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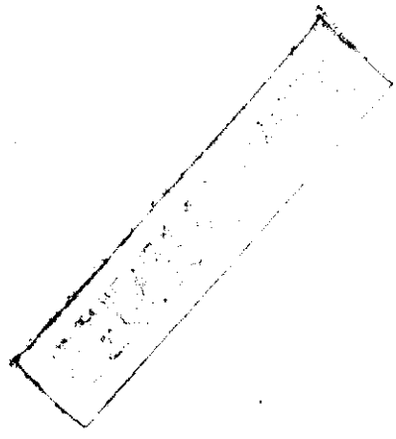
PACMINEX PTY. LIMITED

77-1227

STANLEY REWARD : E.L. 53/70
WEST TASMANIA
REPORT ON EXPLORATION 1975-77
(DRILLING, GEOCHEMICAL & MAGNETIC SURVEYS)

PMR 153/77



SYDNEY

August, 1977

P.M. MACNAMARA

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K553-6	MAGNETICS - TOTAL FORCE PROFILES STANLEY REWARD : SOUTH SHEET	1:2,500

KEYWORDS

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STREAM
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LEAD
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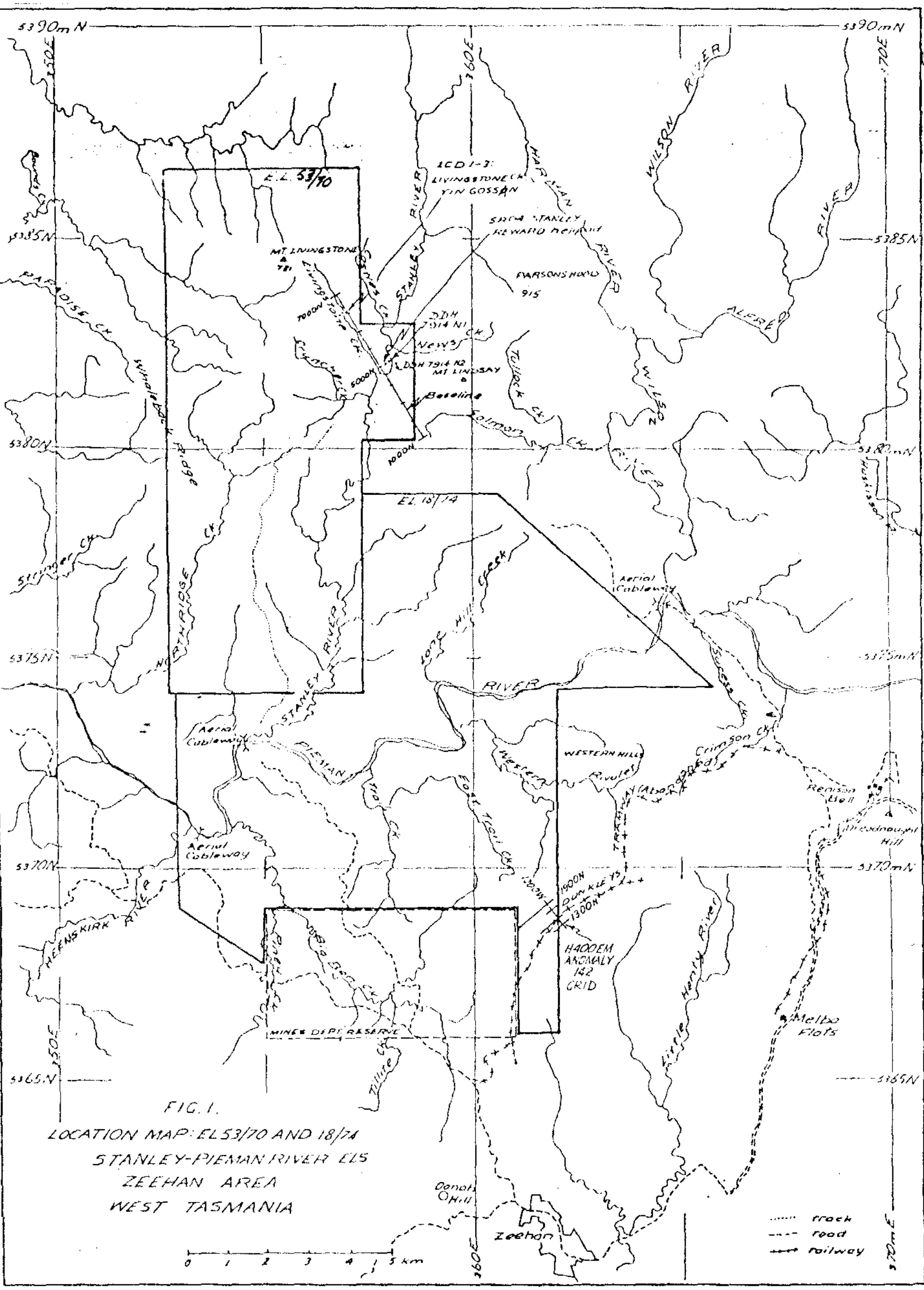

FIG. 1.
LOCATION MAP: EL53/70 AND 18/74
STANLEY-PIEMAN RIVER ELS
ZEEHAN AREA
WEST TASMANIA

5 cm

1. INTRODUCTION

1.1 Pacminex has been conducting exploration over E.L. 53/70 Stanley River since November 1973, by agreement with the licence holder, Valley Exploration (Holdings) Pty. Limited (see Figure 1).

