weathering of pelites.	x
5.2	5.8	0.60	0.55	92	Typically foliated quartz mica phyllites interbedded with laminae of graphitic pelite. Disseminated bedded anhedral pyrite mainly within the pelite although contained in the sandy units. Minor vuggy quartz veining both parallel and cross-cutting to the foliation.	x
5.8	6.5	0.70	0.70	100	As above.	x
6.5	7.4	0.90	0.85	94	Foliated quartz mica phyllites with disseminated pyrite. Small (1cm) cross-cutting quartz veins with vuggy appearance.	x
7.4	8.2	0.80	0.28	35	Contorted quartz mica phyllite with interbedded laminae of graphitic pelite.	x
8.2	8.7	0.50	0.30	60	Vuggy vein quartz with white to green-white accessory mineral (feldspar) with smears of pyritic graphitic pelite.	0.01
8.7	9.5	0.80	0.80	100	Quartz mica phyllite, no veining.	x
9.5	9.9	0.40	0.40	100	Quartz mica phyllite with two horizons of sub parallel quartz veining approx 1.5cm wide.	x
9.9	10.4	0.50	0.50	100	Quartz mica phyllite.	0.01
10.4	10.8	0.40	0.40	100	Quartz mica phyllite with occasional laminae of graphitic pelite.	0.01
10.8	11.2	0.40	0.40	100	As above.	0.01
11.2	11.7	0.50	0.50	100	Quartz mica phyllite partly pyritic, minor laminae of graphitic pelite and quartz veining.	0.01

A.4.3.

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
11.7	12.2	0.50	0.50	100	As above with minor flexures within foliation and pyrite smearing along poorly defined joints.	0.01
12.2	12.6	0.40	0.40	100	As above	x
12.6	13.7	1.10	0.95	86	Quartz mica phyllite with pyritic quartz veining sub parallel and cross cutting the foliation. Minor laminae of graphitic pelite.	0.01
13.7	14.8	1.10	0.93	85	Quartz mica phyllites with five (5) cross cutting quartz veins, average of 0.4mm thickness. Joint infill?	0.04
14.8	15.6	0.80	0.69	86	Quartz mica phyllites with graphitic pelite laminae occasional infilled joint sets.	0.03
15.6	16.3	0.70	0.64	91	Quartz mica phyllite with one (1) infilled joint of approx 1cm.	x
16.3	17.2	0.90	0.85	94	Quartz mica phyllite with laminae of graphitic pelite weakly pyritic throughout.	x
17.2	19.2	2.0	0.14	7	Quartz with accessory green mineral (feldspar) vein with smears of graphitic pyritic pelite. Veining also sub parallel to foliation.	x
19.2	20.2	1.00	0.28	28	Highly weathered quartz mica phyllites with graphitic pelite laminae giving grey clay pug. Minor quartz feldspar veins.	x
20.2	20.8	0.60	0.00	0	No core recovery.	x
20.8	21.2	0.40	0.26	65	Graphitic pyritic pelite with quartz laminae both sub parallel and cross-cutting.	x
21.2	21.6	0.40	0.40	100	Quartz mica phyllite with various amounts of graphitic pelite. Pyrite as disseminations and cross cutting veinlets within the pelite horizons.	x
21.6	22.3	1.70	0.75	44	Quartz/feldspar-mica phyllite with graphitic pelite laminae, disseminated pyrite throughout and as smear coatings.	0.01

A.4.3.

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
22.3	22.6	0.30	0.13	50	As above.	
22.6	23.2	0.60	0.60	100	As above.	x
23.2	23.8	0.60	0.60	100	Graphitic pyritic pelite with quartz laminae, 23.6m approx 17cm wide vein of quartz with accessory green mineral and white clay.	x
23.8	24.6	0.80	0.30	38	Graphitic pyritic pelite, minor quartz veins, weathering in part to dark grey clay pug, small light green pyritic chips of phyllite.	x
24.6	25.4	0.80	0.00	0	No core recovery.	x
25.4	26.2	0.80	0.00	0	No core recovery	0.02
26.2	27.15	0.95	0.22	23	Quartz feldspar veins in part pyritic with minor pelite smears, grey clay pug.	x
27.15	29.10	1.95	0.26	13	Grey clay pug of weathered phyllite.	x
29.10	30.2	1.10	0.00	0	No core recovery.	0.01
30.2	31.0	0.80	0.00	0	No core recovery.	x
31.0	32.1	1.10	1.10	100	Weathered grey quartz mica phyllite.	x
32.1	32.9	0.80	0.10	13	Grey quartz mica phyllite, very minor disseminated pyrite.	x
32.9	35.2	2.30	0.75	33	Quartz mica phyllites and graphitic pelites with disseminated pyrite, minor quartz with pyrite veins.	x
35.2	36.4	1.20	0.33	28	Quartz mica phyllite.	x
36.4	36.7	0.30	0.00	0	No core recovery.	x
36.7	37.2	0.50	0.43	86	Quartz mica phyllite and graphitic pyritic pelite grading at depth to highly weathered green grey volcanic unit possibly tuffaceous.	x
37.2	37.8	0.60	0.20	33	Light green grey clay pug from altered volcanic tuff.	x
37.8	38.8	1.00	1.00	100	Green volcanic unit possibly tuffaceous, smeared feldspar porphyroblasts parallel to foliation. Alteration of volcanic to	x

A.4.3.

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
					vuggy volcanic with anhedral feldspar crystals adjacent to minor quartz pyrite veins. Smears of light brown clay from volcanic alteration along vein/joint.	
38.8	40.0	1.20	1.20	100	As above.	x
40.0	41.2	1.20	1.20	100	As above, 40.6 narrow (4cm) brecciated zone of quartz and volcanic tuff with blebs of pyrite and pyrrhotite (?), brown gossany horizon of quartz pseudomorphing carbonate, alteration of tuff adjacent to vein with blotchy porphyroblasts of feldspar.	x
41.2	43.4	2.20	2.13	97	Typical green volcanic tuff unit, minor cross cutting quartz veins and gossanous brown quartz veins.	x
43.4	46.4	3.00	3.00	100	Green volcanic tuff, very minor quartz veins and veinlets of brown gossanous quartz cross cutting the foliation.	x
46.4	47.8	1.40	1.2	86	Green tuff unit with interbedded horizon of black pelite approx 10cm thickness, minor sub parallel quartz veinlets.	x
47.8	48.5	0.70	0.70	100	Green tuff with intervals of quartz veining giving vuggy appearance.	x
48.5	49.3	0.80	0.78	98	Green tuff.	x
49.3	50.2	0.90	0.90	100	Green tuff with quartz veins and minor sub parallel veinlets of brown gossanous quartz.	x
50.2	50.9	0.70	0.65	93	Green tuff with quartz veins parallel to foliation.	x
50.9	53.0	2.10	1.70	81	Green tuff grading at depth into light green tuff with increasing laminae of quartz veins parallel to foliation. Decreasing feldspar porphyroblasts and an increase in overall silica. At 52.7 contact of green tuff (light) and dark graphitic pyritic pelite.	x

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
53.0	56.05	3.05	3.05	100	Black graphitic pyritic pelite grading into light green volcanic tuff which grades in turn through light green, light grey back into black pyritic pelite. True volcanic unit approx 50cm thick, this zone represents a grading from true volcanic tuff into sediments with minor subsequent tuff pulses.	x
56.05	57.0	0.95	0.95	100	Black pyritic graphitic pelite with minor intercalations of green tuff, minor flexing of the foliation. At 56.25m a 4cm thickness of banded pyrite laminae, parallel to the foliation.	x
57.0	57.7	0.70	0.70	100	Black graphitic pyritic pelite with laminae of quartz, smears of pyrite along foliation planes.	x
57.7	58.6	0.90	0.86	96	As above.	x
58.6	59.3	1.30	0.80	62	Dark grey quartz mica phyllite with horizons of black graphitic pelite, minor selvages of carbonate parallel and cross cutting foliation.	x
59.3	60.5	0.80	0.80	100	Black pyritic graphitic pelite, pyrite as disseminations and veinlets, minor quartz veins parallel to foliation. Two (2) sub parallel quartz-carbonate, with minor pyrite, veins approx 2cm wide.	x
60.5	61.6	1.10	1.10	100	Alternating narrow quartz-carbonate veins with minor pyrite.	x
61.6	62.8	1.20	1.20	100	Black graphitic pyritic pelite with interbedded green tuffaceous horizon (approx 60cm wide). Tuff is mildly contorted with numerous quartz-carbonate veins both cross cutting and sub parallel.	x
62.8	63.7	0.90	0.90	100	Black graphitic-pyritic pelite, very minor laminae of light green tuff, with numerous quartz carbonate veins containing pelite and tuff horizons and minor pyrite.	x

A.4.3.

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS	AU PPM
63.7	65.2	1.50	1.50	100	Light green tuff multiply intruded by numerous quartz-carbonate veins sub parallel to the foliation.	x
65.2	66.6	1.40	1.40	100	Black graphitic pyritic pelite with five (5) sub parallel veins of quartz with minor carbonate, pyrite and green mineral (?)	x
66.6	68.8	2.20	2.20	100	Partly pyritic quartz mica phyllite, occasional thin horizon of pyritic graphitic pelite. Three (3) sub parallel veins, average 2cm thickness, of quartz carbonate and minor pyrite.	x
68.8	70.0	1.20	1.20	100	Black graphitic pyritic pelite, minor veinlets of quartz and pyrite, one thin laminae of quartz carbonate.	x

GEOCHEMICAL ANALYSES  
GOLDEN RIDGE DDH85 GR2 (SLUDGE)

SAMPLE INTERVAL (m)	ELEMENTS (ppm)					
	Cu	Pb	Zn	Mn	As	Au
0.0-2.0	50	x	15	40	x	x
2.0-3.3	55	x	20	30	x	x
3.3-4.5	60	x	9	20	x	0.01
4.5-5.2	70	x	35	60	x	x
5.2-5.8	100	x	55	80	x	x
5.8-6.5	115	x	55	70	5	x
6.5-7.4	190	x	60	50	4	x
7.4-8.2	200	x	40	70	x	x
8.2-8.7	185	x	50	80	x	0.01
8.7-9.5	215	x	75	90	x	x
9.5-9.9	225	x	100	100	x	x
9.9-10.4	180	x	75	90	x	x
10.4-10.8	205	x	55	70	x	0.01
10.8-11.2	135	x	45	90	x	0.01
11.2-11.7	120	x	45	50	x	0.01
11.7-12.2	110	x	50	100	x	0.01
12.2-12.6	100	5	55	100	3	x
12.6-13.7	90	7	25	110	x	0.01
13.7-14.8	105	5	35	110	5	0.04
14.8-15.6	95	6	50	120	x	0.03
15.6-16.3	80	5	90	100	x	x
16.3-17.2	65	x	75	110	x	x
17.2-19.2	70	8	80	210	x	x
19.2-20.0	45	x	55	170	x	x
20.0-20.8	45	8	65	170	x	x
20.8-21.2	60	10	85	180	3	x
21.2-21.6	70	15	85	190	x	x
21.6-22.3	45	8	85	180	x	0.01
22.3-22.6	50	15	75	180	x	x
22.6-23.2	65	9	90	140	x	x
23.2-23.8	75	10	90	70	6	x
23.8-24.6	35	7	60	80	x	x
24.6-25.4	40	5	80	160	x	x
25.4-26.2	45	10	110	220	x	0.02
26.2-27.15	50	10	130	200	x	x
27.15-29.1	65	6	105	250	x	x
29.1-30.2	65	x	85	270	x	x
30.2-31.0	60	x	95	310	x	0.01
31.0-32.1	70	10	110	300	3	x
32.1-35.2	80	20	100	165	14	x
35.2-38.8	65	10	90	275	14	x
38.8-43.4	85	10	110	660	7	x
61.6-46.4	135	15	120	665	7	x
46.4-49.3	90	20	100	615	6	x
49.3-53.0	90	10	90	775	10	x
63.0-56.05	70	15	95	725	8	x
56.05-59.3	75	15	95	705	13	x
59.3-62.8	60	15	80	670	10	x
62.8-66.6	65	10	90	540	21	x
66.6-70.0	65	15	85	530	22	x
METHOD	101	101	101	101	114	309

GOLDEN RIDGE - D.D.H. GR2

SAMPLE INTERVAL (m)	ELEMENTS (ppm)					
	Cu	Pb	Zn	Mn	As	Au
CORE ASSAYS						
59.3-60.5	35	5	135	575	3	x
60.5-61.6	25	15	60	495	3	x
61.6-62.8	55	5	70	915	69	x
62.8-63.7	60	30	125	635	3	x
63.7-65.2	75	15	115	1450	7	x
65.2-66.6	50	10	65	435	4	x
66.6-68.8	30	15	65	655	6	x
METHOD	101	101	101	101	114	309(Cairns)

x      Below the limit of detection

A.4.4.

DRILL CORE DESCRIPTION  
GOLDEN RIDGE DDH85 - GR3

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS
4.5	5.8	1.30	0.70	54	Typical grey quartz mica phyllite, foliation at 25° to core length.
5.8	6.5	0.70	0.70	100	Quartz mica phyllite with laminae of graphitic pelite, vuggy quartz veins. Foliation at 5° to core.
6.5	7.5	1.00	1.00	100	As above, foliation 10° to core.
7.5	9.5	2.00	1.20	60	As above, occasional black weathered puggy horizons, quartz veins. 5° foliation.
9.5	10.5	1.00	100	100	Quartz - mica Phyllite, 0° foliation.
10.5	11.1	0.60	0.60	100	As above, 25° foliation.
11.1	12.1	1.00	1.00	100	Quartz mica phyllite, 15° foliation.
12.1	13.1	1.00	1.00	100	As above.
13.1	14.3	1.20	0.56	47	Quartz mica phyllite, in part adjacent to quartz veins weathered to grey clay pug.
14.3	15.3	1.00	1.00	100	Quartz mica phyllite, minor laminae of graphitic pelite, some iron stained quartz veins.
15.3	16.6	1.30	0.30	23	Quartz mica phyllite minor laminae of weathered graphitic pelite and minor quartz veins.
16.6	17.0	0.40	0.40	100	Black graphitic pelite with numerous laminae of quartz minor vuggy quartz veins with iron staining.
17.0	18.6	1.60	0.25	16	Quartz mica phyllite and graphitic pelite with iron stained quartz veins.
18.6	20.3	1.70	0.45	27	Graphitic pelite highly weathered to dark grey clay pug, minor iron stained quartz veins.
20.3	21.3	1.00	0.44	44	As above.
21.3	22.5	1.20	0.10	8	As above.
22.5	22.7	0.20	0.00	0	No core recovery.

A.4.4.

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS
22.7	22.9	0.20	0.00	0	No core recovery.
22.9	26.3	3.40	1.25	37	Graphitic pelite heavily veined with vuggy iron stained quartz, weathered in parts to grey clay pug. Foliation 0° to core.
26.3	28.1	1.80	1.60	89	Graphitic pelite heavily veined with laminae of iron stained quartz, foliation of 0°, 14° and area highly contorted.
28.1	29.1	1.00	1.00	100	As above, various dips on foliation.
29.1	30.3	1.20	0.48	40	Graphitic pelite heavily veined by iron stained quartz as sub parallel and parallel laminae, some weathering of pelite to clay.
30.3	31.4	1.10	1.10	100	As above, foliation parallel to core.
31.4	32.3	0.90	0.90	100	As above, foliation 2°.
32.3	33.3	1.00	1.00	100	As above, foliation 6'.
33.3	35.1	1.80	0.40	22	Vuggy slightly iron stained quartz with accessory green mineral, minor smears of clay (weathered pelite).
35.1	36.3	1.20	0.00	0	No core recovery.
36.3	38.0	1.70	0.98	5.8	Highly weathered grey quartz-mica phyllite with varying amounts of interbedded graphite pelite. Sub parallel quartz laminae are vuggy and heavily iron stained producing at intervals "gossanous" zones.
38.0	39.0	1.00	0.49	49	Highly weathered grey quartz-mica phyllite to grey pug.
39.0	41.2	2.2	1.1	50	Light grey quartz-mica phyllite with varying amounts of interbedded graphitic pelite. Sub-parallel quartz laminae are vuggy and heavily iron stained producing at intervals "gossanous" zones.
41.2	42.2	1.00	1.00	100	Graphitic pelite heavily laminated with quartz veins, disseminated pyrite throughout.

A.4.4.

FROM M	TO M	INTERNAL M	RECOVERY M	%	GEOLOGICAL DESCRIPTION & REMARKS
42.2	43.4	1.20	1.00	83	Interstitial laminae of graphitic pelite and pock-marked iron stained quartz. Weathered pyrite producing marks within the quartz. Consistent foliation of 15° to core angle.
43.4	44.3	0.90	0.90	100	Grey quartz-mica phyllite and black graphitic pelite.
44.3	45.1	0.80	0.80	100	As above with increasing iron staining along the foliation.
45.1	47.2	2.10	0.77	37	Interstitial laminae of graphitic pelite and pitted iron-stained quartz, minor quartz veins containing euhedral pyrite.
47.2	50.0	2.80	0.84	30	As above although graphitic pelite thickens in part and contains disseminated pyrite, quartz veins present.

GEOCHEMICAL ANALYSES  
GOLDEN RIDGE - DDH85 GR3

SAMPLE INTERVAL (m)	ELEMENTS (ppm)					
	Cu	Pb	Zn	Mn	As	Au
0-2.7	x	x	x	15	x	x
2.7-5.3	x	x	10	20	x	x
5.3-7.5	15	x	20	30	x	x
7.5-10.5	10	x	15	35	x	x
10.5-13.1	20	x	25	25	x	x
13.1-16.6	50	x	35	40	5	x
16.6-20.3	70	x	50	40	15	x
20.3-22.9	140	x	100	55	21	x
22.9-26.3	105	x	75	35	12	x
26.3-29.1	65	x	45	40	11	x
29.1-32.3	85	x	55	40	11	x
32.3-35.1	125	x	95	50	7	x
35.1-38.0	85	x	50	45	6	x
38.0-41.2	80	10	45	55	10	x
41.2-44.3	85	5	60	40	16	x
44.3-47.2	60	5	35	35	100	x
47.2-50.0	120	5	75	50	37	x
Method	101	101	101	101	114	309 (Cairns)
	x	Below the limit of detection				

A.4.5.

SOIL SAMPLE DATA  
GOLDEN RIDGE SERIES

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
01.98	49605	1.00	C	BROWN GREY	GREY PHYLLITE	
	49610	1.30	C	YELLOW ORANGE	PHYLLITE	
	49615	1.30	C	YELLOW ORANGE	PHYLLITE	
	49620	1.20	C	GREEN BROWN	PHYLLITE	
	49625	0.70	C	BROWN TAN	PHYLLITE	
	49630	1.00	C	GREEN YELLOW	PHYLLITE	
	49635	1.50	C	GREEN GREY BROWN	PHYLLITE	
	49640	1.00	C	GREY BROWN	PHYLLITE	
	49645	2.00	B	WHITE GREY		SILICA SANDS
	49650	2.00	B	WHITE YELLOW		SILICA SANDS
	49655	2.00	B	WHITE GREY		SILICA SANDS
	49660	2.00	B?	WHITE GREY		SILICA SANDS?
	49665	2.00	B?	WHITE GREY		SILICA SANDS?
	49670	1.30	C	GREY SILVER	PHYLLITE	
	49675	2.00	B	WHITE GREY		SILICA SANDS
	49680	1.30	B	WHITE GREY		
	49685	2.00	B	CREAM WHITE		SILICA SANDS
	49690	1.90	B	CREAM WHITE		SILICA SANDS
	49695	1.30	C	CREAM GREY	SILVER PHYLLITE	
	49700	0.10	C	CREAM GREY	SILVER PHYLLITE	OUTCROP
01.96	49605					
	49610	1.80	C	CREAM GREY	PHYLLITE	
	49615	0.70	C	BROWN LT GREY	PHYLLITE	
	49620	1.60	C	ORANGE YELLOW	PHYLLITE	
	49625	1.70	C	GREY GREEN BROWN	PHYLLITE	TALCOSE
	49630	1.00	C	CREAM ORANGE	PHYLLITE	VEIN QUARTZ
	49635	0.60	C?	BROWN		VEIN QUARTZ
	49640	0.80	C	LT GREY BLUE	PHYLLITE	TALCOSE
	49645	1.90	C	GREEN GREY BROWN	PHYLLITE	
	49650	1.10	C	BLUE GREY	PHYLLITE	
	49655	1.50	C	CREAM BLUE	PHYLLITE	
	49660	1.00	C	CREAM GREY BLUE		
	49665	0.80	C	CREAM GREY BLUE	PHYLLITE	
	49670	0.40	C	BLUE GREY	PHYLLITE	TALCOSE
	49675	0.30	C	CREAM GREY BLUE	PHYLLITE	
	49680	0.40	C	GREY	PHYLLITE	GRAPHITIC
	49685	0.50	C	CREAM GREY	PHYLLITE	GRAPHITIC
	49690	0.50	C	GREY	PHYLLITE	GRAPHITIC/TALCOSE
	49695	1.40	C	CREAM GREY	SANDY PHYLLITE	
	49700	1.00	C	CREAM GREY	SANDY PHYLLITE	
01.94	49605	0.80	C	ORANGE BROWN	SILVER GREY PHYLLITE	
	49610	0.70	C	ORANGE BROWN	GREY PHYLLITE	
	49615	0.70	C	GREY ORANGE	SILVER GREY PHYLLITE	VEIN QUARTZ
	49620	1.00	C	BRIGHT ORANGE	GREY PHYLLITE	VEIN QUARTZ
	49625	1.00	C	CREAM GREEN	PHYLLITE	

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS	
N	E						
01.94	49630	0.90	C	CREAM YELLOW			
	49635	1.20	C	GREY GREEN	PHYLLITE		
	49640	2.00	C?	CREAM GREY	PHYLLITE	TALCOSE	
	49645	0.10	C	CREAM GREY	PHYLLITE	SILICIC	
	49650	0.50	C	CREAM GREY	PHYLLITE	SILICIC	
	49655	0.40	C	DARK GREY	GRAPHITIC PHYLLITE		
	49660	0.40	C	LIGHT GREY	PHYLLITE		
	49665	0.30	C	DARK GREY	PHYLLITE		
	49670	0.50	C	GREY	PHYLLITE		
	49675		NO	SAMPLE			
	49680	0.40	C	BLUE GREY	PHYLLITE	GRAPHITIC	
	49685	1.00	C	LT BLUE GREY			
	49690	0.60	C	CREAM WHITE	SANDY	PSAMMITIC SCHIST BOUNDARY	
	49695	0.80	C	SILVERY WHITE	SANDY MICA SCHIST		
	49700	0.80	C	SILVERY WHITE	SANDY MICA SCHIST		
	01.92	49555	1.60	B	ORANGE BROWN		
		49560	1.20	C	ORANGE BROWN	MICA PHYLLITE	
49565		0.70	C	ORANGE GREEN	PHYLLITE		
49570		1.50	C	ORANGE	PHYLLITE		
49575		0.90	C	GREEN BROWN GREY	PHYLLITE		
49580		1.00	C	GREY BROWN	PHYLLITE		
49585		1.10	C	GREY BROWN	PHYLLITE		
49590		1.00	C	ORANGE BROWN	PHYLLITE		
49595		2.00	C	YELLOW ORANGE		VEIN QUARTZ	
49605		1.00	C	GREY BROWN	PHYLLITE		
49610		2.00	C	YELLOW ORANGE	PHYLLITE		
49615		1.00	C	ORANGE BROWN	PHYLLITE		
49620		0.10	C	BLUE GREY BROWN	PHYLLITIC CLAY	OUTCROP SAMPLE IN WEST SIDE OF CHANNEL AT COX'S FACE	
49625		0.10	C	CREAM GREY BROWN	PHYLLITIC CLAY	EAST SIDE OF CHANNEL	
49630		0.70	C	GREY WHITE	PHYLLITE	PSAMMITIC	
49635		1.20	C	CREAM GREY GREEN	PHYLLITE	TALCOSE	
49640		0.70	C	SILVER GREY	PHYLLITE		
49645	0.10	C	SILVER GREY	PHYLLITE	CREEK OUTCROP		
01.90	49560	1.00	C	BROWN ORANGE	PHYLLITE		
	49565	0.50	C	GREEN BROWN	PHYLLITE		
	49570	0.10	C	CREAM GREY	PHYLLITE	OUTCROP SAMPLE	
	49575	1.00	C	ORANGE BROWN	PHYLLITE		
	49580	0.90	C	DARK GREY	GREY PHYLLITE		
	49585	1.00	C	GREY YELLOW	PHYLLITE		
	49590	1.00	C	GREY YELLOW	PHYLLITE		
	49595	1.00	C	YELLOW ORANGE	PHYLLITE		
	49605	1.60	C	CREAM GREEN	PHYLLITE		
	49610	0.70	C	CREAM ORANGE	PHYLLITE		
	49615	0.50	C	GREY	PHYLLITE		

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
01.90	49620	0.60	C	GREY BROWN	SILVER PHYLLITE	
	49625	0.80	C	GREY BROWN	SILVER PHYLLITE	
	49630	0.50	C	DARK GREY BLUE	PHYLLITE	
	49635	0.70	C	BLACK LT GREY	PHYLLITE	
	49640	0.80	C	GREY WHITE	PHYLLITE	VEIN QUARTZ
01.88	49560	1.00	C	ORANGE	PHYLLITE	
	49565	1.00	C	BROWN GREY	PHYLLITE	
	49570	1.00	C	GREY GREEN	PHYLLITE	
	49575	1.30	B	RED ORANGE		
	49580	0.10	C	BROWN GREY	PHYLLITE	
	49585	1.00	C	BROWN GREY	PHYLLITE	
	49590	1.00	C	ORANGE	PHYLLITE	
	49595	1.00	C	CREAM ORANGE	PHYLLITE	
	49605	0.90	C	ORANGE GREEN	GREY PHYLLITE	
	49610	0.80	C	DK GREY BROWN	GREY PHYLLITE	
01.86	49615	0.60	C	GREY	PHYLLITE	
	49620	0.50	C	DARK GREY	PHYLLITE	
	49625	0.10	C	DARK GREY	GRAPHITIC PHYLLITE	CREEK OUTCROP
	49630	0.80	C	BLUE LIGHT GREY	PHYLLITE	TALCOSE
	49635	0.70	C	SILVER GREY	PHYLLITE	
	49640	1.00	C	SILVER GREY	PHYLLITE	ABUNDANT MICA
	49540	1.70	C?	ORANGE YELLOW		SLOPE WASH?
	49545	0.30	C	BROWN YELLOW	GREY PHYLLITE	
	49550	0.40	C	ORANGE BROWN	GREY PHYLLITE	
	49555	0.50	C	YELLOW ORANGE	GREY PHYLLITE	
01.84	49560	1.00	C	BROWN GREY	GREY PHYLLITE	
	49565	0.40	C	GREY	GREY PHYLLITE	
	49570	0.70	C	BROWN	GREY PHYLLITE	
	49575	0.10	C	BROWN ORANGE	PHYLLITE	
	49580	1.20	C	ORANGE BROWN	QUARTZ CHIPS	CARBONATE CLAY?
	49585	1.80	C	BROWN GREEN		
	49590	0.90	C	CREAM BROWN	PHYLLITE	
	49595	1.00	C	CREAM GREEN	PHYLLITE	
	49530	0.30	C	ORANGE BROWN	GREY PHYLLITE	CREEK OUTCROP
	49535		NOT SAMPLED			ALLUVIUM
01.84	49540	0.70	C	GREEN BROWN	PHYLLITE	
	49545	1.20	C	GREEN ORANGE	GREEN PHYLLITE	SAMPLE 10M SOUTH OF LINE
	49550	0.30	C	ORANGE BROWN		SAMPLE 5M NORTH OF LINE
	49555	1.10	C	BROWN ORANGE	MICA PHYLLITE	
	49560	0.50	C	BROWN ORANGE	PHYLLITE	
	49565	0.50	C	GREY	PHYLLITE	
	49570	0.50	C	GREY BROWN	PHYLLITE	
	49575	0.50	C	GREEN BROWN	PHYLLITE	
	49580	0.50	C	GREEN BROWN	PHYLLITE	
	49585	0.40	C	GREEN LIGHT GREY	PHYLLITE	

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
01.84	49590	0.20	C	BLUE GREY	GRAPHITIC PHYLLITE	
	49595	0.10	C	BLUE GREY	GRAPHITIC PHYLLITE	CREEK OUTCROP
01.82	49540	0.10	C	GREY ORANGE	PHYLLITE	ROCK CHIP
	49545		C		PHYLLITE	ROCK CHIP
	49550		C		GREY PHYLLITE	ROCK CHIP
	49555			NO SAMPLE		
	49560		C		SILVER GREY PHYLLITE	ROCK CHIP
	49565	0.40	C	GREEN GREY	SILVER PHYLLITE	
	49570	0.70	C	DK GREEN GREY	PHYLLITE	
	49575	0.30	C	GREEN GREY	GREY PHYLLITE	
49.6E	01.840	0.60	C	BLUE GREY	PHYLLITE	
	01.845	0.50	C	BLUE GREY	PHYLLITE	
	01.850	1.40	C	DK GREY BLUE	PHYLLITE	
	01.855	1.00	C	CREAM YELLOW	SANDY SCHIST	
	01.860	1.30	C	CREAM YELLOW	SLVRY GREY PHYLLITE	
	01.865	0.90	C	CREAM GREEN		CLAY
	01.870	0.60	C	GREEN		CLAY
	01.875	0.70	C	CREAM YELLOW		SANDY
	01.880	0.80	C	GREEN YELLOW	GREEN PHYLLITE	
	01.885			NO SAMPLE		
	01.890	0.80	C	CREAM YELLOW		CLAY
	01.895	0.80	C	CREAM ORANGE		CLAY
	01.900	1.00	C	CREAM GREEN	GREY PHYLLITE	
	01.905	0.80	C	CREAM ORANGE		CREAM BROWN LAMINATIONS
	01.910	0.70	C	ORANGE GREEN	GREEN BROWN PHYLLITE	
	01.915	0.60	C	GREEN LT BROWN	GREY PHYLLITE	
	01.920	1.20	C	ORANGE YELLOW		SANDY
	01.925	1.00	C	YELLOW		SLIGHTLY CLAYED
	01.930	1.40	C	YELLOW ORANGE		SLIGHTLY CLAYED
	01.935	1.00	C	RED ORANGE		CLAYED
	01.940	0.90	C	GREEN BROWN	GREY PHYLLITE	
	01.945	1.00	C	ORANGE BROWN	GREEN GREY PHYLLITE	
	01.950	1.00	C	BROWN GREY	GREY PHYLLITE	
	01.955	1.00	C	GREY GREEN	PHYLLITE	
	01.960	1.00	C	GREY ORANGE BRWN	PHYLLITE	
	01.965	1.00	C	ORANGE BROWN	GREY PHYLLITE	
	01.970	0.90	C	YELLOW ORANGE	GREY PHYLLITE	
	01.975	1.20	C	GREEN BROWN	GREY PHYLLITE	
	01.980	0.70	C	GREEN BROWN	GREY PHYLLITE	
	01.985	0.60	C	GREY BROWN	GREY PHYLLITE	
	01.990	0.50	C	GREEN YELLOW	GREEN GREY PHYLLITE	
	01.995	1.20	C	GREY BROWN	GREY PHYLLITE	

A.4.5.1.

GEOCHEMICAL ANALYSES  
GOLDEN RIDGE SERIES

LOCATION		ELEMENTS (ppm)										REMARKS
E	N	Cu	Pb	Zn	Mn	Ag	As	Ba	Au	Sb		
49.6E	01.840	x	x	x	5	x	x	30	0.005			
	01.845	x	x	x	5	x	x	45	0.008			
	01.850	25	x	40	110	x	13	75	x			
	01.855	x	x	10	5	x	x	50	0.001			
	01.860	15	5	25	35	x	7	70	0.003			
	01.865	x	x	25	25	x	x	50	0.002			
	01.870	10	x	55	70	x	1	45	0.001			
	01.875	5	x	35	50	x	6	90	x			
	01.880	5	10	40	50	x	14	75	0.003			
	01.885		NO SAMPLE									
	01.890	5	30	20	50	x	8	75	x			
	01.895	5	x	15	30	x	4	70	x			
	01.900	5	x	45	55	x	5	50	0.007			
	01.905	10	25	15	20	x	18	70	0.001			
	01.910	5	10	30	40	x	3	65	x			
	01.915	x	x	30	55	x	x	70	x			
	01.920	30	x	10	5	x	15	50	0.004			
	01.925	15	x	5	5	x	11	60	0.009			
	01.930	35	15	10	x	x	23	40	x			
	01.935	20	x	10	10	x	6	50	x			
	01.940	50	5	10	x	x	21	45	x			
	01.945	25	x	5	x	x	11	60	0.005			
	01.950	40	x	15	15	x	3	85	0.005			
	01.955	50	x	30	10	x	14	80	0.008			
	01.960	35	x	10	5	x	19	60	0.004			
	01.965	55	x	5	x	x	13	70	0.004			
	01.970	30	30	30	30	x	2	60	0.004			
01.975	10	5	10	10	0.1	2	70	0.025				
01.980	50	20	95	505	0.1	35	45	0.004				
01.985	5	x	45	190	x	4	85	0.004				
01.990	10	10	60	400	x	1	75	0.009				
01.995	10	15	55	290	0.1	2	65	0.005				
01.98	49605	5	20	45	65		1		x	x		
	49610	20	x	10	15		4		x	x		
	49615	45	10	5	10		6		x	x		
	49620	50	30	30	55		6		0.001	x		
	49625	30	5	55	105		9		0.001	x		
	49630	20	10	20	45		7		x	x		
	49635	25	x	10	35		5		0.001	x		
	49640	5	x	5	30		2		0.001	x		
	49645	x	x	x	20		2		x	x		
	49650	x	x	x	15		3		x	x		
	49655	x	x	x	10		3		x	x		
49660	x	x	x	10		2		x	x			

LOCATION		ELEMENTS (ppm)									REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Au	Sb	
01.98	49665	x	x	x	25		3		x	x	
	49670	x	x	x	10		x		0.005	x	
	49675	x	x	x	10		2		x	x	
	49680	x	x	x	15		2		x	x	
	49685	x	x	x	15		3		0.006	x	
	49690	x	x	x	10		3		x	x	
	49695	x	x	x	10		2		x	x	
	49700	x	x	x	5		2		x	x	
01.96	49605	30	x	x	10		1		0.005	x	
	49610	10	40	x	10		x		0.001	x	
	49615	10	5	35	80		x		x	x	
	49620	30	x	75	40		4		0.001	x	
	49625	50	10	15	20		2		x	x	
	49630	10	x	5	20		x		x	x	
	49635	5	x	x	20		x		x	x	
	49640	x	x	x	15		x		x	x	
	49645	5	x	45	225		3		0.010	x	
	49650	x	x	x	10		x		x	x	
	49655	x	x	5	x	0.1	x	35	0.003		
	49660	x	x	5	x	x	x	40	0.006		
	49665	x	x	10	x	x	x	45	0.002		
	49670	x	x	5	x	x	x	35	0.001		
	49675	x	x	5	10	x	x	35	0.001		
	49680	x	x	5	x	0.1	x	30	0.002		
	49685	x	x	5	x	0.1	x	35	x		
	49690	x	x	5	x	0.1	x	45	0.001		
49695	x	x	5	5	0.1	x	25	x			
49700	x	x	x	x	-	x	25	0.004			
01.94	49605	30	15	5	x	x	14	80	0.002		
	49610	x	15	50	70	x	6	70	0.003		
	49615	5	10	20	65	0.1	9	70	0.004		
	49620	x	10	10	10	0.1	9	80	0.001		
	49625	x	x	x	x	0.1	x	70	0.002		
	49630	5	x	x	x	0.1	8	35	0.004		
	49635	55	x	x	x	0.1	84	80	0.002		
	49640	x	x	x	x	0.1	7	60	0.004		
	49645	x	x	x	x	0.1	x	50	x		
	49650	x	x	x	x	0.1	x	45	0.001		
	49655	x	5	x	x	x	x	50	0.001		
	49660	x	x	x	x	0.1	x	40	0.001		
	49665	x	x	x	x	x	x	60	0.001		
	49670	x	x	x	5	0.1	x	40	0.002		
	49675		NO SAMPLE								
	49680	x	x	x	5	0.1	x	50	0.002		
	49685	x	x	x	x	0.2	x	40	0.001		
	49690	x	x	x	x	x	x	40	0.001		
	49695	x	5	x	x	0.1	x	60	0.001		
	49700	x	x	5	5	0.1	3	45	x		

LOCATION		ELEMENTS (ppm)									REMARKS	
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Au	Sb		
01.92	49555	140	25	50	45		90		x	x		
	49560	70	15	65	55		12		0.002	x		
	49565	80	10	35	50		12		0.008	x		
	49570	140	15	40	90		9		0.003	x		
	49575	10	5	40	160		16		0.001	x		
	49580	25	35	40	245		3		0.003	x		
	49585	70	20	20	40		6		0.004	x		
	49590	20	15	10	10		9		0.003	x		
	49595	30	20	15	20		10		0.002	x		
	49605	15	35	45	75		13		0.002	x		
	49610	40	10	15	25		22		0.003	x		
	49615	30	5	10	15		27		0.005	x		
	49620	70	x	105	420		27		0.003	3		
	49625	115	5	30	105		27		0.003	x		
	49630	20	x	x	30		11		0.012	x		
	49635	5	x	10	90		1		0.002	x		
	49640	x	x	x	25		2		0.002	x		
	49645	x	x	x	10		x		x	x		
	01.90	49560	135	5	40	30		15		0.003	x	
49565		120	5	30	50		21		0.001	x		
49570		15	x	35	150		2		0.002	x		
49575		75	15	100	770		13		0.001	x		
49580		20	30	30	55		11		0.001	x		
49585		40	x	10	10		14		0.001	x		
49590		30	x	15	15		20		0.002	x		
49595		60	x	10	15		20		0.001	x		
49605		25	x	50	60		27		x	x		
49610		45	x	5	10		20		x	x		
49615		100	x	60	160		22		x	x		
49620		30	x	30	85		11		x	x		
49625		5	x	x	15		1		0.002	x		
49630		20	x	10	55		4		0.001	x		
49635		x	x	x	15		4		x	x		
49640		x	x	x	10		x		0.002	x		
01.88		49560	260	40	110	80		45		0.001	x	
		49565	45	10	45	80		12		0.004	x	
		49570	45	5	40	75		14		0.004	x	
	49575	110	15	85	85		14		0.004	x		
	49580	25	30	35	35		14		0.001	x		
	49585	40	x	10	10		22		x	x		
	49590	25	x	10	10		10		x	x		
	49595	25	x	15	15		6		0.001	x		
	49605	45	x	30	25		22		0.002	x		
	49610	115	x	60	165		13		0.001	x		

LOCATION		ELEMENTS (ppm)									REMARKS	
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Au	Sb		
01.88	49615	x	x	x	10		1		0.001	x		
	49620	5	x	5	45		6		0.002	x		
	49625	5	x	x	5		6		0.001	x		
	49630	x	x	x	10		1		0.002	x		
	49635	x	x	5	10		x		0.001	x		
	49640	x	x	x	10		5		x	x		
01.86	49540	85	25	95	160	x	17	70	x			
	49545	120	30	110	655	x	16	70	0.001			
	49550	70	20	85	470	x	8	60	0.002			
	49555	65	20	100	130	0.1	8	60	0.002			
	49560	50	20	120	175	0.1	9	140	0.002			
	49565	25	10	20	55	0.1	7	85	0.001			
	49570	45	15	85	260	0.1	19	55	0.001			
	49575	40	30	40	100	0.1	16	80	0.001			
	49580	110	85	35	90	0.1	47	80	0.003			
	49585	90	70	30	40	x	77	75	0.006			
	49590	10	5	30	20	0.1	6	50	x			
	49595	10	30	60	100	x	6	65	0.002			
	01.84	49530	140	15	70	695	0.1	77	45	0.006		
49535			NOT SAMPLED									
49540		45	20	80	32	x	10	80	x			
49545		40	10	50	175	x	6	80	x			
49550		25	x	60	305	0.1	5	55	0.001			
49555		50	15	95	2300	x	15	150	0.001			
49560		60	5	55	210	0.1	14	80	0.002			
49565		45	20	145	225	0.1	11	85	0.001			
49570		60	10	80	250	0.1	9	60	x			
49575		85	50	70	150	0.1	4	60	0.002			
49580		25	x	40	25	0.1	5	65	x			
49585		15	10	35	30	0.1	x	85	0.001			
49590		20	45	60	105	0.1	4	100	0.002			
49595		30	25	70	120	0.2	19	60	0.009			
01.82	49540	20	20	90	3700		6		0.006	x		
	49545	5	x	20	775		2		x	x		
	49550	15	15	120	2.2%		12		0.003	x		
	49555		NO SAMPLE									
	49560	30	10	20	195		10		0.001	x		
	49565	15	5	15	85		7		0.438	x		
	49570	20	5	20	50		24		0.005	x		
49575	15	5	30	40		16		0.001	x			
Method		101	101	101	101	102	114	120	325	402		

x Below the limit of detection

APPENDIX 5.0BATTYS BEND PROSPECT

## A.5.1. Soil Sample Data, Location, Horizon and Description

## A.5.1.1. Geochemical Analyses

236.1.08.3023	43.8E	97350 - 97875N
236.1.08.3039A	98.00N	43450, 43475E
236.1.08.3039A	97.70N	43575 - 43775E
236.1.08.3045B	97.50N	43450 - 43775E

A.5.1.

## SOIL SAMPLE DATA

## BATTYS BEND SERIES

LOCATION		DEPTH	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E	(M)				
	43.8					
97350		1.90	B	BROWN CLAY		
97375		1.00	B	LIGHT BROWN		CRUMBLY
97400		1.80	B	YELLOW BROWN		TRANSPORTED GREEN SCHIST CHIPS
97425		1.80	B	YELLOW BROWN		TRANSPORTED GREEN SCHIST CHIPS
97450		1.50	C	GREEN ORANGE	GREEN SCHIST	
97475		1.00	C	GREEN ORANGE	GREEN SCHIST	
97500		1.80	C	LIGHT TAN		POWDERY
97525		1.50	B	ORANGE BROWN		
97550		2.00	B	ORANGE BROWN		
97575		2.00	B	BROWN		
97600		1.40	C	GREEN		CLAYEY
97625		1.50	B	BROWN CLAYS		
97650		0.75	C	GREEN GREY		
97675		1.30	C	DULL BROWN		CLAYEY
97700		1.20	C	RED ORANGE		
97725		1.00	C	LT CREAM BROWN	MUDSTONE	FRIABLE SOIL
97750		0.90	C	LT CREAM BROWN	MUDSTONE	FRIABLE SOIL
97775		1.60	C	LIGHT TAN		CLAYEY
97800		1.50	C	GREEN GREY		
97825		1.70	B	DK GREEN BROWN		
97850		1.80	B	GREEN CLAYS		TERTIARY SANDS?
97875)						
97900)						TERTIARY CLAYS, SANDS AND GRAVELS
97925)						
97950)						NO SAMPLES TAKEN
97975)						
98000)						MAXIMUM DEPTH OF AUGER (2.0M)
98.0	43775)					
	43750)					
	43725)					
	43700)					
	43675)					TERTIARY CLAYS, SANDS AND GRAVELS
	43650)					
	43625)					NO SAMPLES TAKEN
	43575)					
	43550)					MAXIMUM DEPTH OF AUGER
	43525)					
	43500)					
	43475)					DOLOMITE ROCK CHIP SAMPLE IN ADJACENT CREEK
	43450)					DOLOMITE ROCK CHIP SAMPLE IN ADJACENT CREEK

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
97.7	43775	0.80	C	ORANGE CLAY		FRIABLE
	43750	1.70	B	REDDISH ORANGE		
	43725	0.90	C	LT GREEN BROWN	SCHIST	FRIABLE
	43700	2.00	C	GREEN BROWN	SCHIST	
	43675	1.40	C	LT BLUE GREY		
	43650	1.80	B?	GREEN GREY		MINOR QUARTZ
	43625	2.00	)			
	43600	2.00	)	TERTIARY - NO SAMPLE		
	437575	1.00	C?	STEEL GREY CLAY, PROBABLY QUARTZ GRAVELS		
NO SAMPLE TAKEN FROM THE INTERVAL 43550 - 43275 DUE TO TERTIARY DEPOSITS						
97.5	43775	1.80	B	BROWN CLAYS		
	43750	1.80	B	BROWN CLAYS		
	43725	1.80	B/C?	GREEN BROWN	GREENSCHIST	FLOAT MATERIAL?
	43700	1.00	B/C?	GREEN BROWN	GREENSCHIST	FLOAT MATERIAL?
	43675	1.40	C	LT GREEN CLAYS	GREENSCHIST	POWDERY
	43660			DOLOMITIC ROCK CHIP SAMPLE IN CREEK		
	43650	2.00	C?	BROWN BLACK ORGANIC CLAYS UNDERLYING GRAVELS		
	43625			DOLOMITIC ROCK CHIP SAMPLE		
	43600			DOLOMITIC ROCK CHIP SAMPLE		
	43575	2.00		TERTIARY GRAVELS - SAMPLE TAKEN		
	43550	1.80		TERTIARY GRAVELS - SAMPLE TAKEN		
	43525	2.00		TERTIARY GREY SANDS - SAMPLE TAKEN		
	43500A	1.4-1.8		GREEN CLAYS	GREEN SLATE	
	43500B	0.8-1.4				BLACK PUG
	43475	1.90				CLAYEY SANDS
	43450	1.80				FINE SANDS

LOCATION		ELEMENTS (ppm)								REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Au	
97.7	43775	40	15	35	40	0.1	8	560	0.003	
	43750	150	40	70	270	x	11	420	0.004	
	43725	45	20	80	210	0.1	4	150	x	
	43700	150	2750	285	135	0.3	16	60	0.004	
	43675	15	375	100	250	2.5	7	x	x	
	43650	20	350	320	190	0.6	2	x	0.048	
	43625)									
	43600)	TERTIARY - NO SAMPLE								
	43575	5	x	10	45	0.2	2	x	x	
		NO SAMPLE TAKEN FROM THE INTERVAL 43550 - 43275 DUE TO TERTIARY DEPOSITS								
97.5	43775	85	25	100	635	0.1	9	290	0.004	
	43750	45	30	105	335	0.1	12	210	0.002	
	43725	65	30	90	295	x	6	160	0.002	
	43700	60	30	115	370	x	3	160	0.002	
	43675	120	30	130	270	x	20	140	0.004	
	43660	x	95	370	660	x	1	x	0.003	
	43650	35	405	270	2650	x	16	35	0.003	
	43625	x	35	15	155	x	2	x	0.001	
	43600	x	40	55	670	x	2	x	x	
	43575	5	45	65	140	0.1	1	x	x	
	43550	x	x	x	15	x	2	x	x	
	43525	5	x	x	20	0.1	x	x	0.001	
	43500A	5	10	x	25	0.1	6	95	0.001	
	43500B	5	15	x	20	0.1	8	110	0.001	
	43475	x	x	x	20	0.1	1	70	0.001	
	43450	x	x	x	15	0.1	4	x	0.001	

Method                    101    101    101    101    102    114    120    325

x                    Below the limit of detection

APPENDIX 6.0TIMBS CREEK ARSENIC-LEAD ANOMALIES

## A.6.1. Soil Sample Data, Location, Horizon and Description

## A.6.1.1. Geochemical Analyses

236.1.08.2975A	91.75N	44450 - 44650E
		44950 - 45150E
		45475 - 45575E
	91.80N	45575E

165

074166

A.6.1.

## SOIL SAMPLE DATA

## TIMBS CREEK ARSENIC AND LEAD ANOMALIES

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
91.75	44450	2.10	C?	ORANGE BROWN	LT GREEN PHYLLITE	
	44475	2.00	C	ORANGE BROWN		CRUMBLY
	44500	1.50	C	LIGHT RED BROWN		
	44525	0.60	C	LT BROWN YELLOW		
	44550	1.30	C	ORANGE BROWN		
	44575	1.60	C	BROWN ORANGE		
	44600	1.20	C	LIGHT BROWN		FERRUGINOUS LAYERS
	44625	0.65	C	ORANGE BROWN	GREY GREEN PHYLLITE	
	44650	1.25	C	GREY GREEN	GREY GREEN SLATE	
	91.75	44950	1.20	C	YELLOW ORANGE	
44975		1.80	C	YELLOW ORANGE		
44500		1.15	C	YELLOW ORANGE		
45025		1.00	C	GREEN BROWN		
45050		1.00	C	GREEN BROWN	GREY GREEN PHYLLITE	
45075		0.65	C	ORANGE BROWN		
45100		2.00	C	LIGHT BROWN	SCHISTOSE	
45125		1.60	C	LIGHT BROWN	SCHISTOSE	
45150		1.15	C	LT ORANGE BROWN	SCHISTOSE	
91.75	45475	2.00	B	BROWN YELLOW		
	45500	1.20	C	GREEN BROWN	MICACEOUS	
	45525	1.00	C	BROWN GREEN		
	45550	0.70	C	YELLOW ORANGE		
	45575	0.80	C	ORANGE BROWN		
91.80	45575	0.80	C	GREY BROWN	MICACEOUS	LOST BY ANALABS?

GEOCHEMICAL ANALYSES  
TIMBS CREEK ARSENIC AND LEAD ANOMALIES

LOCATION		ELEMENTS (ppm)							REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Au	
91.75	44450	90	25	35	85	x	19	0.004	
	44475	75	10	20	45	0.1	26	0.001	
	44500	35	25	10	10	0.1	28	0.002	
	44525	165	35	5	x	x	32	0.002	
	44550	65	50	5	x	x	110	0.002	
	44575	80	50	20	35	x	27	0.002	
	44600	285	100	25	20	x	x	0.004	
	44625	125	80	10	10	0.1	130	0.005	
	44650	170	15	65	275	x	77	0.002	
91.75	44950	20	15	10	220	0.1	4	0.003	
	44975	125	110	60	1900	0.2	18	0.001	
	45000	50	40	50	270	0.1	15	x	
	45025	25	15	70	565	0.1	10	0.002	
	45050	25	x	110	1050	0.1	8	0.001	
	45075	5	15	20	20	x	9	0.002	
	45100	35	15	80	10	0.2	19	0.001	
	45125	x	x	15	10	x	8	x	
	45150	70	30	80	40	0.3	18	x	
91.75	45475	35	140	20	5	x	20	0.005	
	45500	5	5	20	60	x	4	0.003	
	45525	25	x	55	110	x	6	0.001	
	45550	15	10	5	x	x	8	x	
	45575	5	80	40	10	0.1	16	0.001	
91.80	SAMPLE LOST BY ANALABS								
Method		101	101	101	101	102	114	325	

x Below the limit of detection.

APPENDIX 7.0ROCKY RIVER PROSPECT

## A.7.1 Soil Sample Data, Location, Horizon and Description

## A.7.1.1. Geochemical Analyses

236.1.08.2957a	89.3N	50550, 50600e
236.1.08.2885c	89.3N	50100 - 51200E
236.1.08.2924	89.7N	50100 - 51200E
236.1.08.2957A	90.1N	50125 - 51200E
236.1.08.3023	90.12N	50860 - 50930E
236.1.08.3023	90.08N	50800 - 51000E
236.1.08.3013A	89.72N	50250 - 50370E
	89.68N	50250 - 50370E
	90.12N	50940 - 51000E

## A.7.2 TBE Separation and Mercury Amalgamations

## Analabs Analytical Data

236.1.08.2918B  
236.1.08.2982B

SOIL SAMPLE DATA  
ROCKY RIVER ARSENIC ANOMALY SERIES

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
89.3	51200	0.70	C	MOTTLED YLW BRWN	GREY MICA SCHIST	
	51175	1.50	B	ORANGE BROWN	ANGULAR QTZ GRAVELS	MAX DEPTH OF AUGER
	51150	0.50	B	LIGHT BROWN	GREY MICA SCHISTS	
	51125	1.10	C	CREAM BROWN	WHITE MICA SCHISTS	BLK SLATE PRESENT
	51100	1.10	C	CREAM BROWN	MICACEOUS	
	51075	0.80	C	CREAM BROWN	MICACEOUS SCHISTS	VEIN QTZ PRESENT
	51050	0.20	C	CREAM BLUE/BRWN	MICA SCHIST	OUTCROP NEARBY
	51025	0.50	C	CREAM GREY/BRWN	MICA SCHIST	
	51000	0.60	C	CREAM BROWN	WHITE MICA SCHIST	BLK SLATE PRESENT
	50975	0.60	C	CREAM GREY/BRWN	MICA SCHIST	
	50950	0.70	C	BLUE GREY	GREY MICA SCHIST	
	50925	0.70	C	CREAM BROWN	SANDY SCHIST	
	50900	0.30	C	CREAM BLUE	GREY SLATE	15M SOUTH OF LINE
	50875	1.10	C	CREAM BROWN	DK GREY MICA SCHIST	10M NORTH OF LINE
	50850	0.80	C	C.GREY/YLLW BRWN	MICA SCHIST	
	50825	0.60	C	CREAM BLUE-GREY	GREY MICA SCHIST	
	50800	0.80	C	CREAM BLUE	GREY SLATE	
	50775	1.10	C	CREAM GREY	GREY MICA SCHIST	GREY SLATE ALSO
	50750	0.60	C	CREAM LT BROWN	SERICITIC SCHIST	GREEN ORANGE CLAYS ALSO
	50725	1.25	C	CREAM DK BROWN ORANGE	MICACEOUS CLAYED SCHIST	
	50700	1.40	C	MOTTLED CRM BRWN	MICACEOUS	
	50675	1.00	C	CREAM BROWN	MICACEOUS SCHIST	
	50650	1.50	C	DK BROWN	BLUE GREY MICA SCHIST	
	50625	1.00	B	CRM GREY LT BRWN		
	50600	1.50	C	DK CHOC BROWN		
	50575)	IMPENETRABLE		QUARTZ GRAVELS		
	50550)	1.6	C	BLUE GREY	MICACEOUS	
	50525	0.80	C	BLUE GREY BROWN	MICACEOUS SCHIST	
	50500	0.50	C	BLUE GREY	MICACEOUS SCHIST	
	50475	0.20	C	BLUE GREY	MICACEOUS SCHIST	
	50450	0.70	C	BLUE GREY BROWN	MICACEOUS SCHIST	
	50425	0.60	C	CREAM BLUE GREY	MICACEOUS SCHIST	
	50400	0.80	C	CREAM GREY	MICACEOUS SCHIST	
	50375	0.70	C	GREEN	DK GREEN NON SCHIS- TOSE DENSE CHIPS	AMPHIBOLITE DYKE?
	50350	0.80	C	CREAM GREY	MICACEOUS SCHIST	
	50325	1.00	C	CREAM BROWN	BLUE MICA SCHIST	
50300	0.60	C	CREAM GREY BROWN	MICA SCHIST		
50275	1.00	C	GREY BROWN	MICA SCHIST		
50250	0.90	C	DK BROWN ORANGE	SCHIST		
50225	0.90	C	CREAM GREY BROWN	MICA SCHIST		
50200	0.80	C	SILVERY ORANGE BROWN	MICA SCHIST	SLIGHTLY SANDY	
50175	0.40	C	GREY YLLW ORANGE	MICA SCHIST		
50150	1.00	C	CREAM GREY BROWN	MICA SCHIST		
50125	1.00	C	CREAM GREY	MICA SCHIST		
50100	1.00	C	CREAM GREY BROWN	MICA SCHIST		

SOIL SAMPLE DATA  
ROCKY RIVER ARSENIC ANOMALY SERIES

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
89.7	51200	1.50	C	LT CREAM GREY		
	51175	1.40	C	LT CREAM GREY		
	51150	0.60	C	LT CREAM GREY		
	51125	0.70	C	LT CREAM GREY		
	51100	0.50	C	LT CREAM GREY		
	51075	0.60	C	LT ORANGE BROWN		
	51050	0.90	C	CREAMY GREEN		
	51025	0.65	C	DK GREY BLUE	BANDED DK SHALES	
	51000	0.90	C	CHOCOLATE BROWN	TAN ARENITES	
	50975	0.95	C	DK GREY GREEN		
	50950	0.80	C	LT BROWN ORANGE		
	50925	0.60	C	LT GREY GREEN		
	50900	1.20	C	LT ORANGE BROWN		
	50875	0.70	C	LT ORANGE BROWN		
	50850	1.00	C	LT ORANGE BROWN		
	50825	0.35	C	LIGHT GREY	GREY BLUE PHYLLITE	
	50800	1.70	C	LT ORANGE BROWN		QTZ FRAGMENTS
	50775	0.80	C	LT ORANGE BROWN		
	50750	0.75	C	LT ORANGE BROWN		
	50725	1.20	C	LT ORANGE BROWN		CRUMBLY
	50700	0.90	C	LT ORANGE BROWN		CRUMBLY
	50675	1.15	C	LT GREY GREEN		
	50650	0.50	C	LT BROWN YELLOW		
	50625	0.50	C	GREEN GREY	GREEN GREY SLATE	
	50600	1.60	C?	TAN		CRUMBLY
	50575	2.00	C	CHOCOLATE BROWN		
	50550	1.20	C	GREY GREEN	PHYLLITE	
	50525	1.00	C	GREY GREEN	PHYLLITE	
	50500	1.00	C	GREY GREEN	PHYLLITE	
	50475	0.60	C	DK GREY GREEN	SLATE	CRUMBLY
	50450	1.20	C	YELLOW BROWN		SCHISTOSE CLAY
	50425	1.60	C	YELLOW BROWN		SCHISTOSE CLAY
	50400	1.00	C	LT GREY BROWN		
	50375	1.30	C	LT GREY BROWN	DK GREY BLK SCHIST	
	50350	1.10	C	LT GREY BROWN	LT GREY SCHIST	
	50325	1.20	C	DK GREY BROWN	GREY SCHIST	
	50300	1.20	C	DK GREY BROWN	GREY SCHIST	
	50275	0.75	C	DK GREY BROWN	GREY SCHIST	
	50250	1.00	C		LT GREY SCHIST	
	50225	0.50	C	LIGHT GREY	QUARTZ MICA SCHIST	
	50200	0.60	C	LIGHT GREY	QUARTZ MICA SCHIST	
	50175	0.50	C	LIGHT GREY	QUARTZ MICA SCHIST	
	50150	0.80	C	LIGHT GREY	QUARTZ PHYLLITE	
	50125	0.60	C	LIGHT GREY	GREY PHYLLITE	
	50100	0.90	C	LIGHT GREY	LT GREY BRWN PHYLLITE MINOR QUARTZ	

SOIL SAMPLE DATA  
ROCKY RIVER ARSENIC ANOMALY SERIES

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS	
N	E						
90.1	51200	0.85	C	LIGHT GREY		FRIABLE	
	51175	0.80	C	LIGHT GREY		FRIABLE	
	51150	1.50	C	LT YLW ORANGE			
	51125	0.60	C	LT GREY GREEN			
	51100	1.50	C	LT CREAM BROWN			
	51075	0.60	C	LT GREY GREEN			
	51050	0.50	C	CREAMY ORANGE			
	50125	0.45	C	LIGHT GREY		FRIABLE	
	51000	1.20	C	CHOCOLATE BROWN			
	50975	0.50	C	DK BLUE GREY	SLATE		
	50950	0.65	C	LIGHT GREY			
	50925	0.70	C	LIGHT GREY		FRIABLE	
	50900	1.50	C	CHOCOLATE BROWN			
	50875	1.50	C	LT YLW BROWN			
	50850	0.70	C	LIGHT GREY		FRIABLE	
	50825	1.50	C	LT YLW BROWN			
	50800	0.75	C	LIGHT GREY		FRIABLE	
	50775	0.60	C	LT CHOC BROWN			
	50750	1.00	C	CHOCOLATE BROWN			
	50725	1.00	C	CHOCOLATE BROWN		FRIABLE	
	50700	1.20	C	LT YELLOW BROWN			
	50675	1.55	C	LT YELLOW BROWN			
	50650	0.85	C	LIGHT BROWN			
	50625	2.00	B			CREEK GRAVELS?	
	50600	0.55	C	LT CHOC BROWN			
	50575	1.10	C	LT CREAM ORANGE			
	50550	1.00	C	LT CREAM ORANGE			
	50525	1.00	C	LT CREAM ORANGE			
	50500	0.60	C	GREY GREEN		FRIABLE	
	50475	1.00	C	LT YELLOW BROWN			
	50450	1.80	C	LT ORANGE BROWN			
	50425	1.00	C	LT ORANGE BROWN			
	50400	1.40	C	LT ORANGE BROWN			
	50375	0.30	C		DK GREY PHYLLITE		
	50350	1.40	C	LT GREEN BROWN			
	50325	0.65	C	GREEN CHOC BROWN			
	50300	0.60	C	LT CHOC BROWN	PHYLLITE		
	50275	1.70	C	DK CHOC BROWN			
	50250	1.20	C	DK CHOC BROWN			
	50225	1.20	C	GREY BROWN			
	50200	0.70	C	CREAM GREY	PHYLLITE		
	50175	1.25	C	BLUE GREY	PHYLLITE	BANDED	
	50150	0.80	C	BROWN GREY	MICACEOUS		
	50125	0.70	C	BLUE GREY	SLATE		
	50100	NO SAMPLE TAKEN - GRAVELS					

A.7.1.

SOIL SAMPLE DATA  
ROCKY RIVER ARSENIC ANOMALY SERIES

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
90.12	50800)					
	50810)					
	50820)			IMPENETRABLE GRAVELS		
	50830)					
	50840)					
	50850)					
	50860	1.00	C	BROWN		
	50870	1.80	C?	YELLOW BROWN		CLAYEY
	50880	1.30	C	BROWN		
	50890	1.00	C	BROWN		
	50900	1.00	C	LIGHT BROWN		
	50910	0.80	C	CHARCOAL GREY		
	50920	0.80	C	LIGHT TAN		
	50930	1.20	C	SILVER GREY	PHYLLITE	
	50940	1.20	C	CHOCOLATE BROWN		
	50950	0.75	C	LT GREY BROWN		
	50960	0.50	C	LT BLUE GREY	PHYLLITE	
50970	0.90	C	LT BLUE GREY	PHYLLITE		
50980	0.80	C	YELLOW BROWN		FRIABLE	
50990	0.40	C	LT GREY	GREY PHYLLITE		
51000	0.50	C	LT CREAM TAN		FRIABLE	
90.08	50800	1.40	C	TAN BROWN		
	50810	1.30	C	GREY BROWN		
	50820	1.40	C?	ORANGE BROWN		CLAYEY
	50830	0.90	C?	ORANGE BROWN		CLAYEY
	50840	1.00	C?	ORANGE BROWN		CLAYEY
	50850	1.00	C	GREY		FRIABLE
	50860	0.8	C	GREY BROWN		
	50870	0.8	C	OLIVE GREEN		
	50880	0.7	C	ORANGE BROWN		FRIABLE
	50890	0.6	C	TAN		
	50900	0.80	C	LT YELLOW BROWN		FRIABLE
	50910	0.80	C	BROWN		
	50920	0.80	C	GREY		
	50930	0.90	C	STEEL GREY		SLIGHTLY CLAYEY
	50940	0.95	C	PALE CREAM		FRIABLE
	50950	1.30	C	PALE CREAM		FRIABLE
	50960	1.00	C	PALE CREAM		FRIABLE
50970	0.60	C	CHARCOAL GREY			
50980	0.70	C	STEEL GREY			
50990	0.60	C	STEEL GREY			
51000	0.60	C	PALE RED BROWN			
89.72	50250	0.80	C	CREAM BROWN		

A.7.1.

LOCATION		DEPTH (M)	HORIZON	COLOUR	ROCK CHIPS	REMARKS
N	E					
89.72	50260	0.80	C	BROWN		FRIABLE
	50270	0.80	C	DK CHOC BROWN		
	50280	1.20	C	TAN GREY	GREY PHYLLITE	FRIABLE
	50290	1.50	C	CREAMY GREY		CHOC BROWN STRINGERS
	50300	1.30	C	LIGHT BROWN	GREEN PHYLLITE	
	50310	0.60	C	CREAM BROWN	GREY PHYLLITE	
	50320	1.20	C	LT YELLOW BROWN		
	50330	1.00	C	LT CREAM BROWN		
	50340	0.60	C	PALE GREY BROWN		
	50350	1.50	C	PALE GREY GREEN		
	50360	1.00	C	GREEN BROWN		
	50370	0.60	C	VERY DK GREY		
89.68	50250	0.60	C	CHOCOLATE BROWN		
	50260	0.70	C	CHOCOLATE BROWN		
	50270	0.50	C	CHOCOLATE BROWN		
	50280	1.20	C	LT GREEN GREY		
	50290	1.30	C	CHOCOLATE BROWN		
	50300	1.20	C	CHOCOLATE BROWN		
	50310	1.30	C	CHOCOLATE BROWN		
	50320	1.40	C	LT CHOC BROWN		
	50330	1.60	C	LT GREEN GREY		FRIABLE
	50340	1.40	C	LIGHT BROWN		
	50350	1.00	C	LT GREEN GREY	PHYLLITE	
	50360	1.40	C	LIGHT CREAM TAN		
	50370	1.00	C	YELLOW BROWN	PHYLLITES	TALCOSE

GEOCHEMICAL ANALYSES  
ROCKY RIVER ARSENIC ANOMALY SERIES

LOCATION		ELEMENTS (ppm)								REMARKS	
		Cu	Pb	Zn	Ag	As	Ba	Sb	Au		
89.3	51200	25	15	10	x	9	60	13	x		
	51175	35	55	20	x	38	50	15	x		
	51150	x	10	x	x	1	180	I/S	I/S		
	51125	5	10	5	x	2	100	3	x		
	51100	5	10	x	0.1	1	130	2	0.001		
	51075	x	x	x	x	1	40	x	0.002		
	51050	20	x	5	x	3	85	x	x		
	51025	x	x	x	x	6	50	x	0.002		
	51000	5	5	x	x	8	50	x	x		
	50975	x	5	10	x	3	60	x	x		
	50950	x	x	x	x	1	120	x	x		
	50925	x	x	x	x	x	60	x	x		
	50900	x	x	5	x	x	125	3	0.001		
	50875	x	x	x	x	x	90	1	x		
	50850	5	x	x	x	1	45	2	x		
	50825	x	x	x	x	x	95	x	x		
	50800	5	5	x	x	1	25	x	x		
	50775	x	x	x	x	2	30	x	x		
	50750	x	10	x	x	52	60	x	x		
	50725	x	x	x	x	3	30	x	x		
	50700	10	x	x	x	100	35	x	x		
	50675	x	x	5	x	x	20	1	x		
	50650	x	x	x	x	x	40	x	x		
	50625	x	x	x	x	x	65	x	x		
	50600	5	10	10	0.1	x	20	*	0.002	* Sb not assayed Mn = 22	
		50575									
		50550	20	50	15	0.2	15	35	*	0.007	* Sb not assayed Mn = 65ppm
		50525	5	10	10	0.2	1	150	x	x	
		50500	x	x	35	x	x	60	x	x	
		50475	x	5	10	x	x	80	x	x	
		50450	55	x	30	x	1	95	I/S	I/S	
		50425	45	10	10	x	4	135	2	0.001	
		50400	x	5	5	x	1	120	3	x	
		50375	50	20	115	x	3	10	2	x	
		50350	x	x	5	x	x	40	x	x	
		50325	x	x	x	x	x	40	x	x	
	50300	x	x	5	x	x	65	x	x		
	50275	x	x	x	x	x	45	x	x		
	50250	5	5	x	0.2	x	40	x	x		
	50225	x	x	5	x	1	40	x	x		
	50200	5	x	20	x	5	40	x	0.002		
	50175	10	10	60	x	2	40	x	x		
	50150	x	10	x	x	x	60	x	x		
	50125	x	10	5	x	x	45	x	x		
	50100	40	15	5	x	x	40	x	x		

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A.7.1.1.

GEOCHEMICAL ANALYSES  
ROCKY RIVER ARSENIC ANOMALY SERIES

LOCATION		ELEMENTS (ppm)								REMARKS
N	E	Cu	Pb	Zn	Ag	As	Ba	Sb	Au	
89.7	51200	60	45	5	x	16	145	9	0.001	
	51175	110	145	x	x	28	215	190*	0.004	* Method 402
	51150	5	5	x	x	x	150	x	0.001	
	51125	30	5	20	x	5	75	2	0.001	
	51100	5	5	x	x	1	55	5	x	
	51075	25	x	5	x	11	65	7	0.001	
	51050	20	15	15	x	22	85	49	0.002	
	51025	x	x	x	x	1	85	x	x	
	51000	x	x	x	x	x	60	x	x	
	50975	20	20	5	x	6	75	x	0.002	
	90505	20	x	40	x	5	60	x	0.003	
	50925	10	5	x	x	15	65	x	x	
	50900	15	10	x	x	14	70	x	x	
	50875	10	10	x	x	24	100	1	0.002	
	50850	30	20	x	x	88	80	x	0.001	
	50825	10	15	x	x	7	55	x	0.002	
	50800	20	15	5	x	29	80	3	0.001	
	50775	15	x	5	x	19	115	x	0.003	
	50750	25	5	5	x	37	75	x	0.001	
	50725	45	10	35	x	65	60	x	0.001	
	50700	30	x	5	x	630	60	3	0.002	
	50675	x	5	x	x	22	25	x	0.001	
	50650	5	5	10	x	19	20	x	0.001	
	50625	10	10	20	x	21	85	x	x	
	50600	25	45	5	x	99	20	1	0.002	
	50575	5	10	5	x	1	20	4	0.004	
	50550	x	x	x	x	x	35	x	0.002	
	50525	x	x	x	x	1	40	2	0.004	
	50500	x	x	x	x	x	35	1	0.001	
	50475	25	5	5	x	16	85	x	x	
	50450	245	25	5	x	38	45	26	0.002	
	50425	50	5	5	x	15	110	x	0.005	
	50400	30	10	5	x	2	85	x	x	
	50375	5	5	5	x	1	100	x	x	
	50350	x	5	5	x	x	105	x	0.004	
	50325	5	5	5	x	1	30	x	0.004	
	50300	x	x	5	x	x	15	x	0.095	Anamolous Au
	50275	5	10	5	x	x	45	x	0.003	
	50250	40	190	90	x	18	55	1	x	
	50225	20	25	40	x	3	70	x	0.002	
	50200	45	130	75	x	89	70	I/S	I/S	
	50175	20	25	145	x	8	50	x	0.001	
	50150	5	x	20	x	x	60	x	0.002	
	50125	5	5	20	x	x	40	x	x	
	50100	5	x	15	x	x	55	x	0.003	

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A.7.1.1.

GEOCHEMICAL ANALYSES  
ROCKY RIVER ARSENIC ANOMALY SERIES

LOCATION		ELEMENTS (ppm)								REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Au	
90.1	51200	20	10	x	5	x	2	75	0.002	
	51175	55	15	x	x	x	x	65	0.001	
	51150	5	10	x	5	0.1	27	60	0.004	
	51125	x	x	x	5	x	x	65	0.002	
	51100	x	x	x	40	x	x	75	0.002	
	51075	x	x	x	30	x	x	95	0.002	
	51050	5	x	x	20	x	x	85	0.002	
	51025	x	x	x	10	x	x	55	0.002	
	51000	x	x	x	10	x	x	60	0.002	
	50975	5	x	x	10	x	1	65	0.013	
	50950	x	x	x	20	x	x	55	0.005	
	50925	x	x	x	5	x	1	30	0.004	
	50900	5	5	5	55	x	27	45	0.001	
	50875	10	x	5	15	x	53	50	0.004	
	50850	5	x	5	10	x	7	80	0.003	
	50825	90	40	10	50	x	41	50	0.006	
	50800	x	x	5	30	x	1	65	0.001	
	50775	x	x	x	10	x	x	35	0.001	
	50750	5	x	5	20	x	3	45	x	
	50725	5	x	5	15	x	34	25	0.001	
	50700	20	21	10	60	x	55	30	x	
	50675	250	100	50	140	x	600	45	0.001	
	50650	25	35	30	150	x	47	60	0.002	
	50625	5	20	85	140	x	110	25	0.002	
	50600	5	x	5	25	x	22	20	0.002	
	50575	5	10	5	15	x	34	25	x	
	50550	10	35	5	20	x	13	55	x	
	50525	30	10	15	30	x	18	35	0.001	
	50500	15	x	5	25	x	35	60	0.002	
	50475	5	x	x	50	x	25	25	0.001	
	50450	25	20	10	40	x	21	20	0.001	
	50425	35	15	30	165	x	11	75	0.001	
	50400	30	30	40	220	x	11	75	x	
	50375	80	50	235	350	x	33	60	0.005	
	50350	90	205	85	550	x	21	15	0.001	
	50325	35	40	15	80	x	6	35	0.002	
	50300	x	x	x	30	x	3	35	x	
	50275	x	x	x	10	x	x	35	x	
	50250	x	x	5	45	x	2	50	0.004	
	50225	5	x	5	30	0.2	4	25	0.001	
	50200	5	5	20	140	x	5	25	0.001	
	50175	165	20	200	460	x	55	15	0.006	
	50150	5	20	25	125	x	4	45	0.001	
	50125	10	10	10	35	x	4	25	0.003	
	50100									NO SAMPLE TAKEN - GRAVELS

A.7.1.1.

GEOCHEMICAL ANALYSES  
ROCKY RIVER INFILL LINES  
ARSENIC ANOMALY SERIES

LOCATION		ELEMENTS (ppm)										REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Sb	Au		
90.12	50800)											
	50810)											
	50820)	IMPENETRABLE GRAVELS										
	50830)											
	50840)											
	50850)											
	50860	5	x	x	15	x	1	35			0.005	
	50870	25	x	15	25	x	29	280			0.004	
	50880	5	x	15	30	0.1	1	30			0.002	
		5	x	15	30	0.1	1	30			0.002	
	50890	5	x	10	25	0.1	1	110			0.001	
	50900	5	x	10	20	x	3	110			0.001	
	50910	5	x	10	10	0.1	1	320			0.005	
	50920	5	x	5	15	x	x	85			0.004	
	50930	x	x	5	10	0.1	x	210			0.003	
	50940	10	x	x		x	1	70	x		0.003	
	50950	5	x	x		x	x	30	x	x		
	50960	5	x	15		x	2	55	x	x		
	50970	5	x	x		x	2	70	x	x		
	50980	35	x	x		x	24	70	x		0.001	
	50990	5	x	x		x	1	80	4		0.005	
	51000	5	x	x		x	1	45	x		0.001	
90.08	50800	5	x	15	25	0.1	1	100			x	
	50810	5	x	5	25	0.1	1	100			0.004	
	50820	10	5	10	35	x	100	60			0.001	
	50830	10	x	10	20	x	46	90			0.001	
	50840	15	5	5	15	0.1	18	110			0.002	
	50850	5	x	10	15	0.1	4	230			0.025	
	50860	20	x	5	10	x	26	280			0.002	
	50870	30	x	x	15	0.1	18	260			0.002	
	50880	50	x	10	25	x	9	160			0.003	
	50890	30	x	10	80	x	4	230			0.004	
	50900	15	x	5	21	0.1	1	120			0.010	
	50910	5	x	x	20	x	x	65			0.002	
	50920	5	x	5	15	x	x	110			0.001	
	50930	5	x	5	15	0.1	x	200			x	
	50940	5	x	5	15	0.1	x	260			0.001	
	50950	5	x	5	10	0.2	x	130			0.001	
	50960	5	x	5	10	0.2	1	210			0.001	
	50970	5	x	5	10	0.1	x	100			0.001	

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A.7.1.1.

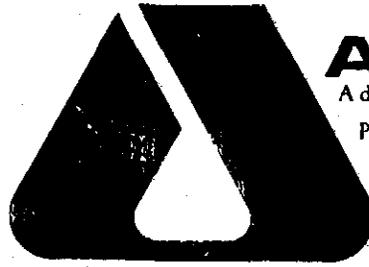
LOCATION		ELEMENTS (ppm)									REMARKS
N	E	Cu	Pb	Zn	Mn	Ag	As	Ba	Sb	Au	
90.08	50980	5	x	5	10	0.1	x	140		0.001	
	50990	5	x	5	15	0.1	x	220		0.001	
	51000	5	x	x	15	0.1	x	150		0.002	
89.72	50250	5	x	10		x	x	55	x	0.006	
	50260	5	x	5		x	x	60	x	0.001	
	50270	5	x	x		0.1	x	45	x	x	
	50280	x	x	x		x	x	55	x	0.002	
	50290	5	x	x		x	x	60	x	x	
	50300	5	x	10		x	2	40	4	x	
	50310	5	x	10		x	x	40	x	x	
	50320	60	5	x		x	52	90	3	0.004	
	50330	15	5	5		x	19	85	x	0.001	
	50340	20	10	10		x	2	90	x	x	
	50350	835	120	600		x	95	55	10	x	
	50360	460	60	80		x	41	25	15	0.004	
	50370	40	15	50		x	8	120	x	0.004	
	89.68	50250	15	x	x		0.1	2	55	x	x
50260		30	25	40		0.1	2	100	x	x	
50270		15	5	20		0.1	2	70	3	x	
50280		5	x	x		x	1	70	x	x	
50290		5	x	x		0.1	x	60	x	0.001	
50300		5	x	x		0.1	x	65	x	0.003	
50310		5	x	x		0.1	1	65	x	0.014	
50320		5	5	x		x	1	55	x	0.003	
50330		20	30	5		x	8	55	5	0.008	
50340		5	x	x		x	1	100	x	0.002	
50350		5	x	5		x	1	100	x	x	
50360		5	x	x		x	2	95	x	0.001	
50370		95	x	x		x	20	90	x	0.001	

APPENDIX 7.2

ANALABS TECHNICAL REPORTS

A7.2

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**ANALABS**

A division of Macdonald Hamilton Pty. Ltd.

Perth Head Office.

52 Murray Road Welshpool, Western Australia 6106.

Tel: (09) 458 7999, 458 7154. Telex: Analab AA92560.

PO. Box 210 Bentley, W.A. 6102.

IGS: sc

22 February 1985

Analabs  
14 Thirkell Street  
COOEE TAS

YOUR REF : 236.1.08.2918B  
OUR REF : 999.0.01.37147

Dear Sir

Enclosed are the results for the 41 samples from  
H. Shannon.

Yours faithfully

IAN G. SMITH  
Manager - Metallurgical Laboratories

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## ANALABS

TBE Separation and Mercury Amalgamation Results

SAMPLE NUMBER 89.3 -	SAMPLE WEIGHT (g)	SINKS WEIGHT (g)	GOLD RECOVERED BY MERCURY ( µg )
50100	13.4	0.10	} 26 (Note 1)
50125	68.8	0.20	
50150	7.4	0.20	1.25
50175	20.9	0.30	0.25
50200	17.3	0.40	43.5
50225	148.2	0.60	50.0
50250	30.7	0.20	1.50
50275	141.4	2.00	0.25
50325	117.6	1.50	0.50
50350	46.4	4.60	0.50
50375	13.9	1.10	24.50
50400	35.7	2.90	1.25
50425	30.8	1.70	0.25
50450	42.1	0.90	62.5
50475	4.80	0.05	2.5
50500	324.0	5.60	0.25
50525	10.0	0.40	55.0
50550	53.5	3.40	24.0
50575	66.0	3.60	0.5
50600	76.0	3.90	1.50
50650	45.4	1.70	26.5
50675	29.9	0.70	0.25
50700	12.9	0.20	0.25
50725	42.2	0.70	3.25
50750	22.4	1.00	0.5
50775	50.5	1.70	0.25
50800	132.9	2.80	x
50825	6.3	0.30	x
50850	17.7	0.40	x
50875	21.1	0.40	x
50900	52.8	0.50	0.5
50925	16.2	0.10	0.5
50975	10.4	0.30	0.75
51000	19.3	0.10	x
51025	16.1	0.10	x
51075	50.2	0.40	x
51100	37.3	0.10	x
51125	5.1	0.20	1.50
51150	126.8	0.10	0.25
51175	16.3	0.30	x
51200	5.1	0.10	x

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- \* Note 1.        Samples 50100 and 50125 added together  
                 result is a combined gold value.
  
- \* Note 2.        x indicates below detection limit of  
                 0.25 µg.

A N A L A B S

TBE SEPARATION AND MERCURY AMALGAMATION OF GOLD

Sample Number	Initial Wt(gms)	Sinks Wt(gms)	Sinks Wt %	Mags Wt(gms)	Non Mags Wt(gms)	Mags Wt(%)	Gold Recovered (mg)
HM 335	55.4	23.9		0.3	23.6	1.30	X
IM 356	65.3	19.2		0.1	19.1	0.52	X
IM 357	31.5	11.5		5.8	5.7	50.4	25
IM 358	14.3	2.5		1.2	1.3	48.0	20.5
IM 359	16.3	1.2		0.7	0.5	58.3	0.5
IM 360	70.3	56.4		33.7	22.7	59.8	X
IM 361	22.5	0.7		0.3	0.4	42.9	0.25
IM 362	12.0	0.2		0.1	0.1	50.0	X
IM 363	109.3	7.1		0.1	7.0	1.4	X
IM 364	107.2	5.4		0.1	5.3	1.9	X
IM 365	51.7	0.6		-	0.6	-	X
IM 366	59.0	0.3		0.1	0.2	33.3	X
IM 367	68.6	0.7		0.1	0.6	14.3	X
IM 368	86.4	0.3		0.1	0.2	33.3	X
IM 371	54.3	10.9		1.9	9.0	17.4	5.0
IM 372	85.4	37.5		10.5	27.0	28.0	150.0
IM 373	42.0	5.4		1.0	4.4	18.5	5.5
IM 374	67.6	21.3		5.1	16.2	23.9	5.0
IM 375	78.2	27.8		1.9	25.9	6.8	325.0
IM 376	62.1	16.1		6.9	9.2	42.9	19.0
IM 377	62.6	8.6		0.1	8.5	1.2	0.25
IM 50825	86.7	2.6		0.1	2.5	3.8	12.75
IM 50600	69.2	1.1		0.1	1.0	9.1	0.5
IM 50775	69.4	1.1		0.1	1.0	9.1	X
IM 50600	131.4	2.4		0.1	2.3	4.2	X
IM 50775	22.3	0.7		0.2	0.5	28.6	2.0
IM 50600	80.9	16.0		0.1	15.9	0.62	X
IM 50800	51.6	0.6		0.1	0.5	16.7	X
IM 84		105.2		22.6	82.6	21.5	1.25
IM 185		7.7		1.1	6.6	14.3	9.0

NOTE: X INDICATES BELOW DETECTION LIMIT (0.25MGS)

APPENDIX 8.0ASSAYS OF OLD CORE

## A.8.1. Long Plains South Drilling, Core Description

## A.8.1.1. Geochemical Analyses

236.1.08.2989	BH 28,29,30,33,34,35,46
236.1.08.2989B	BH 28,29,30,33,34,35,46

## A.8.2. Rocky River Drilling, Core Description

## A.8.2.1. Geochemical Analyses

236.1.08.2733	Cairns	22.10.84
236.1.08.2733	Perth	21.12.84

DRILL CORE DESCRIPTIONLONG PLAIN DDH - BH 28

FROM	TO	DESCRIPTION
496'	496'8''	Talc schist with magnesite bands, the magnesite bands contain thin quartz veinlets while some chalcopryrite blebs occur in the schist.
496'8''	497'8''	Creamy-pink magnesite with traces of magnetite. At 497' a talc schist with disseminated pyrite // to the schistosity occurs. At 497'3'' creamy-pink magnesite is cross cut by talc schist and a chalcopryrite rich quartz vein.
497'8''	509'	Magnesite with traces of quartz and pinoid magnetite.
518'	518'6''	Creamy-pink magnesite in contact with talc schist.
518'6''	529'6''	Pink magnesite with cross cutting quartz veinlets, 5-10mm thick, and minor disseminated pyrite.
529'6''	535'	Magnesite with talcose patches and large pyrite crystals.
535'	538'	Blocky magnesite with a silicic matrix.
538'	540'6''	Green-brown talc schist with disseminated pyrite.
540'6''	540'8''	A grey silicic zone with a thin carbonate vein.
540'8''	541'	Grey-brown talc schist.
541'	541'6''	Cream-white magnesite.

DRILL CORE DESCRIPTIONLONG PLAIN DDH - BH 29

FROM	TO	DESCRIPTION
481'	483'	Greenschist grading into magnesite with remnant schistose fragments and large pyrite crystals within the schist.
483'	500'	Magnesite containing recrystallized quartz and traces of chlorite. At 487' a thin silicic zone occurs with vuggy fractures which contain pyrite and chlorite.
500'	504'6''	Foliated greenschist with magnesite banding along the foliation. Grades into a creamy-yellow magnesite with remanants of chloride and pyrite.
504'6''	510'3''	Magnesite with silicic zones and a trace of magnetite. A trace of a bluish mineral is also present as are remanant pyrite casts. At 509' the core contains a thin vein of chalcopyrite possibly filling a fracture.
523'6''	524'	Creamy-orange quartz-carbonate.
524'	530'	White magnesite with traces of pyrite and chlorite.
530'	577'	Creamy-white magnesite with patches of secondary quartz and grading into a magnesite rich greenschist.
557'	588'	Previously cut silicified magnesite with talcose patches.

DRILL CORE DESCRIPTIONLONG PLAIN DDH - BH 30

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FROM	TO	DESCRIPTION
614'	615'	White magnesite, highly silicified and grading into a green-grey amphibolite.
615'	616'	Creamy-pink magnesite with cross-cutting quartz veinlets; traces of chlorite. Grades into a grey-brown talc schist.
616'	618'	Creamy-pink magnesite with blocky silica and grading into a green-grey amphibolite.
618'	619'	As above but with minor silicic veinlets and gradual rather than sharp contacts with the schistose zone.
619'	622'	Green-grey amphibolite with disseminated pyrite and traces of magnetite.
622'	623'	Creamy-white magnesite with traces of chlorite.
623'	624'6''	Creamy-white chlorite rich magnesite with large bands of amphibolite and an amphibole zone with minor carbonates.
624'6''	625'	Creamy-white magnesite, highly silicified, and containing remnant amphibolite patches.

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DRILL CORE DESCRIPTIONLONG PLAIN DDH - BH 33

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FROM	TO	DESCRIPTION
160'	174'	Patchy orange-brown dolomite with creamy-yellow calcite, traces of magnetite and minor secondary silica.
174'	178'6''	Creamy-pink-orange dolomite with white calcite.
178'6''	182'	Creamy-pink dolomite with schistose patches. Grades into a carbonate rich talc schist.
182'	185'	Creamy-pink quartz-carbonate.
185'	187'	Green-magnetite rich amphibolite which grades into a green-brown talc-chlorite schist.
187'	192'	Creamy-pink quartz carbonate with narrow talc-chlorite schist patches and becoming more calcic with depth.

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DRILL CORE DESCRIPTIONLONG PLAIN DDH - BH 34

FROM	TO	DESCRIPTION
112'	114'	Brown-orange quartz carbonate with traces of magnetite.
114'	115'	Grey-brown talc schist with pyritic blebs.
115'	116'	Quartz carbonate, very talcose.
116'	117'	Green-grey talc schist with disseminated pyrite.
117'	118'	Brown-orange quartz carbonate with talcose remnants.
120'6''	222'6''	Creamy-orange quartz carbonate, talcose in places.
122'	124'	Sheared amphibolite.
124'	133'	Patchy cream-tan dolomite-magnesite with bands of pyrite-talc schist. Remnant schistose patches and relict foliation trends are observable in the carbonates.
133'	141'	Dolomite-magnesite with calcitic zones. At 137'6'' pink magnesite veinlets cross cut partly carbonated schist which contains thin pyritic bands.
141'	150'	Dolomite-magnesite with calcitic patches and minor schistose blebs.
150'	160'	Dolomite amphibole with calcite and magnesite rich patches.

DRILL CORE DESCRIPTIONLONG PLAIN DDH - BH 35

FROM	TO	DESCRIPTION
199'	215'9''	Vuggy cream-pink-white magnesite with magnetite and traces of calcite.
215'9''	220'	As above but with zones of disseminated pyrite.
220'	222'	White magnesite with patches of magnetite which contains pyritic blebs.
222'	229'	White magnesite with dolomitic patches and calcitic zones. Some patches of magnetite and chlorite. Minor cross cutting calcite veins.
229'	230'	Magnetite with traces of disseminated pyrite.
230'	233'	Magnesite with magnetite and pyrite, minor calcite rich patches.
233'	244'	Creamy-white magnesite with blotches of magnetite and patches of green-blue talc schist which contains some large pyrite blebs. Traces of calcite occur in the magnesite.
244'	246'	Magnetite with haematite, pyrite, minor magnesite and calcitic veins. Grades into a green-grey talc schist.
246'	257'	Creamy-white-pink blotchy magnesite-dolomite with calcic patches and calcite filled fractures. Some pyritic zones with approx 10% pyrite., blotches of magnetite with associated pyrite.

DRILL CORE DESCRIPTIONLONG PLAIN DDH - BH 46

FROM	TO	DESCRIPTION
549'	568'6''	Previously sampled white and creamy-pink magnesite with traces of very fine pyrite.
568'6''	569'6''	Pink-brown magnesite with remnant grey-blue schist; calcite filled fractures and foliated pyritic veinlets.
569'6''	609'	Previously sampled creamy-white magnesite with traces of pyrite. At 592' to 593'6'' a brown talc magnesite schist occurs.  [core missing between 615' and 620']
609'	625'6''	Blotchy cream-white magnesite with moderate calcite, minor silicic blotches and minor pyrite in the calcic zones.
625'6''	627'3''	Brown magnesite-talc-pyrite schist grading into a calcite-chlorite-magnesite schist with minor pyrite.
627'3''	630'	White magnesite with veinlets and patches of silica; minor calcite and minor chlorite-brown magnesite-pyrite schist.
630'	630'6''	Calcite-brown magnesite-chlorite schist with replacement like magnesite banding and minor pyrite.
630'6''	644'6''	Same as interval 627'3'' to 630' but with a patch of brown talc schist at 632'6''.
644'6''	645'6''	Brown talc schist with minor magnesite, blotches of quartz and a trace of pyrite.
645'6''	667'	White magnesite with blotches of silica and a trace of disseminated pyrite.  [656' - 664'3'' was previously sampled]
667'	676'	White magnesite with calcitic zones.
676'	677'6''	Green talc-schist with minor disseminated pyrite. Minor pink magnesite, moderate calcite and a trace of silica and magnetite.
677'6''	678'	A carbonate vein with minor quartz and a gradual contact with the surrounding schist.

FROM	TO	DESCRIPTION
678'	683'	Fine grained talc-chlorite-magnetite schist with calcite in patches and veinlets; minor magnesite traces of pyrite and silica. At 680' a carbonate vein occurs.
683'	688'	Green-chlorite-talc schist with calcite, magnesite and silicic banding. Slightly vuggy with calcite filled fractures.
688'	692'	Creamy-white blotchy magnesite with remnants of talc-chlorite schist. Minor pyrite in disseminated form and as accumulated in fractures. Traces of calcite in fractures.
692'	694'	Brown talc-pyrite schist with zones of magnesite.
694'	695'6''	Chlorite-talc schist with calcite and magnesite along bedding plains.
695'6''	704'6''	Previously sampled creamy-white magnesite.
704'6''	710'	Blotchy creamy-white magnesite with patches of silica and minor disseminated pyrite. At 707' and 709' patches of brown-green talc schist occur.
710'	710'6''	Chlorite-talc schist with calcite-magnesite banding and disseminated pyrite.
710'6''	712'	Calcite with disseminated pyrite and veins of creamy-yellow magnesite.
712'	713'6''	As for 710' to 710'6''.
713'6''	715'	Calcite with bands of magnesite and silicic blebs.
715'	718'	Pyritic-green-brown-talc schist with pink-brown magnesite and minor calcite.
718'	721'6''	White magnesite with silicic zones which contain very fine pyrite. Some calcite and pyrite infilling of fractures. Minor patches of talc-pyrite schist.
721'6''	724'6''	Green chlorite-talc-pyrite schist with carbonate alteration along the bedding.
724'6''	725'	A creamy-pink-white magnesite-calcite vein.
725'	728'	As for 721'6'' to 724'6'' but very calcic with occasional calcitic veins.

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FROM	TO	DESCRIPTION
728'	740'	White magnesite with silicic patches and minor silica and calcite infilled fractures. At 735' a talc-pyrite-magnesite zone occurs. In this zone the pyrite accumulates along bedding plains.
740'	742'	Very fine green-brown talc-magnesite schist with silicic blebs.
742'	748'	As above but previously sampled.
748'	750'	As above.
750'	753'	White magnesite with calcic and silicic patches. Minor zones with talc-pyrite schist; cross cut by several very fine pyritic veinlets.
753'	761'	Green-brown talc-magnesite-calcite schist, containing disseminated pyrite along bedding plains and occasional patches of magnesite. Minor silicic blebs and veinlets are also present.
761'	767'	Calcite-pyrite-magnesite-talc-chlorite schist; pyrite forms 2-5% of the sample; minor magnesite rich bands.

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## LONG PLAIN - BH 28

SAMPLE INTERVAL (FT)	ELEMENTS (ppm)								
	Cu	Pb	Zn	Co	Ag	As	Sn	Ba	W
496-497	x	20	215	15	x	3	4	20	x
497-509	5	30	75	40	x	3	x	x	x
518-521	25	25	60	40	x	1	6	40	x
521-525	x	25	35	15	x	1	x	x	x
525-530	5	20	45	10	x	1	3	25	x
530-535	x	20	40	15	x	1	x	x	x
535-540	x	30	45	25	x	1	x	x	x
540-541.5	x	25	25	25	x	1	x	x	x
Method	101	101	101	101	102	114	402	120	401

SAMPLE INTERVAL (FT)	ELEMENTS								
	MgO %	SiO2 %	S %	CaO %	MnO %	Fe2O3 %	Hg ppm	LOI %	Au ppm
496-497	35.4	7.75	0.09	7.45	0.18	4.40	0.010	42.0	0.002
497-509	34.6	6.45	0.50	7.45	0.21	6.20	0.025	42.0	0.003
518-521	26.6	20.10	0.45	7.70	0.15	7.40	x	33.0	0.001
521-525	40.6	1.50	0.05	4.75	0.14	3.25	x	49.1	x
525-530	39.0	9.75	0.06	3.25	0.13	4.45	x	41.6	0.003
530-535	38.0	4.45	0.03	6.80	0.21	4.65	0.005	46.3	0.003
535-540	29.0	8.25	0.04	14.90	0.12	4.00	x	41.7	0.001
540-541.5	22.0	16.10	0.09	17.70	0.13	4.75	x	37.3	0.004
Method	408	408	408	408	408	408	122	408	325

NOTE: x denotes below limit of detection

## LONG PLAIN - BH 29

SAMPLE INTERVAL (FT)	ELEMENTS (ppm)								
	Cu	Pb	Zn	Co	Ag	As	Sn	Ba	W
481-488.5	x	20	35	25	x	2	x	x	x
500-505	5	15	90	30	x	4	x	140	x
505-510.2	5	20	50	35	x	4	x	x	x
523.5-525	x	25	50	15	x	3	x	x	x
525-530	x	15	55	10	x	1	x	x	x
530-535	x	20	50	10	x	1	x	x	x
535-540	5	20	30	20	x	4	x	x	x
540-557	x	20	60	15	x	3	4	x	x
Method	101	101	101	101	102	114	402	120	401

SAMPLE INTERVAL (FT)	ELEMENTS								
	MgO %	SiO2 %	S %	CaO %	MnO %	Fe2O3 %	Hg ppm	LOI %	Au ppm
481-488.5	36.2	6.95	0.07	6.50	0.26	5.65	x	42.90	x
500-505	25.6	21.30	0.04	6.05	0.18	7.95	0.015	31.60	0.002
505-510.2	29.1	18.10	0.07	8.30	0.19	4.85	0.120	39.40	0.003
523.5-525	36.5	5.60	0.01	8.10	0.15	3.30	x	46.00	0.001
525-530	38.2	6.65	0.01	4.95	0.14	2.75	x	47.00	0.001
530-535	41.3	4.50	0.01	2.75	0.18	3.50	x	47.5	0.001
535-540	39.3	4.10	0.01	5.25	0.15	3.90	x	46.70	x
540-557	31.5	13.00	0.04	7.35	0.13	4.65	0.010	39.80	x
Method	408	408	408	408	408	408	122	408	325

x Below the limit of detection

## LONG PLAIN - BH 30

SAMPLE INTERVAL (FT)	ELEMENTS (ppm)								
	Cu	Pb	Zn	Co	Ag	As	Sn	Ba	W
614-616	20	20	60	25	x	3	x	70	x
616-623	25	30	60	35	x	4	x	80	10
623-625	165	30	35	35	x	4	x	30	x
Method	101	101	101	101	102	114	402	120	401

SAMPLE INTERVAL (FT)	ELEMENTS								
	MgO %	SiO2 %	S %	CaO %	MnO %	Fe2O3 %	Hg ppm	LOI %	Au ppm
614-616	36.4	4.30	0.02	8.50	0.43	2.60	x	45.80	x
616-623	27.5	19.70	0.08	8.80	0.20	6.85	x	30.70	0.001
623-625	22.0	25.50	0.09	15.40	0.18	5.25	x	26.90	0.001
Method	408	408	408	408	408	408	122	408	325

x Below the limit of detection

## LONG PLAIN - BH 33

SAMPLE INTERVAL (FT)	ELEMENTS (ppm)								
	Cu	Pb	Zn	Co	Ag	As	Sn	Ba	W
160-165	x	20	40	15	x	3	x	x	x
165-171	x	25	40	10	x	5	x	x	x
171-173.6	x	25	45	10	x	7	x	x	x
178.6-182	10	25	50	20	x	4	4	x	x
184-192	10	25	60	30	x	3	4	x	x
Method	101	101	101	101	102	114	402	120	401

SAMPLE INTERVAL (FT)	ELEMENTS								
	MgO %	SiO2 %	S %	CaO %	MnO %	Fe2O3 %	Hg ppm	LOI %	Au ppm
160-165	36.5	6.70	0.01	8.60	0.32	3.28	x	45.10	x
165-171	36.7	8.20	0.02	7.95	0.32	3.20	x	44.20	x
171-178.6	36.9	8.85	0.02	7.90	0.30	1.75	0.015	44.60	x
178.6-182	33.4	11.00	0.03	9.65	0.28	3.00	x	42.80	x
184-192	24.3	14.60	0.04	18.10	0.23	7.45	x	35.70	x
Method	408	408	408	408	408	408	122	408	325

x Below the limit of detection

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A.8.1.1.

## LONG PLAIN - BH 34

SAMPLE INTERVAL (FT)	ELEMENTS (ppm)								
	Cu	Pb	Zn	Co	Ag	As	Sn	Ba	W
112-118	5	30	100	25	x	3	x	x	x
120.5-122.5	x	15	80	15	x	3	x	x	x
124-133	x	20	45	15	x	3	x	x	x
133-138	x	25	40	15	x	4	x	x	x
138-141	x	25	35	20	x	2	4	x	x
141-146	x	25	35	20	x	x	x	x	x
146-149	x	35	40	20	x	3	x	x	x
156-160	x	20	50	20	x	2	x	x	x
Method	101	101	101	101	102	114	402	120	401

SAMPLE INTERVAL (FT)	ELEMENTS								
	MgO %	SiO2 %	S %	CaO %	MnO %	Fe2O3 %	Hg ppm	LOI %	Au ppm
112-118	32.1	10.00	0.05	8.10	0.46	8.30	x	39.20	0.003
120.5-122.5	40.0	6.50	0.01	4.90	0.45	3.15	x	45.00	x
124-133	40.5	7.05	0.08	5.10	0.32	2.65	x	44.10	x
133-138	38.3	5.80	0.01	7.95	0.41	2.25	x	45.00	x
138-141	38.0	5.10	0.01	8.00	0.40	2.30	x	45.80	0.001
141-146	36.5	3.25	0.01	9.55	0.36	2.60	x	47.50	x
146-149	37.0	5.40	0.02	8.85	0.36	3.30	0.010	45.30	x
156-160	40.3	3.80	x	5.20	0.29	4.30	x	46.00	x
Method	408	408	408	408	408	408	122	408	325

x Below the limit of detection

## LONG PLAIN - BH 35

SAMPLE INTERVAL (FT)	ELEMENTS (ppm)								
	Cu	Pb	Zn	Co	Ag	As	Sn	Ba	W
199-210	x	20	40	35	x	1	x	x	x
210-215.9	5	20	25	25	x	4	x	x	x
215.9-220	x	15	15	20	x	2	x	x	x
220-222	x	20	10	10	x	4	x	x	x
222-230	10	20	10	20	x	4	x	x	x
230-233	10	25	15	45	x	2	x	30	x
233-236	10	25	10	20	x	x	x	35	x
236-239	x	20	10	25	x	1	x	30	x
239-242	5	20	15	70	x	5	x	50	x
242-245	30	25	20	40	x	x	4	190	x
245-253	20	20	10	75	x	4	x	50	x
253-258	15	25	15	40	x	x	x	110	x
Method	101	101	101	101	102	114	402	120	401

SAMPLE INTERVAL (FT)	ELEMENTS								
	MgO %	SiO2 %	S %	CaO %	MnO %	Fe2O3 %	Hg ppm	LOI %	Au ppm
199-210	42.0	1.00	0.06	0.18	0.28	7.30	x	48.60	0.002
210-215.9	45.4	x	0.02	0.11	0.27	4.25	x	50.20	x
215.9-220	43.8	x	0.06	0.10	0.25	7.05	x	48.30	x
220-222	44.2	0.20	0.02	0.24	0.22	7.05	x	48.40	x
222-230	41.7	x	0.09	1.65	0.21	9.55	x	46.40	x
230-233	36.8	0.60	0.56	2.60	0.17	19.90	x	39.60	0.001
233-236	38.8	1.10	0.05	6.05	0.21	7.30	x	46.90	x
236-239	42.8	0.55	0.08	2.90	0.26	5.15	x	48.50	x
239-242	36.7	0.20	1.23	7.75	0.15	7.65	x	44.70	x
242-245	33.8	3.80	0.58	5.60	0.14	16.80	x	37.80	x
245-253	39.5	2.70	1.92	9.45	0.16	6.25	x	43.00	x
253-258	38.0	3.60	0.65	7.05	0.15	8.80	x	42.00	x
Method	408	408	408	408	408	408	122	408	325

x Below the limit of detection

## LONG PLAIN - BH 46

SAMPLE INTERVAL (FT)	ELEMENTS (ppm)								
	Cu	Pb	Zn	Co	Ag	As	Sn	Ba	W
568.6-569.5	x	15	40	45	0.01	x	3	290	x
609-615	x	20	40	15	x	x	x	x	x
620-624	x	25	25	20	x	x	x	x	x
624-628	x	20	35	40	x	x	x	100	x
628-631	5	15	40	20	x	x	x	30	x
631-634.6	x	20	40	15	x	x	x	x	x
634.6-639	x	20	40	15	x	3	x	x	x
639-644	x	15	35	15	x	3	4	x	x
644-648	x	15	45	20	x	x	x	25	x
648-654.6	x	20	35	15	x	x	x	x	x
654.6-656	x	20	35	15	x	x	x	x	x
664.3-668	x	25	30	15	x	x	x	x	x
668-672	x	25	30	15	x	x	x	x	x
672-679.9	35	15	85	55	x	x	x	80	x
679.9-684	75	20	130	60	x	4	x	55	x
684-687	25	20	80	45	x	3	x	100	x
687-691	5	20	45	25	x	4	x	40	x
691-694	x	30	40	20	x	2	3	100	x
694-697.3	10	20	45	45	x	x	x	210	x
704.6-709	x	20	35	15	x	2	x	x	x
709-712	30	20	40	30	x	x	x	50	x
712-716	35	15	35	45	x	x	x	75	x
716-721.6	15	10	40	25	x	3	x	35	x
721.6-725	60	20	70	55	x	x	x	85	x
725-729	30	15	50	70	x	4	x	100	x
729-731	x	25	35	10	x	2	x	x	x
731-737	5	20	40	35	x	x	x	65	x
737-742	10	20	40	40	x	4	x	110	x
748-753	40	25	30	50	x	8	x	65	x
753-757	15	25	25	60	x	8	x	90	x
757-762.6	20	15	40	55	x	6	x	110	x
762.6-767	40	15	55	65	x	x	x	35	x
Method	101	101	101	101	102	114	402	120	401

x Below the limit of detection

SAMPLE INTERVAL (FT)	ELEMENTS								
	MgO %	SiO <sub>2</sub> %	S %	CaO %	MnO %	Fe <sub>2</sub> O <sub>3</sub> %	Hg ppm	LOI %	Au ppm
568.6-569.5	14.0	40.10	0.37	3.50	0.03	3.55	0.025	15.50	0.002
609-615	29.4	12.80	0.01	10.30	0.09	3.10	x	42.50	x
620-624	23.0	20.40	0.03	15.50	0.06	2.25	x	38.10	0.001
624-628	23.8	25.10	1.11	6.35	0.08	5.75	0.010	29.50	0.001
628-631	28.2	19.60	0.24	4.90	0.13	3.95	x	37.50	x
631-634.6	39.9	5.50	0.01	2.20	0.14	3.30	0.025	47.40	x
634.6-639	42.4	4.60	0.01	2.45	0.12	2.50	x	48.30	x
639-644	43.1	4.20	0.01	1.40	0.12	2.60	x	48.70	x
644-648	42.5	5.10	0.02	1.45	0.12	3.10	x	46.20	x
648.654.6	43.0	2.30	0.01	1.65	0.13	2.80	x	49.70	x
654.6-656	42.0	2.50	0.01	2.25	0.13	2.65	x	49.70	x
664.3-668	38.1	x	0.01	9.15	0.10	2.60	x	49.50	x
668-672	37.0	0.80	0.03	9.15	0.10	2.80	x	49.30	x
672-679.9	14.4	41.90	0.08	5.85	0.06	9.70	0.010	13.00	x
679.9-684	9.5	42.20	0.10	9.10	0.10	12.60	x	11.00	x
684-687	13.6	40.20	0.08	6.80	0.05	9.15	x	13.40	x
687-691	35.4	10.80	0.08	4.70	0.12	4.65	x	40.80	x
691-694	38.0	6.90	0.53	5.95	0.11	3.45	x	43.90	x
694-697.3	21.5	34.5	0.61	1.80	0.05	6.35	x	19.20	x
704-6-709	34.1	10.30	0.02	9.40	0.07	2.50	x	43.70	0.002
709-712	22.0	24.40	0.30	10.30	0.07	5.90	x	29.30	x
712-716	22.0	23.60	1.48	6.05	0.07	6.80	x	29.00	x
716-721.6	31.0	23.00	0.42	1.40	0.13	5.80	x	35.20	x
721.6-725	14.1	37.90	0.57	4.65	0.08	11.00	0.015	15.40	x
725-729	8.9	41.40	0.59	4.25	0.09	11.40	x	12.00	x
729-731	37.5	12.00	0.01	3.30	0.12	3.20	x	43.80	0.001
731-737	36.0	8.55	0.47	1.75	0.12	5.70	x	41.10	x
737-742	24.3	23.00	0.55	3.80	0.09	5.90	x	29.20	x
748-753	16.4	22.00	4.00	11.20	0.17	10.70	0.015	22.30	x
753-757	14.1	32.30	2.04	8.55	0.08	8.25	x	19.30	x
757-762.6	13.9	37.00	2.12	2.75	0.06	10.10	x	12.90	x
762.6-767	18.3	40.30	2.15	0.55	0.001	13.50	x	9.30	x
Method	408	408	408	408	408	408	122	408	325

x Below the limit of detection

ROCKY RIVER CORE DESCRIPTION

ROCKY RIVER NO. 1 DDH log by CHC Shannon, October 1984. Depths in Feet.

- 0 - 62 pink weathered granular greenschist rare non-fissile chlorite bands.
- 62-120 green chlorite schist and green and white metamorphic banded geldspar chlorite schist. Bands 1-5mm.
- 120-146 granular greenschist, with rare globular quartz/carbonate segregations to 3cm.
- 146-172 granular greenschist with carbonate. Granular character due to albite? porphyroblasts.
- 172-300 mostly fissile chlorite schist with intervals of green and white banded schist.
- 300-324 as above, less fissile.
- 324-376 grey magnetite rich greenschist with carbonate. Intervals of coarsely crystalline pyrite and of green/white banded greenschist.
- 376-432 mostly fissile chlorite schist; pyrite, magnetite bearing.
- 432-442 non-fissile greenschist with carbonate-quartz segregations: minor magnetite rock.
- 442-443 coarsely crystalline carbonate rock with segregations of non-fissile chlorite and of pyrite.
- 443-465 fissile chlorite schist; magnetite, pyrite bearing.
- 465-475 feldspar-quartz-carbonate-chlorite schist with pyrite and magnetite.
- 475-491 fissile chlorite schist.
- 491-518 feldspar-chlorite schist; feldspar as coarse prophyroblasts and as metamorphic segregation bands 2-5mm: also pyrite and magnetite prophyroblasts; rare magnetite rock bands.
- 518-521 carbonate rock with segregations of pyrite 5cm and magnetite 3cm.
- 521-532 feldspar-chlorite schist; feldspar as porphyroblasts and as metamorphic segregation bands.

- 532-553.5 spindle banded chlorite schist, chlorite-feldspar schist and carbonate schist grading to carbonate rock generally pyritic and with some magnetite; clasts of massive pyrite to 3cm.
- 553.5-565.5 carbonate rock (probably magnesite) with pyritic clasts.
- 5565.5-599 pyritic laminated feldspar-chlorite schist with feldspar and magnetite prophyroblasts; minor carbonate.

end of hole.

(core split in the original sampling, i.e. from 153 to 489 feet, is shattered and was not logged in the detail possible for the remainder.)

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ROCKY RIVER NO. 2 DDH log by CHC Shannon, October 1984.