1.2 Following a four hole diamond drilling programme carried out in the Livingstone Creek - Stanley Reward area near Mount Livingstone in 1974 (Macnamara, 1974), testing of the alluvial covered dolomitic horizon at the top of the Oonah Quartzite and Slate (Oonah Formation) was continued by grid prospection in 1975, 1976 and 1977. This dolomitic horizon (of approximately 3 km strike length within E.L. 53/70) apparently occurs at a stratigraphic position similar to the mineralised dolomitic beds at Renison Bell. Where the horizon occurs close to Devonian stanniferous granites (as at Stanley Reward), it is believed to be particularly amenable to replacement by massive sulphide-cassiterite bodies such as occurs in Renison Bell Mine.

1.3 In the 1975-1977 period the following surveys were carried out over the area of the 3.5 km long grid :-

1.3.1 An airborne H400 E.M./magnetic survey of E.L. 53/70 (Haigh, 1975).

1.3.2 34 line km of line cutting and gridding on 50 lines mainly through thick bush.

1.3.3 Approximately 1550 soil, rock chip and drainage samples collected plus geological mapping.

1.3.4 Ground magnetic surveys on grid lines with readings at 6.25 m intervals.

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1.3.5 An electrical I.P./resistivity survey over part of the grid (Howland-Rose, 1975).

1.3.6 A ground E.M. survey of the grid using a Ronka E.M. 16 instrument. In addition, some orientation surveys were run using a McPhar VHEM instrument.

1.3.7 Two diamond drill holes testing possible southward extensions of the Stanley Reward Gossan. (The holes indicated minor tin-copper mineralisation only).

1.4 This report covers general aspects of the exploration carried out in the 1975, 1976 and 1977 field seasons over the Stanley Reward area near Mt. Livingstone (see Figure 1). It deals particularly and in detail with the results of grid soil sampling to the end of 1976, the two hole diamond drilling programme in 1976 and ground magnetic surveys carried out 1975-1977.

Subsequent reports will deal with details of the 1977 follow-up geochemical soil augering programme and with a review of all geophysical surveys done to date.

2. SUMMARY

2.1 Two cassiterite-bearing limonite bodies, each 150 to 200 m long, occur in contact with granite within the grid area. These apparently represent weathered contact metasomatic replacements of dolomite by massive sulphide bodies, judging by box work structures in the gossans. They show that economic concentrations of cassiterite-bearing massive sulphides, formed by replacement of dolomite beds, could occur on the grid.

2.2 The initial 1974 drilling indicated that the northern gossan (Livingstone Creek Tin Gossan) was cut at depth by intrusive granite on the one (northern) section drilled. Exploration potential of the gossan appears to be still open to the south of the drilled section.

2.3 The other gossan (Stanley Reward Gossan) has not been tested at depth but was checked along strike to the south in 1976 by two diamond drill holes (DDH's 7914N1 and 7914N2).

Diamond drill holes 7914N1 and 7914N2 were cored on lines 5000N and 4900N, some 150 m and 250 m south of the outcrop of the Stanely Reward Gossan. Only minor tin-copper mineralisation was encountered in the dolomitic horizons intersected.

Hole 7914N1 encountered 46 m of dolomite containing a high background of 150 ppm Sn, but it is not known if this has any zoning significance with respect to stronger mineralisation in the general vicinity.

2.4 Grid prospecting has been particularly aimed at locating mineralisation within the dolomitic horizon at some distance from the granite contact, as this is the Renison Bell-type situation.

Augering to 1.5 m depth in 1976 beneath the mud/gravel flats concealing the dolomitic horizon, indicated on line 4550N at 4830W (see DWG K553-4) values exceeding 4000 ppm Sn and Cu. 50 m to the south a value of 320 ppm Sn and 56 ppm Cu was obtained on line 4500N at 4820W, (see Appendix II, pages 9 and 10).

Initial results from the 1977 soil augering programme confirmed this concealed tin-copper anomaly over a 200 m strike length, between lines 4400N and 4600N. The anomaly appears to be associated with contact metamorphosed dolomitic material which occurs as fragments at depth in the auger holes. In-situ mineralised dolomitic shale was confirmed at one location only - the other anomalous samples were obtained by augering at depth through the boulder/mud flat alluvials.

It appears probable that the anomalous values are in situ although only costeaning and/or drilling could definitely confirm this.

The anomaly is referred to as the "45N/48W" Anomaly.

2.5 Magnetic profiles in the vicinity of the "45N/48W" Anomaly show certain changes which may be related to the mineralisation. The magnetic data as a whole should prove useful for structural interpretation of geology as well as a guide to mineralisation.