- 1-31            poor recovery; laminated greenschist with limonite stain, some gossan.
- 31-62           non-fissile laminated greenschist with quartz segregations.
- 62-83           non-fissile, banded feldspar-chlorite schist.
- 83-89           non-fissile, laminated feldspar-chlorite schist; some gossan.
- 89-342          mostly fissile chlorite schist.
- 342-364        leached, dark brown weathering talc/haematite earth and schist; probably after interbedded carbonate (magnesite) - talc-chlorite schist.
- 364-380        feldspar-chlorite schist with some talc-haematite earth after magnesite.
- 380-400        leached, dark brown weathering talc/haematite earth and schist; probably after interbanded magnesite-talc chlorite schist.
- end of hole.
- (core split in the original sampling, i.e. from 90 to 340 feet, is shattered and could not be logged in the detail possible for the remainder.)

074205

A.8.2.1.

ROCKY RIVER NO. 1  
DRILL CORE ANALYSIS

SAMPLE INTERVAL (FT)	1ST ANALYSIS - CAIRNS												2ND ANALYSIS - PERTH				
	Cu	Pb	Zn	Mn	Ag	As	Se	Sn	W	Sb	Te	Au	Hg	S	Au	Sn	S
8-21	100	45	160	1750	0.2	1	-	x	x	-	-	x	-	2050			
21-41	135	25	330	2100	x	x	-	x	x	-	-	x	-	2030			
41-52.5	205	15	445	1750	0.1	x	-	x	x	-	-	x	-	1675			
52.5-62	225	x	365	2550	x	x	-	x	x	-	-	x	-	2530			
62-71	180	10	490	2050	x	x	-	x	x	-	-	x	-	1460			
71-78.5	115	x	550	3550	0.1	x	-	x	x	-	-	x	-	730			
78.5-88.5	105	5	575	6000	0.5	x	-	x	x	-	-	x	-	980			
88.5-99	115	5	515	6250	0.9	x	-	x	x	-	-	x	-	910			
99-100	85	x	490	2850	0.7	x	-	x	x	-	-	x	-	390			
110-119	130	x	475	2750	0.4	x	-	x	x	-	-	x	-	490			
119-138	105	10	1500	2600	0.5	x	-	x	x	-	-	x	-	1530			
138-153	60	x	860	1.4%	0.1	x	-	x	x	-	-	x	-	2530			
153-169	150	10	850	2.5%	0.4	24	x	x	-	x	x	0.008	0.110	-			
169-189	495	x	200	1.7%	0.1	8	x	x	-	6	x	x	0.040	-			
189-209	345	x	135	1550	x	x	x	7	-	7	x	0.017	0.045	-			
209-229	445	5	160	2550	x	x	x	6	-	x	x	0.008	0.040	-			

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074206

A.8.2.1.

SAMPLE INTERVAL (FT)	1ST ANALYSIS - CAIRNS												2ND ANALYSIS - PERTH				
	ELEMENTS																
	Cu	Pb	Zn	Mn	Ag	As	Se	Sn	W	Sb	Te	Au	Hg	S	Au	Sn	S
229-249	190	x	150	3850	x	x	x	x	-	x	x	x	0.015	-			
249-269	455	x	135	2750	x	x	x	4	-	x	x	x	0.005	-			
269-289	170	x	135	2500	x	x	x	3	-	4	x	x	0.030				
289-309	35	x	135	2400	x	x	x	3	-	x	x	x	0.180	-			
309-365	NO SAMPLES																
365-377	SELECTIVE SAMPLE PYRITE RICH																
	120	5	105	1300	0.5	6	-	x	-	-	-	x	-	16.5%	0.025	x	16.5%
377-395	NO SAMPLES																
395-405	SELECTIVE SAMPLE PYRITE RICH																
	25	5	95	1550	0.4	3	-	x	-	-	-	x	-	13.3%	0.008	x	13.3%
405-442	NO SAMPLES																
442-443	20	x	65	2200	0.3	12	-	x	-	-	-	x	-	9.9%	x	x	9.9%
443-518	NO SAMPLES																
518-519	CARBONATE/PYRITE/MAGNETITE																
	975	25	35	6850	0.4	39	-	x	-	-	-	x	-	11.1%	0.025	x	11.1%
519-520	CARBONATE, MINOR PYRITE AND MAGNETITE																
	910	25	25	8700	0.4	19	-	x	-	-	-	x	-	5.3%	0.017	x	5.3%
520-540	NO SAMPLES																
540-543	GREENSCHIST WITH CARBONATE SCHIST																
	30	20	85	2.45%	0.3	17	-	x	-	-	-	x	-	2.2%	x	x	2.2%

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074207

A.8.2.1.

ROCKY RIVER NO. 2  
DRILL CORE ANALYSIS

SAMPLE INTERVAL (FT)	1ST ANALYSIS - CAIRNS													2ND ANALYSIS - PERTH			
	ELEMENTS																
	Cu	Pb	Zn	Mn	Ag	As	Se	Sn	W	Sb	Te	Au	Hg	S	Au	Sn	S
0-18	NO SAMPLES																
18-30	20CM SELECTIVE FOR GOSSAN IN GREENSCHIST																
	70	10	95	255	0.3	13	-	x	-	-	-	1.24	-	0.05%	0.017	x	0.05%
30-64	NO SAMPLES																
64-65	20CM CONTROL GREENSCHIST																
	20	5	110	940	0.3	3	-	x	-	-	-	0.08	-	4.1%	x	x	4.1%
65-85	NO SAMPLES																
85-89	20CM GOSSAN AND WALLROCK																
	135	15	105	530	0.3	13	-	x	-	-	-	0.18	-	2.0%	0.008	x	2.0%
89-104	NO SAMPLES																
104-113	20	x	125	1700	x	x	x	4	-	3	x	x	0.510				
113-130	NO SAMPLES																
130-150	20	5	130	895	x	x	x	8	-	4	x	x	0.210				
150-170	150	5	145	1100	x	2	x	4	-	x	x	x	0.140				
170-190	100	5	175	2500	x	x	x	x	-	6	x	x	0.090				
190-210	110	5	155	2200	x	x	x	3	-	x	x	0.008	0.260				

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SAMPLE INTERVAL (FT)	1ST ANALYSIS - CAIRNS													2ND ANALYSIS - PERTH			
	ELEMENTS																
	Cu	Pb	Zn	Mn	Ag	As	Se	Sn	W	Sb	Te	Au	Hg	S	Au	Sn	S
543-553	NO SAMPLES																
553-553.5	CARBONATE, NON FISSILE CHLORITE AND PYRITE																
	1100	25	100	1.25%	0.3	37	-	x	-	-	-	x	-	10.3%	0.042	x	10.3%
553.5-562.5	CARBONATE ROCK, SOME PYRITE																
	185	20	65	1.85%	0.3	5	-	x	-	-	-	5.00	-	1.33%	x	x	1.33%
562.5-586	NO SAMPLES																
586-601	REPRESENTATIVE GREENSCHIST																
	90	5	370	3800	0.4	2	-	x	-	-	-	0.03	-	0.65%	0.017	x	0.65%

SAMPLE INTERVAL (FT)	ELEMENTS			
	Fe	Ca	Mg	LOI
553.5-562.5	6.25%	12.1%	5.15%	30.35%

- Element not Analysed

x Below the limit of detection

SAMPLE INTERVAL (FT)	1ST ANALYSIS - CAIRNS												2ND ANALYSIS - PERTH				
	ELEMENTS																
	Cu	Pb	Zn	Mn	Ag	As	Se	Sn	W	Sb	Te	Au	Hg	S	Au	Sn	S
210-230	NO SAMPLES																
230-250	170	5	140	2600	x	x	x	4	-	x	x	x	0.150				
250-270	NO SAMPLES																
270-290	230	10	275	4450	x	x	x	3	-	x	x	x	0.100				
290-310	540	x	125	1400	x	x	x	x	-	x	x	x	0.075				
310-330	325	x	145	1500	x	x	x	3	-	6	x	0.008	0.100				
330-340	610	10	150	1700	x	2	x	4	-	x	x	x	0.170				
340-362	NO SAMPLES																
362-366	LEACHED CARBONATE/GREENSCHIST																
	60	x	505	1.5%	0.3	x	-	x	-	-	-	0.82	-	0.01%	0.017	x	0.01%
366-374	NO SAMPLES																
374-377	FELDSPATHIC GREENSCHIST																
	35	10	940	3450	0.6	x	-	x	-	-	-	0.29	-	0.01%	x	x	0.01%
377-400	NO SAMPLES																

- Element not analysed

x Below the limit of detection

APPENDIX 9.0

ROCK SAMPLE ANALYSIS

A.9.1. Rock Sample Analysis, Location, Type and Description

A.9.1.1. Analytical Results

236.1.08.2885D	85/0009
236.1.08.2964	85/0010
236.1.08.2982C	85/0011-0021
236.1.08.3005	85/0023-0025
236.1.08.3013A	85/0022, 0026-0048
236.1.08.3045	85/0049-0054

A.9.2. Petrological Examination

A.9.3. Analabs Analytical Data

Townend, R.	April 1985	85/0011, 13, 16
236.1.08.3087	GR2/P1-P6,	SPC6/P7

ROCK SAMPLE LEDGER

SAMPLE NUMBER	AREA	LOCATION		OUTCROP, FLOAT OR MINE TAILINGS	DESCRIPTION
		N	E		
85/0001	Whyte River Adit	89.97	49.25	M.T.	Magnetite/pyrite rich rock with minor chlorite and malachite.
85/0002	"	"	"	M.T.	"as above" with calcite veins.
85/0003	"	"	"	M.T.	Talcoose, white carbonate rock with minor pyrite.
85/0004	"	"	"	M.T.	Hematite/Calcite vein rock.
85/0005	"	"	"	M.T.	Overhang Dump, Magnetite and carbonate rick rock with pyrite and malachite.
85/0006	"	"	"	M.T.	"as above".
85/0007	"	"	"	M.T.	Magnetite-pyrite bearing green schist 'riddled' with carbonate veins.
85/0008	"	"	"	O/C.	Adit sample. Secondary minerals (zeolites?) encrusted on dark brown rock (siderite?) from sheer zone.
85/0009	Easting 49 Baseline	10.15	49.00	O/C.	Green Phyllite with quartz vein parallel to foliation/bedding.
85/0010	Main Creek Dam	04.20	50.00	O/C.	gossanous vein.
85/0011	Upper False Cox's Face	01.96	49.59	O/C.	3m section East half of face.
85/0012	" " "	" "	" "	O/C.	Pyritic quartz veins - centre
85/0013	" " "	" "	" "	O/C.	3m section West half of face.

SAMPLE NUMBER	AREA	LOCATION		OUTCROP, FLOAT OR MINE TAILINGS	DESCRIPTION
		N	E		
85/0014	Upper False Cox's Face	01.96	49.59	O/C.	10m concordant quartz/feld/goss vein.
85/0015	" " " "	"	"	O/C.	as above 1m West.
85/0016	" " " "	"	"	O/C.	similar but transgressive to bedding with pyrite.
85/0017	" " " "	"	"	O/C.	1m pyritic phyllite West of cut.
85/0018	" " " "	"	"	O/C.	gossan surrounding central quartz vein, brown-orange.
85/0019	Lower False Cox's Face	01.95	49.58	O/C.	sandy, phyllite, grey phyllite.
85/0020	Talking Adit	01.97	49.59	O/C.	gossanous? Pitted clay interbedded with green slate.
85/0021	Cox's Face - Lower Adit	02.00	49.61	O/C.	clay, ferruginous schist. fe oxide deposit.
85/0022	Golden Ridge Battys Adit	01.98	49.70	O/C.	Pug and fault fill 48 metres.
85/0023	Specimen Reef	11.07	52.15	O/C.	Near pads SPC4/5, goss fe oxide vein.
85/0024	Specimen Reef	11.12	52.10	O/C.	Fe oxide vein in alteration (road).
85/0025	Specimen Reef	11.12	52.10	O/C.	Fe oxide vein strike of main vein?
95/0026	Golden Ridge Battys Adit	01.98	49.70	O/C.	0.5 metres bearing 281 degrees mag.
85/0027	" " " "	"	"	O/C.	5-10 metres bearing 281 degrees mag.
85/0028	" " " "	"	"	"	10-15 metres bearing 281 degrees mag.

ROCK CHIP LEDGER  
ANALYTICAL RESULTS

SAMPLE NUMBER	ELEMENTS (ppm)												
	Cu	Pb	Zn	Mn	As	Ag	Ba	Ni	Au	Te	Tl	Sb	U
85/0009	15	5	25	70	2	x	170	-	-	x	-	-	x
0010	1000	25	150	-	-	x	-	-	-	x	-	-	-
0011	40	40	70	260	6	x	70	-	.006	-	-	x	-
0012	20	25	45	275	1	x	30	-	.009	-	-	x	-
0013	25	35	30	235	1	x	65	-	.007	-	-	x	-
0014	65	50	25	65	4	x	30	-	.005	-	-	x	-
0015	90	75	65	215	19	x	30	-	.007	-	-	x	-
0016	85	95	90	335	7	x	35	-	x	-	-	x	-
0017	30	40	60	110	32	x	70	-	.021	-	-	x	-
0018	70	55	90	455	14	x	35	-	.015	-	-	x	-
0019	30	40	90	2050	5	x	70	-	x	-	-	x	-
0020	175	40	125	280	99	x	20	-	x	-	-	x	-
0021	75	20	15	60	6	x	55	-	.005	-	-	x	-
0022	25	x	10	5	29	-	-	-	.002	x	x	-	-
0023	50	50	5	10	31	x	-	-	.004	x	x	-	-
0024	115	x	10	10	20	0.2	-	-	.004	x	x	-	-
0025	145	x	10	x	40	x	-	-	.020	x	0.5	-	-
0026	5	x	x	5	4	-	-	-	.005	x	x	-	-
0027	10	x	5	5	6	-	-	-	.009	x	x	-	-
0028	10	x	5	10	10	-	-	-	.005	x	x	-	-
0029	10	x	x	5	6	-	-	-	.002	x	x	-	-
0030	5	x	5	x	3	-	-	-	.002	x	x	-	-
0031	5	x	x	5	1	-	-	-	.003	x	x	-	-
0032	10	x	5	10	6	-	-	-	.002	x	x	-	-
0033	10	x	x	5	7	-	-	-	.001	x	x	-	-
0034	25	x	5	10	10	-	-	-	x	x	x	-	-
0035	40	10	5	5	42	-	-	-	.002	x	x	-	-
0036	80	10	20	40	32	-	-	-	.004	x	x	-	-
0037	40	10	25	50	23	-	-	-	x	x	-	-	-
0038	35	x	5	10	40	-	-	-	.007	0.68	x	-	-
0039	20	x	5	x	7	-	-	-	x	x	x	-	-
0040	40	5	5	10	43	-	-	-	.003	x	x	-	-

SAMPLE NUMBER	AREA				LOCATION		OUTCROP, FLOAT OR MINE TAILINGS	DESCRIPTION
					N	E		
85/0045	"	"	"	"	"	"	O/C.	12m-15m.
85/0046	Golden Ridge Talking Adit			01.865	49.56		O/C.	0-4m.
85/0047	"	"	"	"	"	"	O/C.	4-8m.
85/0048	"	"	"	"	"	"	O/C.	8-12m.
85/0049	Northern Area - Little Donaldson			13.76	49.23		O/C.	Green foliated lenticle tuff.
85/0050	"	"	"	13.76	49.32		O/C.	Pale green shale.
85/0051	"	"	"	13.70	49.38		O/C.	Mid blue schist
85/0052	"	"	"	13.68	49.39		O/C.	Grey slate.
85/0053	"	"	"	13.68	49.73		O/C.	Highly contorted schist.
85/0054	"	"	"	13.75	49.82		O/C.	Pyritic Quartz Dolomite.
85/0055	Torenius/Nolan Silica Sand Deposit			90.35	42.50		O/C.	Silica sand.
85/0056	EL 37/82			90.35	42.50		O/C.	Silica sand.

SAMPLE NUMBER	AREA	LOCATION		OUTCROP, FLOAT OR MINE TAILINGS	DESCRIPTION
		N	E		
85/0029	Golden Ridge Battys Adit	01.98	49.70	O/C.	15-20 metres bearing 281 degrees mag.
85/0030	" " " "	"	"	O/C.	20-25 metres bearing 281 degrees mag.
85/0031	" " " "	"	"	O/C.	25-30 metres bearing 281 degrees mag.
85/0032	" " " "	"	"	O/C.	30-35 metres bearing 281 degrees mag.
85/0033	" " " "	"	"	O/C.	35-40 metres bearing 281 degrees mag.
85/0034	" " " "	"	"	O/C.	40-45 metres bearing 281 degrees mag.
85/0035	" " " "	"	"	O/C.	45-50 metres bearing 281 degrees mag.
85/0036	" " " "	"	"	O/C.	50-55 metres bearing 281 degrees mag.
85/0037	" " " "	"	"	O/C.	55-58.6 metres E.O. Adit.
85/0038	" " " "	"	"	O/C.	Qtz-carb vein set, southerly dip at 10-15 metres. Battys Adit.
85/0039	" " " "	"	"	O/C.	Carbonate fill in low angle shear 41m. Battys Adit.
85/0040	" " " "	"	"	O/C.	Qtz-carb concordant to foliation at 40-45 metres. Battys Adit.
85/0041	Golden Ridge Wet Adit	01.91	49.63	O/C.	0-2.5m.
85/0042	" " " "	"	"	O/C.	2.5m-5m.
85/0043	" " " "	"	"	O/C.	5m-9m.
85/0044	" " " "	"	"	O/C.	9m-12m.

A.9.1.1.

SAMPLE NUMBER	ELEMENTS											
	Cu	Pb	Zn	Mn	As	Ag	Ba	Ni	Au	Te	Tl	Sb
85/0041	90	x	30	120	13	-	-	-	.002	x	x	-
0042	140	x	75	220	40	-	-	-	x	x	x	-
0043	70	10	80	210	21	-	-	-	.003	x	x	-
0044	75	15	60	240	24	-	-	-	x	x	x	-
0045	35	x	15	45	7	-	-	-	x	x	x	-
0046	90	25	65	155	29	-	-	-	.002	x	x	-
0047	60	5	40	95	26	-	-	-	x	x	x	-
0048	60	15	50	285	8	-	-	-	x	x	x	-
0049	165	x	85	1500	2	x	-	80	.001	-	-	-
0050	120	x	75	1000	2	x	-	65	x	-	-	-
0051	95	5	135	850	5	x	-	115	x	-	-	-
0052	25	10	100	295	7	x	-	100	.002	-	-	-
0053	100	x	150	1.80%	2	x	-	230	.008	-	-	-
0054	5	x	10	180	1	x	-	60	.005	-	-	-
0055												
0056												
						SILICA SANDS						
						SILICA SANDS						
Method	101	101	101	101	114	102	120	101	325	116	135	117

Note: - Not Analysed

x Below limit of detection

PETROLOGICAL EXAMINATION LEDGER

SAMPLE NUMBER	SAMPLE LOCATION	"IN HOUSE" DESCRIPTION	ANALABS DESCRIPTION
85/0011	Upper False Cox's Face	N.A.	Semi Pelitic Schist
85/0013	"	N.A.	Muscovite Quartz Schist
85/0016	"	N.A.	Muscovite Schist
GR2/P1	14.5m	Alternating laminations of mica rich pelite and quartzite "Zebra Rock"	Muscovite Quartz Schist
GR2/P2	40.60m	Gossanous Qtz-Carbonate vein within dk green meta volcanic	Plagioclase rock in contact with a mafic schist
GR2/P3	49.20	Dark green meta volcanic with foliated white porphyroblasts	Metamorphosed mafic igneous rock
GR2/P4	59.35	Finely laminated pelite with a discordant carbonate vein equalling 0.5cm wide	Carbonated muscovite feldspathic quartzite
GR2/P5	62.10-62.30	'Bleached' pelite with concordant and discordant carbonate veins	Chlorite-quartz-muscovite ilmenite schist
GR2/P6	65.05-65.20	Finely laminated pelite with concordant carbonate veins. Pyrite within laminae	Quartz and muscovite schist
SPC/P7	83.8m-83.9m	Altered meta-volcanic with a carbonate vein containing a black mineral forming a 'mesh' network (possibly pyrolusite?) within the vein. Also an unknown red mineral within the vein. Late stage blebs of pyrite within and outside the vein.	Plagioclase rich rock cross-cut by coarse carbonate (ankerite)

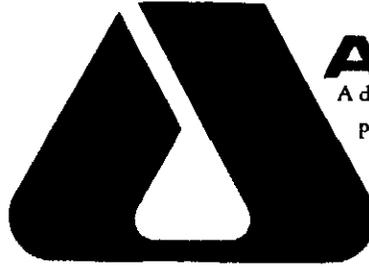
APPENDIX 9.3

ANALABS ANALYTICAL REPORTS

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074219

A 9.2



**ANALABS**

A division of Macdonald Hamilton Pty. Ltd.

Perth Head Office.  
52 Murray Road Welshpool, Western Australia 6106.  
Tel: (09) 458 7999, 458 7154. Telex: Analab AA92560.  
P.O. Box 210 Bentley, W.A. 6102.

1st April, 1985

Analabs,  
P.O. Box 929,  
BURNIE,  
TASMANIA 7320

Preparation of three thin sections and  
petrographic descriptions (85/0011,13,16)

Preparation of one polished section and  
mineragraphic description.

R. TOWNEND

A handwritten signature in black ink, appearing to be 'R. Townend', written over the typed name.

Sample 85/0011

Rock Specimen

Semi Pelitic schist

Thin Section

Quartz	60-70%
Muscovite	20-25%
Biotite )	5-7%
Chlorite)	
Rutile )	3-5%
Opagues )	
Feldspar	< 1%
Tourmaline	< 1%
Zircon	< 1%

This is classified as a quartz muscovite schist. The major texture is a semi - pelitic one of alternating well oriented micas, and slightly wider but not noticeably lineated quartzite. The quartz texture is a mosaic with individual extinction areas reaching 0.2mm, but most much less. The contacts clearly indicate a recrystallized fabric.

The muscovite is dominantly in bands, and has a light brown stain in polarised light. Biotite interlayered with the muscovite is often chloritised. Often abundant in these layers is a fine titania, possibly rutile. This can be present also as masses to 0.2mm, that are lens - like, and made up of acicular rutile.

The slide contains a few crystals of untwinned feldspar, to 0.1mm. Staining for K feldspar was negative.

Accessories consist of rounded tourmaline and zircon. The consistency of some zircons relative to one mica - quartz contact supports a heavy mineral layer in a sediment. The rock is concluded to be a semi - pelitic metasediment, at greenschist facies.

Sample 85/0013

Rock Specimen      Muscovite quartz schist

## Thin Section

Quartz	45-60%
Muscovite	15-20%
Chlorite	5-7%
Rutile	5-10%
Feldspar	2-3%
Tourmaline	< 1%

This is a quartz - mica schist, quite similar to 85/0011. Thus it is an alternation of oriented muscovite and wider quartzite layers.

The muscovite can be stained, and has some chlorite with it.

It is also often replete with fine rutile. In addition, there are associations of rutile / leucoxene of lens shape in the quartz.

The quartz texture is dependent on the confining phyllosilicates, but is not noticeably lineated. Contacts are irregular.

Within the latter, there are occasional coarse single crystals of untwinned feldspar (plagioclase).

These crystals are often characterised by lines of fine 'opaques' inclusions, that show clear evidence of a rotational history. These inclusions appear similar to those in the muscovite, i.e. fine rutile / leucoxene. The implication of this is that they were early formed (pre-tectonic) porphyroblasts, subsequently 'rolled'. The alternative is that they are reworked clasts. The rock is again classified as a metasediment.

Sample 85/0016

Rock Specimen            Muscovite schist

## Thin Section / Polished Section

a. Muscovite	83%	b. Quartz
Quartz	5%	Plagioclase
Feldspar	5%	
Chlorite	2%	
<u>Ores</u>	5%	
Limonite	minor	
Rutile	minor	
Graphite	accessory	
Pyrite	trace	

The slide contains a mica schist in contact with a coarse non - linedated quartz - plagioclase lithology. The mica is muscovite that forms mostly a monomineralic schist. This varies where it contains coarse lens of quartz and untwinned plagioclase, particularly towards the 'vein'. There are also strips of a semi opaque nature due probably to impregnation of the mica with fine rutile and graphite. There is also considerable limonite impregnation, some related to limonite lined veins. A few lens of non oriented micas have interlayered chlorite.

The b lithology is a coarse millimetric interlocking quartz - plagioclase assemblage, interpreted as a hydrothermal vein, with the crystals within the schist directly related to it, and possibly the 'sulphide' development. The mica schist with its graphite component is interpreted as a meta-sediment..

In polished section of another piece the only sulphide observed was pyrite, as an inclusion in ? silica. There was evidence of ? pyrite in some possible limonite pseudomorphs, illustrated in photo . . . The limonite present was slowly reflecting and following the mica schistosity, as narrow strips. In these strips, there can be concentrations of rutile, some

Sample 85/0016. Con'd

as semi - aggregates with individuals usually acicular to narrow prisms.

Some limonite also appears lining veins with 'fluffy' growth.

A little graphite was observed following the general foliation.

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Photo 1.

85/011

Semi pelitic schist. Nicols uncrossed. Width  
of field 1.8mm

074224

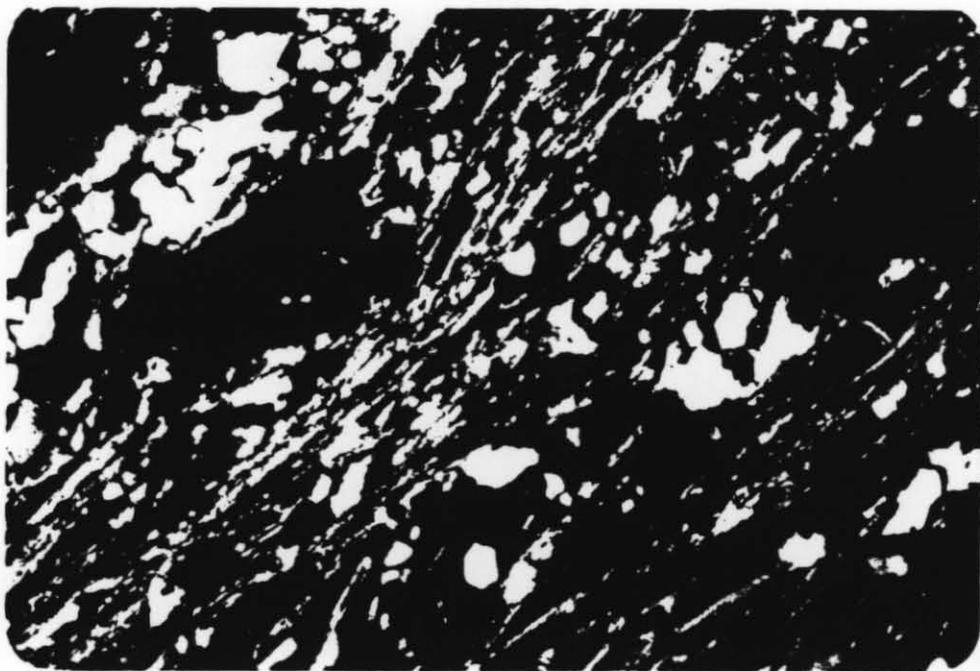


Photo 2.

85/013

Feldspar clasts in quartz muscovite schist.  
Nicols crossed. Width of field 0.7mm

Photo 3. 85/016

Feldspar in muscovite schist. Nicols crossed.  
Width of field 1.8mm

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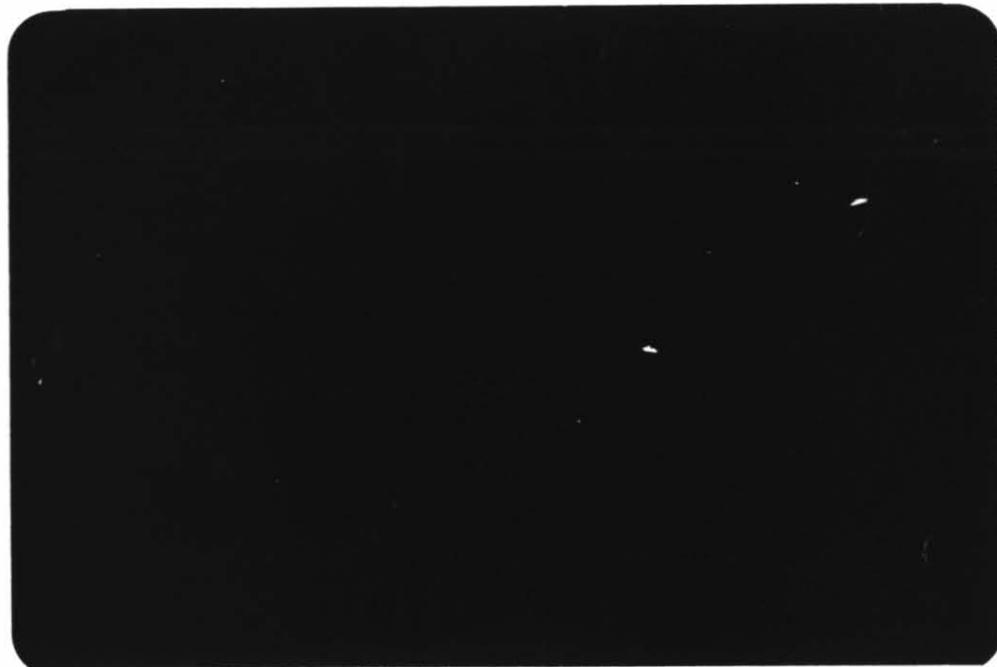
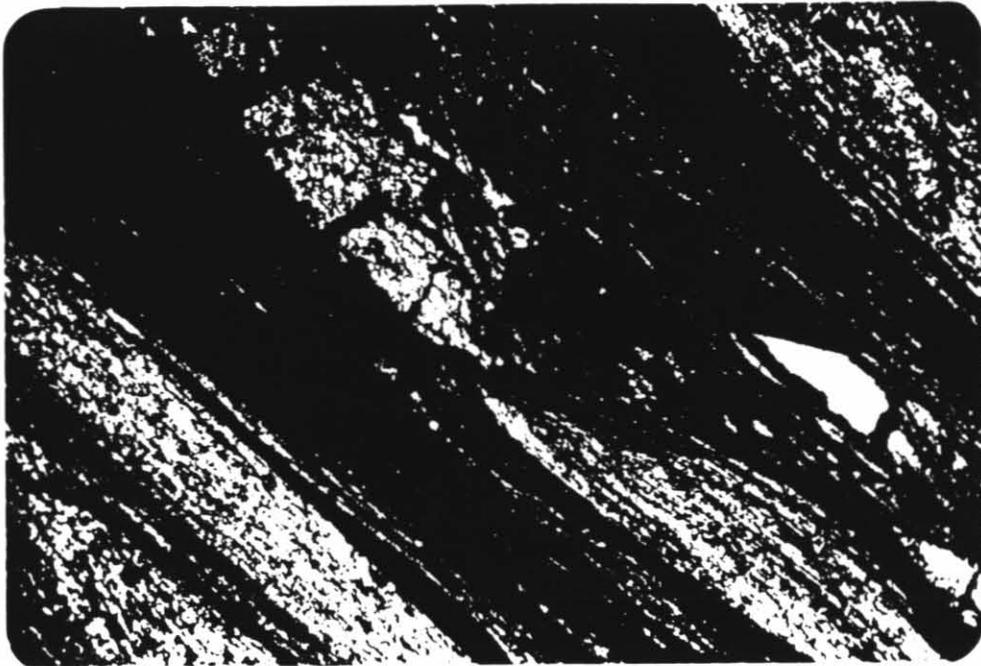


Photo 4. 85/016

Limonite ? pyrite pseudomorphs. Nicols uncrossed.  
Width of field 0.5mm.

Sample GR2/P1

Drill Core Slice          Quartz muscovite schist

## Polished Thin Section

Quartz	85%+
Muscovite	5-10%
Tourmaline	<1%
Rutile	3-5%
Zircon	<< 1%
<u>Opagues</u>	< 1%
Pyrite	
Chalcopyrite	

This is a muscovite quartzite or quartz muscovite schist.

The slide was cut about 45° to the banding because of the shape and small size of the specimen. This results in a less perfect banding and ? schistosity than is the true fabric.

In the slide the muscovite often appears in an echelon arrangements. It is closely associated with the rutile, which tends to form very fine almost opaque trails. Needles are present also, plus a few spongy more discrete leucoxenic bodies. Tourmaline is not uncommon in this association, and the rather stubby crystals show clear evidence of later overgrowths, with one unusual example having a nucleus of different orientation. The nucleus is darker, but similar orange to blue. Accessories are small rounded zircons.

The dominant quartzite has a fine irregular mosaic, with wavy extinction, and irregular contacts. It can be slightly blastic, to 0.1mm. This quartz contains a thin oriented muscovite content.

Ores consist of a few pyrites of subhedral habit to 0.5mm, and chalcopyrite included in pyrite or finely discrete. The rock must be classified as a meta-sediment, but whether the silica was chemically or clastically deposited remains equivocal.

Sample GR2/P2

Drill Core Slice Sulphidic feldspar - rich plutonic contact with greenschist.

## Polished Thin Section

"Plutonic" RockSchist

Plagioclase	60-75%	Clinoamphibole	70-75%
Lepidomelane	5-10%	Sphene	15-20%
Carbonate	7-12%	Chlorite	3-5%
Chlorite	1-2%	Biotite	3-5%
Quartz	2-3%	Plagioclase	1%
<u>Opagues</u>	10-15%	<u>Opagues</u>	< 1%
Pyrrhotite	major		
Pyrite	major		
Marcasite	major		
Chalcopyrite	minor		
Sphalerite	accessory		
? Gersdorffite	accessory		

The slide features a coarse non - lineated plagioclase rock in contact with a mafic schist that might be a xenolith. The feldspar forms 1-2mm equant fresh simply twinned crystals. Contacts are often the site of veining. Locally there is evidence of minor deformation and recrystallization. These can be occasionally cemented by quartz. Mostly the contacts are the loci for other species, some of which are clearly of vein character. Lepidomelane (SEM) forms decussate to semi - spherulitic bunches. It can be enclosed by ores, but is rarely directly associated with the carbonate.

There are two forms of carbonate, the dominant one (siderite) being yellow tinted in polarised light. It is a vein that is porous, and shows some spherical habits towards the cavities. Its distribution ranges from zones several millimetres across to narrow veinlets in feldspar cleavages. Adjacent to the schist there is chlorite, and some amphibole of a non - schistose nature, with coarse plagioclase, possibly indications of the latter's replacement activity.

The ores are almost entirely within the plagioclase rock. They enclose a second carbonate. Most of the opagues are massive areas of iron sulphides. There are pyrrhotite, and possibly two ages of pyrite, plus marcasite. Some pyrite form saccharoidal aggregates, others may follow

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Sample GR2/P2 Con'd

mica or feldspar cleavages. The pyrrhotite may dominate, exceeding millimetre dimensions. Much show good examples of birdseye alteration to pyrite - marcasite. Marcasite is also evident as coarse twinned bands in pyrite.

Chalcopyrite may accompany the above iron sulphides reaching masses of 0.5mm, most concentrated at the iron sulphide margins. Other examples vein the silicates or follow its contacts. Sphalerite is associated with it. A white ore was probably gersdorffite (see P5).

The schist consists of alternating actinolite / chlorite / biotite strips and narrower lensoid masses of sphene, and very few lenses of plagioclase. It is clearly of basic - ultrabasic origin (cf GR2/P3).

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Sample GR2/P3

Drill Core Slice

Porous greenschist

Polished Thin Section

Chlorite	25-30%
Clinoamphibole	20-25%
Plagioclase )	30-40%
Quartz )	
Sphene	5-10%
Biotite	2-3%
Clinozoisite	1%
<u>Opagues</u>	2-3%
Pyrrhotite	major
Chalcopyrite	minor
Pyrite	accessory
Sphalerite	accessory
Pentlandite	accessory
Gersdorffite ?	accessory

This is probably a metamorphosed mafic igneous rock, particularly based on the TiO<sub>2</sub> content, plus the amphibole - plagioclase. The texture is now metamorphic with well oriented amphibole - chlorite strips or bands alternating with a granoblastic non - linedated plagioclase - quartz association. There are also significant quantities of sphene of a secondary appearance forming lenses mainly within the ferromagnesians. The distinctive nature of these links the sample with GR2/P2.

The amphibole is probably actinolite, as weakly pleochroic fibro - lamellae, host by chlorite, but also in separate layers. There is some biotite that may be oriented but also can be in stellate bunches when in contact with quartz lenses.

Plagioclase is considered to be dominant over quartz, but lack of twinning and freshness makes separation difficult. Individual grains

229

Sample GR2/P3 Con'd

rarely exceed 0.15mm. Some quartz is concentrated in millimetric lenses. The largest sphene masses exceed widths of 0.5mm, and appear to have grown across their length.

The main ore consists of linear masses of pyrrhotite. It also can be more equant in silica, and composite with chalcopyrite in one 0.5mm crystal. Chalcopyrite may also be separate. Pyrite is secondary in pyrrhotite, while sphalerite can be composite of pyrrhotite plus chalcopyrite. Pentlandite is a trace, as exsolution flames in pyrrhotite. There was one possible gersdorffite attached to pyrrhotite.

230

Sample GR2/P4

Drill Core Slice

Carbonate veined semi - pelitic schist

Polished Thin Section

		<u>Vein</u>
Quartz	60-75%	Carbonate
Muscovite	10-15%	Quartz
Carbonate	10-15%	
Plagioclase	3-5%	
Tourmaline	< 1%	
Zircon / Monazite	<< 1%	
<u>Opagues</u>	3-5%	
Rutile	major	
Pyrite	major	
Chalcopyrite	minor	
Sphalerite	accessory	

This is a semi - pelitic schist, probably a meta-sediment, a partly carbonated muscovite feldspathic quartzite. The sample is also veined by carbonate quartz. The prograde assemblage has narrow layers of well oriented muscovite separated by a mosaic of weakly lineated sub 50 micron quartz, with irregular boundaries. Slightly coarser carbonate ankerite is regularly dispersed, with a configuration dictated by the mica.

Feldspar appears as occasional rather lenticular masses, distinguished by an attachment to the rutile - mica strips, with rimming or dispersion internally, of the former. Accessories are small zoned weakly dichroic subhedral tourmalines, and rounded zircons.

The main vein is dominantly carbonate (calcite) with partly a core of silica. There are some subparallel smaller examples.

The ores are limited to a few isolated occurrences in the semi - schist. Pyrite can form inclusion - ridden masses to 1mm, including oriented micas. Both chalcopyrite and sphalerite occur separately as clusters or single angular grains.

Sample GR2/P5

Drill Core Slice

Carbonate veined mica schist

Polished Thin Section

Carbonate	45-50%
Chlorite	25-30%
Quartz	10-15%
Muscovite	5-7%
Sphene	1%
<u>Opaques</u>	3-5%
Ilmenite	
Pyrrhotite	
Chalcopyrite	
Pyrite	
Pentlandite	
Gersdorffite	

This rock is interpreted as a chlorite - quartz - muscovite - ilmenite schist that has been heavily carbonated. The present texture consists of remnants of a folded schist separated by coarse blastic carbonate (ankerite).

There are variations in the carbonate texture, with the possibility of some being prograde, but the major portion forms millimetre sized blasts that can contain trails of fine sphene, the only palimpsest of the replaced schist.

The schist is dominantly oriented chlorite, with minor muscovite and quartz. The microfolding evident may be the result of the carbonate growth. There are patches of non lineated chlorite - free quartz, that may be part of the replacement activity. The ores are largely confined to the chlorite. The chlorite is iron - rich (SEM). They are dominated by oriented ilmenite lamellae and strips of partly pyritised pyrrhotite. Chalcopyrite may accompany pyrrhotite, follows a carbonate cleavage, or be disseminated in it. Primary pyrite was present in a single polymetallic lens with the other sulphides. Pentlandite is in pyrrhotite or may be an equant violaritised mass. Some polyhedral white isometric crystals, to 0.1mm, were identified as gersdorffite X

Sample GR2/P5 Con'd

(SEM). These are usually isolated, not attached to pyrrhotite. Some of the ilmenite is leucoxenised.

233

Sample GR2/P6

Drill Core Slice

Pyritic banded mica quartz - schist

Polished Thin Section

Quartz	40-50%
Muscovite	35-40%
Carbonate	3-5%
Plagioclase	3-5%
Sphene	1-2%
Chlorite	< 1%
<u>Opagues</u>	3-5%
Pyrite	
Marcasite	
Pyrrhotite	
Chalcopyrite	

This is a coarsely banded association of quartz and muscovite schist, containing plagioclase of a relict appearance (albite).

The mica schist is characterised by the presence of numerous oriented lenticular habit plagioclases. Some of these contain fine inclusions showing evidence of rotational growth, i.e. they are of blastic not igneous origin. Some ores also line the feldspar. The main accessory in the mica is sphene.

The quartzite bands can contain rather coarse quartz, to 0.5mm, where monomineralic, but much is a much finer mosaic of slightly lined material. Carbonate is concentrated in quartz, and tends to be allotriomorphic to it. There are thin strips of mica, chlorite and fine rutile, that give the impression of being relicts, i.e. the silica is replacive. The ores occur as associations with carbonate in quartz, or more lens-like masses in the mica. Pyrite is dominant either as coarse clusters, with dusty interiors, and clear rims, and possibly a later small generation adjacent. Pyrite also occurs as small crystals in schist, than can be partially ? leached, now left as shells. Pyrite may vein mica. Marcasite occurs as borders to coarse pyrite, some of which develops a 'birdseye' texture. Chalcopyrite forms an isolated 0.1mm anhedral mass in carbonate / quartz. Chalcopyrite and pyrrhotite are trace inclusions in pyrite.

234

Sample SPC6/P7

Drill Core Slice

Skeletal magnetite - pyrite contact with felsic rock

Polished Thin Section

Feldspar RockMagnetite Carbonate Association

Plagioclase	75%+	Carbonate	major
Carbonate	10-15%	Quartz	major
Quartz	5%	<u>Opagues</u>	major
Chlorite	1%	Magnetite	major
Rutile	1%	Hematite	major
Zircon	<< 1%	Pyrite	minor
<u>Opagues</u>	3 -5%		
Pyrite	major		
Magnetite	minor		
Chalcopyrite	accessory		

The slide encompasses a fine even textured plagioclase - rich lithology and a cross cutting zone of coarse carbonate (ankerite), magnetic ores and coarse plagioclase of albite composition. The principal lithology has a rather lineated untwinned fresh plagioclase, with quartz accessory based on the SEM, as 0.1 - 0.15mm length crystals and slightly irregular boundaries. A little chlorite, rutile, and fine zircon may be the other syngenetic constituents.

The carbonate although not necessarily of vein habit, shows evidence of replacement of the feldspar. The fine rutile clusters may be hosted by carbonate. Carbonate can vein parallel to and normal to the lination. Approaching the magnetite - rich zone, there is an increase in the grain size of the feldspar, and distorted twin planes are apparent.

The carbonate reaches millimetre dimensions, as does a strained quartz. Carbonate appears to cement fragmented oxide. These are magnetites showing partial alteration to hematite, but not martite textured.\* Pyrites up to 0.5mm are sometimes a coalescence of equant grains, almost saccharoidai.

235

Sample SPC6/P7 Con'd

An included euhedral magnetite shows partial carbonate replacement. The magnetite lacked detectable vanadium or titanium (SEM).

Pyrite is the dominant ore in the main lithology and has a corroded appearance. Chalcopyrite is present in carbonate veins, and sometimes in pyrite. Magnetite forms small often hollow crystals separately from the pyrite.

\* The lamellar habit of the iron oxide, more noticeable macroscopically could suggest magnetite forming or pseudomorphing hematite, not unknown as a contact phenomena. This supported by the non - martite texture.

Photo 1.

GR2/P2

Microcline lens in quartzite matrix. Nicol crossed.  
Width of field 1.8mm

236

074237

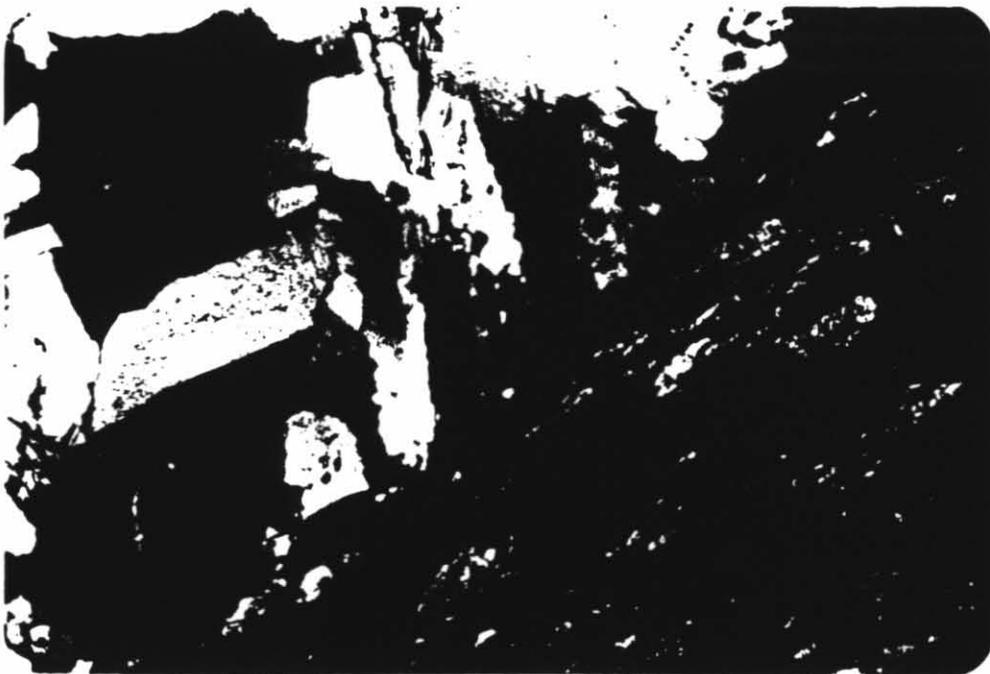
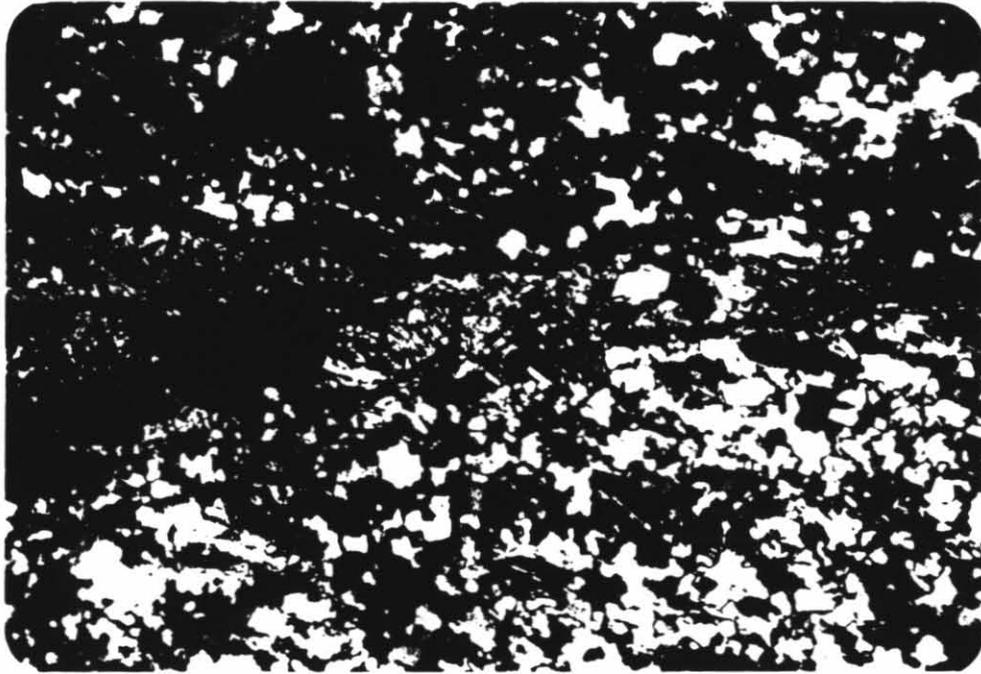


Photo 2.

GR2/P2

Plagioclase rock contact with mafic schist. Nicol crossed.  
Width of field 1.8mm

237

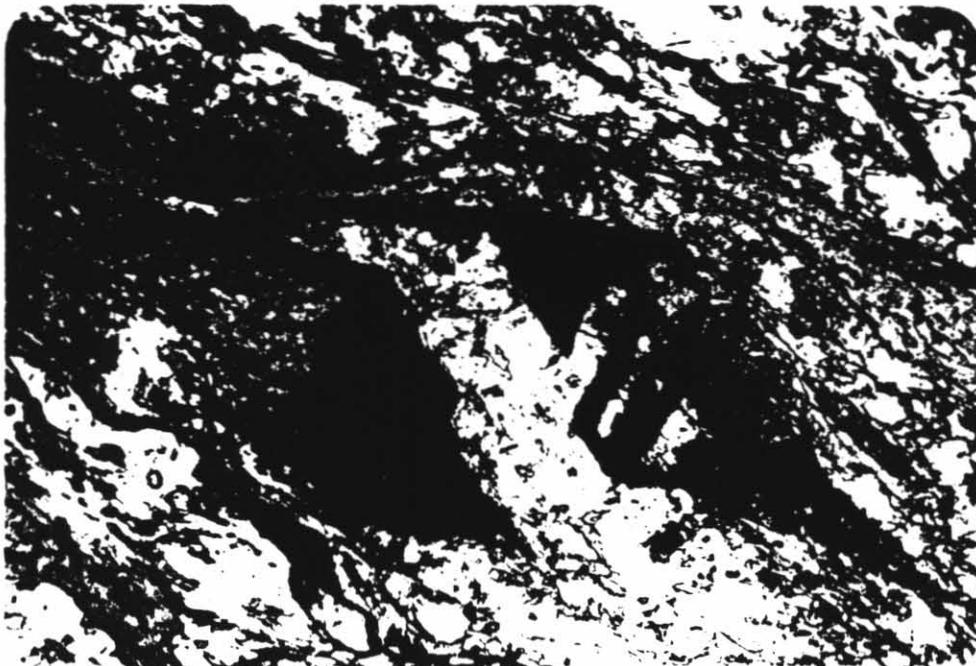
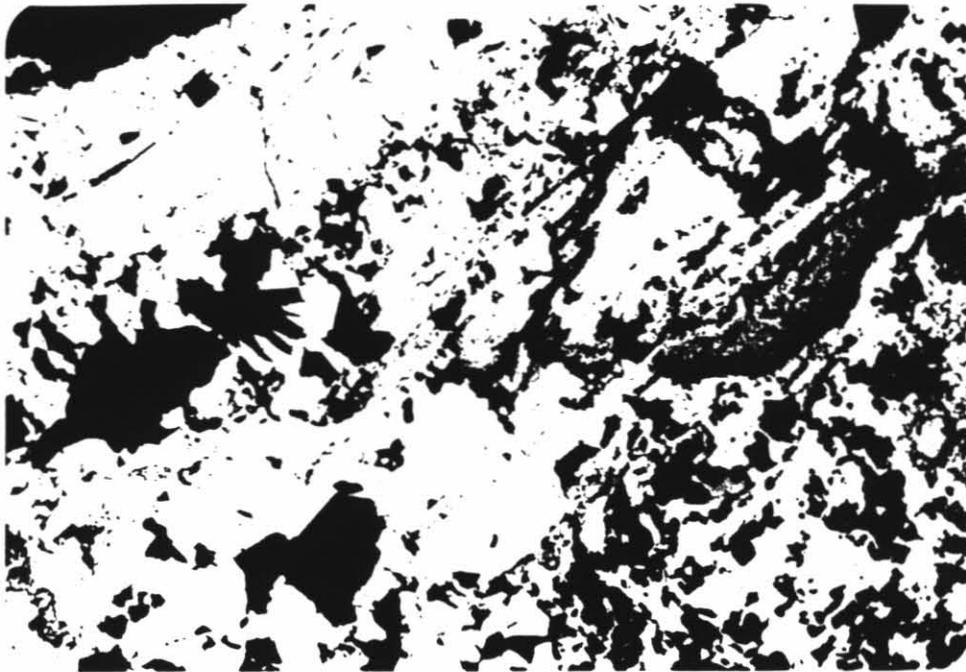


Photo 5. GR2/P5 Ankerite - chlerite - muscovite rock. Nicols crossed. Width of field 1.8mm

238  
238

074239

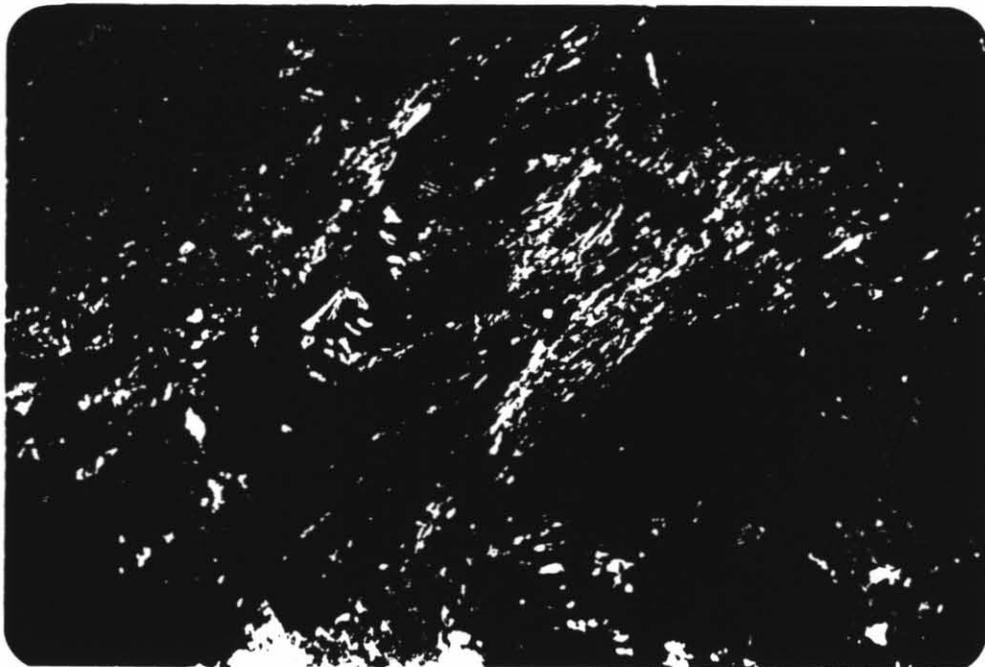
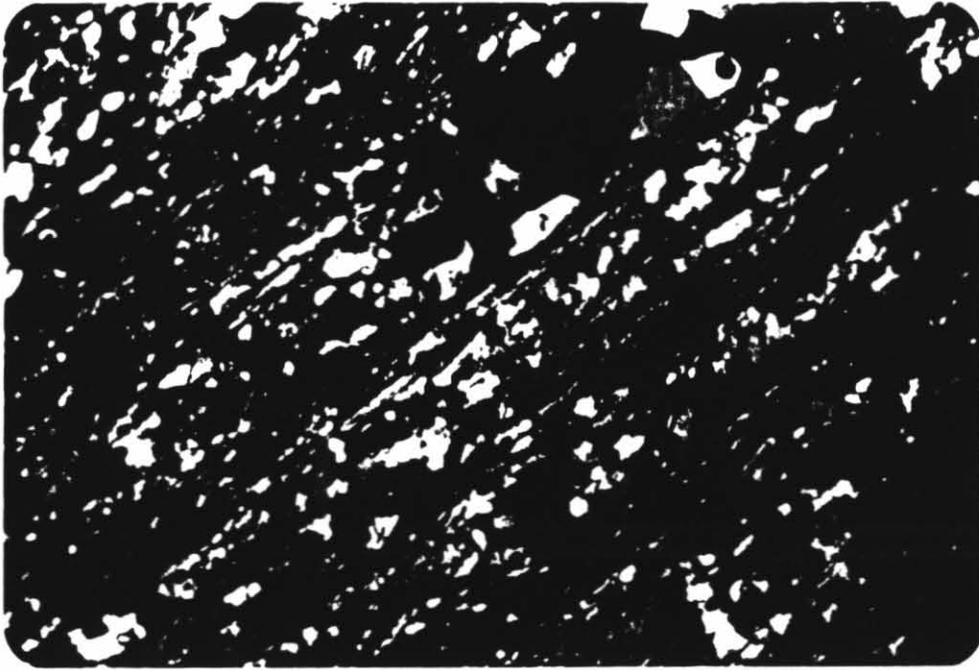


Photo 6. GR2/P5 Ankerite - chlorite - muscovite rock. Nicols crossed  
Width of field 1.8mm

239

074240

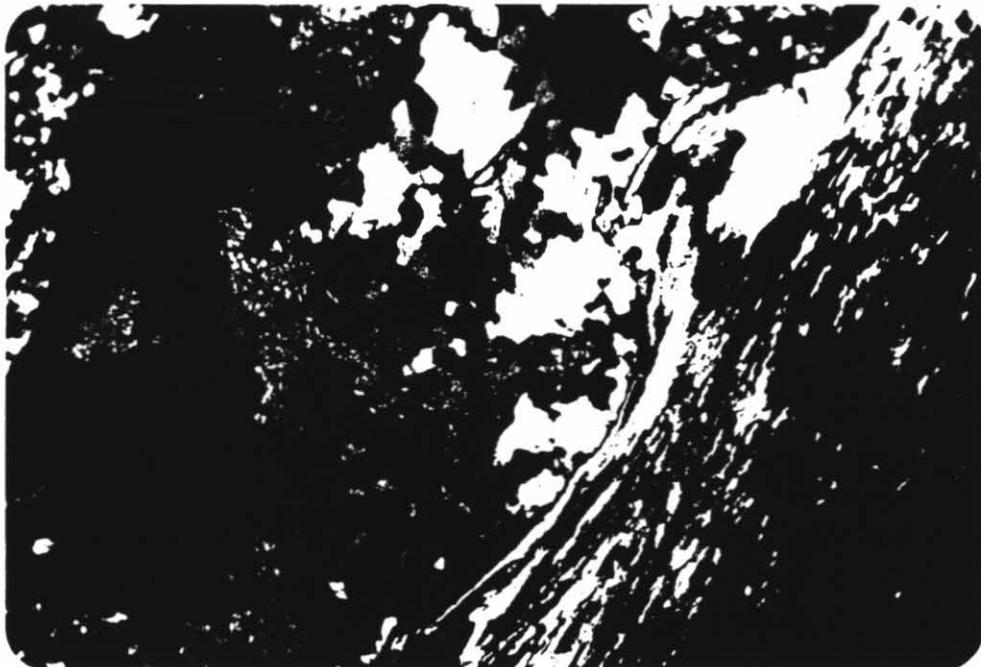
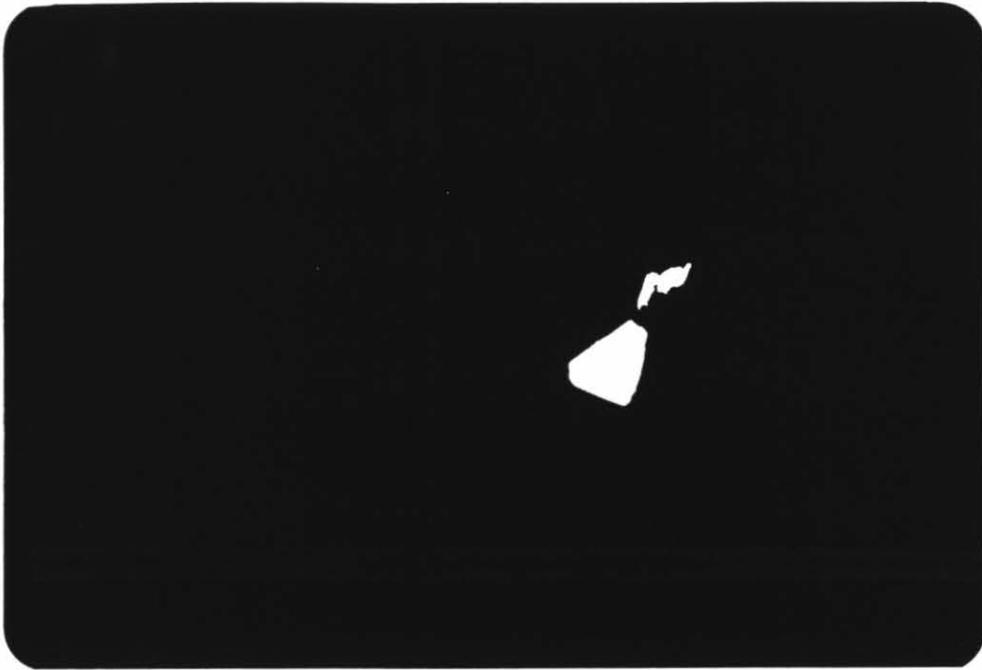


Photo 8. GR2/P6 Oriented muscovite, quartz - carbonate ores. Nicols crossed. Width of field 1.8mm

240

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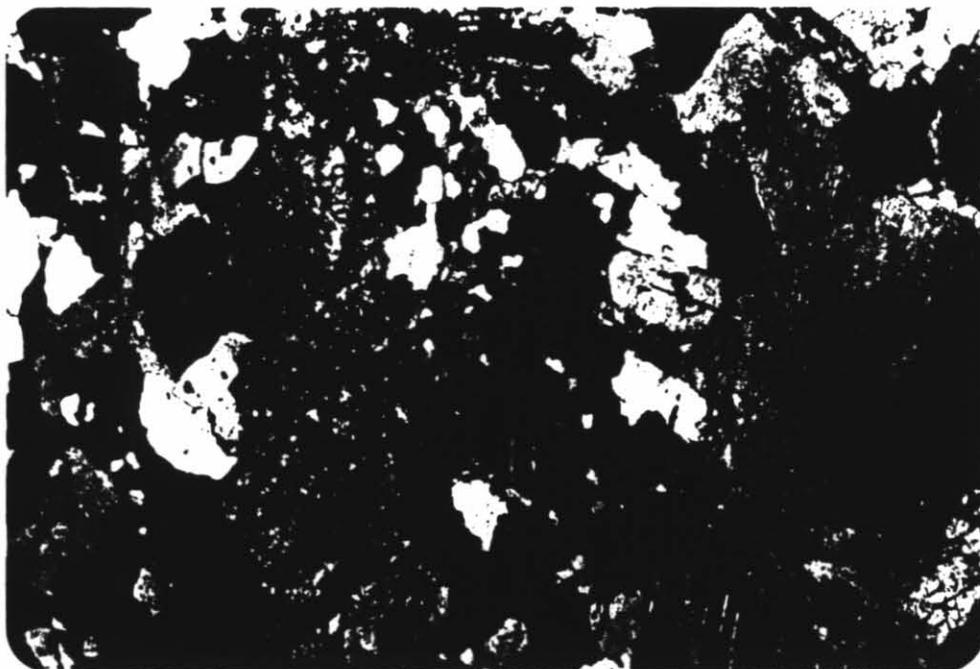
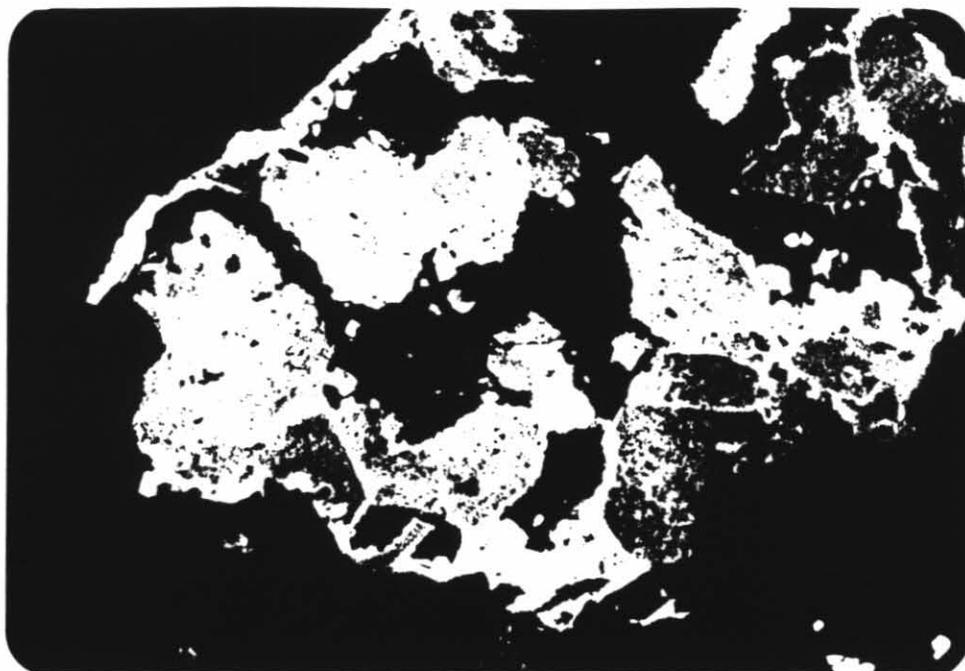


Photo 11. SPC6/P7

Magnetite altering to hematite contact with pyrite.  
Nicols uncrossed. Width of field 0.5mm

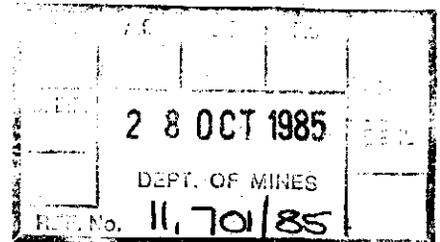
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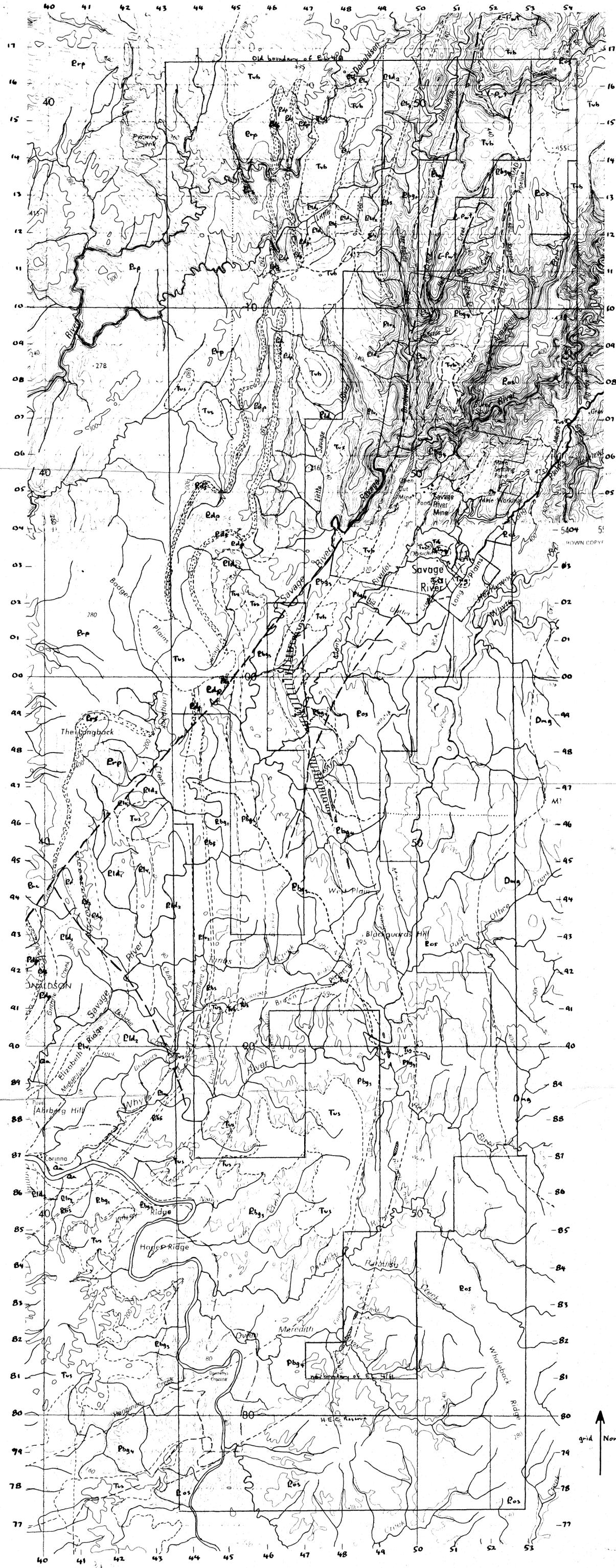
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**MICROFILMED**

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MAP KEY

- Formed road
- Rough track
- Cut line - walking track
- Large river
- Other watercourse
- Tenure boundary
- Grid - Australian Map Grid
- Geological boundary
- Fault

QUATERNARY:

**Qa** Alluvium

TERTIARY:

- Tus** "Brown Plain Formation"  
Poorly rounded oligomictic pebble to cobble gravel and sand.
- Tvb** Basalt
- Tmg** "Bullocks Head Formation"  
Well rounded polymictic cobble gravel and sand.

PERMO-CARBONIFEROUS:

- Wynyard Tillite
- C-Pw1** Tillite, mudstone with ice-rafted clasts, sandstone, varved mudstone.

DEVONIAN:

- Meredith Granite
- Dmg** Porphyritic granite, porphyritic microgranite, gneiss, quartz tourmaline rock.

PRECAMBRIAN:

- "WHYTE GROUP"
- Donah Formation
- Eos** Schistose quartzwacke and associated mica-chlorite pelites with some graphite schist; abundant quartz veins (west) greywacke and slate (east)
- "Battys Bend Formation"
- Grey and green basal mudstone, labile sandstone, phyllite, greenschist, amphibolite, turbidite sandstone, minor carbonates, magnesite and magnetite near top. Divisions indicated:-

**Pbg4**

**Pbg3**

**Pbg2**

**Pbg1**

**Pbs**

- "Longback Formation"
- Slate; dolomite; fragmental and massive volcanics. Divisions indicated:-

**Plv2**

**Pld2**

**Plv1**

**Pld1**

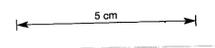
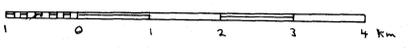
- Lower (Savage) Dolomite; slate expands at the expense of dolomite in the north. Distinctive dolomite textures include stromatolitic and brecciated stromatolitic dolomite and oolitic dolarenite; chert.

"Mt. Donaldson Formation"

**Edp**

ROCKY CAPE GROUP

**E-p**



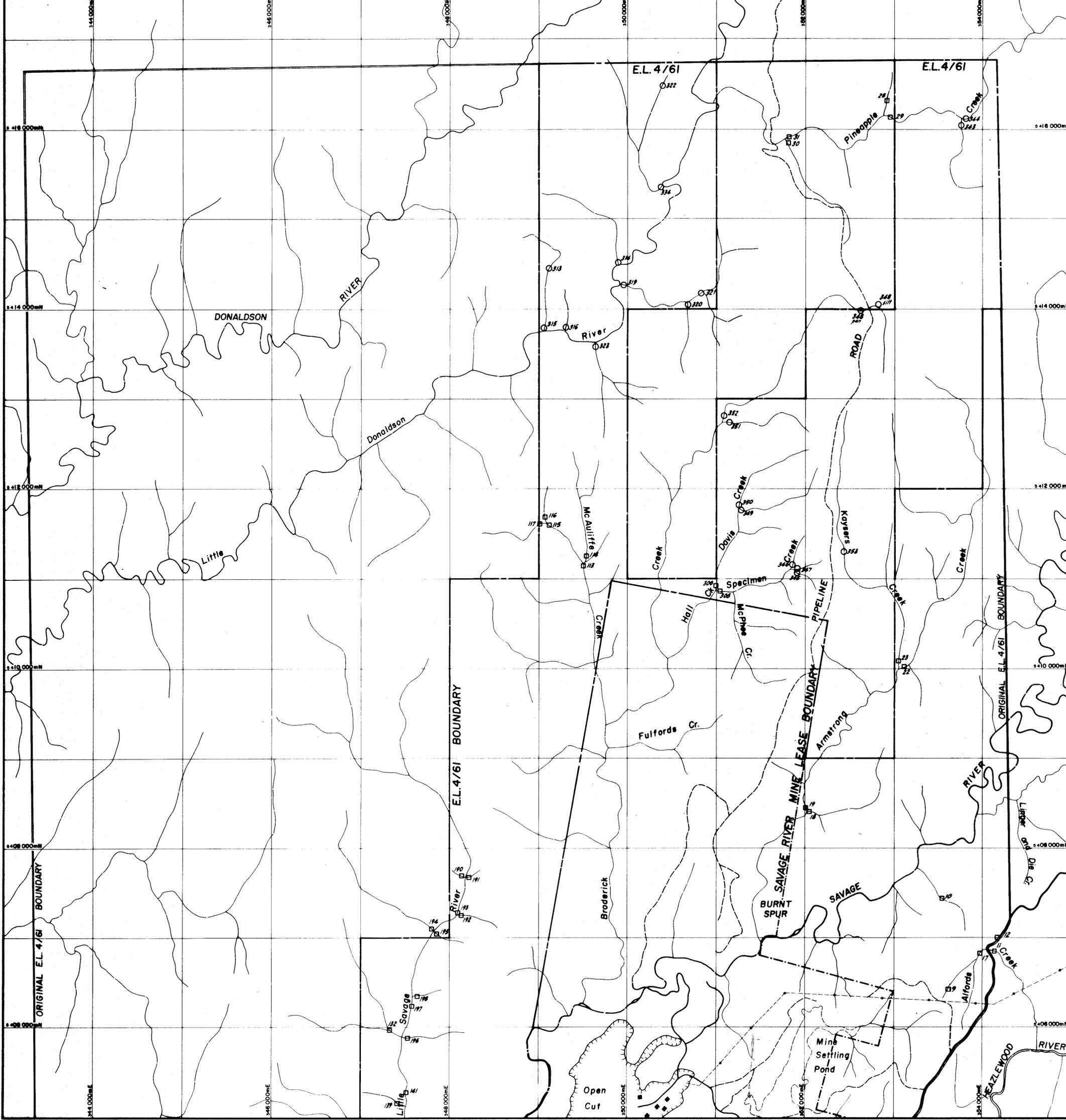
INDUSTRIAL AND MINING INVESTIGATIONS PTY. LTD.  
E.L. 4/61 SAVAGE RIVER, WEST COAST TASMANIA.

GEOLOGY - INTERPRETATION

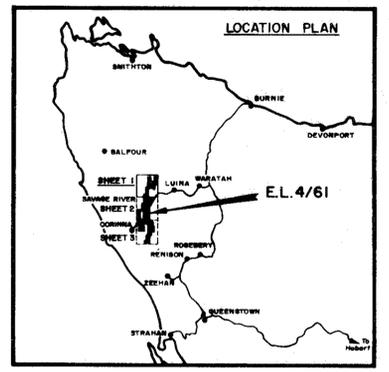
PHOTOINTERPRETATION BY H.SHANNON.

COMPILED AND DRAWN: H.S.  
Scale: 1:50,000  
March 1985, revised June 1985.  
Plan ref. IMI EL4/61-6/85-1 PLAN 1.0

85-2502

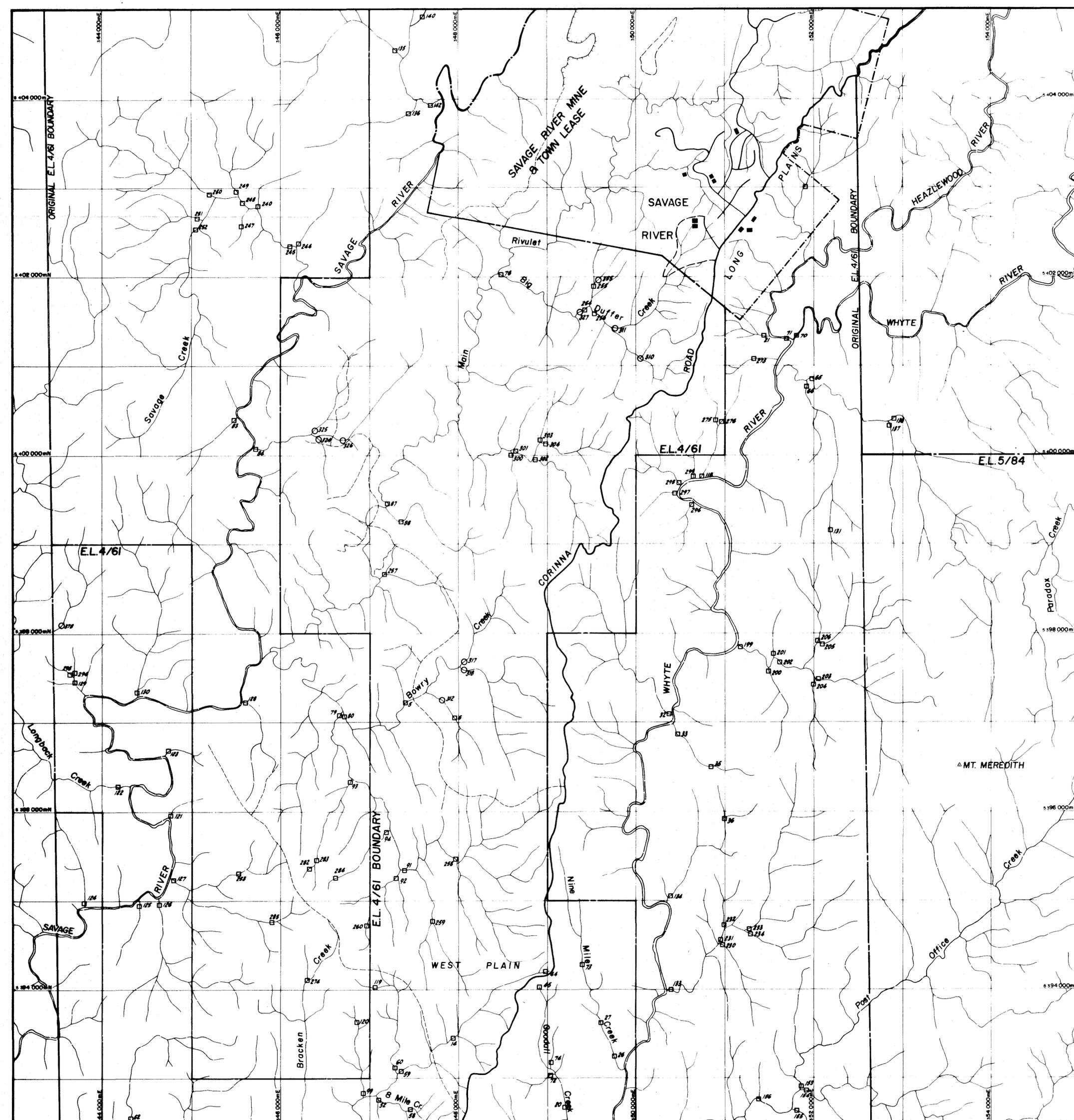


**LEGEND**  
 HM Series Sampling  
 ○ 1984-85 program  
 □ Previous

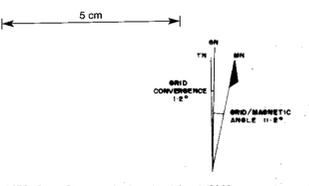
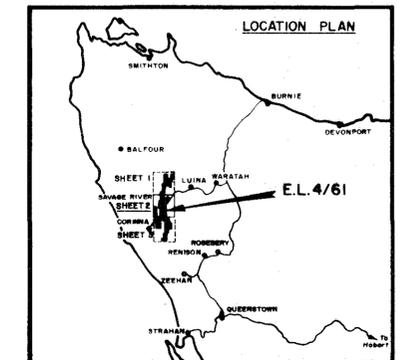


074246  
 NOTE: Rivers, Creeks and Creeks enlarged from 1:50000 base sheets  
 GRID CONVERSION: 1° 27' 30" S, 144° 00' 00" E  
 GRID/MAGNETIC ANGLE 11.2°

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER SHEET 1	
STREAM SEDIMENT SAMPLE LOCATION	
DRAWN BY	R.A.
DRAFTSMAN	TGDS
DATE	July 85
REVISIONS	
FILE NO	
SCALE 1:20000	FIG. 2-0



**LEGEND**  
 HM Series Sampling  
 ○ 1984-85 program  
 □ Previous

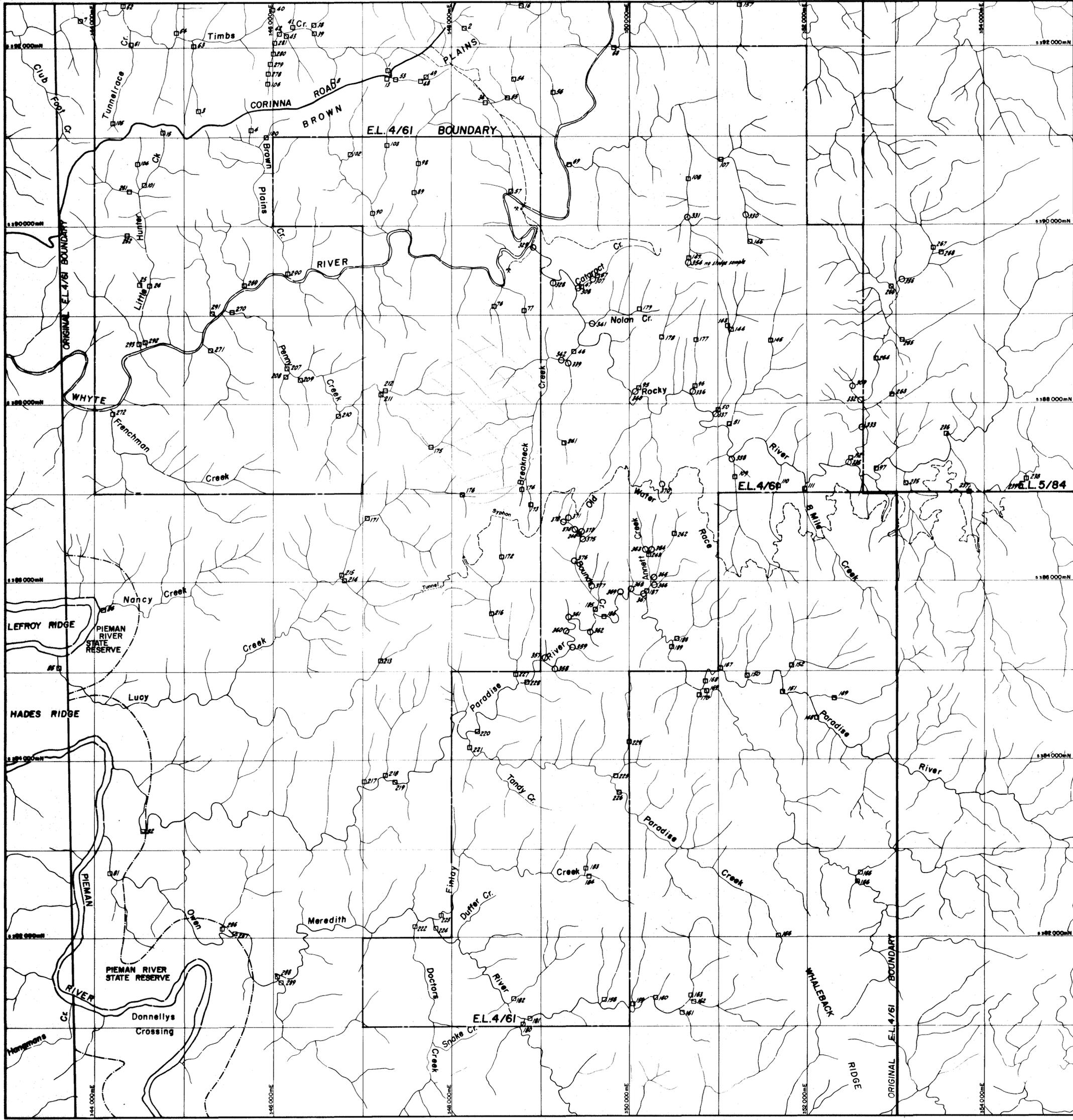


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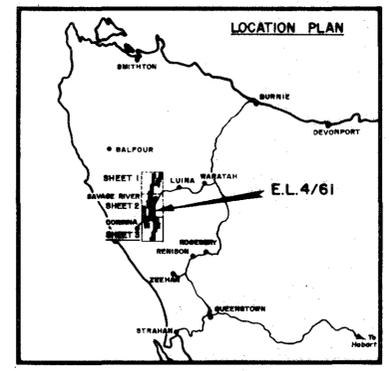
NOTE: Roads, Rivers and Creeks reduced from 1:15840 contour plans and AMG grid superimposed using main streams and roads from 1:50000 base sheets

**I** INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED

<b>EL. 4/61 - SAVAGE RIVER SHEET 2</b>		DRAWN BY R.A.
<b>STREAM SEDIMENT SAMPLE LOCATION</b>		DRAFTSMAN T.G.D.S.
		DATE July 85
		REVISIONS
		FILE NO
SCALE 1:20000		FIG. 2.0



**LEGEND**  
 HM Series Sampling  
 ○ 1984-85 program  
 □ Previous



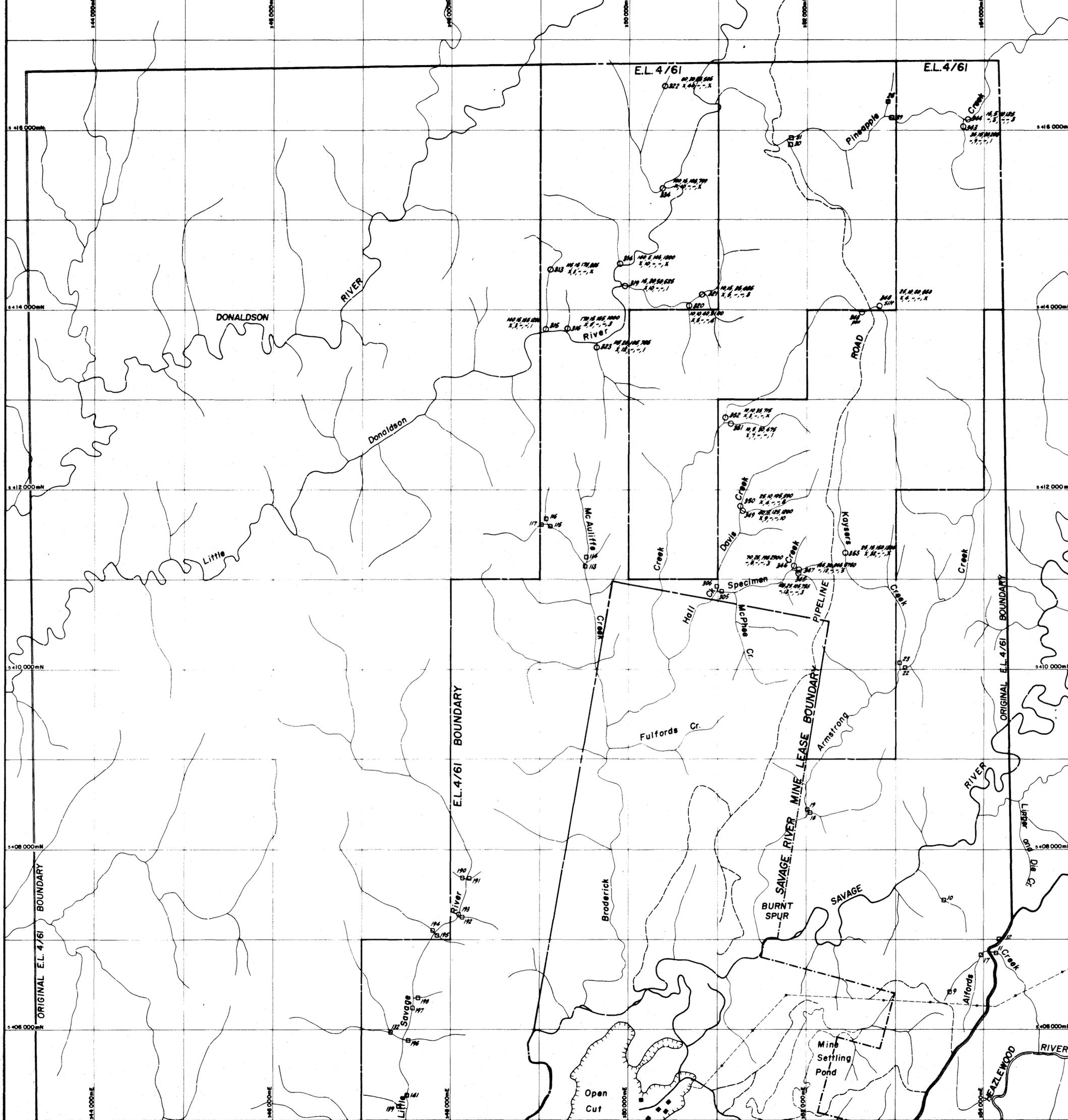
074248  
 NOTE: Roads, Rivers and Creeks reduced from 1:50,000 contour plans and AMG grid superimposed using main streams and roads from 1:50,000 base sheets.

**INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED**

**EL. 4/61 - SAVAGE RIVER SHEET 3**  
**STREAM SEDIMENT SAMPLE LOCATION**

DRAWN BY	R.A.
DRAFTSMAN	T.G.D.S.
DATE	July '85
REVISIONS	
FILE NO.	

SCALE 1:20,000  
 0 400 800 METRES  
 FIG. 20

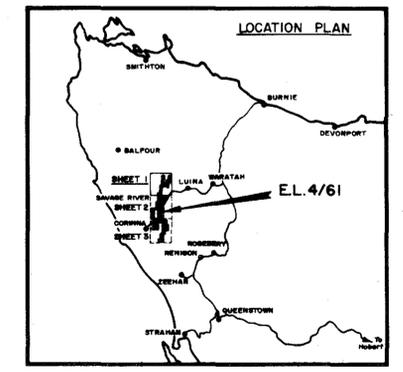


**LEGEND**

Cu, Pb, Zn, Mn,  
Ag, As, Sn, W, Au (note Au in ppb)

- element not analysed  
x below limit of detection

HM Series Sampling  
○ 1984-85 program  
□ Previous

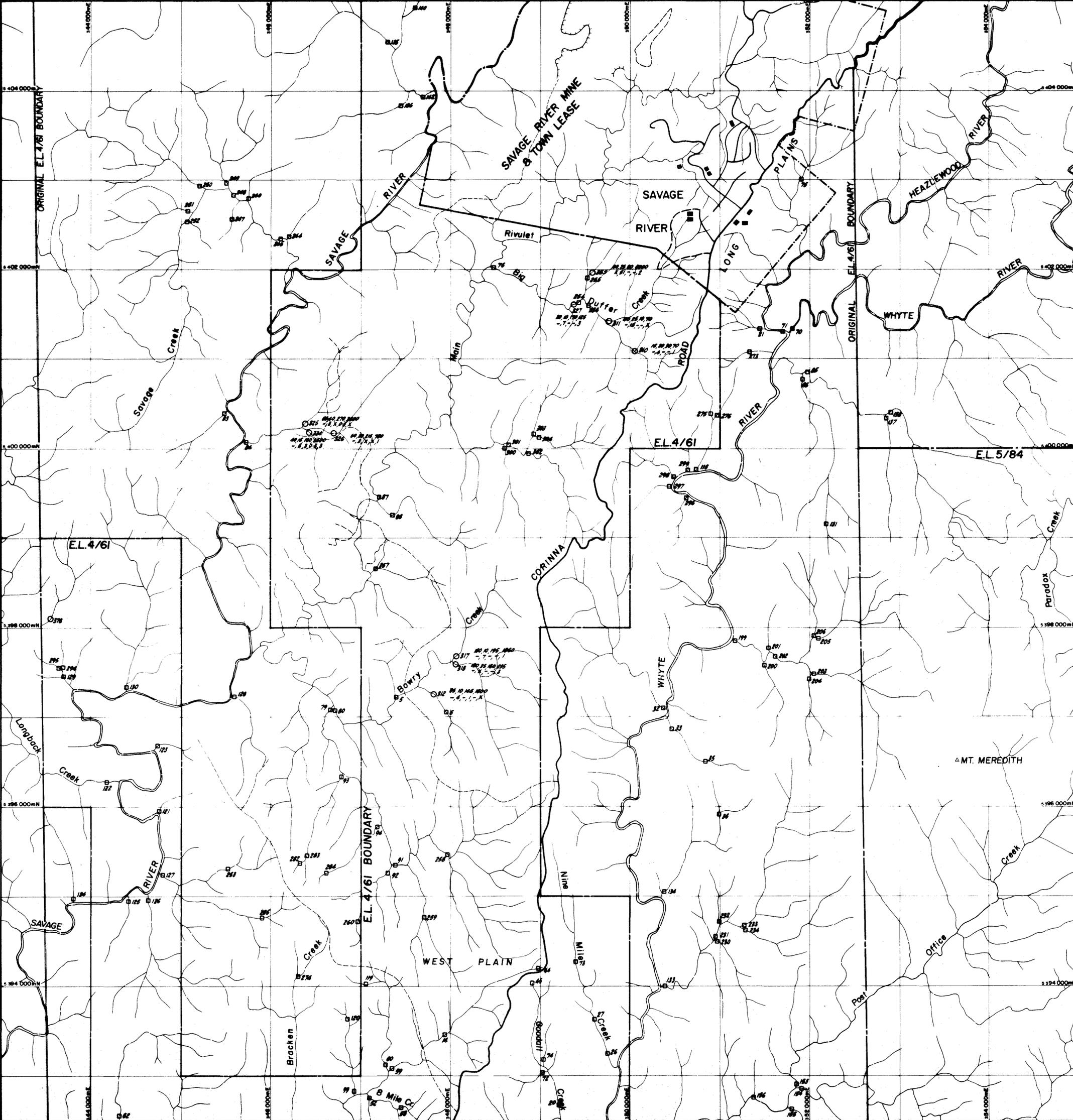


074250

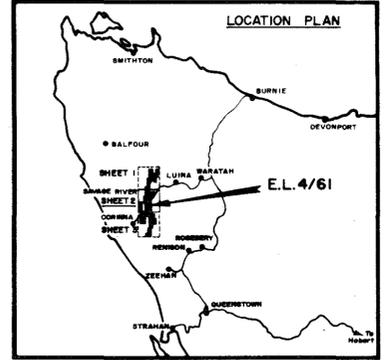
NOTE: Roads, Rivers and Creeks enlarged from 1:50000 base sheets.

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED

<b>E.L. 4/61 - SAVAGE RIVER SHEET 1</b>	
<b>STREAM SEDIMENT SLUDGE ANALYSIS</b>	
DRAWN BY: RA	FILE NO.
DRAFTSMAN: TGDS	FIG. 2-1
DATE: July 85	
REVISIONS:	



- LEGEND**
- Cu, Pb, Zn, Mn,
  - Ag, As, Sn, W, Au (note Au in ppb)
  - element not analysed
  - x below limit of detection
  - HM Series Sampling
  - 1984-85 program
  - Previous



074251

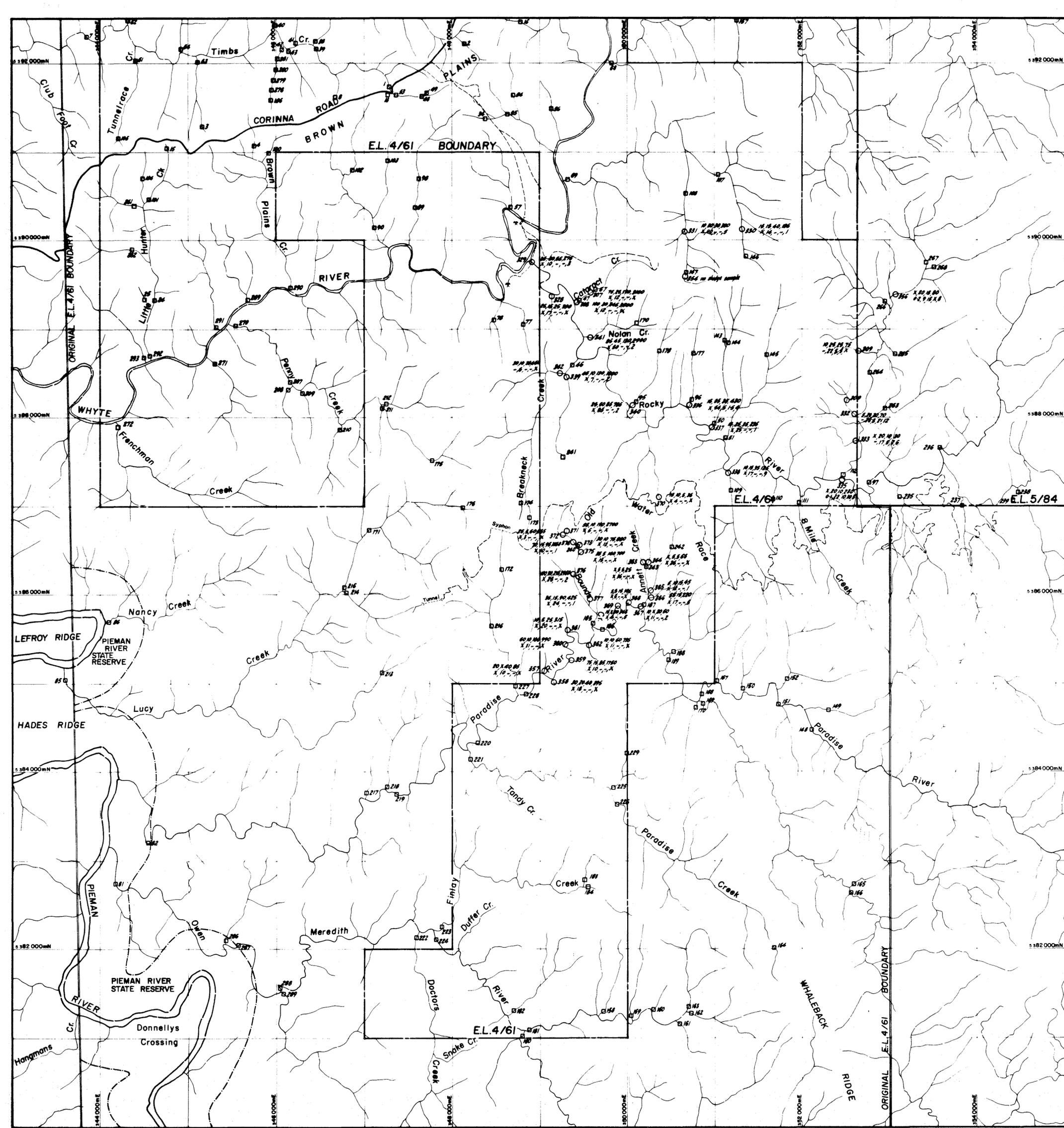
NOTE: Roads, Rivers and Creeks reduced from 1:25000 contour plans and AMG grid superimposed using main streams and roads from 1:50000 base sheets

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED

EL. 4/61 - SAVAGE RIVER SHEET 2		DRAWN BY	RA
STREAM SEDIMENT SLUDGE ANALYSIS		DRAFTSMAN	T.G.D.S.
		DATE	July '85
		REVISIONS	
		FILE NO.	

SCALE 1:20000

FIG. 2:1

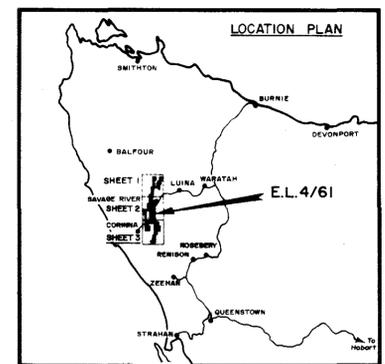


**LEGEND**

Cu, Pb, Zn, Mn,  
Ag, As, Sn, W, Au (note Au in ppb)

- element not analysed  
x below limit of detection

HM Series Sampling  
 ○ 1984-85 program  
 □ Previous



074252

NOTE: Roads, Rivers and Creeks reduced from 1:50000 contour plans and AMG grid superimposed using main streams and roads from 1:50000 base sheets.

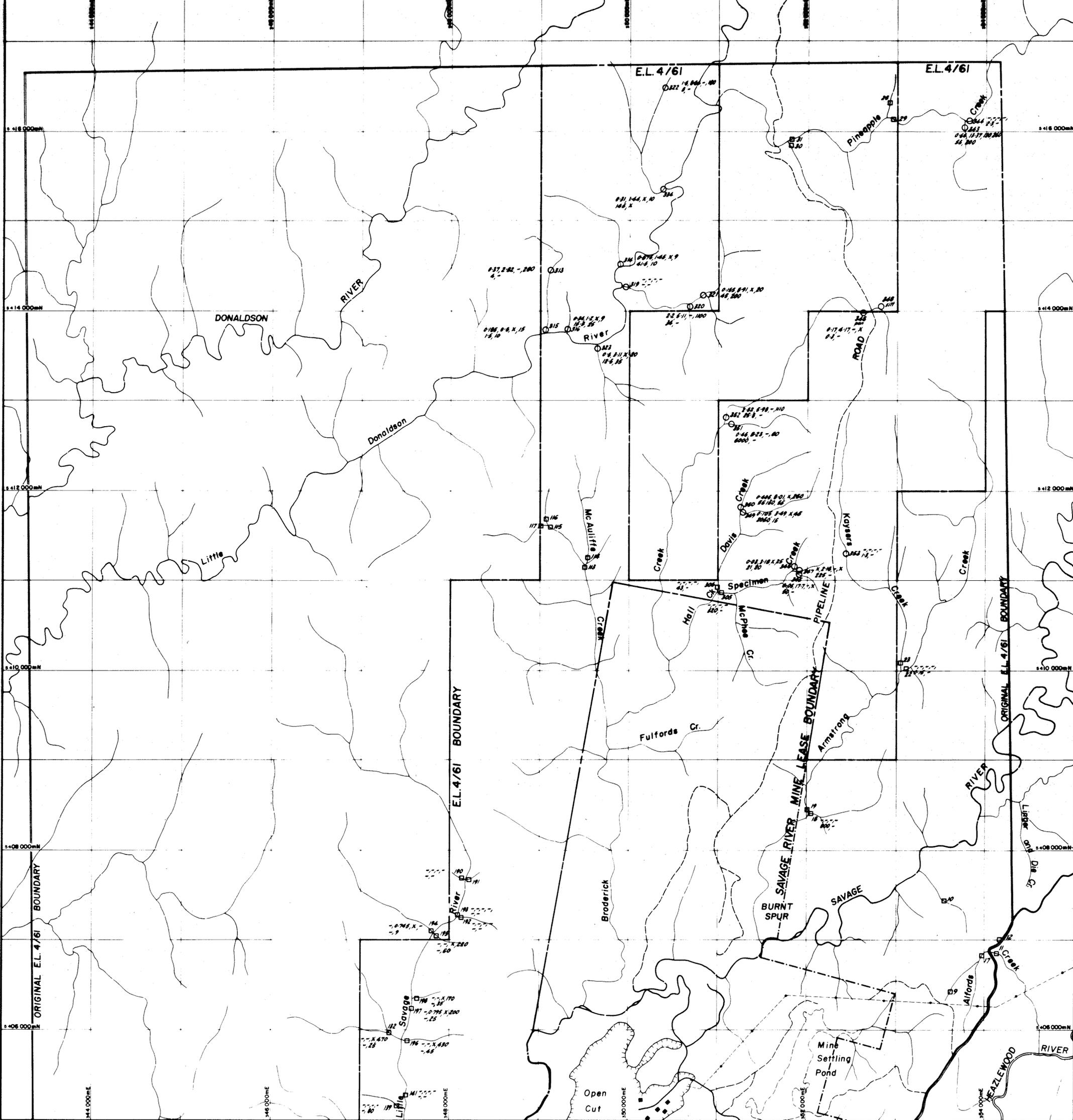
INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED

**E.L. 4/61 - SAURIA RIVER  
SHEET 3**

**STREAM SEDIMENT  
SLUDGE ANALYSIS**

DRAWN BY: RA  
 DRAFTSMAN: TGDS  
 DATE: July 85  
 REVISIONS:  
 FILE NO:  
 SCALE 1:20000  
 METRES

FIG. 21



**LEGEND**

HM Series Sampling

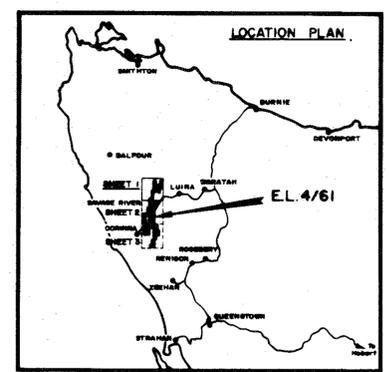
○ 1984-85 program

□ Previous

○ Cu %, Tl %, W ppm, Sn ppm  
Au µg, Nb ppm

Below limit of detection

Not determined

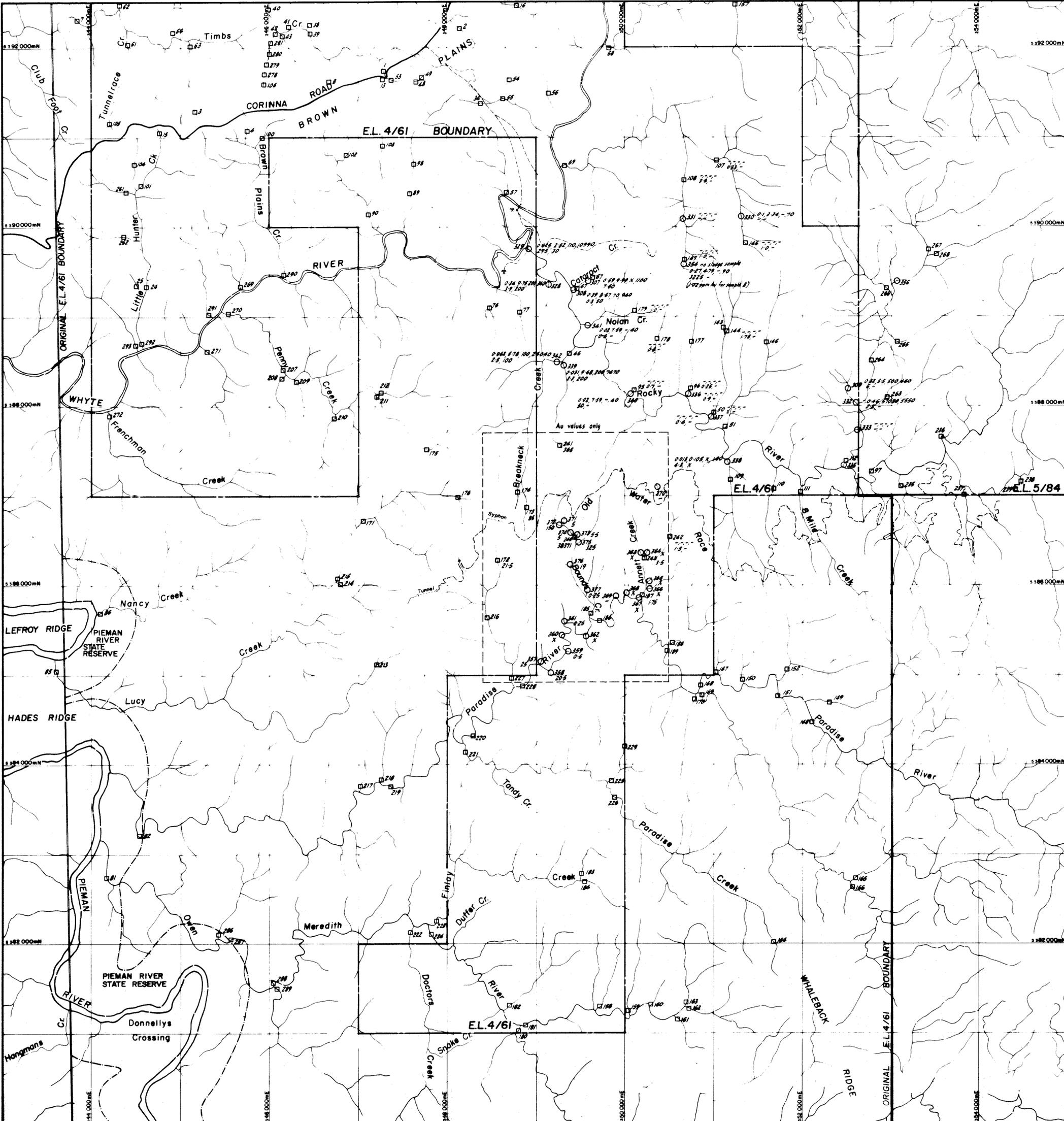


074253

NOTE: Roads, Rivers and Creeks enlarged from 1:50000 base sheets.

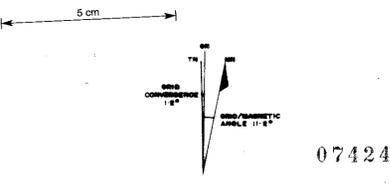
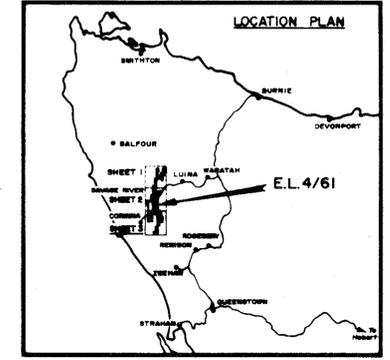
INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
EL. 4/61 - SAVAGE RIVER SHEET 1	
STREAM SEDIMENT HEAVY MINERAL CONCENTRATE	
SCALE 1:20000	FIG 2:2
DRAWN BY HS	DRAFTSMAN T.G.D.S.
DATE July, '85	REVISIONS
FILE NO	





**LEGEND**

- HM Series Sampling
- 1984-85 program
- Previous
  
- Cu %, Ti %, W ppm, Sn ppm
- Au Ag, Nb ppm
- Below limit of detection
- Not determined



NOTE: Roads, Rivers and Creeks reduced from 1:15,000 contour plans and A88 grid superimposed using main streams and roads from 1:50,000 base sheets.