3. BACKGROUND (1973/74 PROGRAMME)

3.1 Following an agreement with Valley Exploration (Holdings) Pty. Limited, Pacminex commenced an initial field assessment of E.L. 53/70 in November, 1973. It became immediately obvious that any exploration within the E.L. (which lies north of the Pieman River) would require helicopter support due to a lack of roads on the northern side of the Pieman River. There did not appear to be any way of providing road access at a reasonable cost until potential had been upgraded sufficiently to justify road making.

3.2 Initial assessment in late 1973 entailed :-

3.2.1 Creek sediment sampling.

3.2.2 Chip sampling of a limonite body reported to be stanniferous which occurs on the west bank of Livingstone Creek south of Mount Livingstone (see Figure 1).

3.2.3 Search for a galena-bearing dolomite body reported to be in the Livingstone Creek Valley near the old Stanley Reward alluvial tin workings.

3.2.4 Search for a stanniferous limonite body near Stanely Reward on the eastern side of the Livingstone Creek Valley.

3.3 Waterhouse (1914) was the first to report the stanniferous limonite bodies (gossans) and also the presence of lead-zinc mineralisation associated with the dolomite.

3.4 Ground inspection by Pacminex geologists and a contoured airborne magnetic map (from Rio Tinto work in the 1950's) confirmed that the Livingstone Creek - Stanley Reward area lay near or at the top of the Oonah Quartzite

and Slate, close to the overlying Crimson Creek Formation. This zone is known to be favoured by mineralisation in the Zeehan-Renison Bell region, and often to have carbonate rocks associated (Blissett, 1962b).

Within E.L. 53/70, a 3-4 km length of the horizon was inferred. It trends S.E. along the line of the Livingstone Creek Tin Gossan in the north-west to the E.L. border in the south-east. Apart from the above-mentioned two outcropping stanniferous gossans on the edges of the valley floor, the whole of the zone is concealed by "button grass" and scrub covered alluvials. Within E.L. 53/70 these alluvials form a 3-4 km long continuous topographic low which is cut by the Stanley River near its midpoint.

3.5 The +200 m long Livingstone Creek Tin Gossan was partially tested by two short adits presumably in the early part of this century. Limited chip sampling by Pacminex in the 20 m long northern adit and the gossan surface adjacent to it indicated values averaging 0.5% Sn and 0.03% Cu. Leaching of values, especially copper, appeared probable. The body seemed a reasonable drilling target with a potential for lateral and depth extensions.

3.6 In the Stanley Reward area, the reported lead-bearing dolomite lies concealed beneath a boulder terrace which covers most of this potentially favourable horizon within the E.L. Drilling was again indicated in order to check for the presence of the lead-zinc mineralisation reported by Waterhouse (1914).

In addition, drilling promised to give information about the stratigraphy, not obtainable otherwise, that would confirm the presence of the favourable horizon and be useful for interpreting any subsequent geophysical survey results.

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3.7 The locations of the four diamond drill holes cored in early 1974 are shown on Figure 1 and on Drawings K555-3 and 4.

Diamond drill holes LCD1, LCD2 and LCD3 (line 6500N) were drilled to check the Livingstone Creek Tin Gossan. SRD4 was drilled off the helipad (5000N/4900W) on the "button grass" flat in the Stanley Reward area towards the occurrence of the dolomite reported by Waterhouse (1914). These four holes, totalling 299 m completed the first drilling programme by Pacminex on E.L. 53/70.

Results have been reported previously (Macnamara 1974). A summary of the results is described in section 11 of this present report.

3.8 LCD's 1 to 3 indicated a small body of stanniferous limonite in contact with granite which cuts it off at depth. Potential on the section drilled is limited (Dwg. 1982). It apparently represents a contact metasomatic replacement of carbonate beds. The potential of the Livingstone Creek Tin Gossan however remains open to the south along strike. Some sort of depth potential in the south would need to be demonstrated (using geophysics?) in order to make the gossan economically interesting (magnetic profiles indicate this is a possibility).

3.9 SRD4 confirmed the presence of weakly pyritic dolomite which, however, contained only traces of sphalerite, galena and tin.

3.10 This initial drilling and other data tended to confirm the presence of the Renison Bell horizon within the E.L. along Livingstone Creek Valley.

3.11 By mid 1974, exploration objectives within the E.L. were :

3.11.1 To check the 3 km strike length of potentially favourable horizon along the Livingstone Creek - Stanley Reward Zone for massive tin sulphides and possible lead-zinc mineralisation.

3.11.2 To screen the rest of the E.L. for indications of massive sulphide mineralisation.

3.12 A low level airborne E.M. and magnetics survey appeared to offer the best method for indicating massive sulphide bodies, especially the magnetic Renison-type. As the country in the vicinity of Livingstone Creek - Stanley Reward (the most promising area known on the E.L.) is steep, a helicopter-mounted system appeared most appropriate. The McPhar H400 helicopter-mounted E.M. system was decided on and contractors (Geoex Pty. Limited) engaged to carry out the survey during October 1974. Due to malfunctions in the equipment, modifications in the array, bad weather and helicopter crashes elsewhere on the West Coast, the survey was not carried out in time for the 1974-1975 summer field season. Some 350 line km of airborne H400 E.M. and magnetics were finally flown in April 1975 over the whole of E.L. 53/70 (Haigh, 1975).