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED

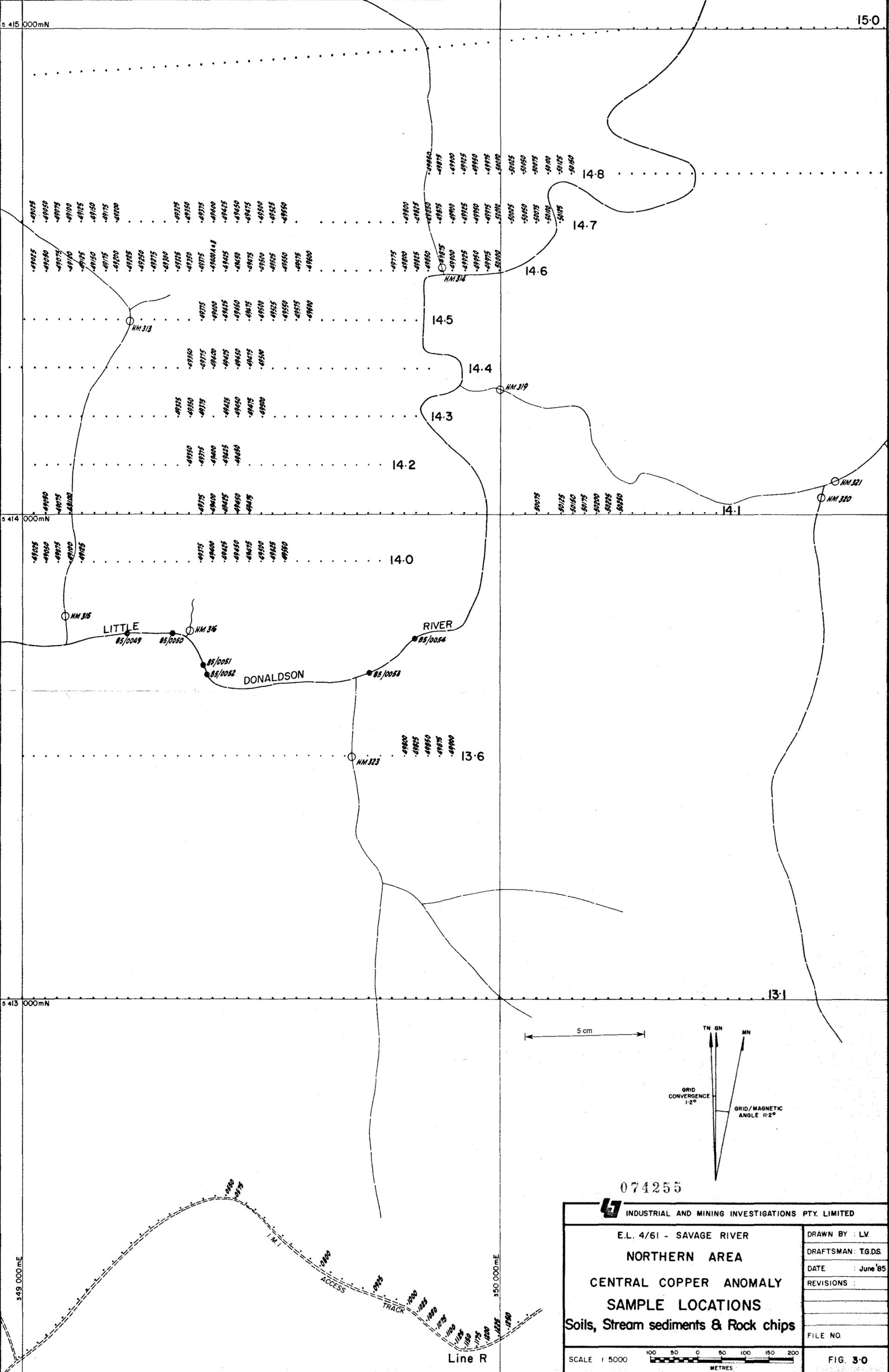
EL. 4/61 - SAVAGE RIVER SHEET 3		DRAWN BY HS
STREAM SEDIMENT HEAVY MINERAL CONCENTRATE		DRAFTSMAN TG.D.S.
		DATE July, 85
		REVISIONS
		FILE NO.
SCALE 1:20,000		FIG. 2-2

5 415 000mN 15.0

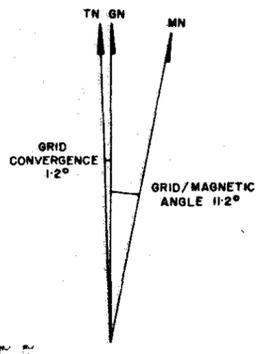
5 414 000mN

5 413 000mN 13.1

3.49 000mE 3.50 000mE



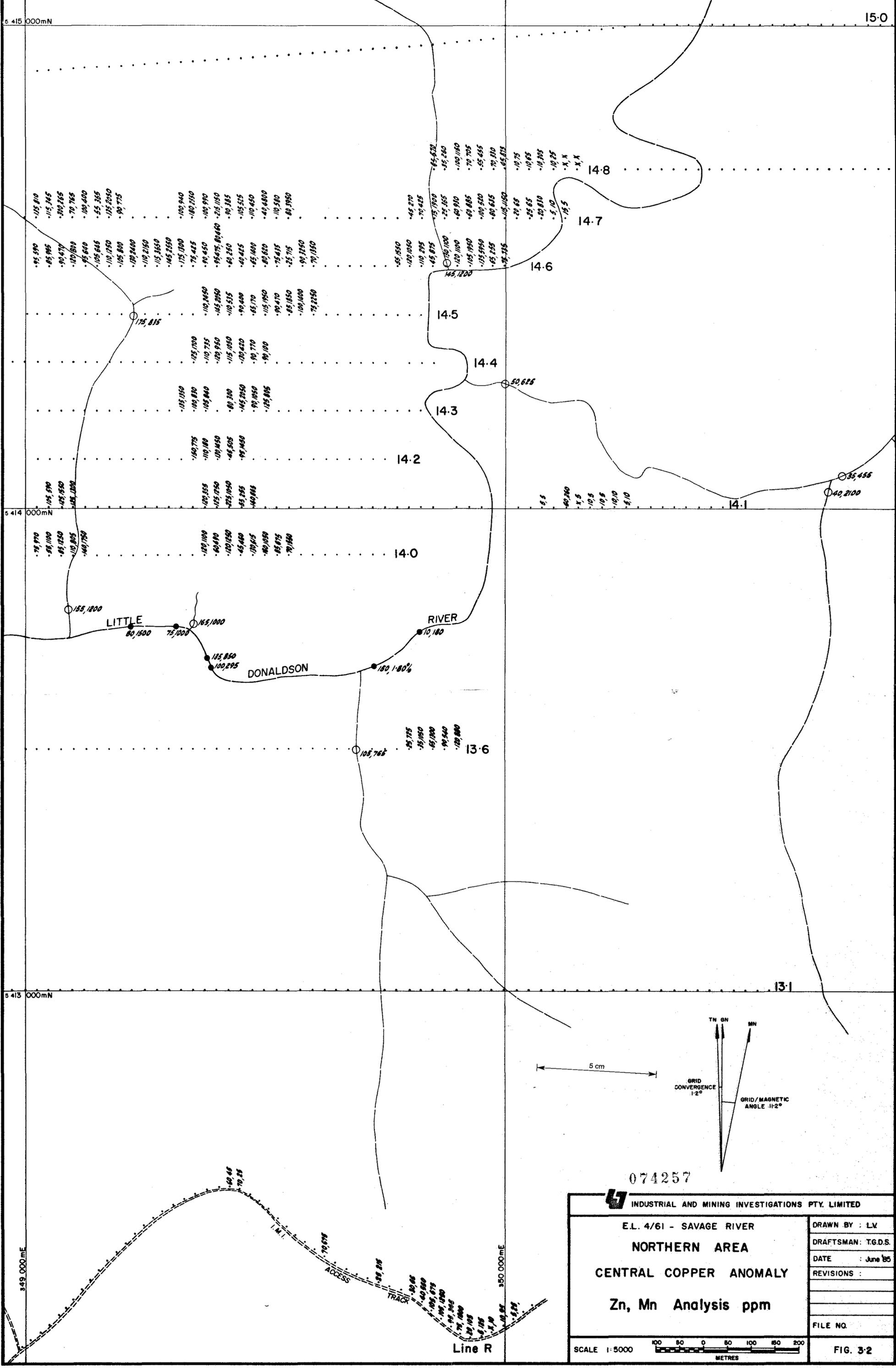
5 cm



074255

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA CENTRAL COPPER ANOMALY SAMPLE LOCATIONS Soils, Stream sediments & Rock chips	
DRAWN BY : LV DRAFTSMAN : T.G.D.S. DATE : June '85 REVISIONS : FILE NO.	SCALE 1 5000  METRES
<b>FIG. 3.0</b>	





074257

<b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>	
E.L. 4/61 - SAVAGE RIVER <b>NORTHERN AREA</b> <b>CENTRAL COPPER ANOMALY</b> <b>Zn, Mn Analysis ppm</b>	
DRAWN BY : LV	DATE : June '85
DRAFTSMAN : T.G.D.S.	
REVISIONS :	
FILE NO.	
SCALE 1:5000  METRES	
<b>FIG. 3-2</b>	

5 415 000mN

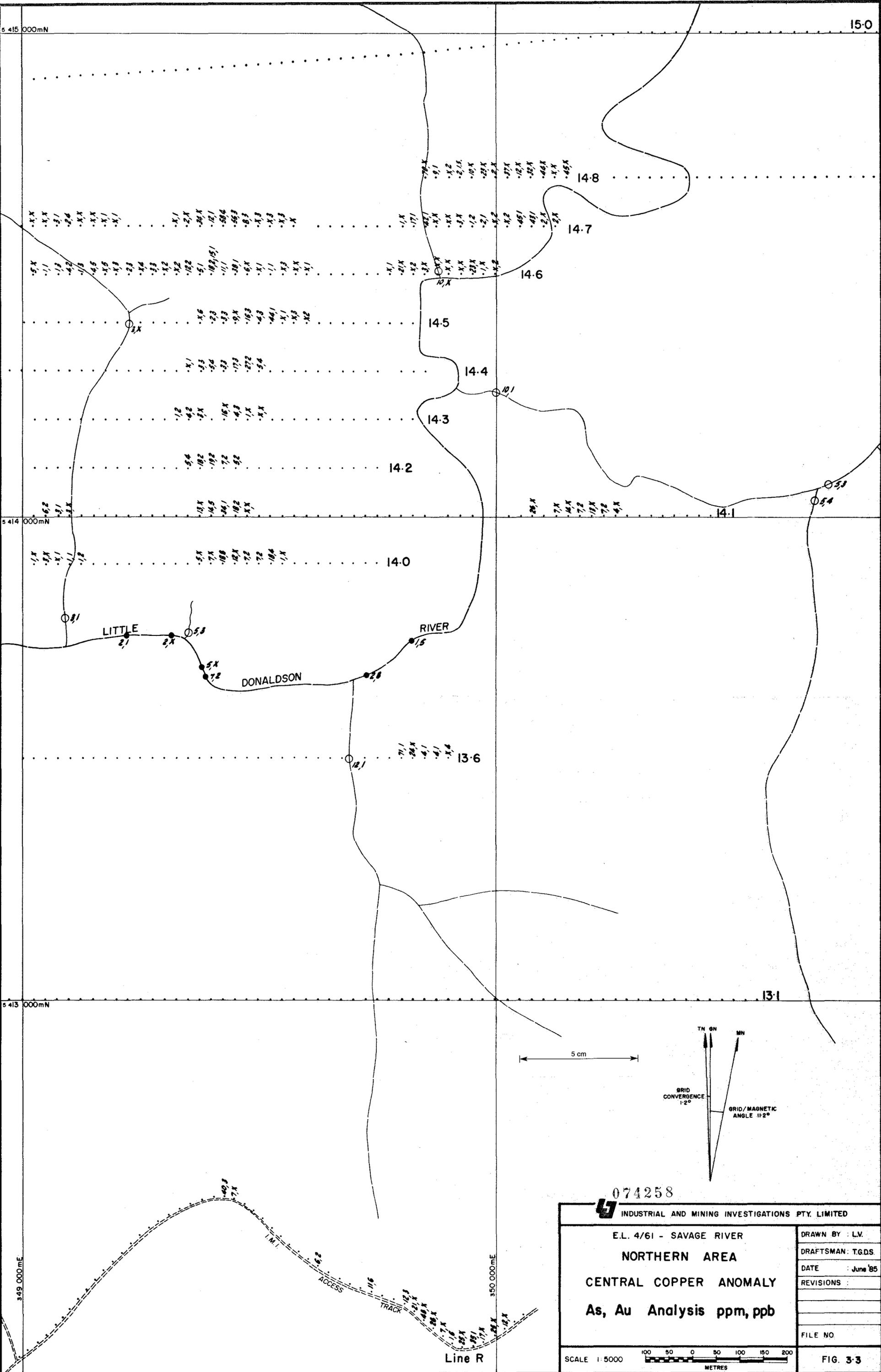
15.0

5 414 000mN

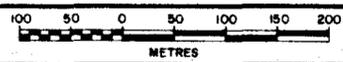
5 413 000mN

349 000mE

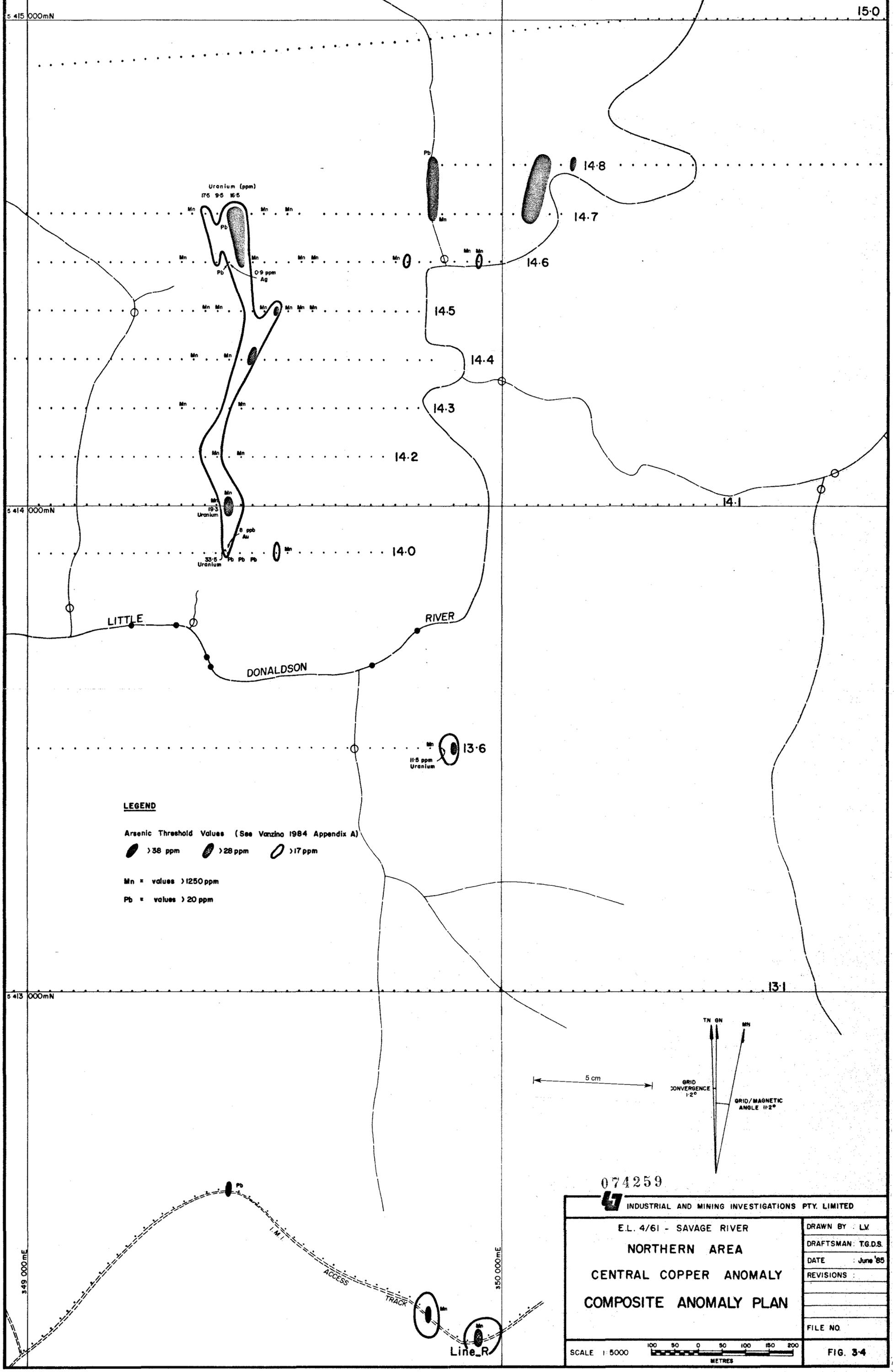
350 000mE



074258

 <b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>	
E.L. 4/61 - SAVAGE RIVER <b>NORTHERN AREA</b> <b>CENTRAL COPPER ANOMALY</b> <b>As, Au Analysis ppm, ppb</b>	
SCALE 1:5000 	DRAWN BY : LV. DRAFTSMAN : TGDS. DATE : June '85 REVISIONS : FILE NO. <b>FIG. 3-3</b>

85-2502 5533



**LEGEND**

Arsenic Threshold Values (See Vanzina 1984 Appendix A)

● >38 ppm   ● >28 ppm   ○ >17 ppm

Mn = values >1250 ppm

Pb = values >20 ppm

074259

**INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED**

E.L. 4/61 - SAVAGE RIVER

**NORTHERN AREA**

**CENTRAL COPPER ANOMALY**

**COMPOSITE ANOMALY PLAN**

SCALE 1:5000

100 50 0 50 100 150 200 METRES

DRAWN BY : LV
DRAFTSMAN : T.G.D.S.
DATE : June '85
REVISIONS :
FILE NO.

FIG. 3-4



243

350 500mE

LINE 16.7

LINE 16.4

5 416 000mN

5 416 000mN

350 500mE

.160  
.155  
.245  
.120  
.100  
.115  
.145  
.170  
.80  
.65  
.130  
.180

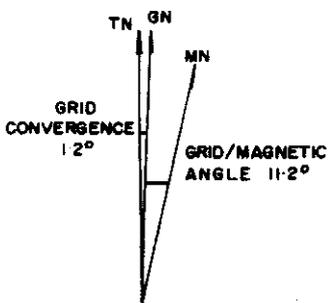
.X  
.X  
.15  
.5  
.5  
.5  
.5  
.10  
.185  
.45  
.5  
.30  
.20  
.10  
.5

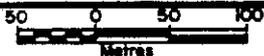
DONALDSON RIVER

LITTLE

074261

5 cm



 <b>INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED</b>	
<b>E.L. 4/61 - SAVAGE RIVER NORTHERN AREA NORTHERN Cu ANOMALY Cu Analysis ppm</b>	
DRAWN BY : L.V. DRAFTSMAN : T.S.D.S. DATE : JUNE 85 REVISIONS :	FILE NO. FIG. 4.1
SCALE 1:5000 	

85-2502

246

350 500mE

LINE 16.7

LINE 16.4

030

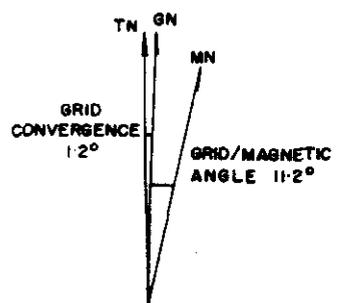
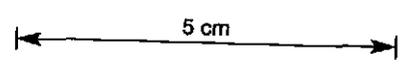
DONALDSON RIVER

LITTLE

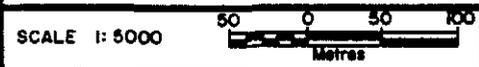
5 416 000mN

5 416 000mN

074262



<b>I</b> INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA NORTHERN Cu ANOMALY Pb Analysis ppm	
DRAWN BY : LX	DRAFTSMAN : T.S.D.R.
DATE : JUNE 86	REVISIONS :
FILE NO.	FIG. 4.2



85-2502

247

350 500mE

LINE 16.7

LINE 16.4

5 416 000mN

5 416 000mN

.30  
 .45  
 .20  
 .30  
 .45  
 .50  
 .45  
 .10  
 .15  
 .20  
 .45  
 .60

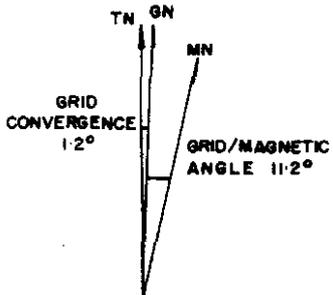
DONALDSON  
 RIVER

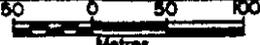
.X .X

LITTLE

074263

5 cm



 <b>INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED</b>	
<b>E.L. 4/61 - SAVAGE RIVER          NORTHERN AREA          NORTHERN Cu ANOMALY          Zn Analysis ppm</b>	
SCALE 1:5000 	DRAWN BY : L.V. DRAFTSMAN : T.G.D.S. DATE : JUNE 60 REVISIONS : FILE NO. <b>FIG. 43</b>

350 500mE

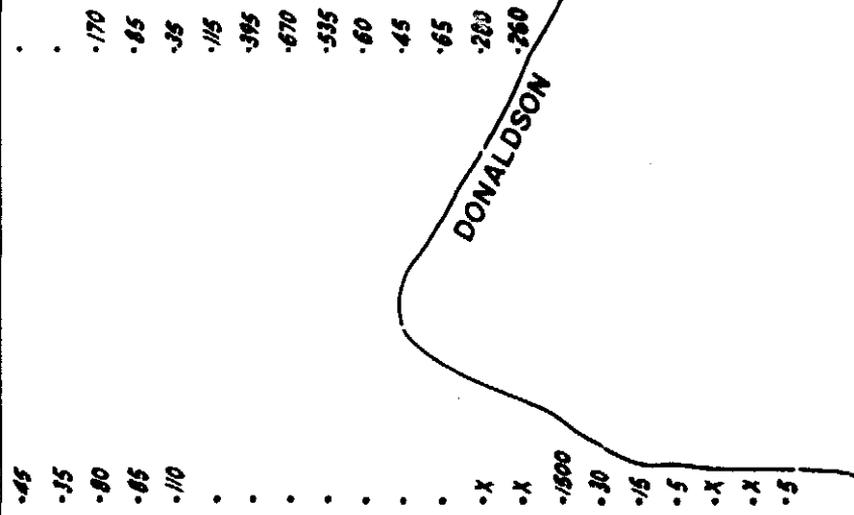
85-2502

248

350 500mE

LINE 16.7

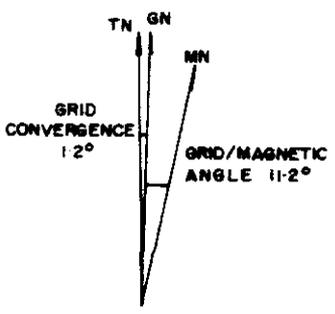
LINE 16.4



5 416 000mN

5 416 000mN

074264



5 cm

<b>I</b> INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA NORTHERN Cu ANOMALY Mn Analysis ppm	
DRAWN BY : L.V.	FILE NO.
DRAFTSMAN : T.S.D.S.	FIG. 4.4
DATE : JUNE 85	
REVISIONS :	
SCALE 1:5000	

85-2502

249

350 500mE

LINE 16.7

LINE 16.4

5 416 000mN

5 416 000mN

.5 .3 .49 .82 .100 .100 .45 .84 .51 .96 .3 .10

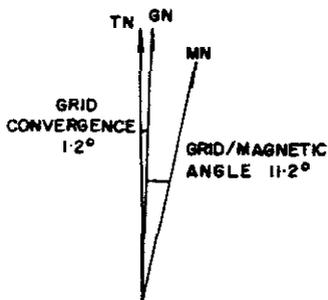
.3 .1 .44 .X .1 .X .15 .14 .78 .6 .53 .2 .14 .X

DONALDSON RIVER

LITTLE

074265

5 cm



350 500mE

 <b>INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED</b>	
<b>E.L. 4/61 - SAVAGE RIVER NORTHERN AREA NORTHERN Cu ANOMALY As Analysis ppm</b>	
DRAWN BY : DRAFTSMAN: T.G.D.S DATE : JUNE 66 REVISIONS :	
FILE NO.	
SCALE 1:5000 	<b>FIG. 4.5</b>

85-2502

250

LINE 11·2

5 411 000mN

349 000mE

LINE 11·1

49200  
49225  
49250  
49275  
49300

49400

49600  
49625  
49650  
49675  
49700

LINE 11·0

LINE 10·9

LINE 10·8

LINE 10·7

LINE 10·6

McAULIFFE CREEK

5 cm

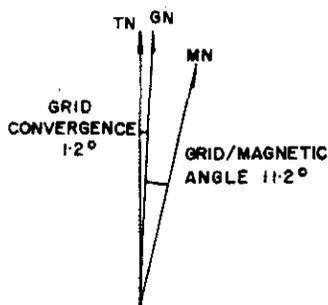
48950  
48975  
48900  
48925  
48950  
48975  
48900

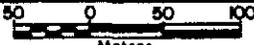
49025  
49050  
49075  
49100  
49125  
49150  
49175  
49200  
49225  
49250  
49275  
49300  
49325  
49350  
49375

LINE 10·1

5 410 000mN

074266



 INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA SOUTHERN Cu ANOMALY SAMPLE LOCATION	
DRAWN BY : L.V.	
DRAFTSMAN: T.G.D.S.	
DATE : JUNE 66	
REVISIONS :	
FILE NO.	
SCALE 1:5000	
FIG. 50	

251

LINE 11.2

349 000mE

5 411 000mN

LINE 11.1

180 175 170 165 160

170

60 5 105 45 10

LINE 11.0

LINE 10.9

LINE 10.8

LINE 10.7

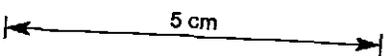
LINE 10.6

CREEK

McAULIFFE

LEGEND

Soil Sample/Rock Chip Sample  
- not analysed



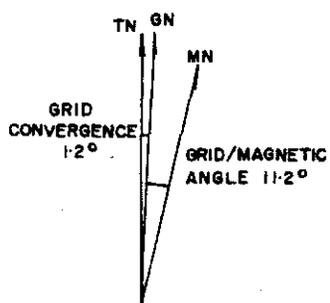
195 190 180 170 165/160 160

160/170 155/165 155 150 145 140/150 135 130 125 120 115 110

LINE 10.1

5 410 000mN

074267



<b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA SOUTHERN Cu ANOMALY Cu Analysis ppm	
DRAWN BY : L.V.	FILE NO.
DRAFTSMAN: T.G.S.	FIG. 5.1
DATE : JUNE 60	
REVISIONS :	
SCALE 1:5000	

349 000mE

85-2502



253

LINE 11·2

5 411 000mN

LINE 11·1

115 70 40 35 35 110

20 10 40 20 10

349 000mE

LINE 11·0

LINE 10·9

LINE 10·8

LINE 10·7

LINE 10·6

McAULIFFE CREEK

LEGEND

Soil Sample / Rock Chip Sample  
- not analysed

5 cm

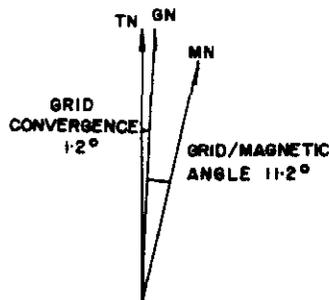
110 130 145 90 85/145 125 110

60/65 60/55 70 35 35 50/70 50 90 65 80 85 75 150 115 -170

LINE 10·1

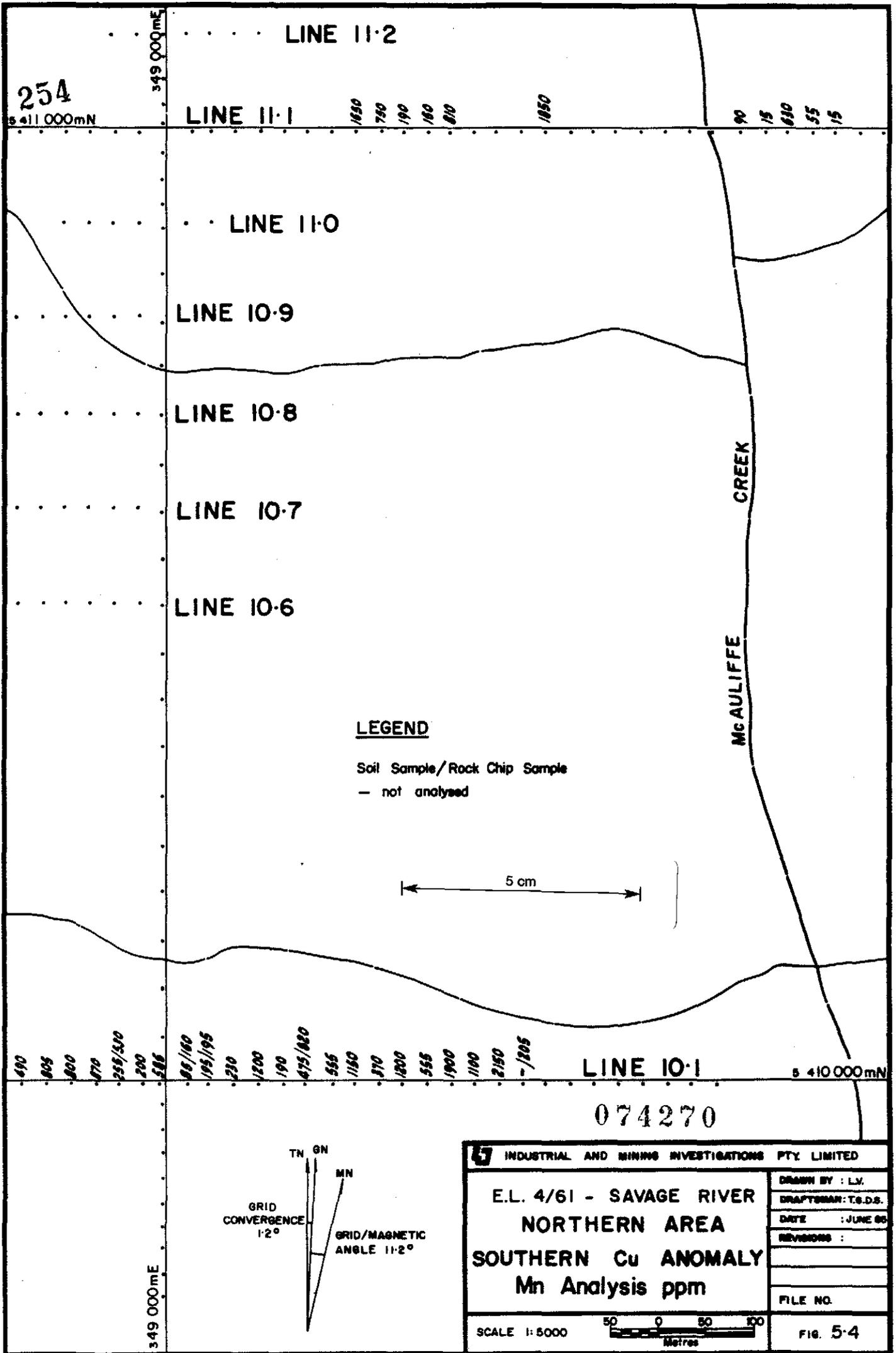
5 410 000mN

074269



<b>I</b> INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA SOUTHERN Cu ANOMALY Zn Analysis ppm	
DRAWN BY : L.V.	DATE : JUNE 80
DRAFTSMAN: T.G.D.S.	REVISIONS :
FILE NO.	Fig. 5·3
SCALE 1:5000	50 0 50 100 Metres

85 7507



LINE 11-2

254  
5 411 000mN

LINE 11-1

1850  
780  
190  
160  
810

90  
15  
630  
55  
15

LINE 11-0

LINE 10-9

LINE 10-8

LINE 10-7

LINE 10-6

**LEGEND**

Soil Sample/Rock Chip Sample  
- not analysed

5 cm

McAULIFFE CREEK

490  
805  
800  
870  
255/530  
200  
585

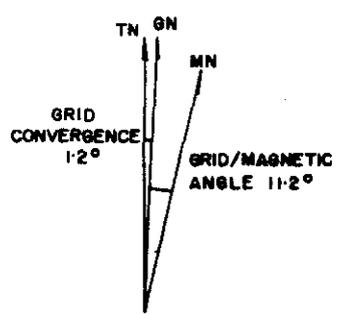
86/160  
195/195  
230  
1200  
190  
475/820

555  
1150  
370  
1200  
555  
1900  
1160  
2150  
-/205

LINE 10-1

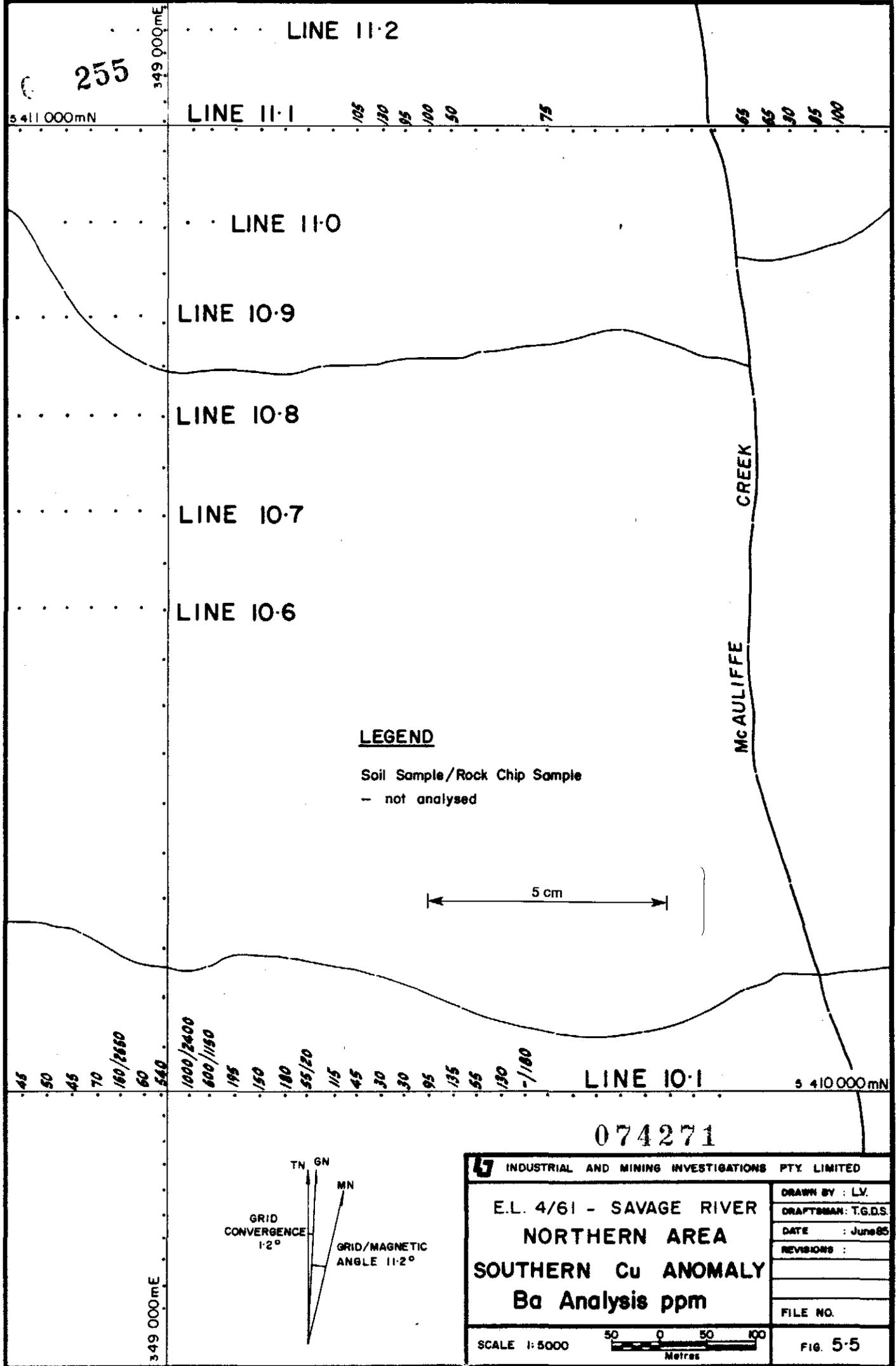
5 410 000mN

074270



INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA SOUTHERN Cu ANOMALY Mn Analysis ppm	
DRAWN BY : L.V.	FILE NO.
DRAFTSMAN: T.G.D.S.	FIG. 5-4
DATE : JUNE 86	
REVISIONS :	
SCALE 1:5000	Metres

95-7507



255

LINE 11.2

LINE 11.1

105  
100  
95  
100  
50

65  
65  
50  
65  
100

LINE 11.0

LINE 10.9

LINE 10.8

LINE 10.7

LINE 10.6

McAULIFFE CREEK

**LEGEND**

Soil Sample/Rock Chip Sample  
- not analysed

5 cm

45  
50  
45  
70  
160/2650  
60  
540

1000/2400  
600/1150

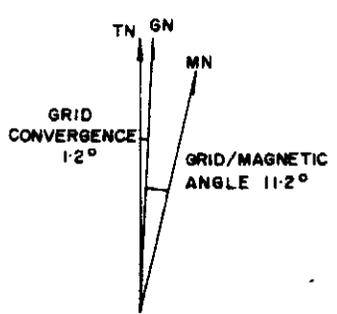
195  
150  
180  
55/20  
115  
45  
30  
30  
95

135  
55  
130  
-/180

LINE 10.1

5 410 000 mN

074271



INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA SOUTHERN Cu ANOMALY Ba Analysis ppm	
DRAWN BY : LV. DRAFTSMAN : T.G.D.S. DATE : June 85 REVISIONS :	FILE NO. FIG. 5.5
SCALE 1:5000 	

85-2502

256

349 000mE

LINE 11·2

5 411 000mN

LINE 11·1

x x x x x

x

x x x x x

LINE 11·0

LINE 10·9

LINE 10·8

LINE 10·7

LINE 10·6

CREEK

McAULIFFE

**LEGEND**

Soil Sample/Rock Chip Sample  
- not analysed

5 cm

x x x x x x/x x/x

x/x x/x x x x x/x

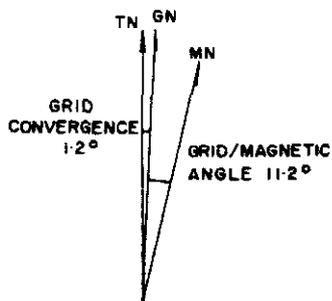
x x x x x x x x x x x

LINE 10·1

5 410 000mN

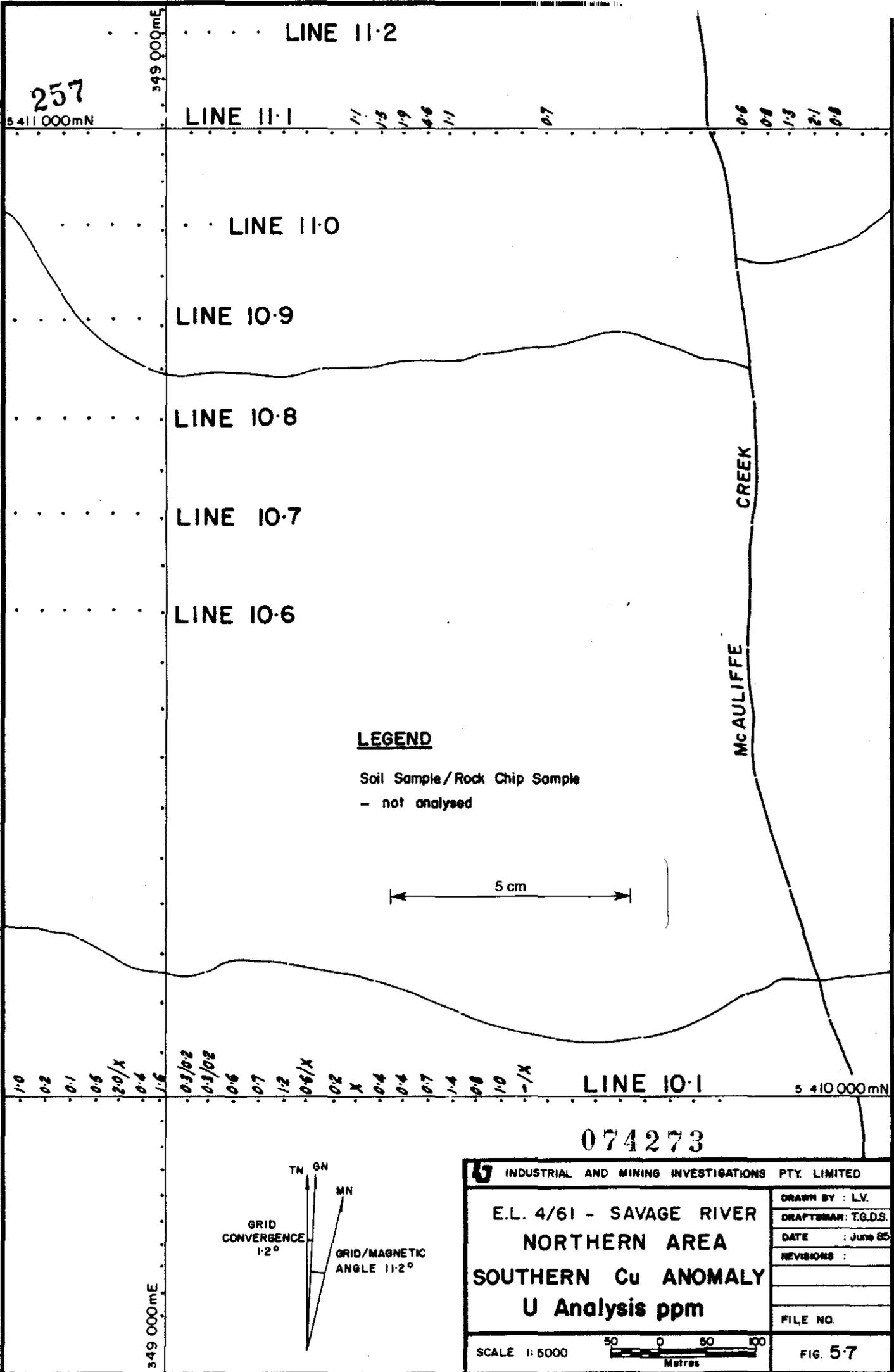
074272

349 000mE



<b>I</b> INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA SOUTHERN Cu ANOMALY Sb Analysis ppm	
DRAWN BY : L.V.	DRAFTSMAN: TGDS.
DATE : June 85	REVISIONS :
FILE NO.	FIG. 5·6
SCALE 1:5000	50 0 50 100 Metres

85-2502



258

349 000mE

LINE 11·2

5 411 000mN

LINE 11·1

7 /6 /4 22 X X

10 /6 /1 65 8

LINE 11·0

LINE 10·9

LINE 10·8

LINE 10·7

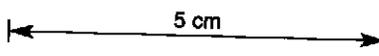
LINE 10·6

CREEK

McAULIFFE

**LEGEND**

Soil Sample/Rock Chip Sample  
- not analysed



1 / 1 / 4 /4/9 /4 9

26/8 /17/21

17

14

12

7/X

8

X

1

1

12

22

1

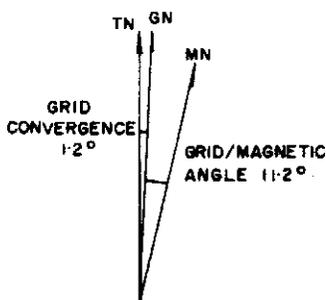
9

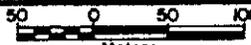
-/138

LINE 10·1

5 410 000mN

074274



 INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER NORTHERN AREA SOUTHERN Cu ANOMALY As Analysis ppm</b>	
DRAWN BY : LV.	DRAFTSMAN : T.G.D.S.
DATE : June 65	REVISIONS :
FILE NO.	FIG. 5·8
SCALE 1:5000	

349 000mE

259

349 000mE

LINE 11·2

5 411 000mN

LINE 11·1

x x x x x x

x x x x x

LINE 11·0

LINE 10·9

LINE 10·8

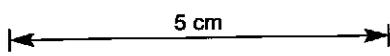
LINE 10·7

LINE 10·6

McAULIFFE CREEK

**LEGEND**

Soil Sample/Rock Chip Sample  
- not analysed



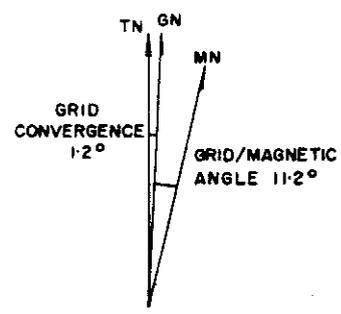
x x x x x/x x/x

x/x x/x x x x x/x x x x x x x x x x/x

LINE 10·1

5 410 000mN

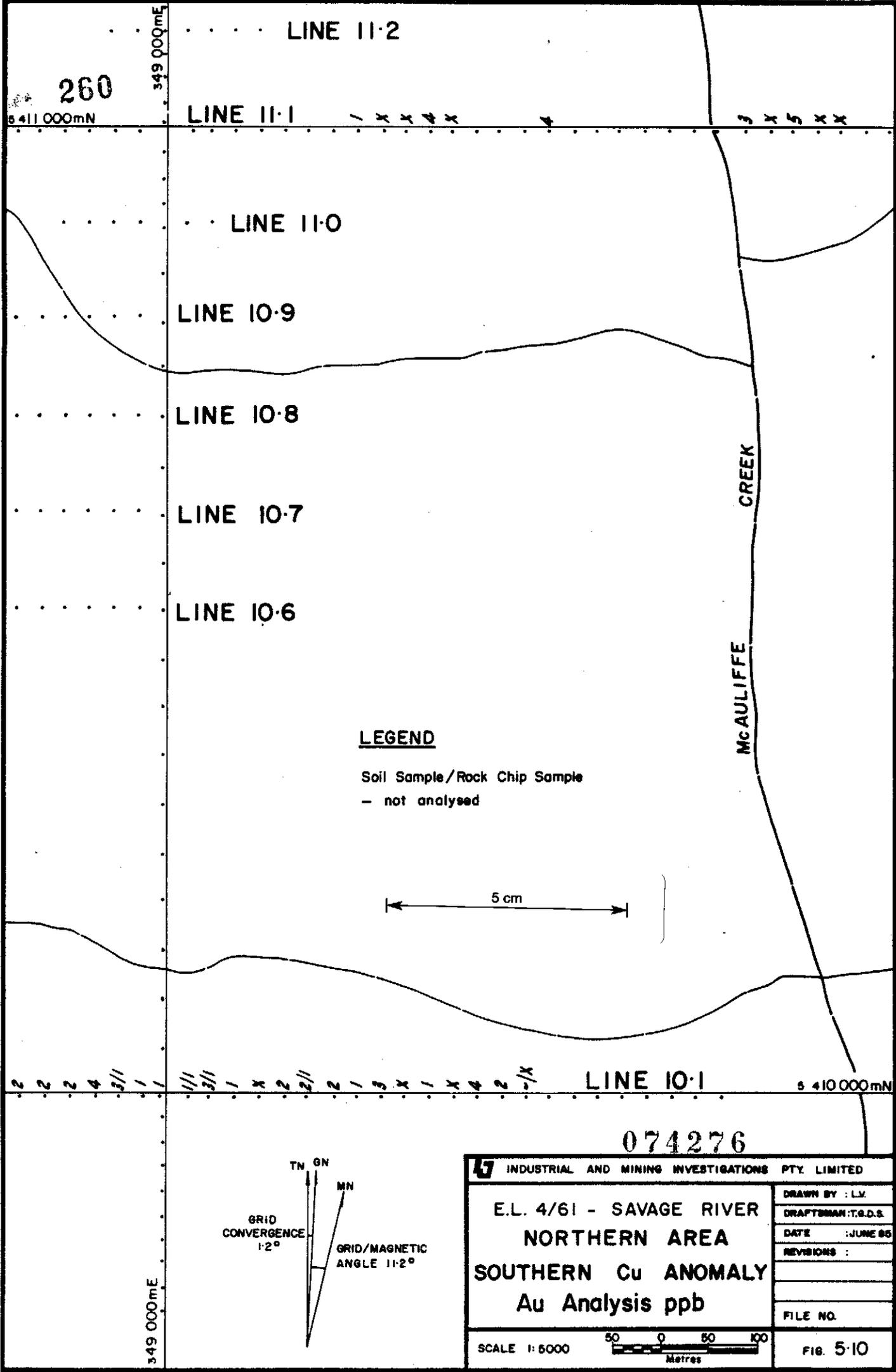
074275



349 000mE

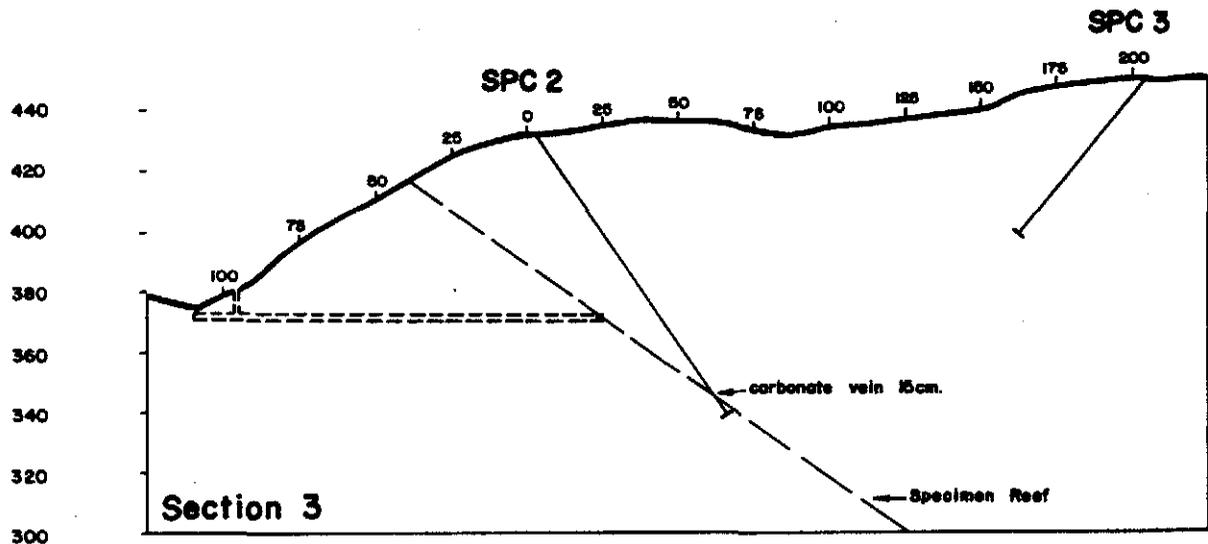
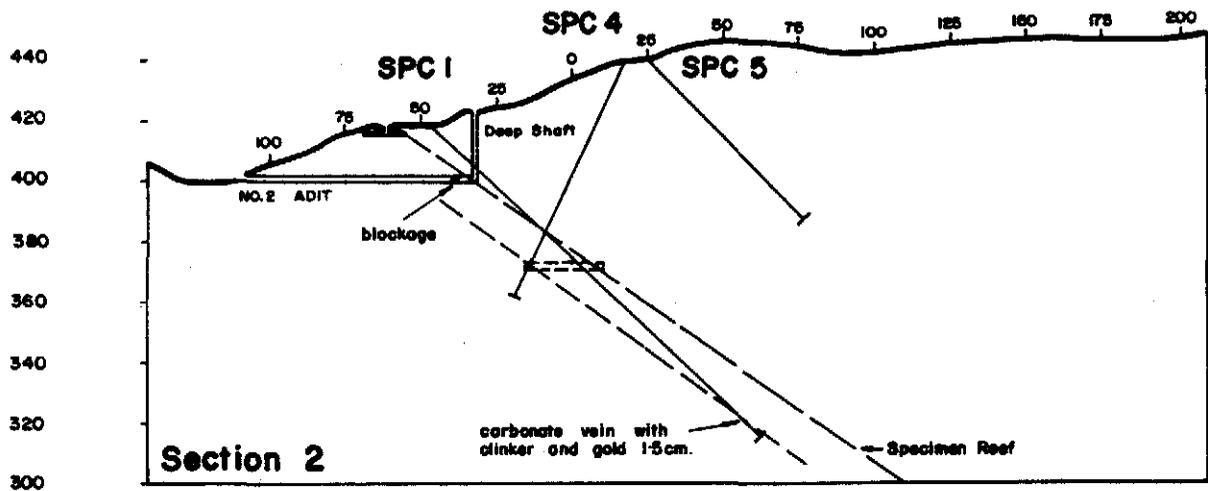
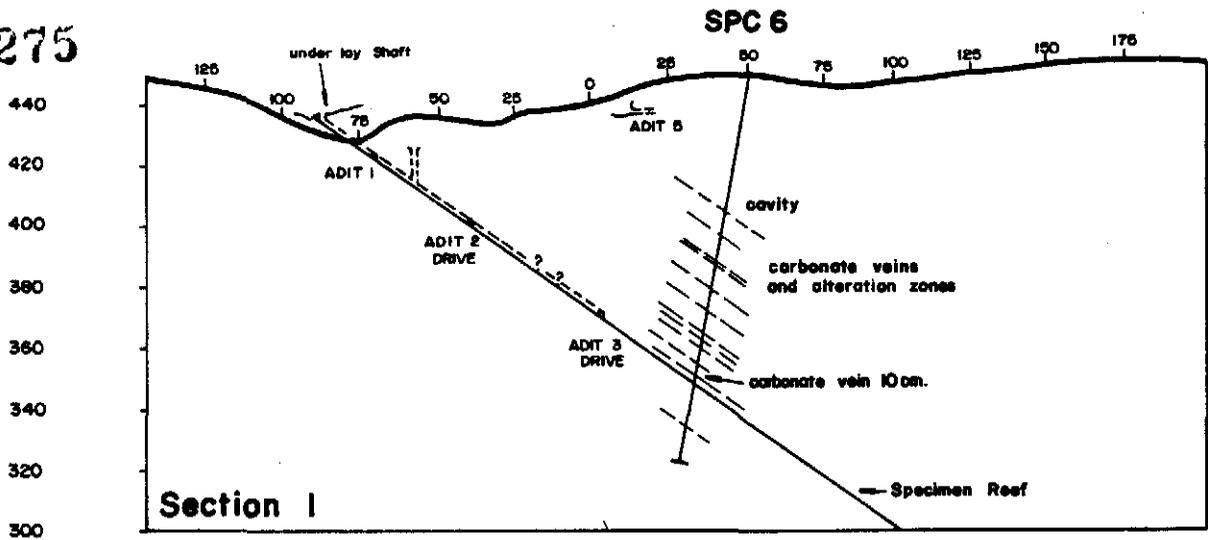
<b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>	
E.L. 4/61 - SAVAGE RIVER NORTHERN AREA SOUTHERN Cu ANOMALY Ag Analysis ppm	
DRAWN BY : L.V.	REVISIONS :
DRAFTSMAN: T.G.D.S.	FILE NO.
DATE : June 85	FIG 5·9
SCALE 1:5000	Metres

85-2502

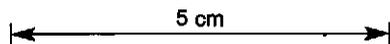


92 700

275

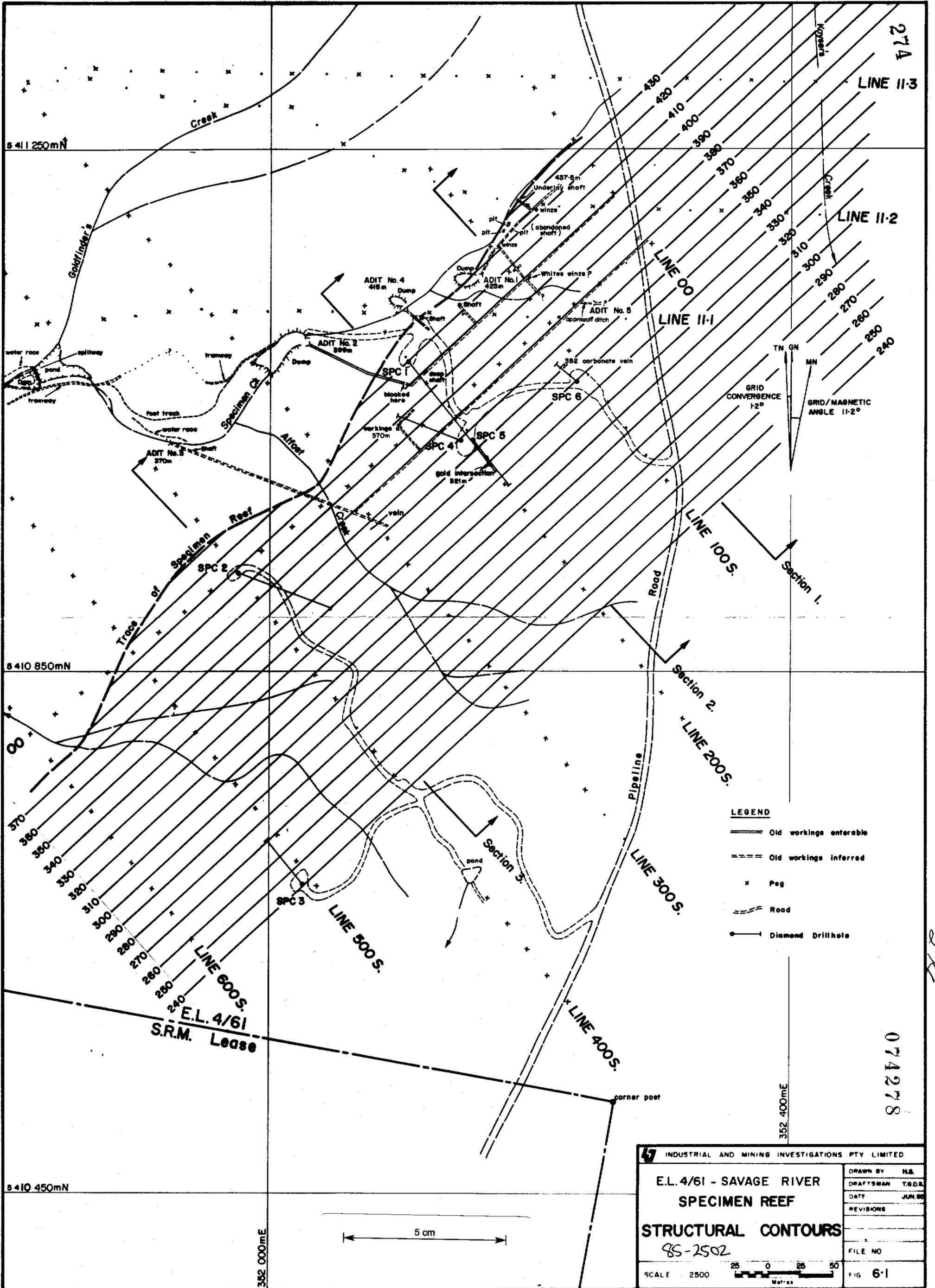


074277



85-2502

<b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>	
<b>E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF IN RELATION TO DRILLHOLES &amp; WORKINGS</b>	
DRAWN BY : H.S.	FILE NO
DRAFTSMAN : T.S.D.S.	FIG. 6.0
DATE : July '85	
REVISIONS :	
SCALE 1:500	25 0 25 50 Metres



274

LINE 11-3

LINE 11-2

LINE 11-1

LINE 00

LINE 100.S

LINE 200.S

LINE 300.S

LINE 400.S

LINE 500.S

LINE 600.S

E.L. 4/61  
S.R.M. Lease

- LEGEND**
- Old workings enterable
  - - - Old workings inferred
  - x Peg
  - Road
  - Diamond Drillhole

352 400mE

074278

INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF	
DRAWN BY	H.S.
DRAFTSMAN	T.G.D.
DATE	JUN 88
REVISIONS	
FILE NO	
SCALE	2500
FIG	6-1

5 cm

541 250mN

541 850mN

541 450mN

352 000mE

GRID CONVERGENCE  
12°  
GRID/MAGNETIC  
ANGLE 112°

TN GN

MN

Section 1.

Section 2.

Section 3.

corner post

27

273

LINE 11-3

LINE 11-2

LINE 11-1

LINE 100S

LINE 200S

LINE 300S

LINE 500S

LINE 600S

E.L. 4/61  
S.R.M. Lease

LINE 400S

LEGEND

- Old workings enterable
- - - Old workings inferred
- x Peg
- Road
- Diamond Drillhole

TN GN  
MN  
GRID CONVERGENCE 12°  
GRID/MAGNETIC ANGLE 11-2°

352 400mE

352 000mE

5 411 250mN

5 410 850mN

5 410 450mN

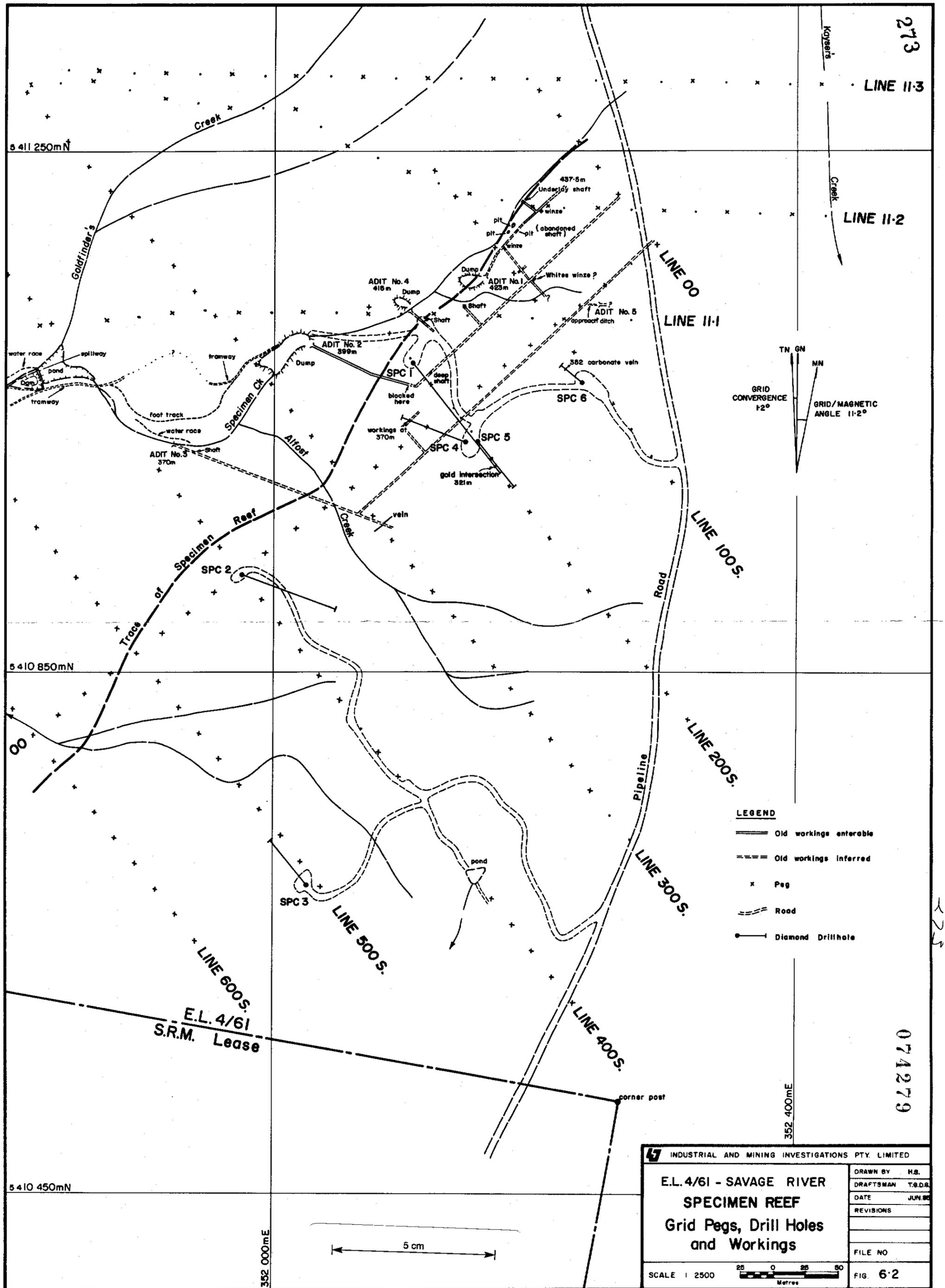
5 cm

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF Grid Pegs, Drill Holes and Workings</b>	
DRAWN BY	H.S.
DRAFTSMAN	T.G.D.S.
DATE	JUN. 61
REVISIONS	
FILE NO	
SCALE 1 2500	FIG. 6-2

85-2502

074279

125



272

LINE 11-3

LINE 11-2

LINE 00

LINE 11-1

LINE 100-S

LINE 200-S

LINE 300-S

LINE 500-S

LINE 400-S

541250mN

5410850mN

5410450mN

352 000mE

352 000mE

E.L. 4/61  
S.R.M. Lease

- LEGEND**
- Old workings enterable
  - - - Old workings inferred
  - x Peg
  - Road
  - Diamond Drillhole

GRID CONVERGENCE 12°  
GRID/MAGNETIC ANGLE 112°

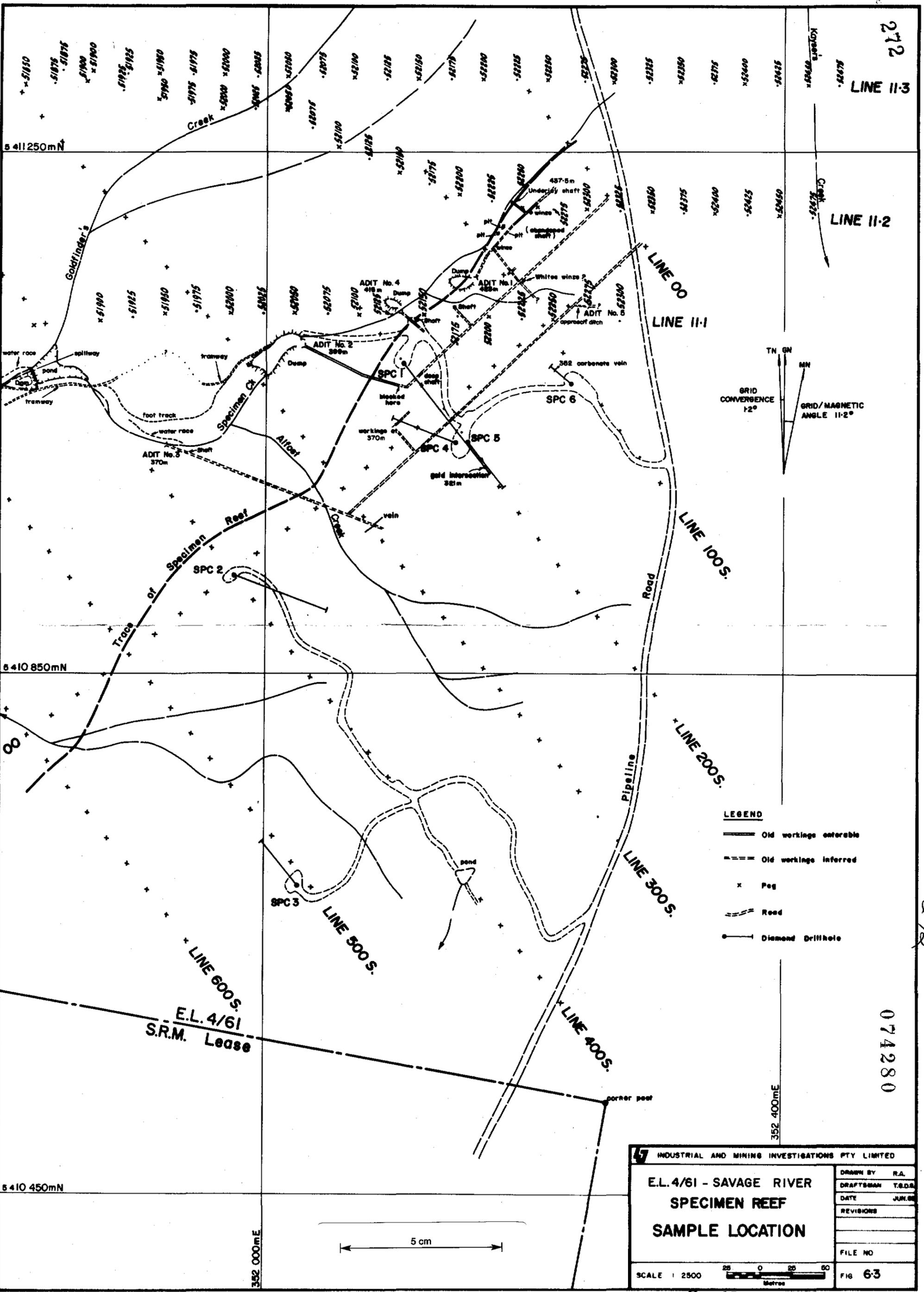
5 cm

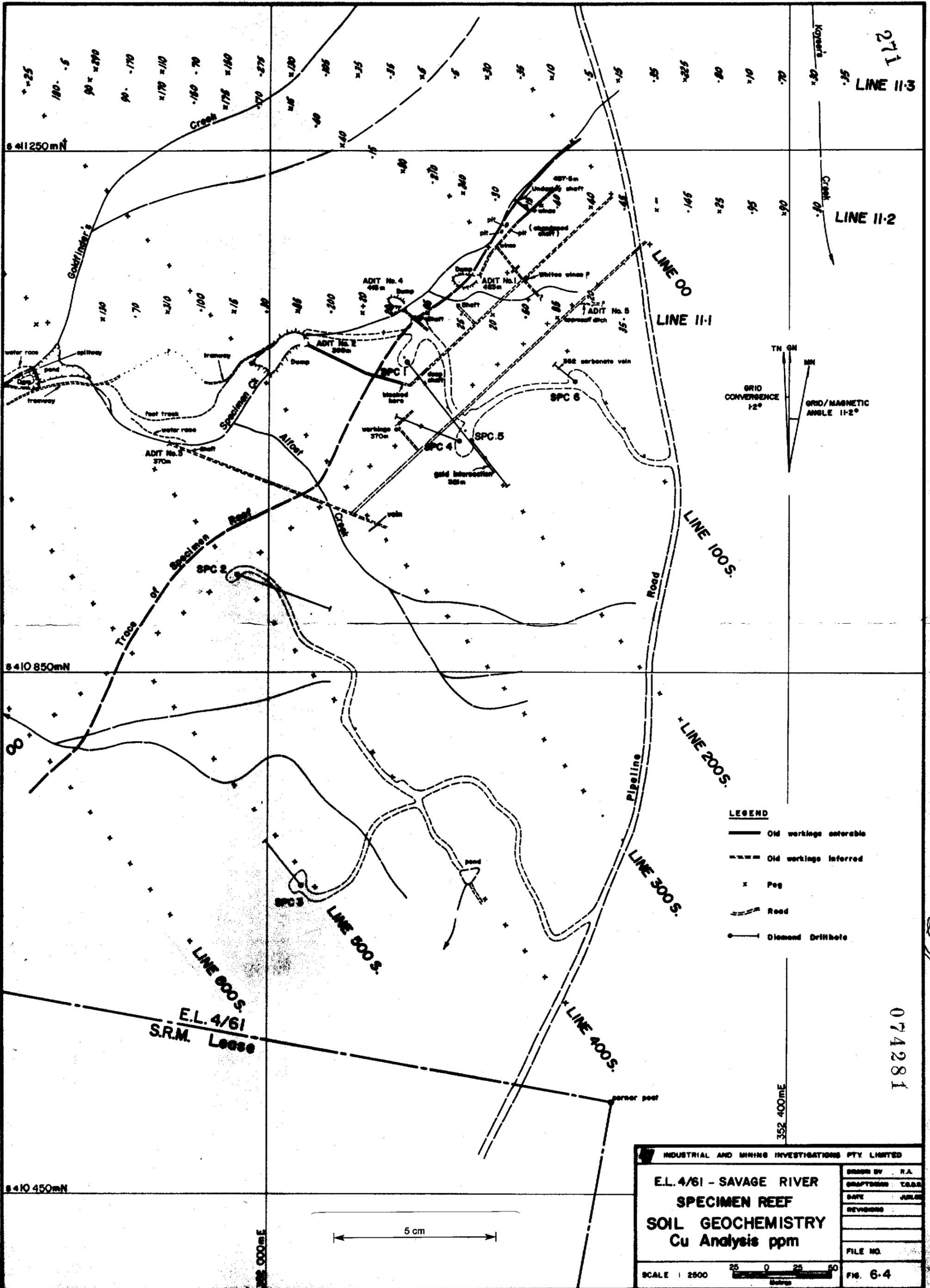
INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF SAMPLE LOCATION	
DRAWN BY	R.A.
DRAFTSMAN	T.S.D.A.
DATE	JUN 61
REVISORS	
FILE NO	
SCALE 1:2500	FIG 6-3

85-2502

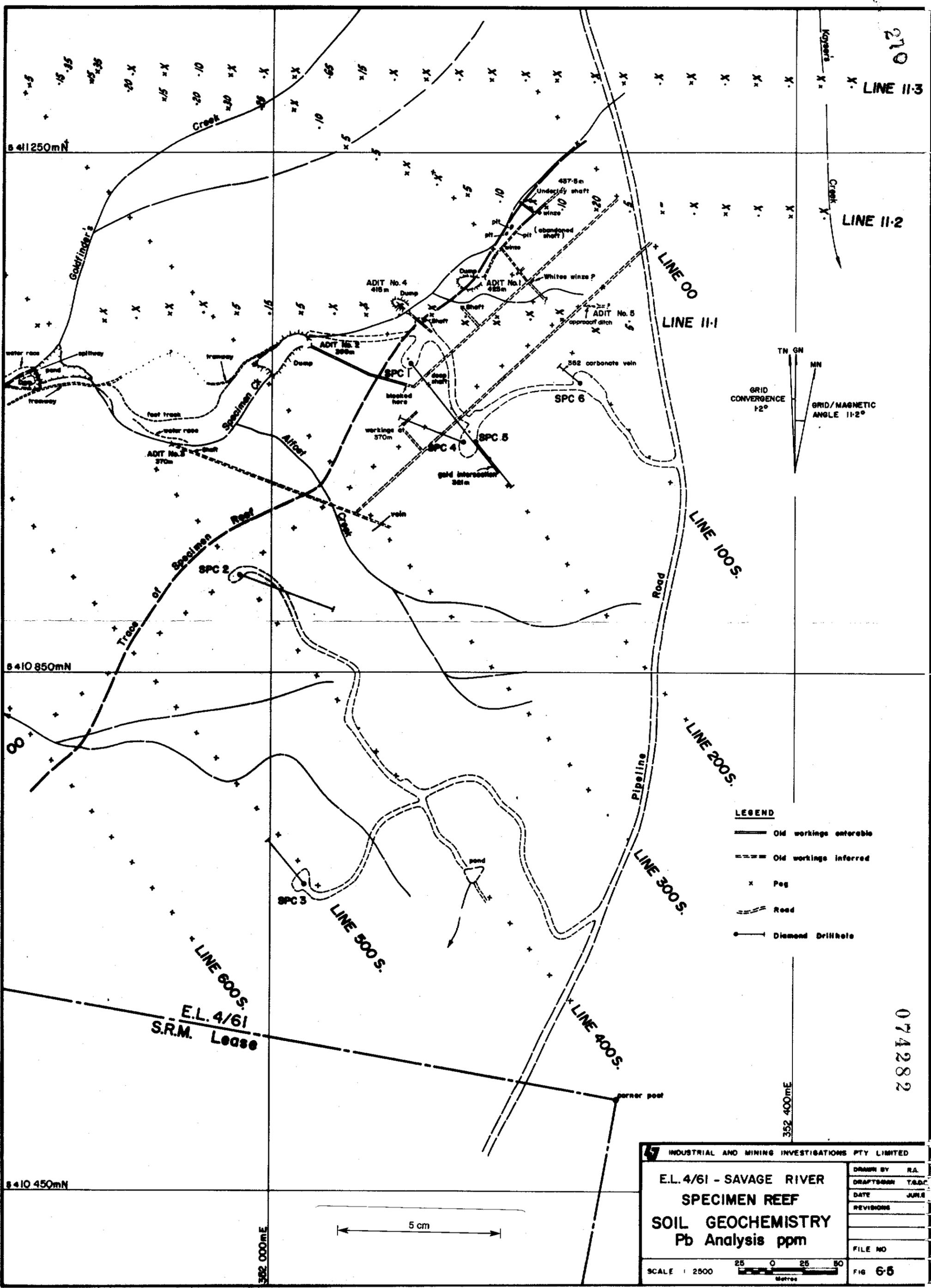
272

074280





210



LINE 11-3

LINE 11-2

LINE 00

LINE 11-1

LINE 100S

LINE 200S

LINE 300S

LINE 500S

LINE 600S

E.L. 4/61  
S.R.M. Lease

LINE 400S

LEGEND

- Old workings enterable
- - - Old workings inferred
- x Peg
- Road
- Diamond Drillhole

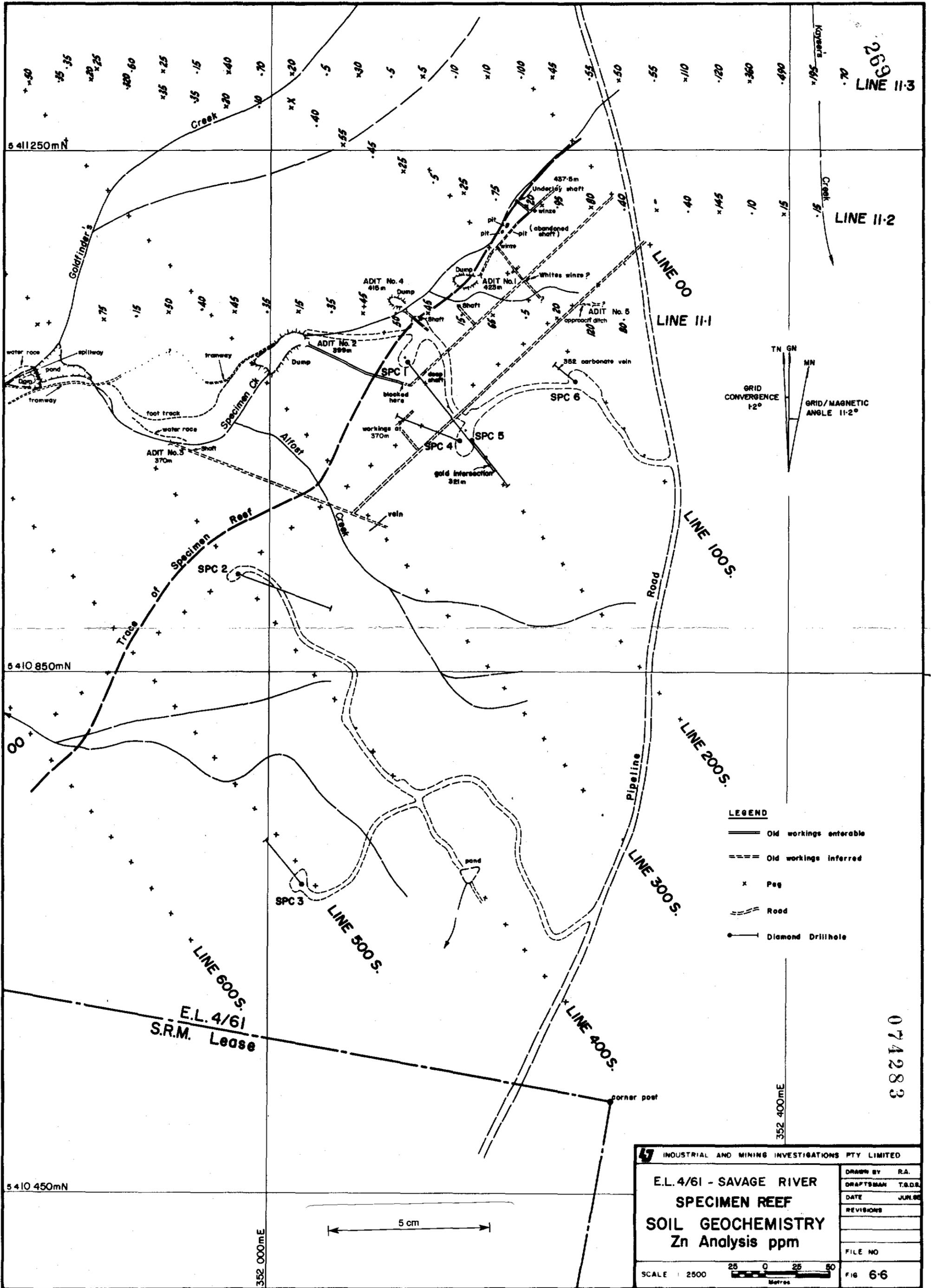
362 400mE

074282

INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF SOIL GEOCHEMISTRY Pb Analysis ppm	
DRAWN BY R.A.	DRAFTSMAN T.S.C.
DATE JUN 8	REVISIONS
FILE NO	FIG 6-5
SCALE 1:2500	25 0 25 50 Metres

5 cm

85-2502



2699  
LINE 11-3

Creek S/W  
LINE 11-2

LINE 00  
LINE 11-1

LINE 100S

LINE 200S

LINE 300S

LINE 500S

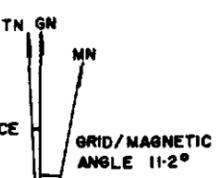
LINE 600S

E.L. 4/61  
S.R.M. Lease

LINE 400S

**LEGEND**

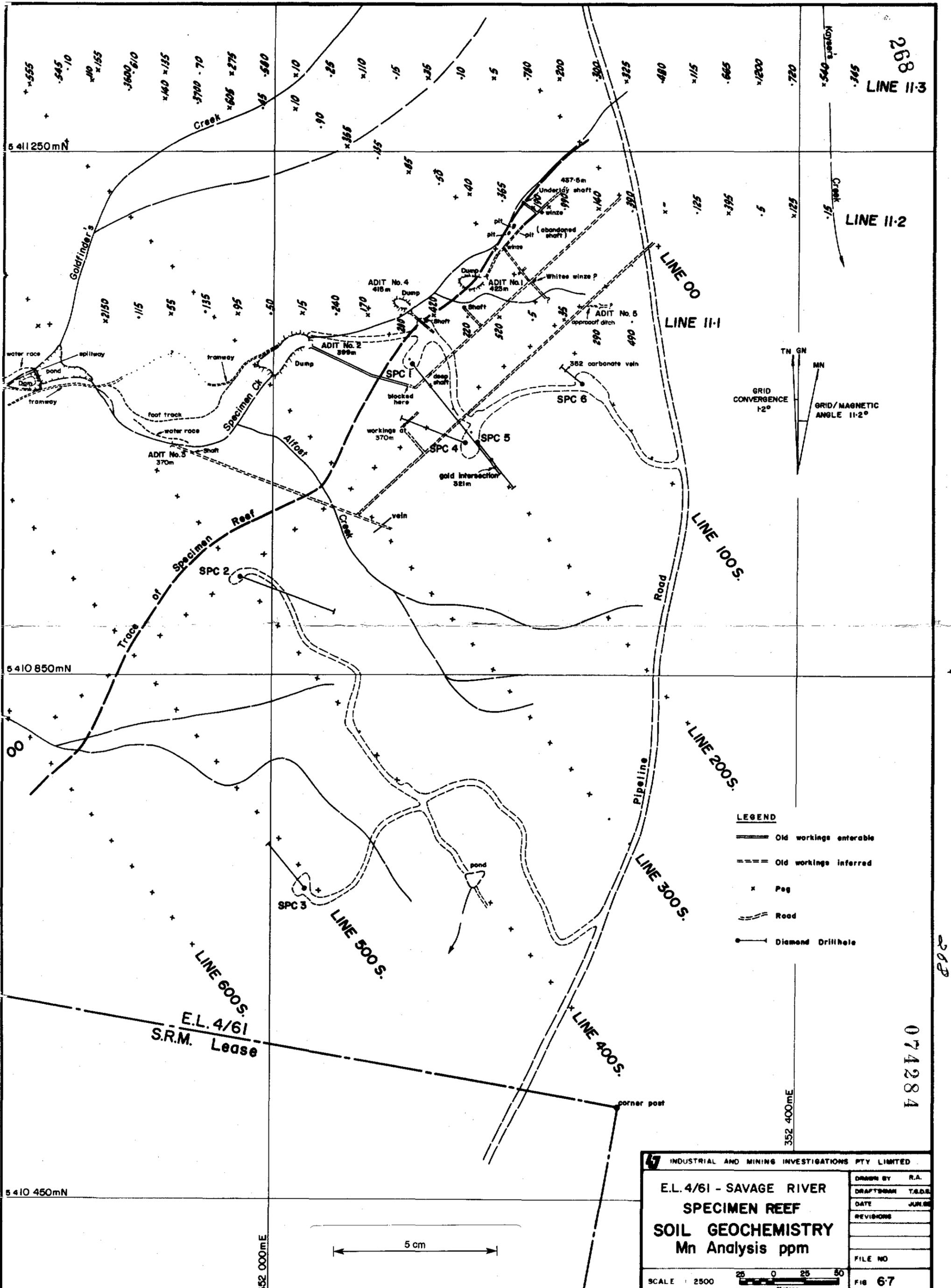
- Old workings enterable
- - - Old workings inferred
- x Peg
- Road
- Diamond Drillhole



074283

INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF SOIL GEOCHEMISTRY Zn Analysis ppm</b>	
DRAWN BY RA.	DRAFTSMAN T.S.D.B.
DATE JUN. 68	REVISIONS
FILE NO	
SCALE 1:2500	FIG 6-6

95-2502



268  
LINE 11-3

LINE 11-2

LINE 11-1

LINE 100S

LINE 200S

LINE 300S

LINE 500S

LINE 600S

LINE 400S

5411250mN

5410850mN

5410450mN

352 000mE

352 400mE

- LEGEND**
- Old workings enterable
  - - - Old workings inferred
  - x Peg
  - Road
  - Diamond Drillhole

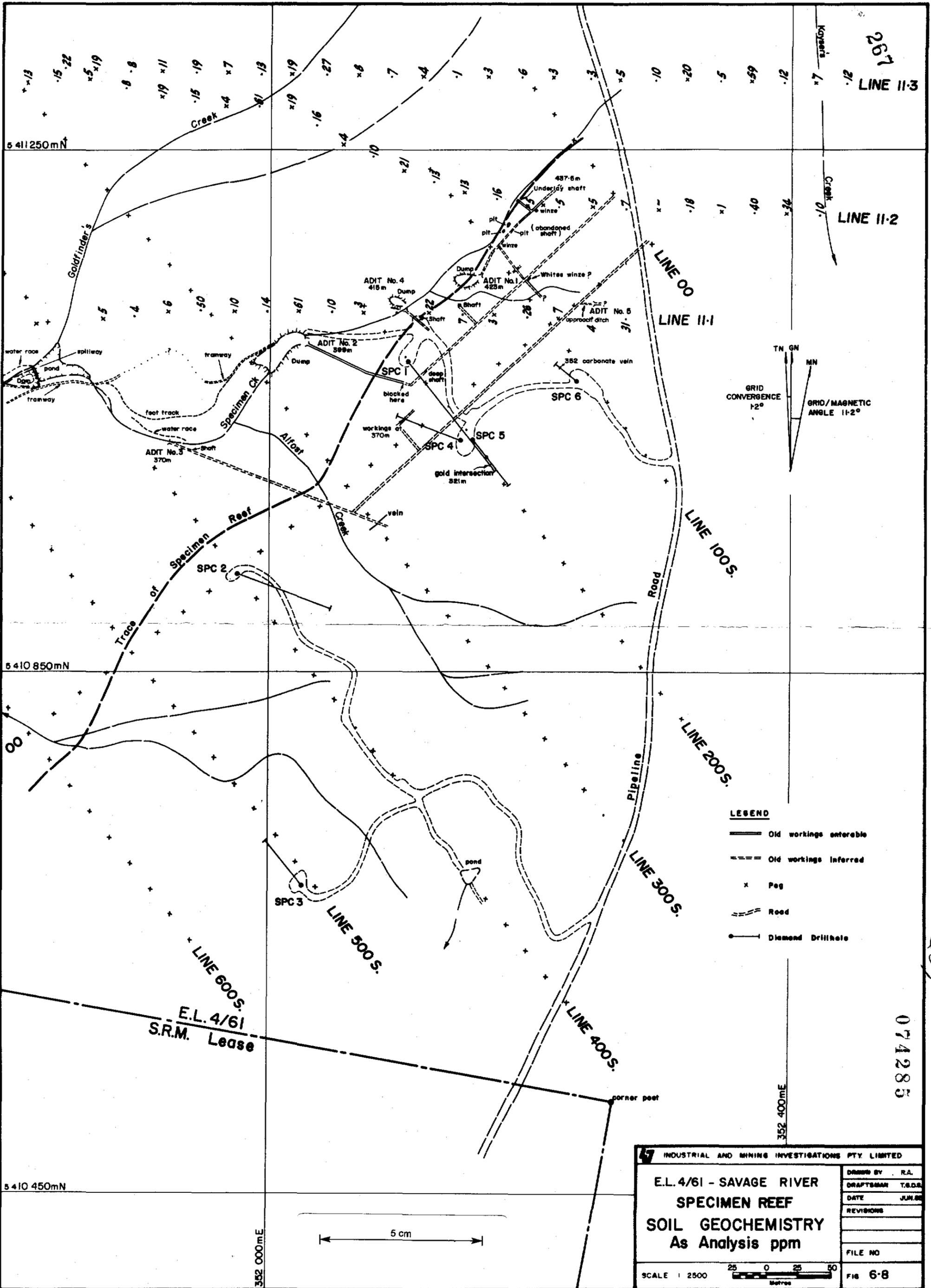
GRID CONVERGENCE 12°  
GRID/MAGNETIC ANGLE 11.2°

5 cm

INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF SOIL GEOCHEMISTRY Mn Analysis ppm	
DRAWN BY R.A.	DRAFTSMAN T.G.S.
DATE JUN 88	REVISIONS
FILE NO	FIG 6.7
SCALE 1:2500	25 0 25 50 Metres

074284

85-2502



267  
LINE 11-3

LINE 11-2

LINE 11-1

LINE 100S.

LINE 200S.

LINE 300S.

LINE 500S.

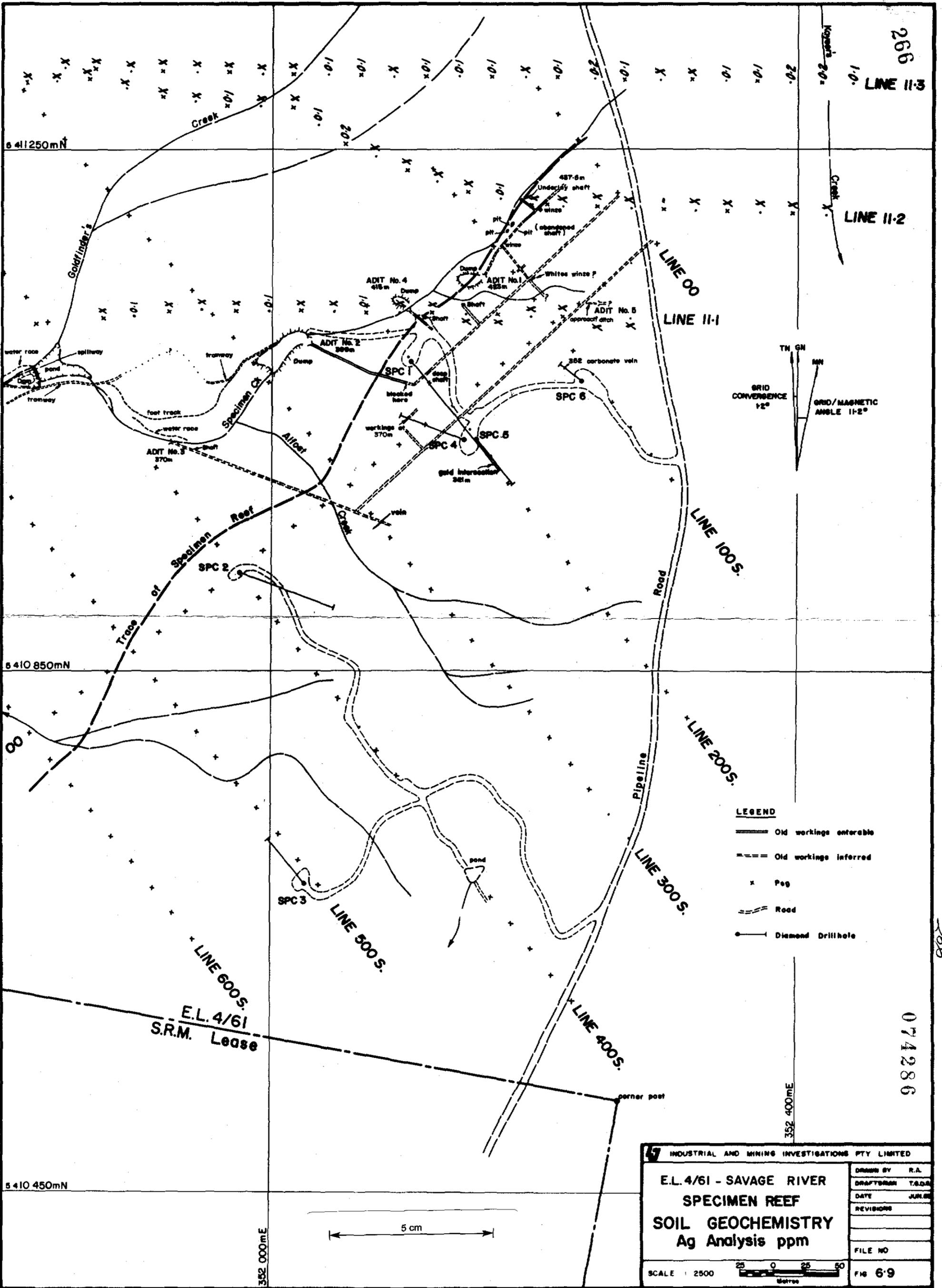
LINE 600S.

LINE 400S.

074285

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF SOIL GEOCHEMISTRY As Analysis ppm	
DRAWN BY R.A.	DRAFTSMAN T.S.D.
DATE JUN. 85	REVISIONS
FILE NO	
SCALE 1:2500	FIG 6-8

85-2502

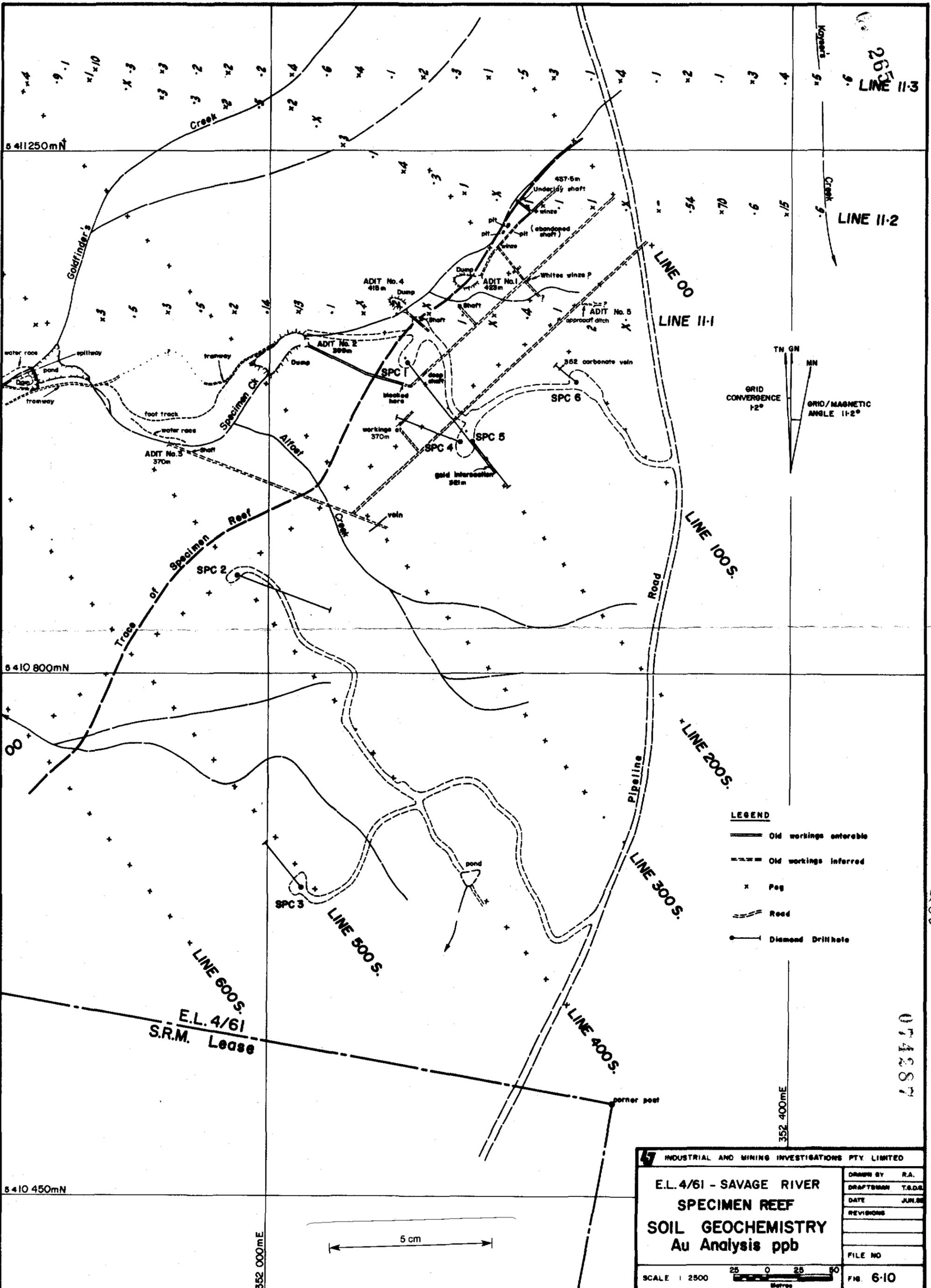


266

266

074286

85-2502



265  
LINE 11-3

LINE 11-2

LINE 11-1

LINE 100.S

LINE 200.S

LINE 300.S

LINE 500.S

LINE 600.S

LINE 400.S

**LEGEND**  
 — Old workings enterable  
 - - - Old workings inferred  
 x Peg  
 == Road  
 ◆ Diamond Drillhole

E.L. 4/61  
S.R.M. Lease

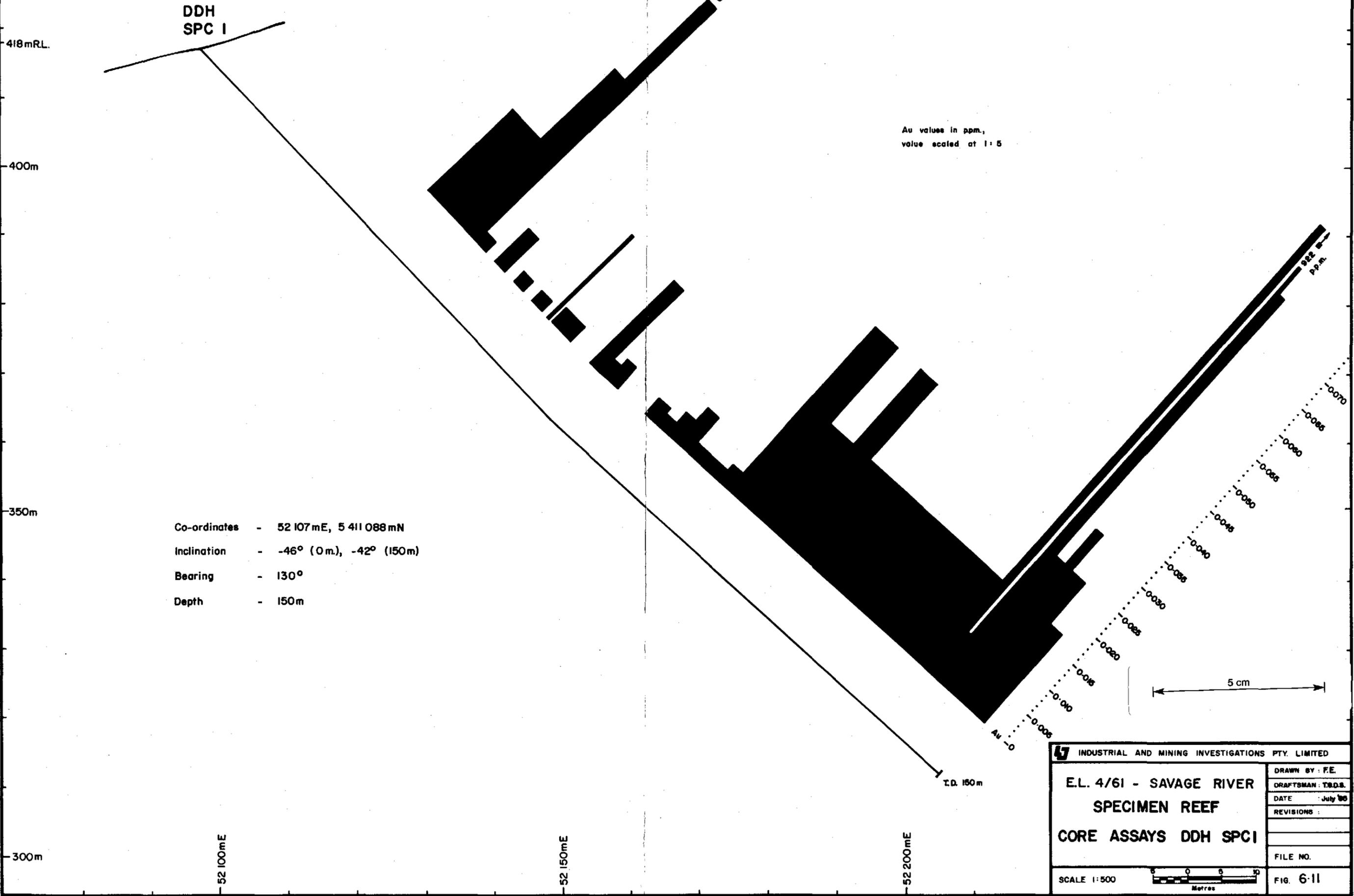
INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER SPECIMEN REEF SOIL GEOCHEMISTRY Au Analysis ppb	
DRAWN BY R.A.	DRAFTSMAN T.G.D.R.
DATE JUN. 88	REVISIONS
FILE NO	FIG. 6-10
SCALE 1:2500	25 0 25 50 Metres

85-2502

074287

264

074288



45 2507



262

52 100mE

52 150mE

074290

DDH  
SPC 4

439.71mRL

Co-ordinates - 52 146mE, 5 411 027mN  
 Inclination - 60° (0m), 54° (60m)  
 56° (94m)  
 Bearing - 280°  
 Depth - 94m

T.O. 94m

Au  
 0  
 0.005  
 0.010

Au values in ppm,  
 Au values plotted on a 1:5 scale

400m

350m

5 cm

<b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>  <b>E.L. 4/61 - SAVAGE RIVER</b> <b>SPECIMEN REEF</b>  <b>Core Assays DDH SPC 4</b>	DRAWN BY : F.E. DRAFTSMAN : T.B.D. DATE : July 1961 REVISIONS :  FILE NO.
	SCALE 1:500 
	FIG 6-13

85-2502

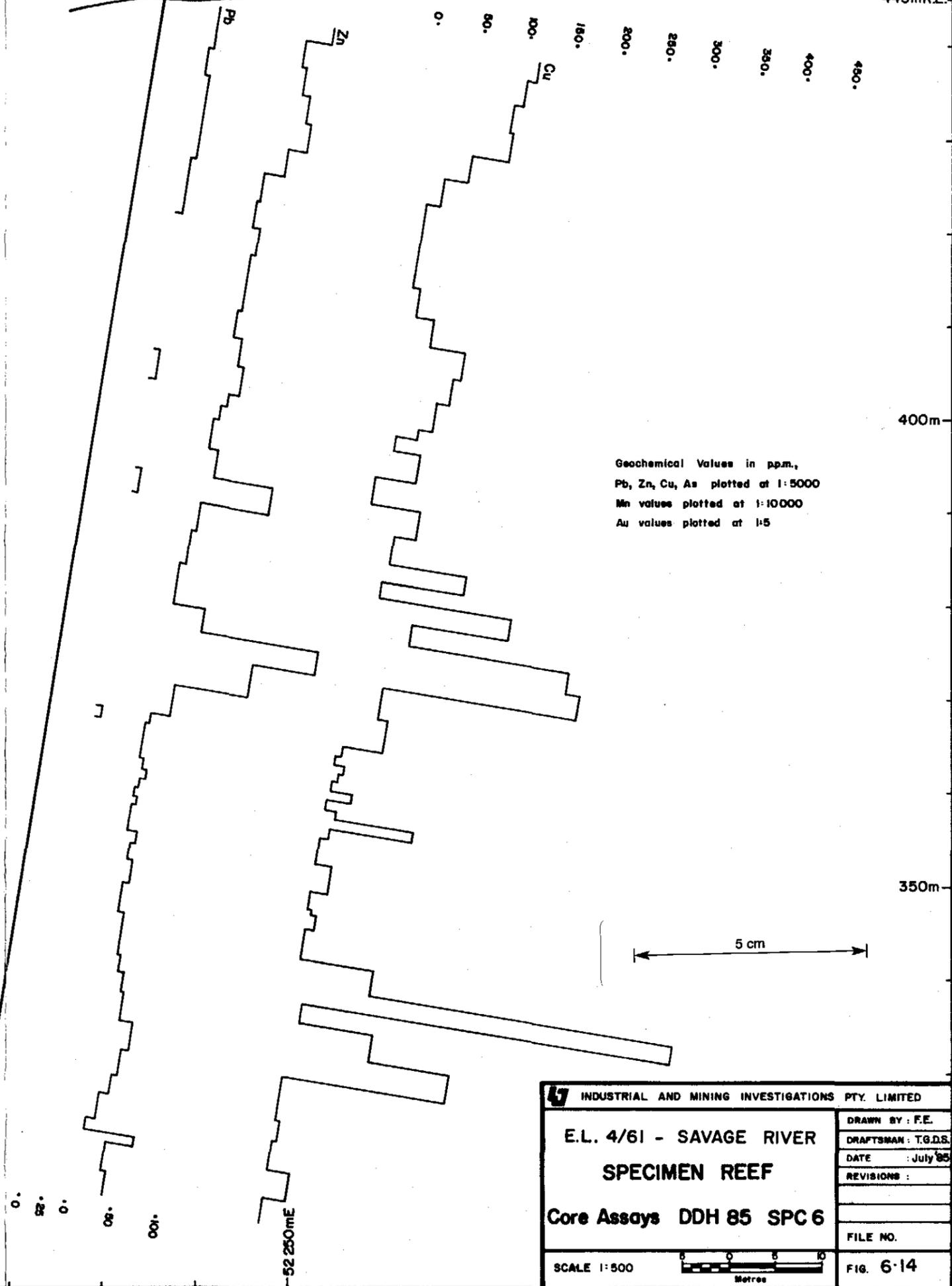
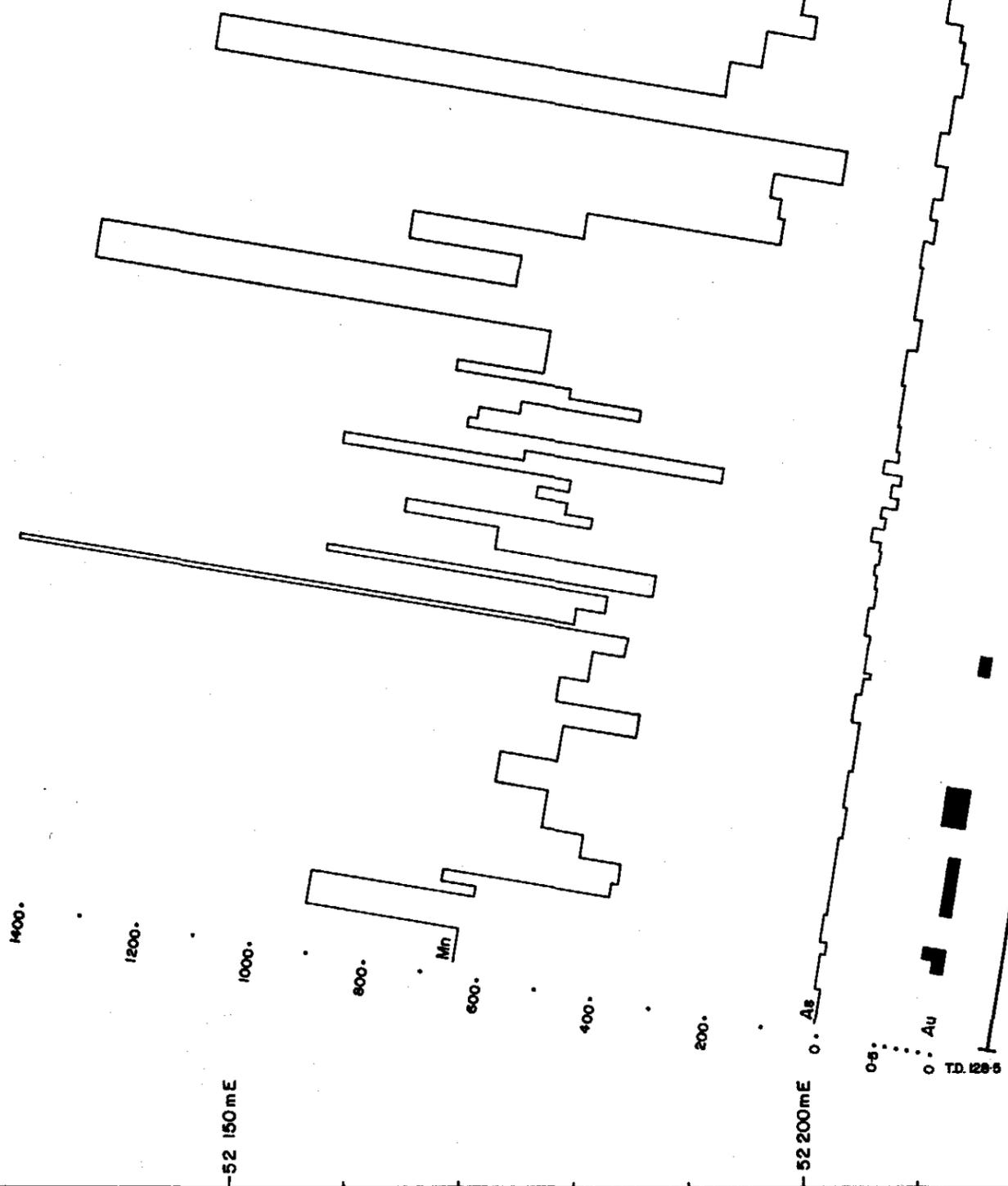
263

074291

DDH 85 SPC 6

445mR.L.