3.13 In order to check the 3-4 km strike length of stanniferous limonite-dolomite horizon at the top of the Oonah Quartzite and Slate it was decided to initiate detailed ground exploration. Gridding was commenced in early 1975 with a baseline trending 315^{o}M along the topographically low dolomite horizon.

4. THE 1975 EXPLORATION PROGRAMME

4.1 General

The 1975 programme consisted of groundwork carried out from a camp set up at Stanley Reward between January-March, plus the airborne E.M./magnetics survey flown in April-May 1975.

4.2 Camp and Establishment

A camp staffed by two Pacminex geologists and two prospecting assistants was placed by helicopter near the Stanley Reward helipad in mid January 1975. In February the camp establishment was increased by addition of a contract geophysicist from Scintrex Pty. Limited, one additional Pacminex geologist and, for a short period, a technical assistant and a line cutting party of three.

4.3 Groundwork

During this period the following work was carried out :-

4.3.1 Line Cutting

A baseline was cut grid southwards parallel to the strike of the Livingstone Creek Tin Gossan and trending 136°M to the edge of E.L. 53/70. A point 100 m SW (ie grid west) of the helipad at Stanley Reward was given an arbitrary co-ordinate 5000 m N/5000 m W. The baseline was then pegged at 25 m intervals from 6900 N to 2900 N.

Fourteen new cross-lines were cut and surveyed and three old Mt. Lindsay lines (ML 18,19,20) were re-cleared and surveyed.

All surveying was done by tape, compass, Abney level and line-of-sight stakes. Cross-lines were offset at 90° to the baseline using an optical square. All lines were pegged at 25 m intervals.

Long distance line-of-sighting indicated that the baseline was reasonably straight from 6700N to 4900N and probably to 4600N. Between 4600N and 4000N the baseline passed through timbered country in which a number of offsets were made around large trees. At 4000N the baseline appeared to be some 10 m west of the original line which could be seen from this point. Between 4000N and 2900N the baseline appeared to have drifted back to the original line according to (limited) aerial photo pick-ups of peg positions. (Further photo checks were done in 1976).

In total, 12 km of line cutting and 14 km of line pegging were done on new and old lines during the season.

4.3.2 Geology and Petrology

Despite poor exposure and boulder terrace/ button grass cover, geological mapping was combined with soil sample logging during geochemical traversing of the lines. This covered the zone 4800N to 5900N and lines 4000N and ML 18-20.

Petrological samples were also collected, mainly north of 4600N. These were thin sectioned and described by Curtis (1975).

4.3.3 Geochemistry

Orientation type drainage sampling was done and 16 cross-lines soil sampled at 25 m intervals to 30 cm depth using a mattock. Outcrop, including gossans,

were chip sampled.

Approximately 340 samples were collected from the grid. Results of chemical analyses are shown in Appendix I. Results are discussed in section 10.

4.3.4 Ground Magnetics

The 4 km baseline and 16 cross-lines were traversed with a Geometrics G-815 Proton Total Force Magnetometer. Readings were generally taken at 25 m intervals.

These results were mainly superseded in the 1976-1977 programmes when the grid was read at 6.25 m intervals (see DWG's K553-5 and 6).

4.3.5 Ground Electromagnetics

An orientation survey was run over three lines in the vicinity of the Stanley Reward gossan. The instrument used was a McPhar VHEM model 660.

Results were inconclusive. The gossan zone did not show up as a strong signature. A certain amount of correlation between lines could be seen on the plotted profiles in places.

Due to the inconclusive nature of the responses obtained in the test work, it was decided not to use the VHEM instrument for ground relocation of airborne detected E.M. anomalies indicated by the H400 E.M. system. Instead most of those H400 E.M. anomalies outside the Stanley Reward area were checked by soil geochemical traverses (Macnamara, 1976), while those near Stanley Reward were checked by extending the Stanley Reward grid in 1976 to cover them. This was followed by grid soil sampling and ground magnetics.

Further VHEM test work was planned for the following field season (1976) on the Stanley Reward grid. (This subsequently proved abortive).

Results of the above mentioned three VHEM orientation traverses will be incorporated in a later report dealing with the geophysics of the area.

4.4 Airborne E.M. and Magnetic Survey

The contractors (Geoex Pty. Limited) flew some 350 line km of helicopter-borne H400 E.M. and (proton) magnetics over the E.L. in April-May 1975.

Lines were flown in a NE-SW direction spaced 0.2 km apart. In the Livingstone Creek - Stanley Reward area intermediate and longitudinal cross-lines were also flown. A report on this work was received in August 1975 (Haigh, 1975). Drainage and other geographic data was subsequently added to the E.M. anomaly maps to assist ground location of anomalies in the field and on geological maps.