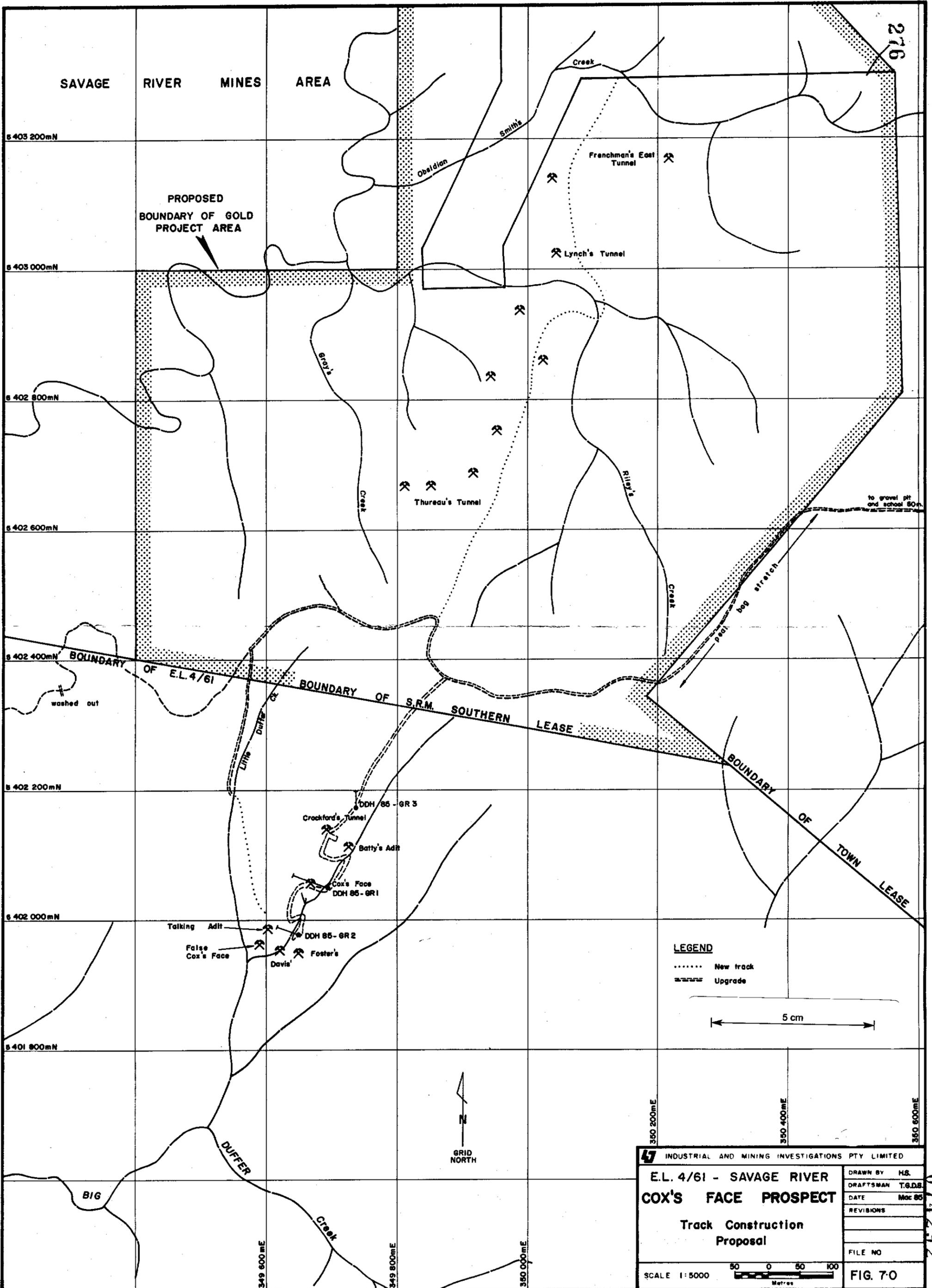
Co-ordinates - 52 236mE, 5 411 073mN  
 Inclination - 081°  
 Bearing - 300°  
 Depth - 128.4m



Geochemical Values in ppm,  
 Pb, Zn, Cu, As plotted at 1:5000  
 Mn values plotted at 1:10000  
 Au values plotted at 1:5

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER	DRAWN BY: F.E.
SPECIMEN REEF	DRAFTSMAN: T.G.D.S.
Core Assays DDH 85 SPC 6	DATE: July 85
	REVISIONS:
	FILE NO.
SCALE 1:500	FIG. 6-14

85-2502



SAVAGE RIVER MINES AREA

PROPOSED BOUNDARY OF GOLD PROJECT AREA

BOUNDARY OF E.L. 4/61

BOUNDARY OF S.R.M. SOUTHERN LEASE

BOUNDARY OF TOWN LEASE

LEGEND

- ..... New track
- Upgrade

5 cm

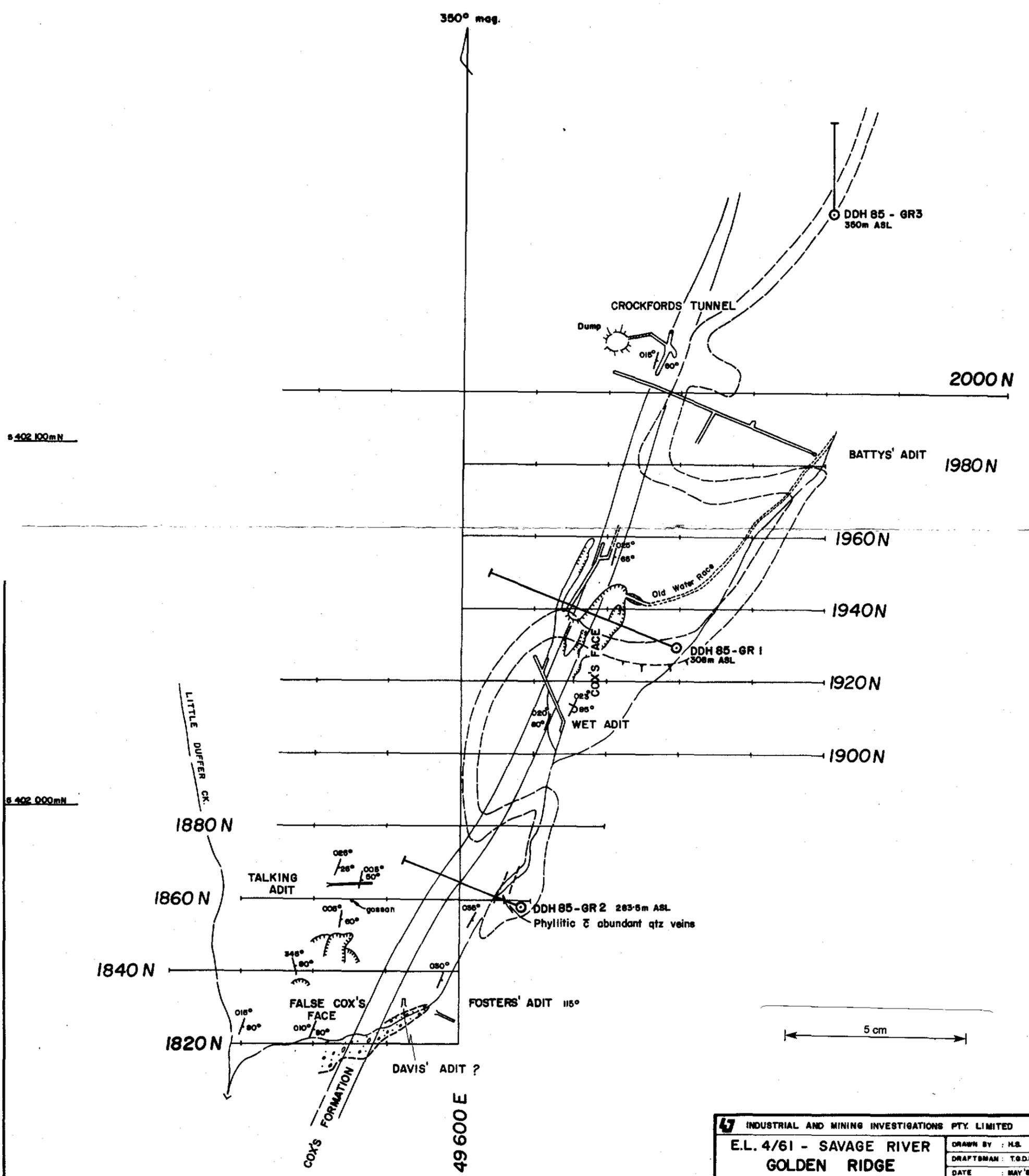


INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER COX'S FACE PROSPECT</b>	
Track Construction Proposal	
SCALE 1:5000	50 0 50 100 Metres
FILE NO	FIG. 7-0

85-2502

074292

49 550mE  
49 600mE  
49 650mE  
49 700mE



5 402 100mN

5 402 000mN

85-2502

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER GOLDEN RIDGE COX'S FACE PROSPECT GEOLOGY PLAN	
DRAWN BY : H.S.	REVISIONS :
DRAFTSMAN : T.G.D.S.	FILE NO.
DATE : MAY '86	FIG. 7-1
SCALE 1:1000	10 0 10 20 Metres

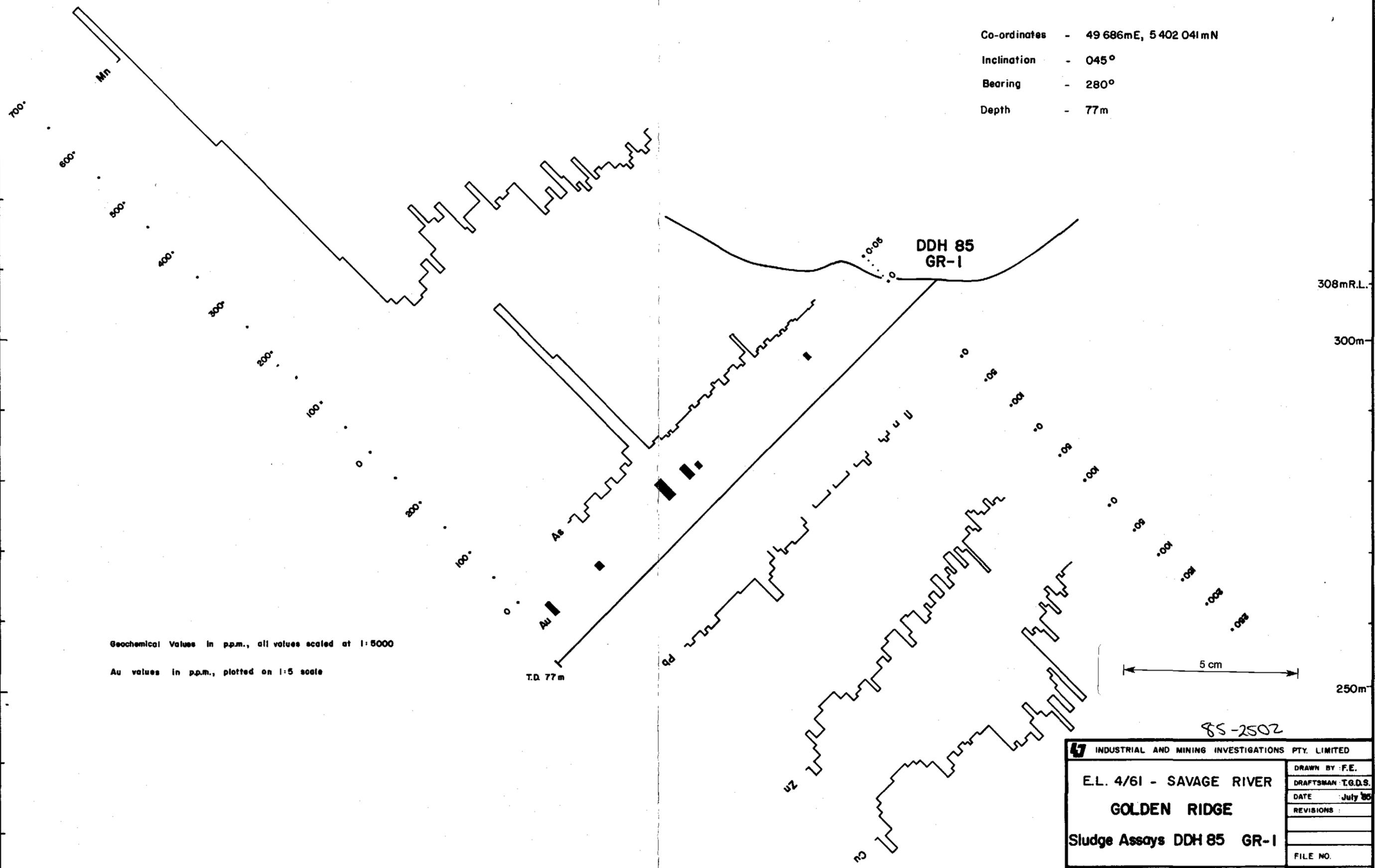
074293

49 600mE

49 650mE

49 700mE

Co-ordinates - 49 686mE, 5 402 041mN  
 Inclination - 045°  
 Bearing - 280°  
 Depth - 77m



Geochemical Values in p.p.m., all values scaled at 1:5000  
 Au values in p.p.m., plotted on 1:5 scale

T.D. 77m

5 cm

250m

85-2502

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER	
GOLDEN RIDGE	
Sludge Assays DDH 85 GR-1	
DRAWN BY: F.E.	DRAFTSMAN: T.G.D.S.
DATE: July 85	REVISIONS:
FILE NO.	FIG. 7-2

SCALE 1:500

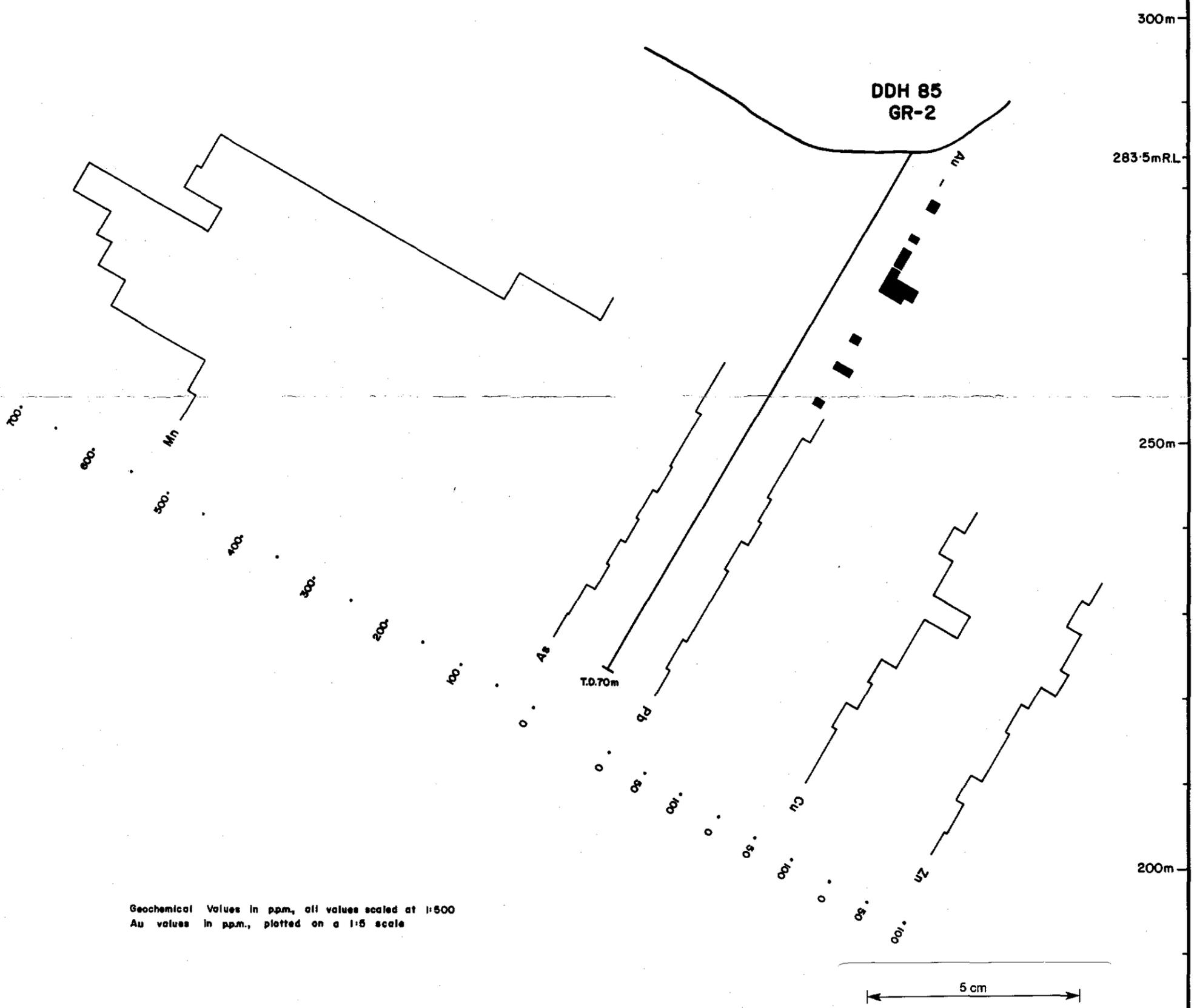
Metres

49 550mE

49 600mE

49 650mE

Co-ordinates - 49 641mE, 5401 970mN  
 Inclination - 060°  
 Bearing - 280°  
 Depth - 70m



Geochemical Values in ppm, all values scaled at 1:500  
 Au values in ppm, plotted on a 1:5 scale

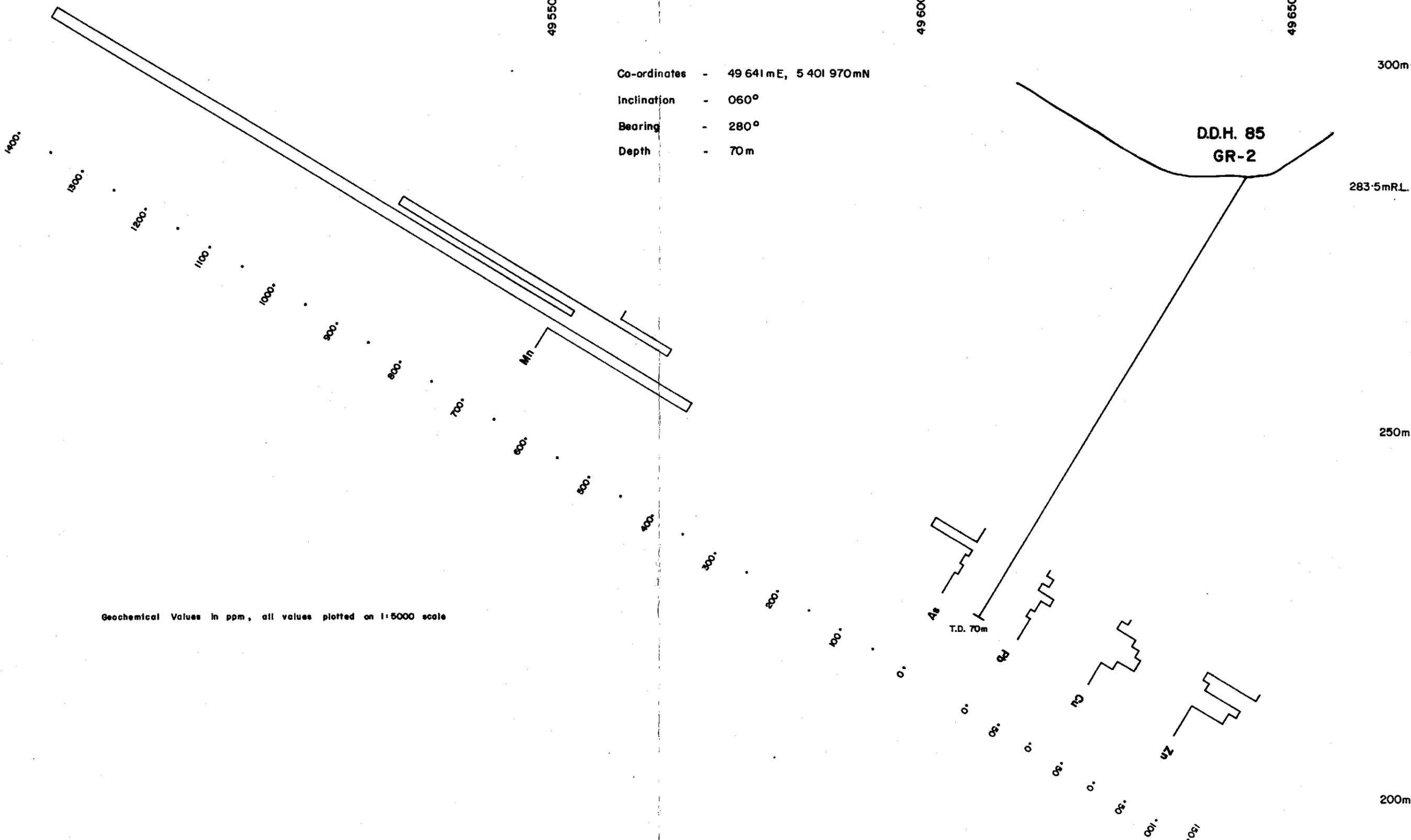
5 cm

85-2502

074295

INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER</b>	
<b>GOLDEN RIDGE</b>	
<b>Sludge Assays DDH85 GR-2</b>	
SCALE 1:500	
DRAWN BY: F.E.	DRAFTSMAN: T.G.D.S.
DATE: July '85	REVISIONS:
FILE NO:	FIG. 7.3

Co-ordinates - 49 641 mE, 5 401 970 mN  
 Inclination - 060°  
 Bearing - 280°  
 Depth - 70 m



Geochemical Values in ppm, all values plotted on 1:5000 scale

5 cm

074296

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER	
GOLDEN RIDGE	
Core Assays DDH 85 GR-2	
SCALE 1:500	Metres
INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED
DRAWN BY: FE.	DRAFTSMAN: T.S.D.S.
DATE: July '90	REVISIONS:
FILE NO.	FIG. 7-4

RE 7002

281

49 700mE

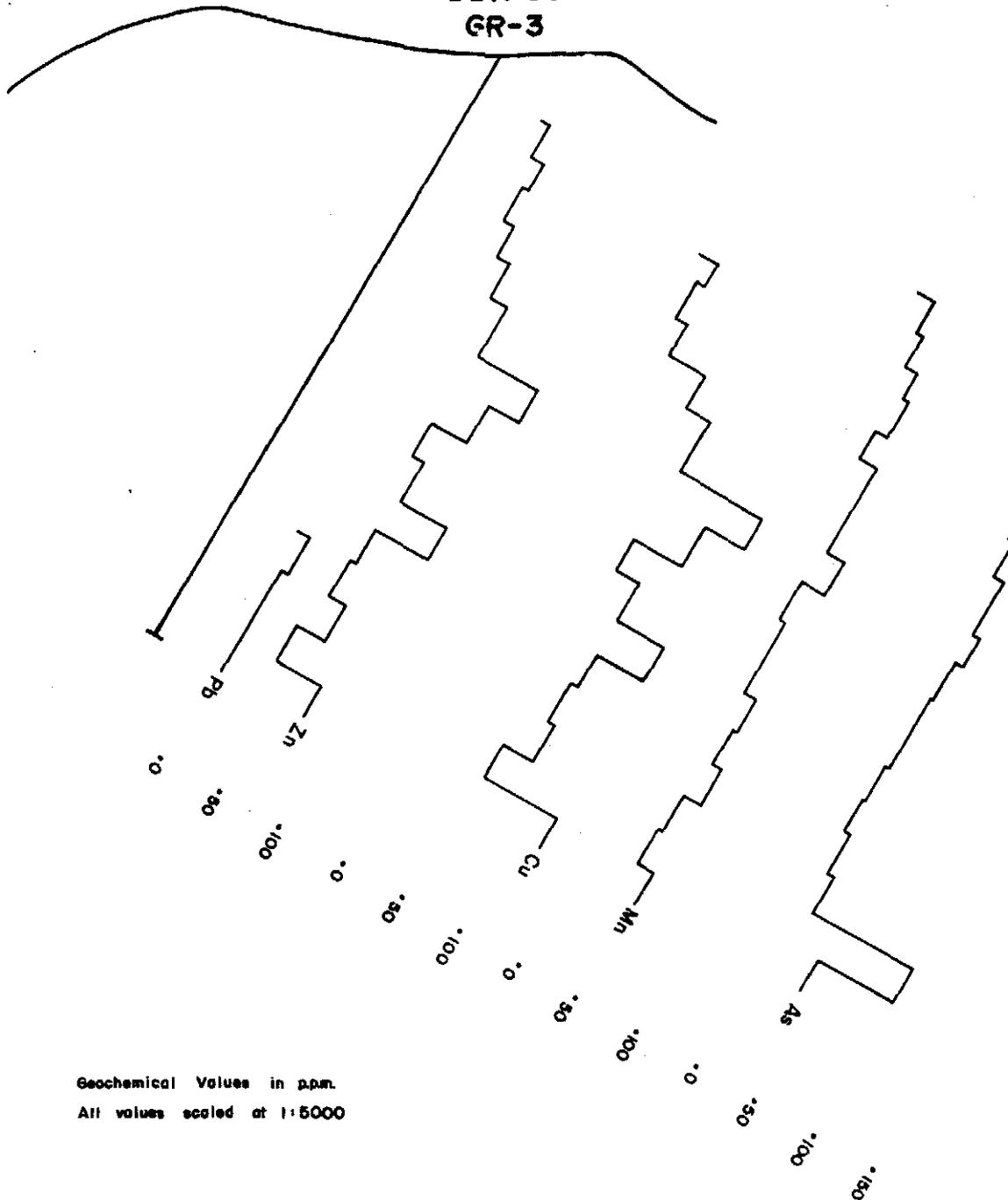
074297

49 750mE

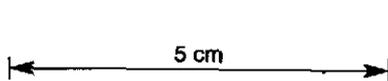
Co-ordinates - 49 732mE, 5 402 161mN  
 Inclination - 060°  
 Bearing - 349°  
 Depth - 50m

DDH 85  
GR-3

350mR.L.

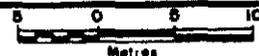


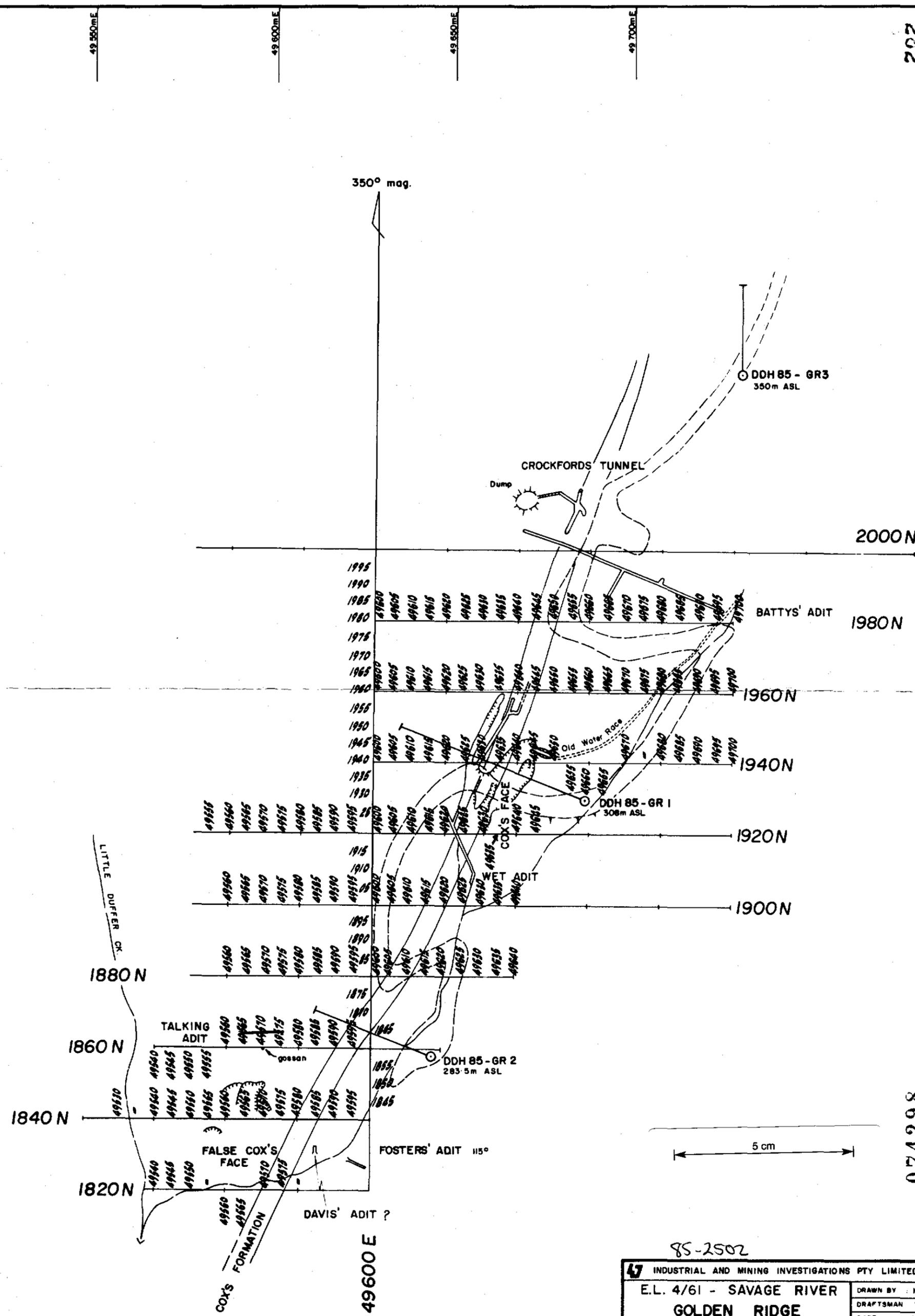
Geochemical Values in ppm.  
 All values scaled at 1:5000



<b>IM</b> INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER</b>	
<b>GOLDEN RIDGE</b>	
<b>Sludge Assays DDH85 GR-3</b>	
DRAWN BY : F.E.	REVISIONS :
DRAFTSMAN : T.G.D.S.	
DATE : July 8	
FILE NO.	
SCALE 1:500	FIG 7.5

85-2502





S 402 100mN

S 402 000mN

85-2502

<b>47 INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED</b> E.L. 4/61 - SAVAGE RIVER GOLDEN RIDGE COX'S FACE PROSPECT SAMPLE LOCATION		DRAWN BY : H.S. DRAFTSMAN TGD DATE : MAY '88 REVISIONS FILE NO.
SCALE 1:1000 		FIG. 7-6

49 550mE

49 600mE

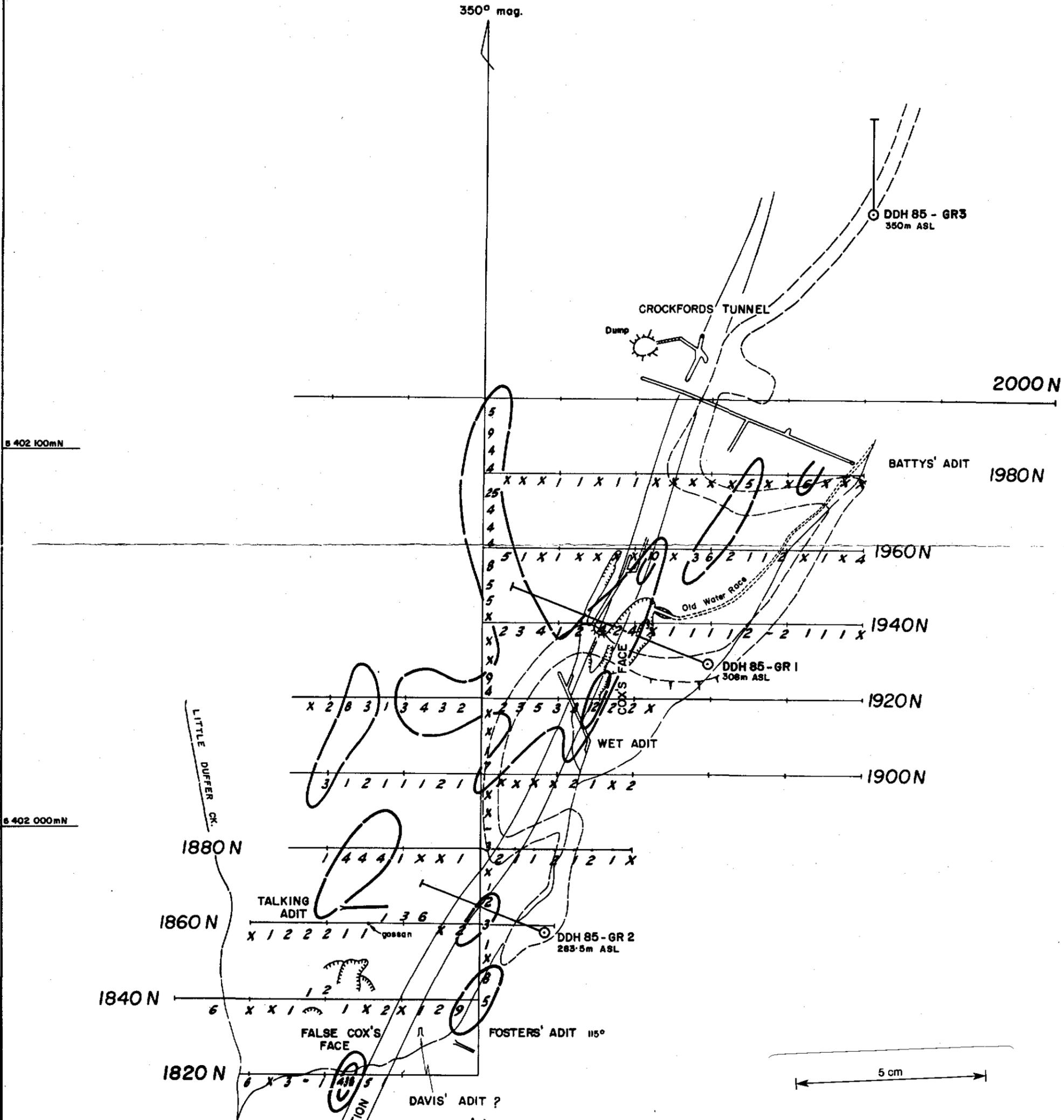
49 650mE

49 700mE

350° mag.

6 402 100mN

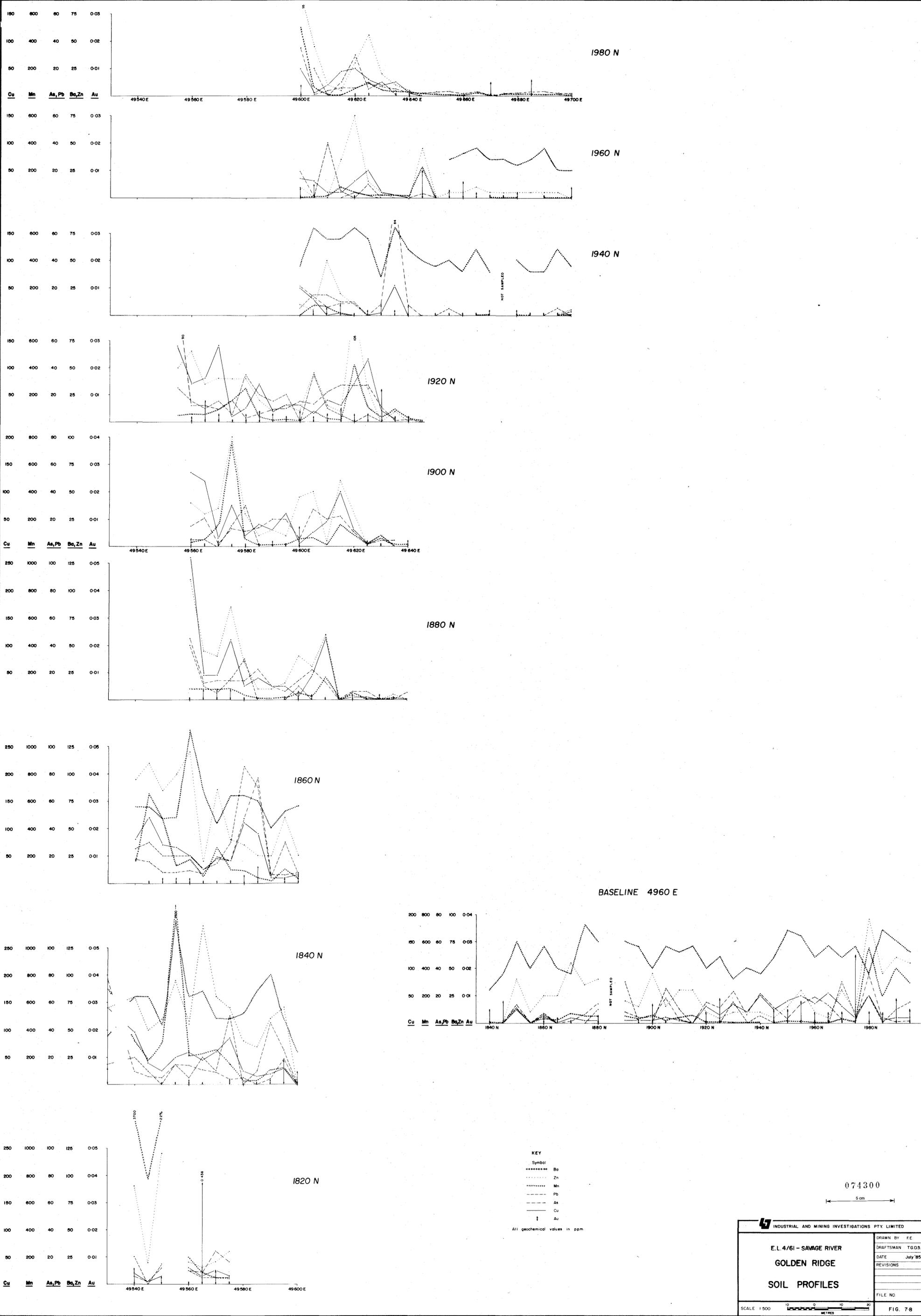
6 402 000mN



074289

85-2502

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER GOLDEN RIDGE COX'S FACE PROSPECT Au in p.p.b.	
DRAWN BY : H.S.	DRAFTSMAN : T.D.S.
DATE : MAY '86	REVISIONS :
FILE NO.	FIG. 7-7
SCALE 1:1000	10 0 10 20 Metres



INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER</b>	
<b>GOLDEN RIDGE</b>	
<b>SOIL PROFILES</b>	
SCALE 1:500	FIG. 7-8
DRAWN BY: FE	DATE: July '85
DRAFTSMAN: TG DS	REVISIONS:
FILE NO.:	

284

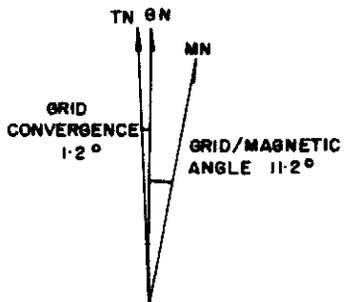
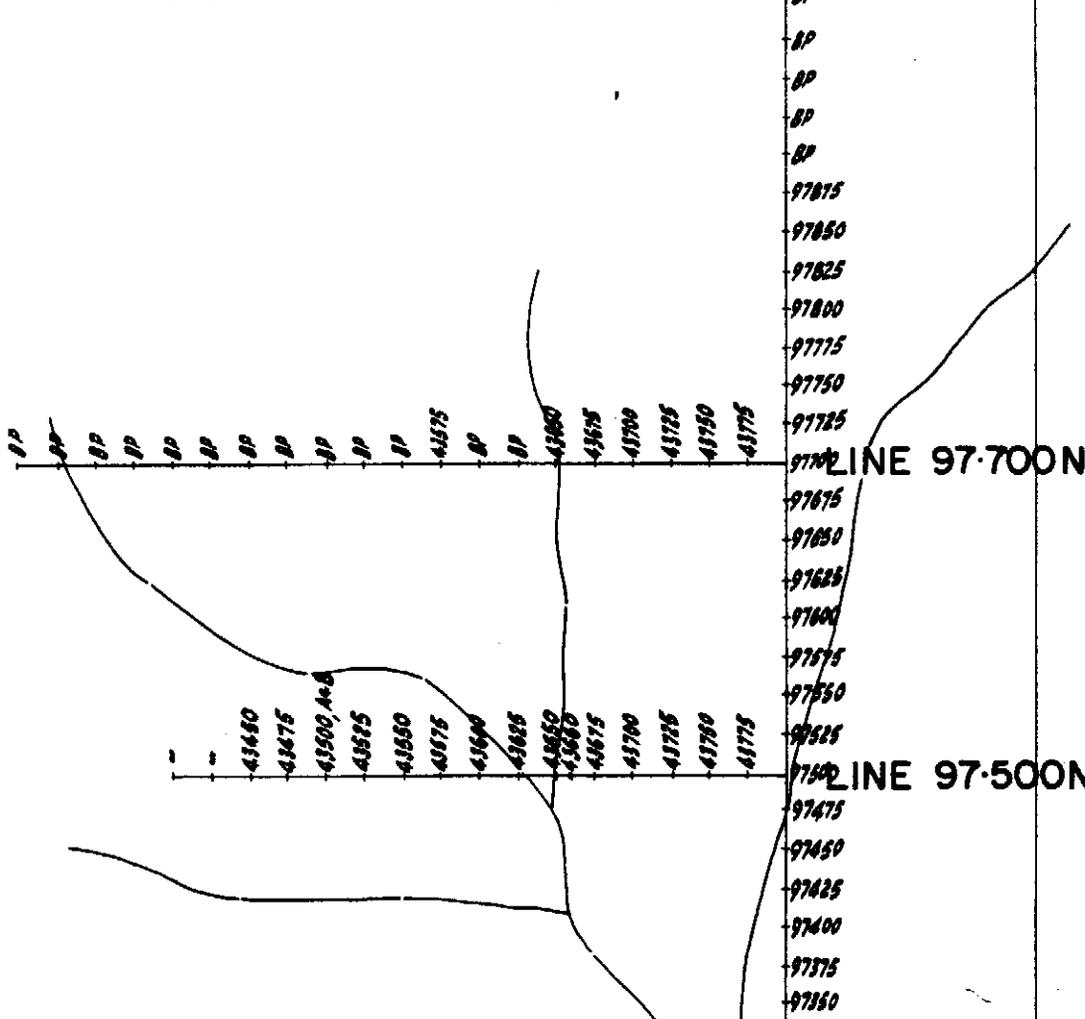
378 ● Sludge / per concentrate

074301

43.8 E

LINE 98.000N

s 398 000mN



LEGEND

- Not Sampled
- X Below limited detection
- BP Impenetratable Brown Plains Formation (>2m)
- Stream Sediment Sample ppm, 1985

85-2502

<b>I</b> INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER BATTY'S BEND GRID SAMPLE LOCATION</b>	
DRAWN BY : R.A.	DRAFTSMAN : T.G.D.S
DATE : June E	REVISIONS :
FILE NO.	FIG. 8.0
SCALE 1:5000	50 0 50 100 Metres

344 000mE

s 397 000mE

285

074302

E.L.4/61

43.8 E

LINE 98.000N

s 398 000m<sup>2</sup>

Tus

Brown Plain gravels, sands & clays

LINE 97.700N

Probable downslope transported soil mantle of Tus

Greenschist chips within B/C horizon

LINE 97.500N

P1d<sub>2</sub>

possible contact

Upper Dolomite - Slate

grey phyllites

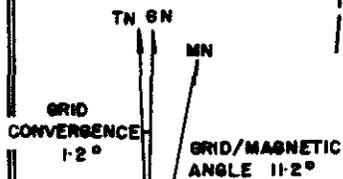
P1d<sub>2</sub>

Dolomite predominant

Upper Dolomite - Slate predominant

SAVAGE RIVER

P1v<sub>2</sub>



5 cm

344 000m<sup>2</sup>

s 397 000m<sup>2</sup>

LEGEND

- Not Sampled
- X Below limited detection
- BP Impenetratable Brown Plains Formation (>2m)
- Stream Sediment Sample ppm, 1985
- ▨ E.L. Boundary

<b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>	
<b>E.L. 4/61 - SAVAGE RIVER BATTY'S BEND GRID</b>	
<b>Geology &amp; E.L. Boundary</b>	
DRAWN BY : R.A.	DATE : June E
DRAFTSMAN : T.S.D.S	REVISIONS :
FILE NO.	Fig. 8.1
SCALE 1:5000	

85-2502

● 40,20

43.8 E

LINE 98.000N

s 398 000mN

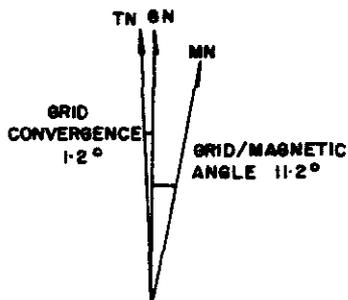
LINE 97.700N

LINE 97.500N

SAVAGE RIVER

344.000mE

s 397 000mN



LEGEND

- Not Sampled
- X Below limited detection
- BP Impenetratable Brown Plains Formation (>2m)
- Stream Sediment Sample ppm, 1985

85-2502

 <b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>		DRAWN BY : S.A. DRAFTSMAN : T.G.D.S. DATE : June 8 REVISIONS : FILE NO.
<b>E.L. 4/61 - SAVAGE RIVER          BATTY'S BEND GRID          SOIL GEOCHEMISTRY          Cu Analysis ppm</b>		<b>FIG. B-2</b>
SCALE 1:5000 		

287

074304

● 25/5

43.8 E

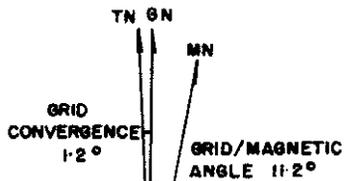
LINE 98.000 N

5 398 000mN

LINE 97.700 N

LINE 97.500 N

- SAVAGE RIVER



344 000mE

5 397 000mN

LEGEND

- Not Sampled
- X Below limited detection
- BP Impenetrable Brown Plains Formation (> 2m)
- Stream Sediment Sample ppm, 1985

<b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>  <b>E.L. 4/61 - SAVAGE RIVER</b> <b>BATTY'S BEND GRID</b> <b>SOIL GEOCHEMISTRY</b> <b>Pb Analysis ppm</b>	DRAWN BY : R.A.
	DRAFTSMAN : T.G.D.S.
	DATE : June 85
	REVISIONS :
	FILE NO.



FIG. 8-3

85-2502

● 160,1400

43.8 E

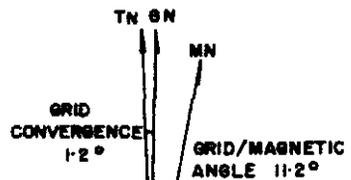
LINE 98.000 N

± 398 000mN

LINE 97.700 N

LINE 97.500 N

- SAVAGE RIVER



LEGEND

- Not Sampled
- X Below limited detection
- BP Impenetrable Brown Plains Formation (> 2m)
- Stream Sediment Sample ppm, 1985

85-2502

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED

E.L. 4/61 - SAVAGE RIVER  
 BATTY'S BEND GRID  
 SOIL GEOCHEMISTRY  
 Zn Analysis ppm

DRAWN BY : R.A.  
 DRAFTSMAN : T.E.G.S.  
 DATE : June 8  
 REVISIONS :  
 FILE NO.

SCALE 1:5000  
 50 0 50 100  
 Metres

FIG. 8.4

289

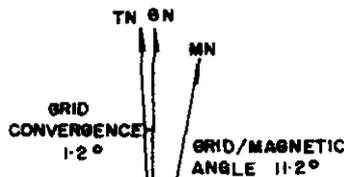
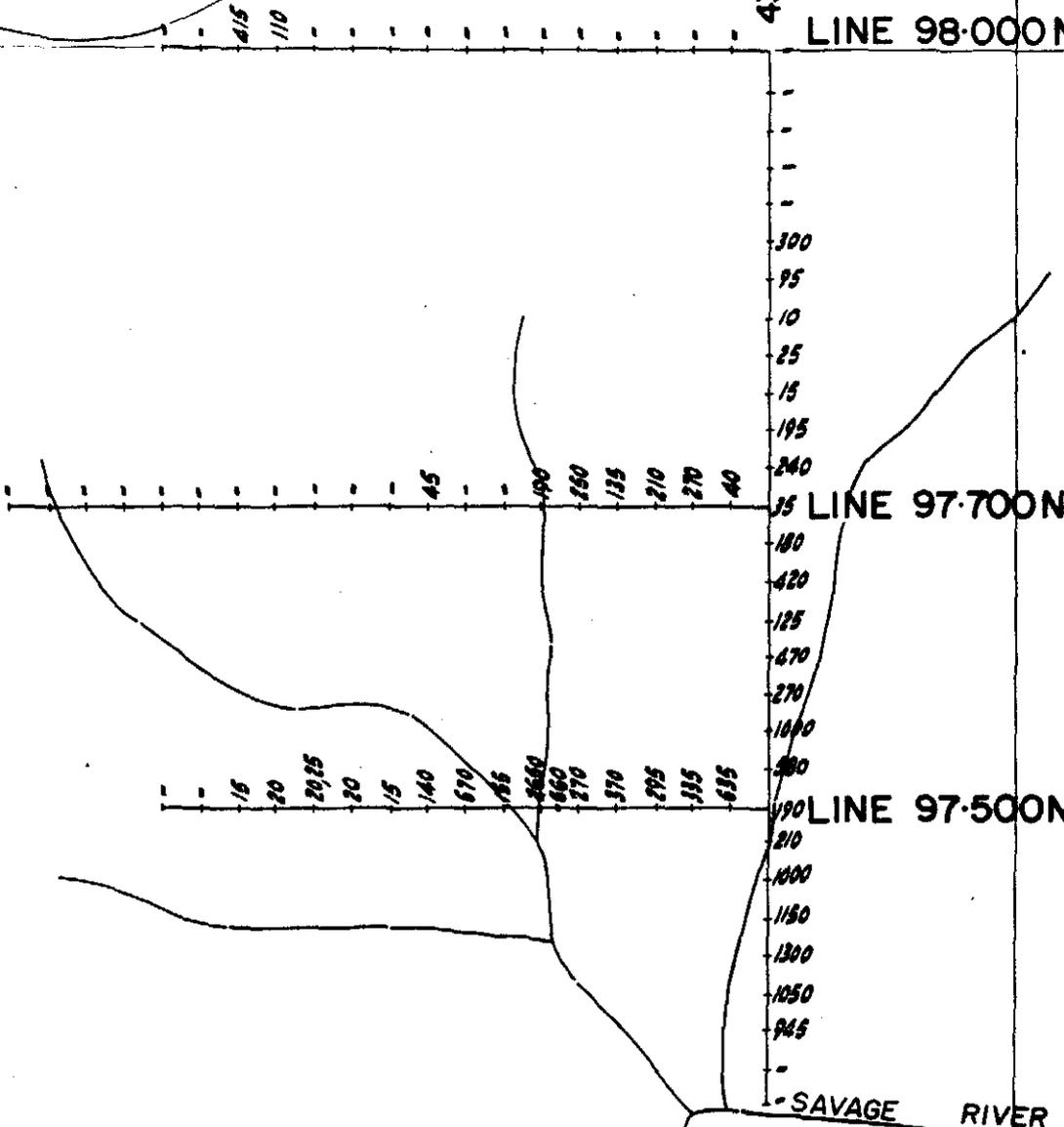
074306

910, -

43.8 E

LINE 98.000N

5 398 000mN



LEGEND

- Not Sampled
- x Below limited detection
- BP Impenetrable Brown Plains Formation (> 2m)
- Stream Sediment Sample ppm, 1985

85-2502

<b>47</b> INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER BATTY'S BEND GRID SOIL GEOCHEMISTRY Mn Analysis ppm	
DRAWN BY : R.A.	DRAFTSMAN : T.G.S.
DATE : June 85	REVISIONS :
FILE NO.	FIG. 8-5
SCALE 1:5000	50 0 50 100 N 63

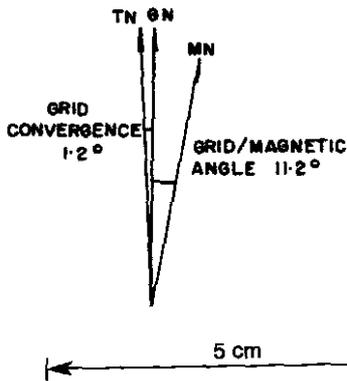
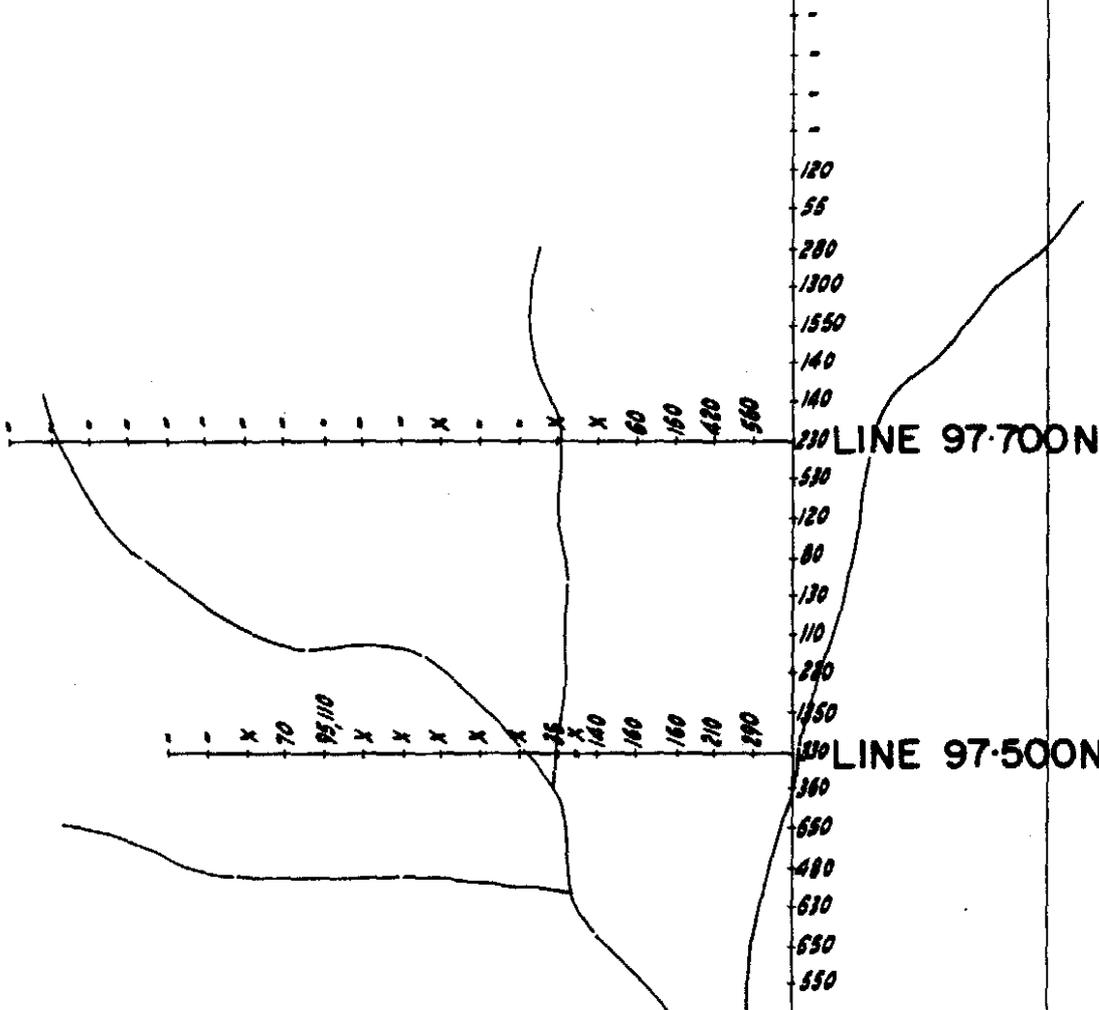
290

074307

43.8 E

LINE 98.000N

5 398 000mN



LEGEND

- Not Sampled
- X Below limited detection
- BP Impenetratable Brown Plains Formation (> 2m)
- Stream Sediment Sample ppm, 1985

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED

E.L. 4/61 - SAVAGE RIVER  
 BATTY'S BEND GRID  
 SOIL GEOCHEMISTRY  
 Ba Analysis ppm

DRAWN BY : R.A.  
 DRAFTSMAN : T.S.  
 DATE : June  
 REVISIONS :

FILE NO.