5. THE 1976 EXPLORATION PROGRAMME

5.1 General

The 1976 exploration programme on the Stanley Reward Grid was carried out from the Stanley Reward Camp between January-April 1976. It consisted of :-

5.1.1 Ground exploration, on the grid, which included line cutting and pegging, soil sampling, ground magnetics; a VHEM survey (abortive, due to instrument malfunction).

5.1.2 Drilling two diamond drill holes on Stanley Reward totalling 464 m. These are numbered 7914N1 (=SR5) and 7914N2 (=SR6) and were drilled on geochemical-magnetic anomalies located the previous year in hornfelsed biotised shales.

5.1.3 Testing of 21 airborne detected H400 E.M. anomalies within or near the grid by soil and drainage sampling and ground magnetics (a further 44 E.M. anomalies away from the Stanley Reward Grid were checked by geochemical traverses - see Macnamara, 1976).

5.2 Camp and Establishment

A camp containing up to three Pacminex geologists, one technical assistant, four prospecting assistants, two line-cutters and two drillers was established at Stanley Reward between January-March 1976. Using a Jetranger helicopter, the camp was placed on site in early January. The drill rig was lifted on site in mid-January and demobilized in mid-March.

During the airborne E.M. follow up work, an Enstrom helicopter was used with the pilot based at Zeehan for logistic reasons (fuel, maintainence, etc.).

5.3 Ground Exploration - Stanley Reward Grid

During the period the following work was carried out :-

5.3.1 Line Cutting

The 14 km of grid surveyed the previous year was extended by cutting an additional 19 kms of new grid lines and clearing 1 km of old lines to make a total of 34 km line.

Surveying was again by tape, compass, Abney level, and optical square for offsets.

All lines were marked at 6.25 m intervals to assist magnetometer surveys.

5.3.2 Geology

Notes were made on the geology along cross-lines, usually at the time of soil sampling.

5.3.3 Geochemistry

Approximately 900 samples were collected from the grid - mainly soils plus some rock chips and minor stream sediment samples. These are discussed in section 10 and chemical analyses reported in Appendices II-IV.

Soil samples were collected from 30 cm depth using a mattock except on the low area 4000N-4600N where an auger was used and apparently sampled basement on a few significant occasions (see Table 2).

5.3.4 Ground Magnetics

Most of the grid was covered at 6.25 m intervals except for a few lines near 4000N (ML's 18-20). Readings were corrected back to the main base at 5000N/5000W (62365 gammas), using a number

of sub-bases established by simultaneous reading of stations using two magnetometers (see section 13).

5.3.5 Ground Electromagnetics

A number of surveys were run using a McPhar VHEM model 660 instrument. These proved to be mainly abortive due to instrument fluctuations found on repeating surveys over the same lines. Instrument malfunction was suspected.

5.4 Diamond Drilling

Diamond drilling was done at two sites. Results are reported in section 12 and Appendix V.

5.5 Checking Airborne E.M. Anomalies

A report by Haigh (1975) listed sixty seven (67) airborne detected E.M. anomalies within E.L. 53/70. Twenty one (21) occur near or within the Stanley Reward grid and the most promising have been checked by gridding, soil sampling and ground magnetics.

Of the remaining anomalies outside the grid area, it was decided to check forty-four by geochemical drainage and soil traverses (the remainder are in granite). A light helicopter (an Enstrom) was used to position sampling personnel on site. Results of the geochemical follow up were mainly negative and are reported in Macnamara (1976).

6. THE 1977 EXPLORATION PROGRAMME

6.1 General

The main aim of the programme was to check a number of soil geochemical anomalies indicated by the 1976 programme - particularly an anomaly at 4500N/4825W indicated in 1976 by augering to 1.5 m depth beneath a mud/boulder flat. Ground E.M. and magnetic surveys were also planned in order to locate on the ground and check airborne E.M./magnetic anomalies, and correlate E.M./magnetic trends thus providing data to assist mapping and correlation.

6.2 Camp and Establishment

Using a Jetranger helicopter for the shift, a camp was established at Stanley Reward in January 1977. Two geologists and three prospecting assistants carried out a programme of soil augering, mapping, ground E.M. and radiometric surveying and magnetometer traversing over the Stanley Reward grid. A general outline is set out below. Most of the detailed data will be discussed in a subsequent report, but an up to date map showing ground magnetic profiles is included in this report.

6.3 Exploration - Stanley Reward Grid

The following work was completed during January-February 1977.

6.3.1 Surveys

Lines ML 18-20 were pegged at 6.25 m intervals in preparation for magnetometer surveys.

A number of discrepancies in the previous years surveys were checked by tape, compass and Abney surveys and also by aerial photo plots for some long lines. Results of the survey are incorporated in DWG's K553-3 and 4.

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This work will enable airborne E.M./magnetic traverse lines, plotted on mosaics to be more readily related to the pegged grid and thus enable better positioning of airborne detected anomalies with respect to ground surveyed anomalies.