SCALE 1:5000

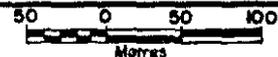


FIG. 8-6

85-2502

291

074308

● X, 0.6

43.8 E

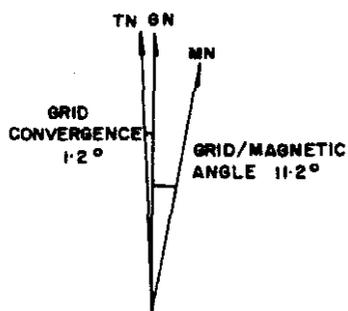
LINE 98.000N

5 398 000m

LINE 97.700N

LINE 97.500N

SAVAGE RIVER



5 cm

5 397 000m

344 000m E

**LEGEND**

- Not Sampled
- X Below limited detection
- BP Impenetratable Brown Plains Formation (> 2m)
- Stream Sediment Sample ppm, 1985

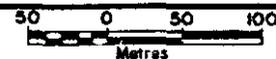
85-2502

 INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED

E.L. 4/61 - SAVAGE RIVER  
 BATTY'S BEND GRID  
 SOIL GEOCHEMISTRY  
 Ag Analysis ppm

DRAWN BY : R.A.  
 DRAFTSMAN : T.G.D.  
 DATE : June 85  
 REVISIONS :

SCALE 1:5000



FILE NO.

FIG. 8.7

54

43.8 E

LINE 98.000N

5 398 000mN

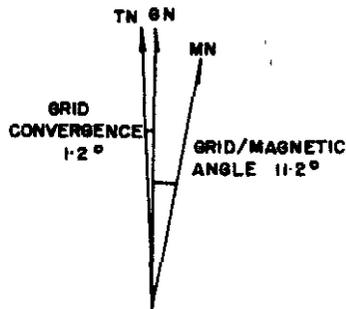
LINE 97.700N

LINE 97.500N

SAVAGE RIVER

344 000mE

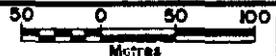
5 397 000mN



LEGEND

- Not Sampled
- X Below limited detection
- BP Impenetrable Brown Plains Formation (> 2m)
- Stream Sediment Sample ppm, 1985

85-2502

 <b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>	
<b>E.L. 4/61 - SAVAGE RIVER BATTY'S BEND GRID SOIL GEOCHEMISTRY As Analysis ppm</b>	
DRAWN BY : R.A. DRAFTSMAN : T.G.D.S. DATE : June 8 REVISIONS :	
FILE NO.	
SCALE 1:5000	
FIG. 8-8	

293

● 2,7000 µg/g

074310

43.8 E

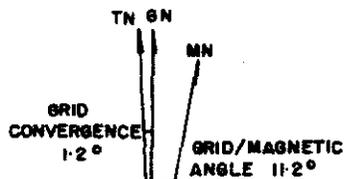
LINE 98.000N

s 398 000mN

LINE 97.700N

LINE 97.500N

- SAVAGE RIVER



5 cm

344 000mE

s 397 000mN

**LEGEND**

- Not Sampled
- X Below limited detection
- BP Impenetrable Brown Plains Formation (>2m)
- Stream Sediment Sample ppm, 1985

<b>IJ</b> INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER BATTY'S BEND GRID SOIL GEOCHEMISTRY Au Analysis ppb</b>	
DRAWN BY : R.A.	DRAFTSMAN : T.G.D.S
DATE : June 84	REVISIONS :
FILE NO.	
SCALE 1:5000	
	FIG. 8-9

85 2502

345 000mE

5392 000mN

Timbs

Creek

LINE 92-00

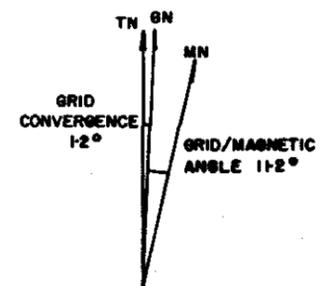
LINE 91-80

LINE 91-75

-44450  
 -44475  
 -44500  
 -44525  
 -44550  
 -44575  
 -44600  
 -44625  
 -44650  
 -44950  
 -44975  
 -45000  
 -45025  
 -45050  
 -45075  
 -45100  
 -45125  
 -45150  
 -45475  
 -45500  
 -45525  
 -45550  
 -45575

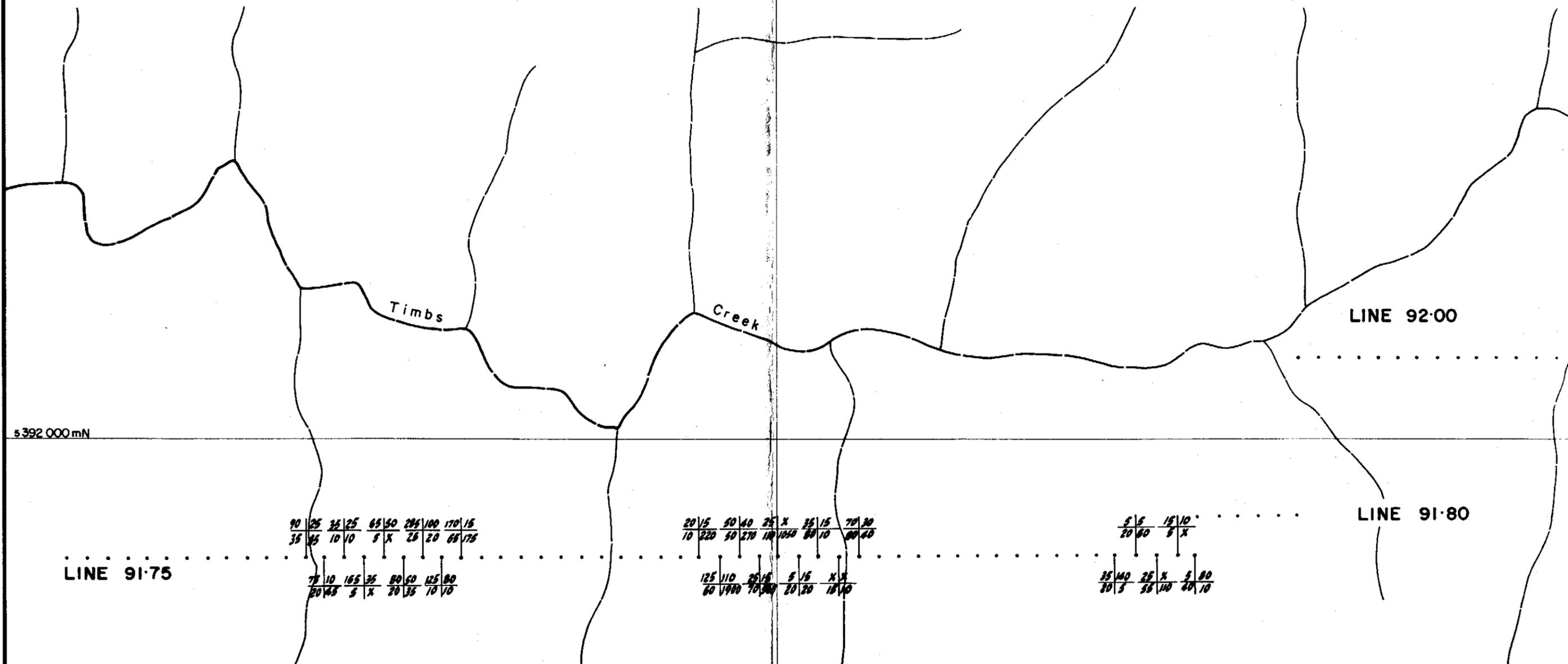
074311

5 cm



INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
EL. 4/61 - SAVAGE RIVER	
TIMBS CREEK GRID	
Geochemical Sampling	
SAMPLE LOCATION	
SCALE 1:5000	
DRAWN BY: L.V. DRAFTSMAN: T.S.D.S. DATE: JUNE 88 REVISIONS: FILE NO.	FIG. 9-0

34500mE

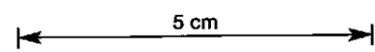


LINE 91.75

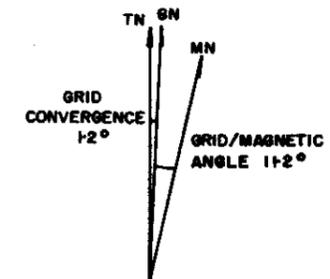
LINE 92.00

LINE 91.80

074312



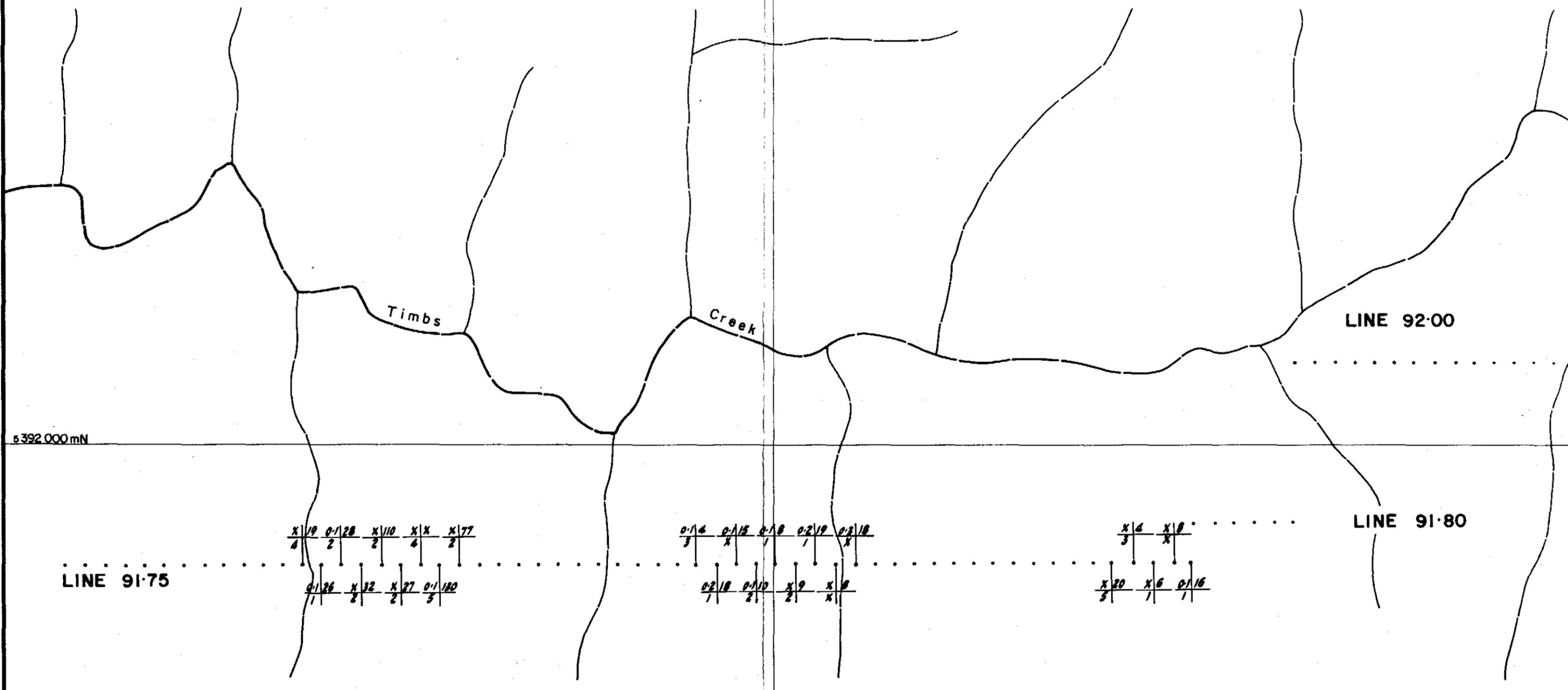
Cu/Pb  
Zn/Mn (p.p.m.)



INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER TIMBS CREEK GRID Geochemical Sampling Cu, Pb, Zn, Mn Analysis ppm	
SCALE 1:5000	80 0 50 100 Metres
DRAWN BY: L.V.	FILE NO.
DRAFTSMAN: T.G.D.S.	FIG. 9-1
DATE: JUNE 68	
REVISIONS:	

85 2502

345 000mE



5392 000mN

X/19 4	0/128 2	X/110 2	X/X 4	X/77 2
0/126 1	X/32 2	X/27 2	0/180 5	

0/14 3	0/15 X	0/18 1	0/219 1	0/218 X
0/218 1	0/119 2	X/9 2	X/8 X	

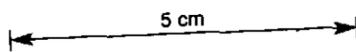
X/4 3	X/8 X
X/20 3	X/6 1
	0/16 1

LINE 91-75

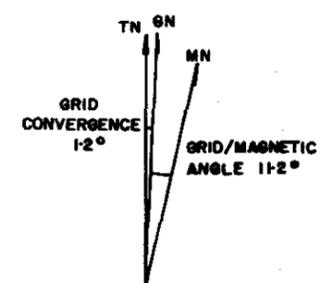
LINE 92-00

LINE 91-80

074313



Ag/As (ppm)  
Au (ppb)



INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER TIMBS CREEK GRID	
Geochemical Sampling Ag, As, Au Analysis ppm, ppb	
SCALE 1:5000	
DRAWN BY: L.V. DRAFTSMAN: T.S.D.S. DATE: JUNE 86 REVISIONS:	FILE NO. FIG. 9-2

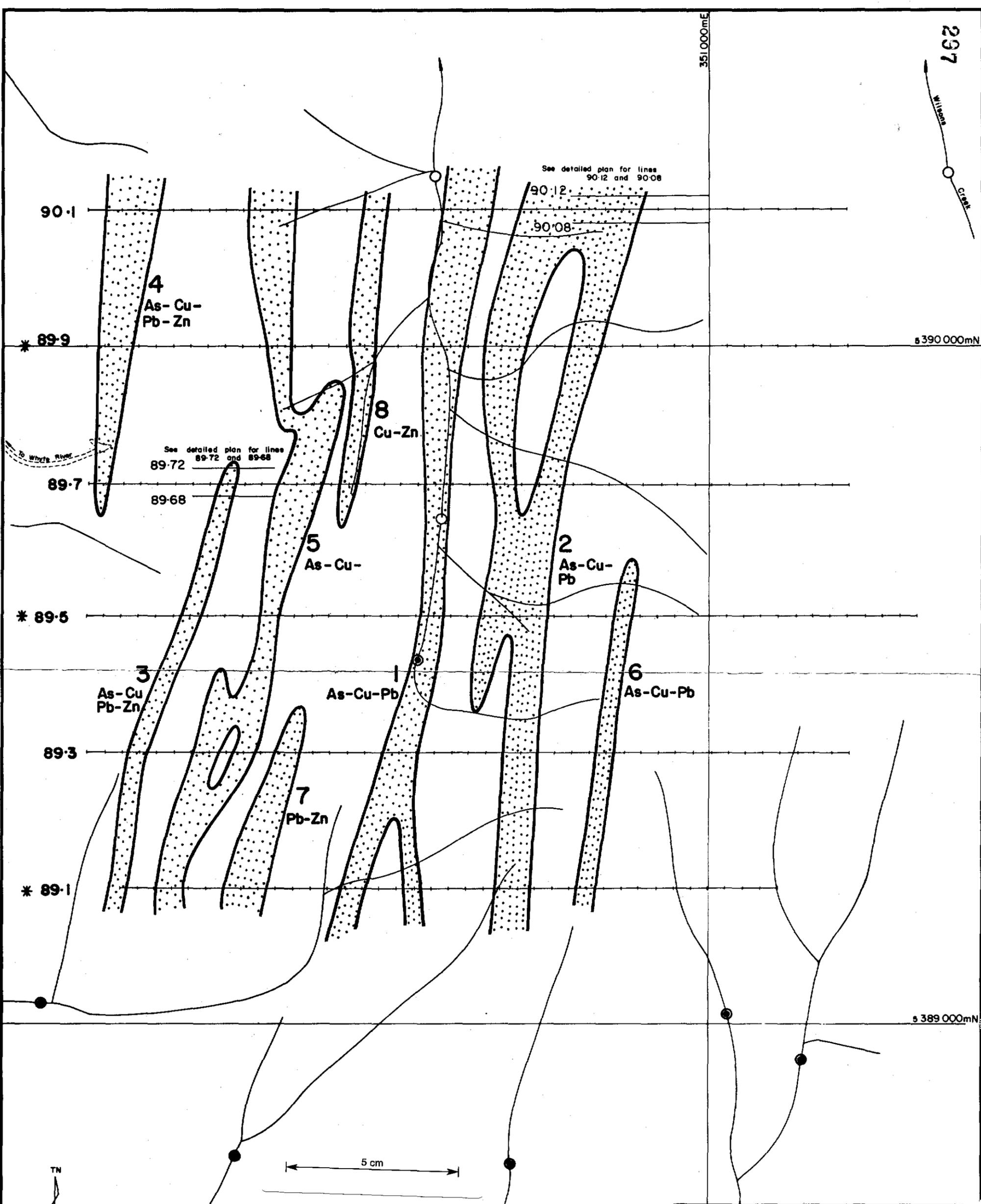
45 2507



351000mE

390 000mN

389 000mN



See detailed plan for lines 90.12 and 90.08

See detailed plan for lines 89.72 and 89.68

90.1

90.12

90.08

4  
As-Cu-  
Pb-Zn

8  
Cu-Zn

\* 89.9

See detailed plan for lines 89.72 and 89.68

89.7

89.68

5  
As-Cu-

2  
As-Cu-  
Pb

\* 89.5

3  
As-Cu  
Pb-Zn

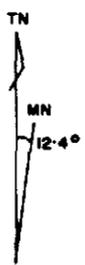
1  
As-Cu-Pb

6  
As-Cu-Pb

89.3

7  
Pb-Zn

\* 89.1



LEGEND

- \* Previously sampled 1984
- Previously sampled 1984
- ~ Creek
- Track
- T Trace
- x Below limit of detection
- Sample not taken
- I/S Insufficient sample

074314

INDUSTRIAL AND MINING INVESTIGATIONS PTY LIMITED	
E.L. 4/61 - SAVAGE RIVER	
ROCKY RIVER PROSPECT	
COMPOSITE ANOMALIES	
DRAWN BY : R.A	DRAFTSMAN : T.G.D.S
DATE : July '85	REVISIONS :
FILE NO.	Fig. 10-0
SCALE 1:5000	50 0 50 100 Metres

85-2502

351 000mE

351 000mE  
Creek

See detailed plan for lines  
90-12 and 90-08

90-1

90-12

Not Sampled

90-08

\* 89-9

339 000mN

See detailed plan for lines  
89-72 and 89-68

89-7

89-72

89-68

Not Sampled

\* 89-5

89-3

339 000mN

\* 89-1



LEGEND

- \* Previously sampled 1984
- Previously sampled 1984
- ~ Creek
- == Track

- 60 Kg gravel sample
- T Trace
- x Below limit of detection
- Sample not taken
- I/S Insufficient sample

074315

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER	
ROCKY RIVER PROSPECT	
INTERSTITIAL GRAVELS	
MERCURY AMALGAMATION	
Au IN MICROGRAMS	
SCALE 1:6000	60 0 50 100 Metres
DRAWN BY : R.A.	DATE : June 89
DRAFTSMAN : T.G.D.S.	REVISIONS :
FILE NO.	FIG. 10.1

85-2502



WILLIAMS CREEK

351000mE

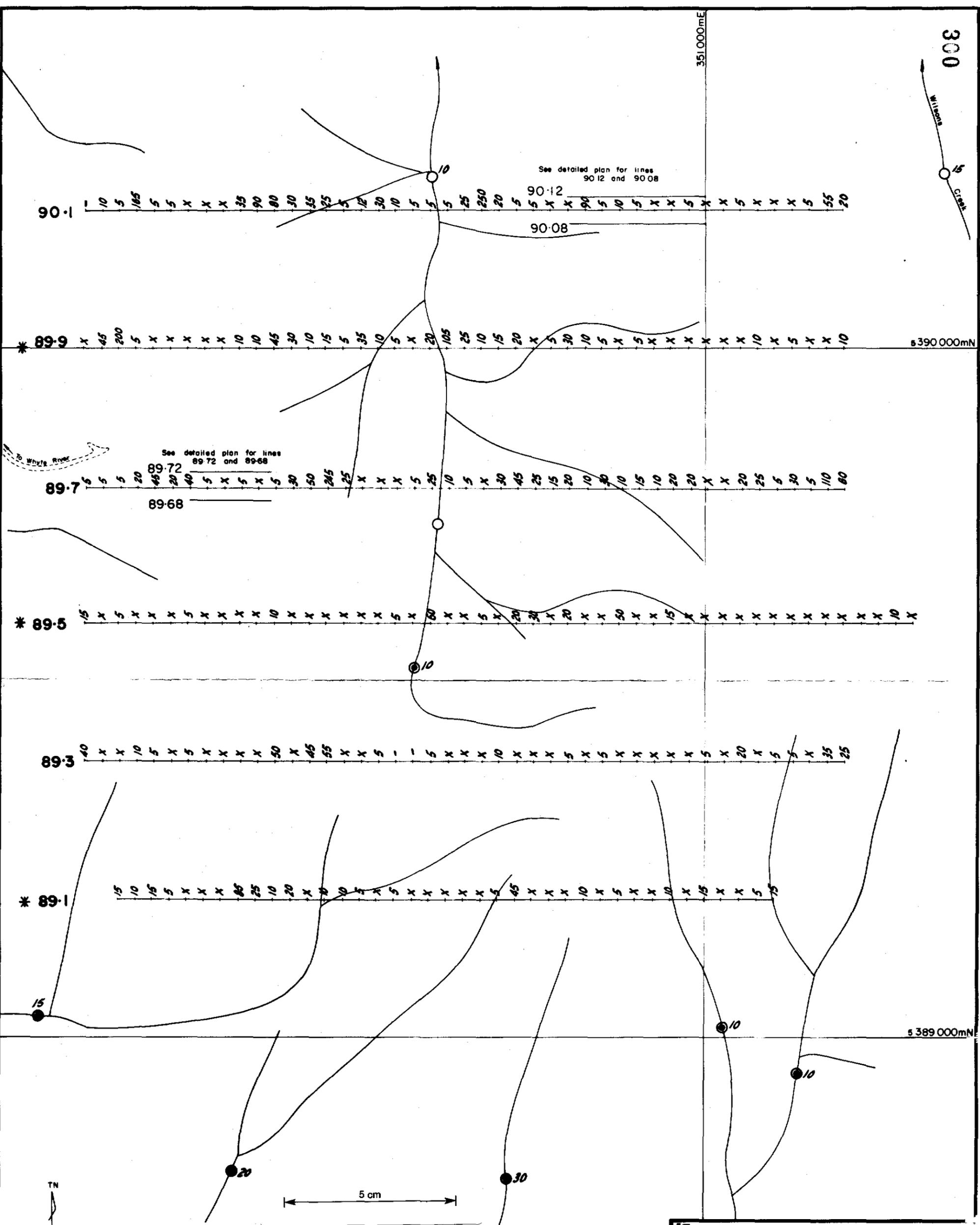
390000mN

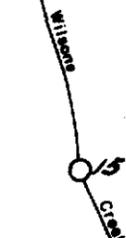
389000mN

See detailed plan for lines 90-12 and 90-08

See detailed plan for lines 89-72 and 89-68

To White River

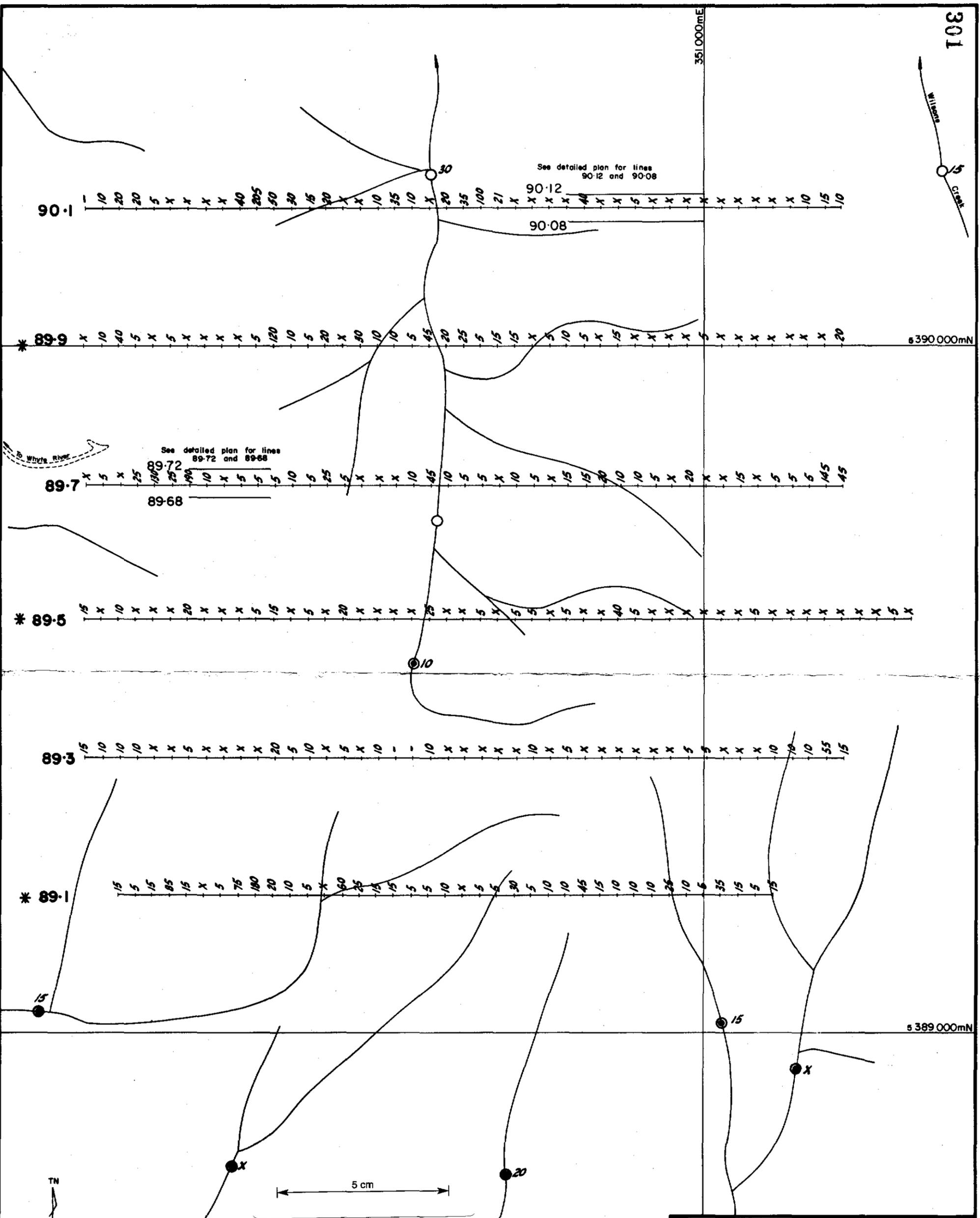




351000mE

339000mN

3389000mN



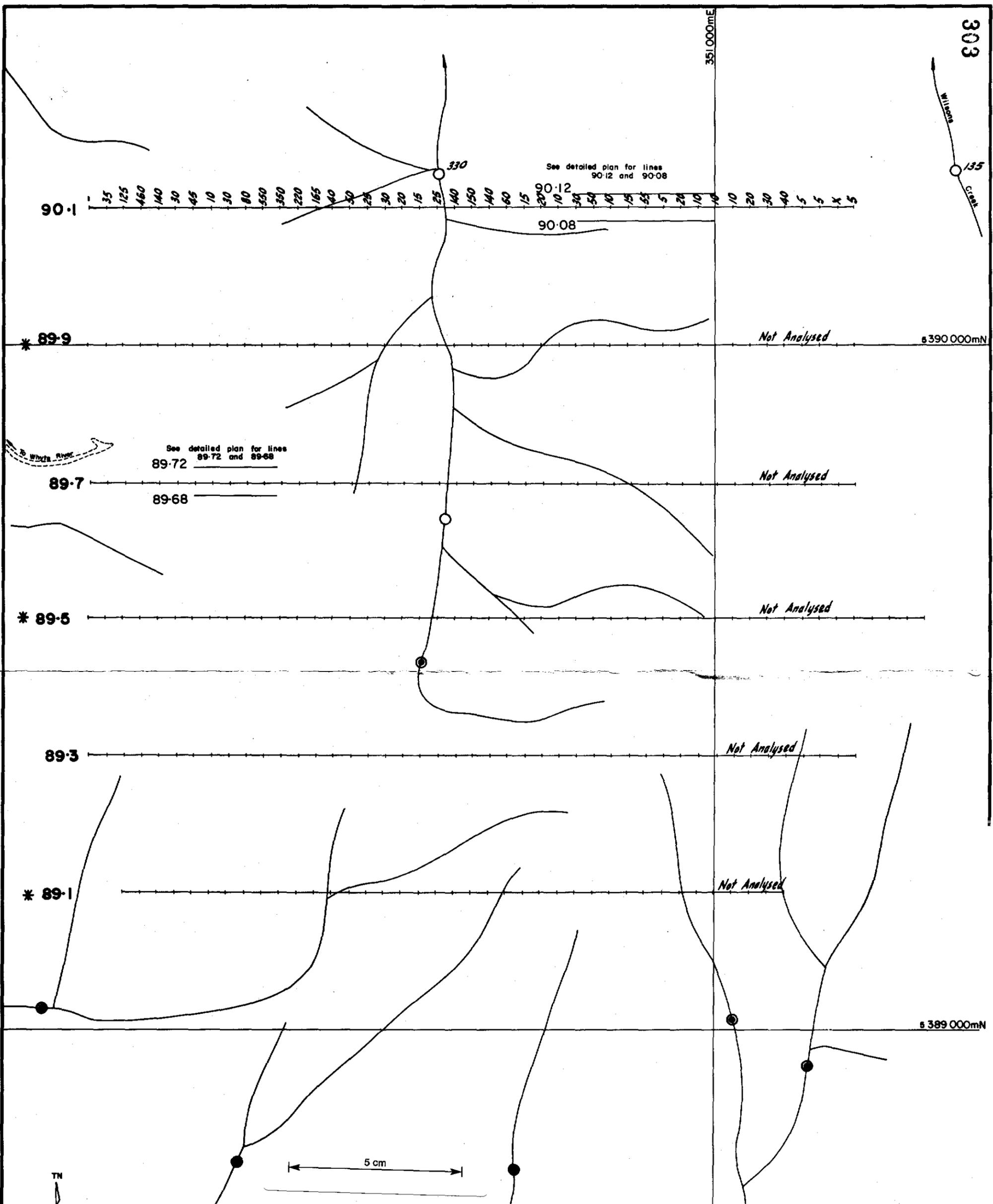
**LEGEND**

- \* Previously sampled 1984
- Previously sampled 1984
- Creek
- Track
- T Trace
- x Below limit of detection
- Sample not taken
- I/S Insufficient sample

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER	
ROCKY RIVER PROSPECT	
SOIL GEOCHEMISTRY	
Pb Analysis ppm	
SCALE 1:5000	50 0 50 100 Metres
DRAWN BY : R.A.	FILE NO.
DRAFTSMAN : T.G.D.S.	Fig. 10.4
DATE : June 88	
REVISIONS :	

074318





- LEGEND**
- \* Previously sampled 1984
  - Previously sampled 1984
  - ┌┐ Creek
  - ▬ Track
  - T Trace
  - x Below limit of detection
  - Sample not taken
  - 1/S Insufficient sample

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED

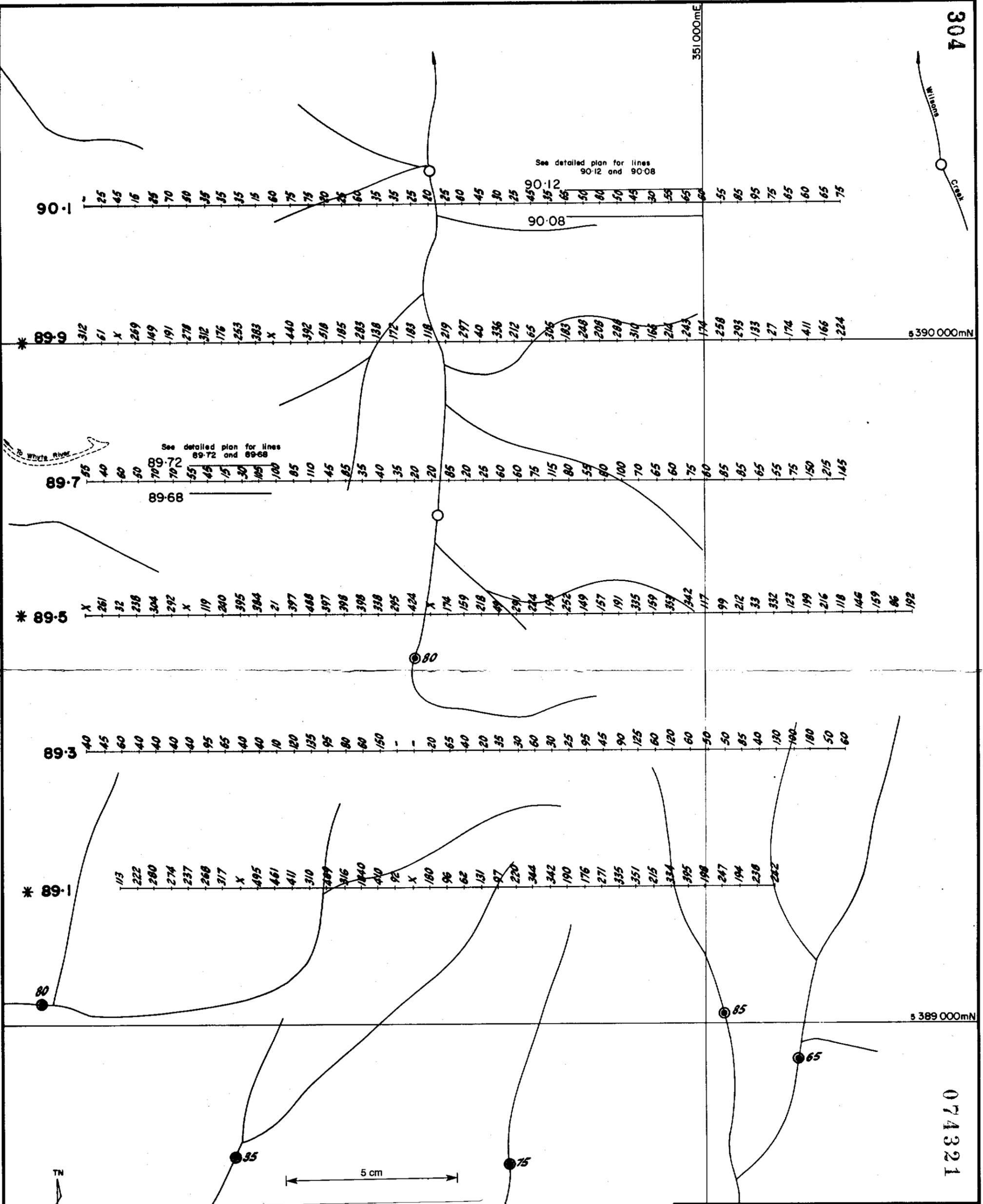
E.L. 4/61 - SAVAGE RIVER  
**ROCKY RIVER PROSPECT**  
**SOIL GEOCHEMISTRY**  
**Mn Analysis ppm**

DRAWN BY : R.A.  
 DRAFTSMAN : T.G.D.S.  
 DATE : June -  
 REVISIONS :  
 FILE NO.  
 FIG. 10-6

SCALE 1:5000

50 0 50 100  
 Metres

074320



LEGEND

- \* Previously sampled 1984
- Previously sampled 1984
- ~ Creek
- ↔ Track
- T Trace
- x Below limit of detection
- Sample not taken
- I/S Insufficient sample

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER ROCKY RIVER PROSPECT SOIL GEOCHEMISTRY Ba Analysis ppm	
DRAWN BY : RA.	DRAFTSMAN : T.G.D.S.
DATE : June 88	REVISIONS :
FILE NO.	FIG. 10-7
SCALE 1:6000	50 0 50 100 Metres

WILLIAMS CREEK

351 000mE

See detailed plan for lines 90-12 and 90-08

90-1

90-12

Not Analysed

90-08

5390 000mN

See detailed plan for lines 89-72 and 89-68

89-7

89-72

89-68

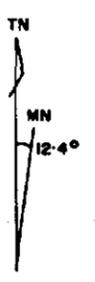
\* 89-5

89-3

\* 89-1

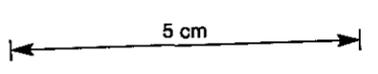
5389 000mN

074322

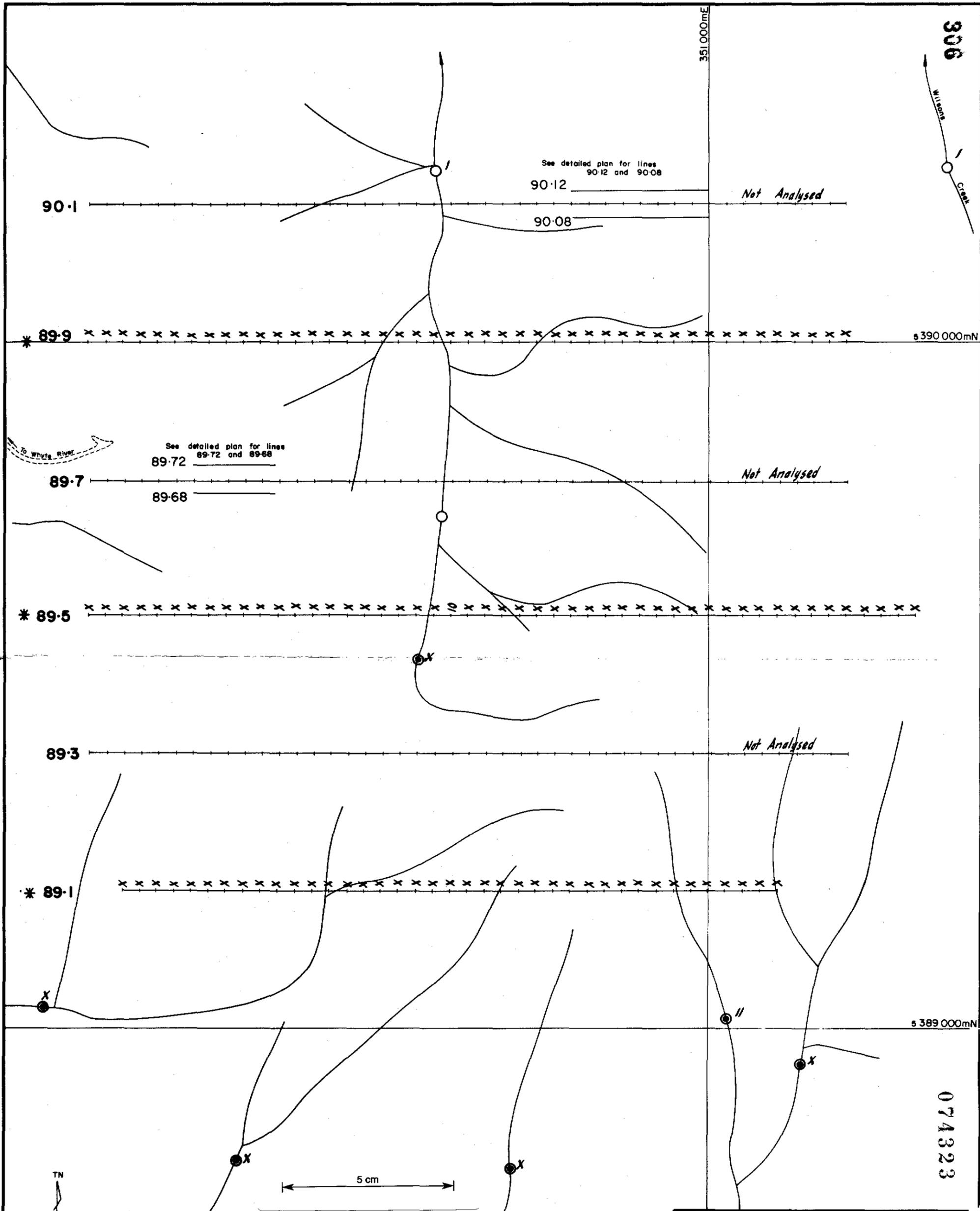


LEGEND

- \* Previously sampled 1984
- Previously sampled 1984
- ~ Creek
- Track
- T Trace
- x Below limit of detection
- Sample not taken
- I/S Insufficient sample



INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER	
ROCKY RIVER PROSPECT	
SOIL GEOCHEMISTRY	
Sb Analysis ppm	
SCALE 1:5000	50 0 50 100 Metres
FILE NO.	FIG. 10-8
DRAWN BY : R.A.	
DRAFTSMAN : T.G.D.S.	
DATE : June 85	
REVISIONS :	



**LEGEND**

- \* Previously sampled 1984
- Previously sampled 1984
- ~ Creek
- == Track
- T Trace
- x Below limit of detection
- Sample not taken
- I/S Insufficient sample

<b>INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED</b>	
<b>E.L. 4/61 - SAVAGE RIVER ROCKY RIVER PROSPECT</b>	
<b>SOIL GEOCHEMISTRY</b>	
<b>W Analysis ppm</b>	
DRAWN BY : R.A. DRAFTSMAN : T.G.D.S. DATE : June 87 REVISIONS :	FILE NO. FIG. 10-9
SCALE 1:5000	

W. Hill Creek

351000mE

539000mN

5389000mN

074324

See detailed plan for lines 90-12 and 90-08

90-12

90-08

Not Analysed

See detailed plan for lines 89-72 and 89-68

89-72

89-68

Not Analysed

To White River

90-1

\* 89-9

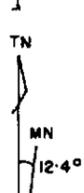
89-7

\* 89-5

89-3

\* 89-1

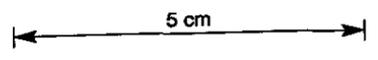
Not Analysed



LEGEND

- \* Previously sampled 1984
- Previously sampled 1984
- ~ Creek
- == Track

- T Trace
- x Below limit of detection
- Sample not taken
- I/S Insufficient sample



INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER	
ROCKY RIVER PROSPECT	
SOIL GEOCHEMISTRY	
Sn Analysis ppm	
SCALE 1:5000	50 0 50 100 Metres
DRAWN BY : R.A.	FILE NO.
DRAFTSMAN : T.G.D.S.	FIG. 10/10
DATE : June 85	
REVISIONS :	

WILSON  
Creek

351 000mE

See detailed plan for lines  
90-12 and 90-08

90-1

Not Analysed

90-08

\* 89-9 x x 9 9 x 3 x 5 10 7 7 x x 4 x x 11 9 7 6 8 11 6 5 x x x x 8 x 3 11 5 7 9 11 x 6 3 x 7 4 6 x x

390 000mN

White River

See detailed plan for lines  
89-72 and 89-68

89-7

Not Analysed

89-68

\* 89-5

13 10 x 24 19 19 11 4 7 15 14 7 x 12 13 5 20 9 18 6 9 5 24 17 9 15 3 5 15 x x 19 x 5 14 x 9 6 12 3 3 x 11 7 11 14 x 19 11

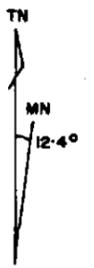
89-3

Not Analysed

\* 89-1

5 x 22 4 x x 15 x 5 9 13 8 6 4 x 20 x x 23 7 x 15 18 8 x 15 24 8 13 3 18 22 17 17 x 5 10 7 12

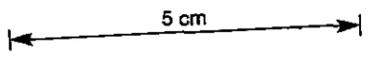
389 000mN



**LEGEND**

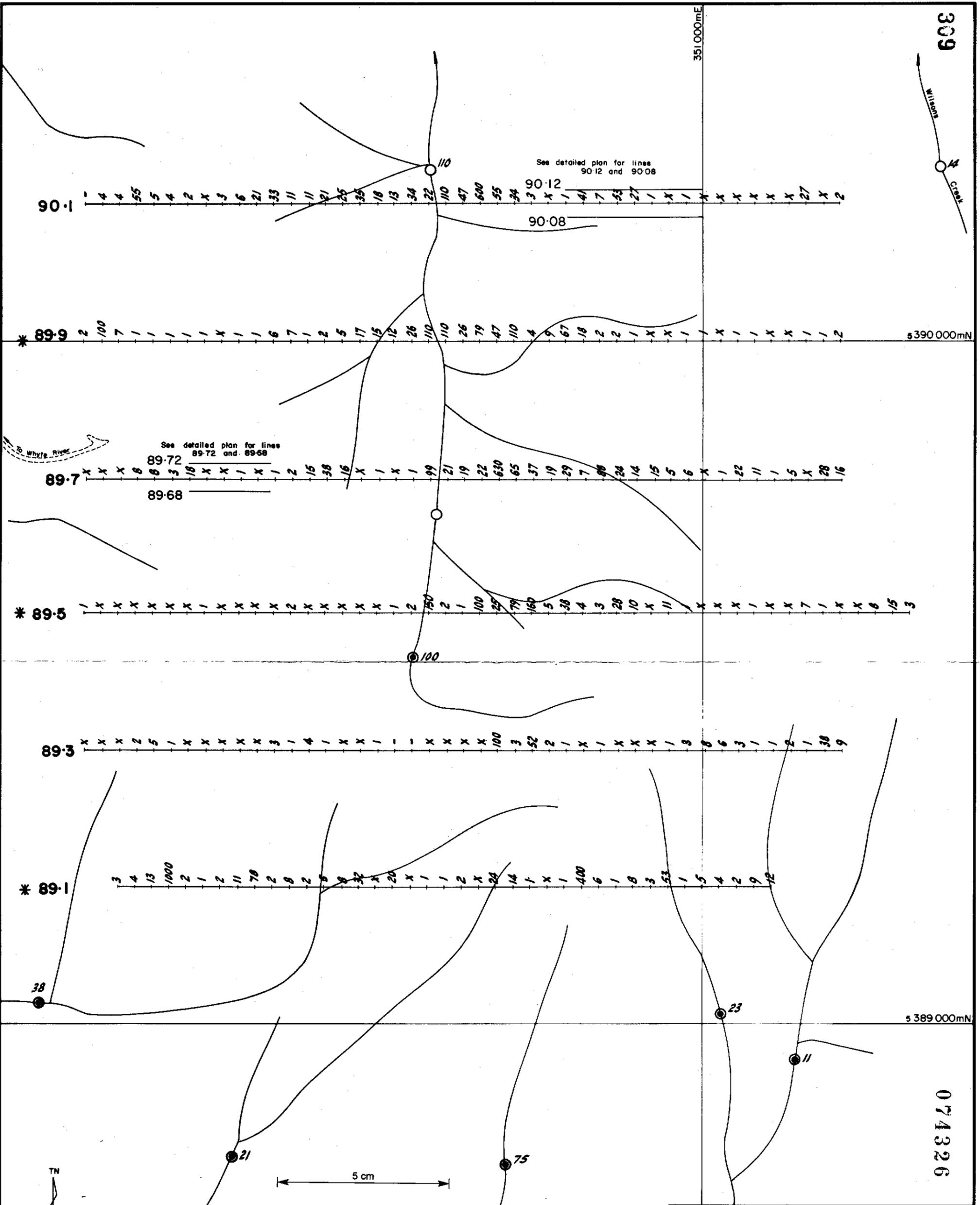
- \* Previously sampled 1984
- Previously sampled 1984
- ~ Creek
- Track

- T Trace
- x Below limit of detection
- Sample not taken
- 1/S Insufficient sample



INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
<b>E.L. 4/61 - SAVAGE RIVER ROCKY RIVER PROSPECT SOIL GEOCHEMISTRY Te Analysis ppm</b>	
DRAWN BY : R.A. DRAFTSMAN T.G.D.S. DATE : June 85 REVISIONS :	FILE NO. FIG. 10-11
SCALE 1:5000	

074325



See detailed plan for lines 90-12 and 90-08

See detailed plan for lines 89-72 and 89-68

To White River

LEGEND

- \* Previously sampled 1984
- Previously sampled 1984
- ~ Creek
- ≡ Track
- T Trace
- x Below limit of detection
- Sample not taken
- I/S Insufficient sample

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER ROCKY RIVER PROSPECT	
SOIL GEOCHEMISTRY As Analysis ppm	
SCALE 1:5000	50 0 50 100 Metres
DRAWN BY : R.A.	FILE NO.
DRAFTSMAN : T.G.D.S.	FIG. 10-12
DATE : June 85	
REVISIONS :	







350 250mE

s 390 000mN

.50225  
 .50290  
 .50275  
 .50300  
 .50325  
 .50350  
 .50375  
 .50400  
 .50425  
 \* 89.9

.50225  
 .50250 .50250 .50250  
 .50260 .50260  
 .50270 .50270  
 .50280 .50275 .50280  
 .50290 .50290  
 .50300 .50300 .50300  
 .50310 .50310  
 .50320 .50325 .50320  
 .50330 .50330  
 .50340 .50340  
 .50350 .50350 .50350  
 .50360 .50360  
 .50370 .50375 .50370  
 89.72  
 .50400  
 89.68

350 250mE

89.7

90-1

90-12  
 .50775  
 .50800 .50800 .  
 .50810 .  
 .50820 .50825 .  
 .50830 .  
 .50840 .  
 .50850 .50850 .  
 .50860 .50860  
 .50870 .50875 .50870  
 .50880 .50880  
 .50890 .50890  
 .50900 .50900 .50900  
 .50910 .50910  
 .50920 .50925 .50920  
 .50930 .50930 .50930  
 .50940 .50940  
 .50950 .50950 .50950  
 .50960 .50960  
 .50970 .50975 .50970  
 .50980 .50980 .50980  
 .50990 .50990  
 .51000 .51000 .51000  
 .51025

351 000mE

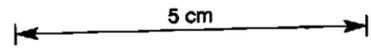
\* 89.9

.50775  
 .50800  
 .50825  
 .50850  
 .50875  
 .50900  
 .50925  
 .50950  
 .50975  
 .51000  
 .51025

s 390 000mN

LEGEND

- \* Previously sampled 1984
- Creek
- T Trace
- x Below limit of detection
- Not sampled
- 1/8 Insufficient sample



351 000mE

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER ROCKY RIVER PROSPECT	
SAMPLE LOCATION	
SCALE 1:2000	20 0 20 40 Metres
DRAWN BY: RA.	FILE NO.
DRAFTSMAN: T.G.D.S.	FIG. 11.0
DATE: June 85	
REVISIONS:	

85-2502







350.250mE

s 390.000mN

.5 .25 .10 .10 .20 .5 .40 .30 \* 89-9

.40 .90 .10 .5 .X .X .X .10 .10 .X .5 .10 .600 .80 .50 89-72  
 .X .40 .20 .X .X .X .X .5 .X .5 .X .5 .5 89-68  
 89-7

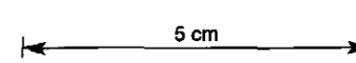
350.250mE

351.000mE

90-12 : : : : : .X .15 .15 .10 .10 .10 .5 .5 .X .X .15 .X .X .X .X  
 90-1 .X .5 .10 .5 .5 .5 .X  
 90-08 .15 .5 .10 .10 .5 .10 .X .10 .10 .5 .X .5 .5 .5 .5 .5 .X .X

\* 89-9 .15 .10 .5 .5 .5 .15 .5 .5 .5 .5 .5 .5

s 390.000mN



351.000mE

**LEGEND**  
 \* Previously sampled 1984 T Trace  
 /s Insufficient sample x Below limit of detection  
 - Not sampled  
 ~ Creek

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER ROCKY RIVER PROSPECT SOIL GEOCHEMISTRY Zn Analysis ppm	
SCALE 1:2000	20 0 20 40 Metres
DRAWN BY: RA.	FILE NO.
DRAFTSMAN: TG.DS.	FIG. 11.3
DATE: June 85	
REVISIONS:	

85-2502





350 250mE

s 390 000mN

.191 .278 .312 .176 .253 .383 .X .440 \* 89.9

.70 .55 .60 .45 .55 .60 .40 .40 .90 .65 .90 .72  
 .55 .100 .70 .45 .55 .60 .65 .15 .30 .90 .65 .120 .85  
 .55 .100 .70 .45 .55 .60 .65 .15 .30 .90 .65 .120 .85  
 .55 .100 .70 .45 .55 .60 .65 .15 .30 .90 .65 .120 .85  
 89.68 89.72

350 250mE

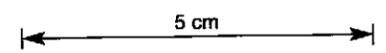
351 000mE

s 390 000mN

90.12 : : : : : .35 .280 .90 .110 .110 .320 .85 .210 .70 .30 .55 .70 .70 .80 .45  
 90.1 .35 .65 .50 .60 .230 .280 .260 .160 .230 .120 .65 .110 .200 .260 .130 .210 .100 .140 .220 .150 .60 .45 .55  
 90.08 .100 .100 .60 .90 .110 .230 .280 .260 .160 .230 .120 .65 .110 .200 .260 .130 .210 .100 .140 .220 .150 .60 .45 .55

\* 89.9 .305 .183 .248 .208 .288 .310 .166 .214 .243 .174 .258

074334



351 000mE

LEGEND

- \* Previously sampled 1984
- ~ Creek
- T Trace
- x Below limit of detection
- Not sampled
- I/S Insufficient sample

INDUSTRIAL AND MINING INVESTIGATIONS PTY. LIMITED	
E.L. 4/61 - SAVAGE RIVER ROCKY RIVER PROSPECT SOIL GEOCHEMISTRY Ba Analysis ppm	
SCALE: 1:2000	20 0 20 40 Metres
DRAWN BY: R.A.	FILE NO.
DRAFTSMAN: T.G.D.S.	FIG. 11.5
DATE: June 80	
REVISIONS:	

95-2502