6.3.2 Geology

The Livingstone Creek Tin Gossan and the Stanley Reward Gossan were mapped in greater detail. Geological logging of augered soil samples from geochemical traverses was also done. Logging of holes augered into the main alluvial flat east of baseline 5000W detected in places fragments of hornfelsed dolomite occurring as tremolite, wollastonite etc. calc-silicate rocks. Sometimes these could be related to a base at the bottom of the auger hole whose nature indicated the calc-silicate fragments were probably in situ. In other cases, the fragments may have been displaced slightly (eluvial) - their soft nature indicated they were unlikely to have been transported as far as the associated, apparently overlying gravels composed of harder siltstones, granite etc. cobbles.

6.3.3 Geochemical Prospecting

Approximately 200 soil and rock chip samples were collected in the vicinity of the various soil geochemical anomalies indicated in 1976.

As 1975 orientation work in the vicinity of the two tin-copper gossans indicated that the -80 mesh fraction of adjacent soils were anomalous in Sn, Cu, Zn etc., the soil samples collected in 1977 were sieved as usual to -80 mesh. This fraction was then forwarded for chemical analyses.

Initial results on the -80 mesh soil fraction confirmed a strong tin-copper anomaly on lines 4500N and 4550N around 4800W-4825W. The anomaly has a weaker expression on lines 4600N and possibly 4400N (see Table 2). Subsequent panning of some of the remainder of the original soil samples indicated coarse (+80 mesh) cassiterite in some samples adjacent to the -80 mesh anomalous samples. For this reason 60 samples in the vicinity of, and straddling, the -80 mesh anomaly were sieved to -20 mesh and analysed for tin, copper, zinc, etc. Initial results indicate the +20 mesh fraction shows a wider distribution of tin than the -80 mesh fraction but that Cu, Zn, Pb etc. values may be less strongly shown. Full details will be outlined in a subsequent report when all chemical analyses are to hand.

Field work confirmed that the tin anomaly on line 4400N between 5687W - 5637W (Table 2) is associated with alluvial flood bank material of the Stanley River.

Additional rock chip samples were collected from the Livingstone Creek and Stanley Reward Tin Gossans.

6.3.4 Ground V.L.F.-E.M. and Scintillometer Surveys

Using a Geonics E.M. 16 (Ronka) unit and North-West Cape Transmitter, a ground E.M. survey was completed over the grid between 4000N and 6600N.

A scintillometer was read at the same time. Detailed results will be reported in a subsequent report, but initial indications are that the E.M. 16 unit showed some response to the two gossans at least. Scintillometer results do not appear very useful.

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6.3.5 Ground Magnetics

Using a Geometrics G-816 Proton Total Force Magnetometer (as in previous years), lines M1 18-20 were surveyed. This completed coverage on the grid. Results are discussed in Section 13.

TABLE 1

ROCK UNITS : STANLEY REWARD GRID

AGE	UNIT NAME	SYMBOL	ROCK TYPE
Quarternary	-	Qra	Alluvium - button grass, mud flats
	-	Qrg	Gravels
	-	-	Limonite bodies :- "gossans" etc.
Tertiary	-	Tg	High level gravels
Devonian	Meredith Granite	G	Granite (G), with quartz porphyry (Gqp), diorite (Gd) etc. phases.
Cambrian	Crimson Creek Formation	A	Green and purple mudstones, tuffs, basic volcanics, volcanoclastics, greywackes etc. - generally deeply weathered to a khaki clay soil.
	"Marker Sequence"	M	(Inferred): ideally a 50-150 m thick sequence with magnetic upper and lower chert horizons separated by dolomite (its presence is inferred from magnetometer traverses across an area obscured by Crimson Creek Formation talus).
	"Dolomitic Sequence"	D	Dolomitic carbonate-chert-shale (low lying area immediately above the Conah Quartzite and Slate).
Cambrian ?	Conah Quartzite and Slate	N	Top units are ridge forming finely bedded sericitic quartzite siltstones separated by (?) shale bottomed valleys. (Including black shales and siltstones).

7. GEOLOGY

7.1 The geology in the gridded area, in general, conforms with the sequence outlined by Blissett (1962a) and Newnham (1975).

The main rock units are shown on DWG's K555-3 and 4 and are outlined in Table I

7.2 Within the gridded area, overall strike direction is around 310° M north of line 4800N. Passing southwards it tends to swing to around 290-300° M. Most dips seen are 70-80° NE.

7.3 On DWG's K555-3 and 4 are shown rocks cropping out to the west of the Livingstone Creek valley flat and the low lying extension of it to the SE across the Stanley River to the E.L. boundary. These outcrops are within the Oonah Quartzite and Slates. They form a series of narrow strike ridges and valleys of parallel trend. The uppermost unit appears to be the first sericitic siltstone quartzite ridge to the west of the above mentioned "button grass" flat, commencing at the change in slope rising westwards from the flat. Oonah Quartzite and Slate is indicated by the following criteria :-

1. Visual evidence - the rocks are similar to Oonah Quartzite and Slate elsewhere.

2. Airborne and ground magnetic signatures are characteristically "flat" in this western zone as they are elsewhere over the Oonah unit.

3. Base metal geochemical responses on these rocks are also low and "flat" (see Appendices I-IV).

7.4 On the eastern side of the above mentioned topographic low the ground rises up fairly steeply. Here granite occurs in the northern part of the grid while in the south the eastern border of the low is flanked by rock units which weather deeply to a fairly uniform khaki clay. These rocks compose the Crimson Creek Formation. It is recognisable by :-

1. Visual evidence - by comparison with weathered versions of the formation elsewhere which yield a heavy khaki clay soil also.

2. The typically high and rapidly varying-across strike magnetic signature on airborne and ground magnetic traverses.

3. High and erratic values for copper, lead, zinc and bismuth in soil samples.

7.5 Passing northwards along strike, the Crimson Creek Formation is gradually transgressed upon by the Meredith Granite which apparently replaces it completely north of line 5100N. By 6700N, the granite has completely transgressed across the transitional sequence which forms the topographic low between the typical Crimson Creek Formation and the Oonah Quartzite and Slate. At 6700N the granite lies in contact with sericitic silty quartzite of the "Oonah Formation" (see also DDH LCD3 - DWG 1982).

7.6 Renison Limited have been exploring the Oonah-Crimson Creek Formation contact between E.L. 53/70 and Renison Bell for a number of years. Newnham (1975) has reported on the results of some of this work. He has drawn attention to the characteristic magnetic-geochemical response from the Oonah Quartzite and Slate and the Crimson Creek Formation mentioned above. In addition he

has described briefly certain sections of the (approximately) 150 m thick "Marker Sequence". Besides carbonates, the sequence includes a magnetic upper and lower chert horizon which have been traced northwards almost to the boundary of E.L. 53/70 by Renison. Within the Stanley Reward Grid, the "Marker Sequence" has not been recognised at outcrop. Ground magnetic profiles, near the E.L. border (see DWG's K553-5 and 6) suggest it occurs on the eastern side of the main topographic low. Here it is apparently concealed by terrace gravels and possible slump material from the steep slopes of the deeply weathered clayey Crimson Creek Formation rocks. Passing northwards from the E.L. border the magnetic signature of the "Marker Sequence" is complicated, probably by structural deformation (folding, faulting) and also by the contact aureole of the granite.

7.7 Diamond drill hole 7914N1 (DWG 1971) shows the best stratigraphic section seen to date across part of the carbonate sequence. However crenulation folding (slumping ?) is very common in the drill core, raising the possibility of repetition of the same horizon along the course of the drill hole. Speculatively, the upper chert and carbonate beds intersected around 60 m depth could be part of the "Marker Sequence".

7.8 Elsewhere on the grid, between lines 4000N and 4600N and towards the western part of the mud-covered boulder flat, carbonates encountered while augering could be equivalents of the Renison No. 2 and No. 3 Carbonate beds.

8. MINERALISATION

8.1 To date the following main mineralized zones have been encountered (see Table II):-

8.1.1 Livingstone Creek Tin Gossan

8.1.2 Stanley Reward Tin Gossan

8.1.3 "45N/48W" Anomaly.

Geochemical aspects of these anomalies are discussed further in Section 9 but all three exhibit a strong tin-copper association. Table II lists the major and minor tin anomalies found to date and the relevant indicative geochemical results which are also listed in full in Appendices I to III.

8.2 The Livingstone Creek and Stanley Reward Tin Gossans exhibit limonite replacement of calcium skarn minerals. Both are apparently after contact metasomatic-type deposits contiguous with the granite.

8.3 The "45N/48W" Anomaly is apparently not so intimately related to the granite, although hornfelsing is strong in nearby rocks (Curtis, 1975) and calc-silicate fragments occur at depth in auger hole samples which define the anomaly. The anomaly needs costeaning below its boulder terrace cover to be certain, but appears to be related to mineralisation in country rock carbonate beds occurring away from an obvious granite contact (unlike the two gossans above). On line 4550N at 4830W, the roots of a large fallen tree have brought to the surface angular blocks of weathered limonitic-veined calcareous shales which chemical analyses indicate contain +4,000 ppm Sn and Cu.

The anomaly may occur in the equivalent of the No. 2 or No. 3 Carbonate horizon of the Renison Bell Mine which are described by Patterson (1976).

9. GEOCHEMICAL ORIENTATION WORK

9.1 The -80 mesh fraction has been used exclusively for chemical analyses of soil and creek sediment samples listed in this report. Any rock chip samples were of course pulverized before chemical analysis.

9.2 Initially, in 1975, for orientation purposes, 60 samples were checked by multi-element chemical analyses. They included major and minor drainage samples below gossanous areas, and soil and rock chip samples from, or adjacent to, gossans. Soil samples were taken at up to 30 cm depth with a mattock.

9.3 None of the -80 mesh sediment samples from the (limited number of) drainages with running water indicated anomalies (eg. 600011 M near 6500N, adjacent to gossan). However, visible limonitic gossan float originating from known gossan outcrops could have been used as a sampling medium. This suggests also that a coarser fraction of sediment might indicate tin anomalies but this has not been checked. Between 4800N and 5200N some minor depressions (without running water), mainly below mineralised zones, yielded anomalous responses with respect to tin, copper, zinc etc. These are associated with the Stanley Reward Tin Gossan. The anomalous samples could have received contributions from dumps associated with old test pits and costeans in or near the gossan.

9.4 The three lines listed below were tested by orientation soil, drainage and rock chip sampling :-

/....

Line	Appendix I Sample No.	Tin Gossan	Pacminex Dwg. No.
5100N	600230-241	Stanley Reward	1985
5200N	600242-248	Stanley Reward	1984
6480N	600300-311	Livingstone Ck.	1983

9.5 The following elements were checked in the orientation samples : Sn, Cu, Zn, Pb, Bi, Co, Ni, As, Cd and In. In addition, some samples were tested for Au, W and Mo. All of these elements proved anomalous in soils over gossans on most occasions and varied sympathetically. (see Dwg's 1983-1985). The presence of alluvial flats adjacent to the gossans prevented a proper testing of primary or secondary dispersion patterns in residual soils on wall rocks adjacent to mineralisation.

9.6 The profiles suggest that nickel forms a narrower anomaly than the other elements. Arsenic appears to be somewhat erratic. Tin on lines 5100N and 5200N appear to have a "spotty" distribution. Erratic high values (Sn especially) occur in the altered border phase of the granite adjacent to the gossan. This rock is a greenish grey cellular silicified actinolite rock replacing granite. It has been described in thin section by Curtis (1975) and in appearance is similar to an altered specimen in the Zeehan Museum described as a granite porphyry from Pine Hill near Renison Bell.

9.7 On the whole, the anomaly width shown by each element over a particular anomalous zone is similar. The following elements were therefore chosen

to check the bulk of samples because they represented the expected mineralisation types in the area (Sn-Cu, Pb-Zn) or gave good response in orientation work (Bi). For the type of environment existing on E.L. 53/70, these elements (Sn, Cu, Zn, Pb, Bi) probably cover a fairly wide range of geochemical mobilities, thus offering the chance of detecting anomalies in a number of different sample media such as residual soil, scree, stream sediments etc.

10. GRID GEOCHEMICAL EXPLORATION

10.1 Forty three cross-lines each ranging from a few hundred metres to 1,700 m long have been soil, drainage and rock chip sampled. Most of the samples tested are soil samples, sieved to -80 mesh. Locations are shwon on DWG's K553-3 and 4 and chemical analyses are reported in Appendices I to IV.

10.2 Most soil samples listed in Appendices I to IV were taken with a mattock at maximum depth 30 cm approximately. However, an auger was used in 1976 on the mud/boulder flat east of line 5000W between lines 4300N and 4700N (see Appendix II). If initial testing with a mattock did not indicate a boulder base above 30 cm depth, the hole was continued with auger. On many occasions the auger lifted calc-silicate fragments from the bottom of the hole, mixed up with mud and gravels. In many cases the material was probably in-situ or locally derived.

10.3 The augering extended considerably the known area over which dolomites occur.

10.4 In addition, the deeper sampling by the auger located an anomaly (anomaly "45N/48W") which had originally been indicated as only a very weak anomaly by the shallower (30 cm) soil sampling on line 4550N the previous year. This is illustrated by comparing the 1975 30 cm deep results shown by samples 600183-187 (Appendix I page 5) with those auger samples taken in 1976 from the same area at greater depth on line 4550N between 4900W and 4800W (Appendix II, page 10).

Anomaly "45N/48W" is concealed by mud and boulder terrace material, but is a residual anomaly at

TABLE II

TIN GEOCHEMICAL ANOMALIES

ANOMALOUS ZONE	LINE (NORTHING)	CO-ORDINATES (WESTING)	GEOCHEMICAL RESULTS IN APPENDIX	PAGE	COMMENTS
LIVINGSTONE	-	-	-	-	Limonite gossan outcrop
CREEK	6480N	5029W-5073W	I	8	Samples 600300-307 } highly anomalous Sn-Cu values
IN GOSSAN	6550N-6200N	5055W-5124W	III	1	Samples 600408-447 }
STANLEY RENARD	-	-	-	-	Limonite gossan outcrop
IN GOSSAN	4800N	4825W	I	5	Sample 600207: 3,040 ppm Sn, 94 Cu, 198 Bi, Alluvi
	4900N	4850W-4875W	II	12	2,000 ppm Sn, 75 ppm Cu; Alluvials - old workings
	4995N	4766W	I	6	600214-215, 600314;800 - 4,000 ppm Sn - in situ sh
	4993N	4762W	II	13	3500 ppm Sn, 38 ppm Cu - in situ shale
	5000N	4790W-4800W	I	6	600221-222: 220 - 4,000 ppm Sn
	5100N-5200N	4750W-4900W	I	6	600233-246: to +4,000 ppm Sn
	5150N	4854W	II	13	200 ppm Sn, 35 ppm Cu
	5237N-5350N	4849W-4863W	II	14	4,000 ppm Sn, 350 ppm Cu
45N/48W"	-	-	-	-	Beneath a mud/boulder alluvial flat
OMALY	4400N	4770W	II	7	80 ppm Sn, 10 ppm Cu - taken too shallow? (0.2 m)
	4500N	4820W	II	9	320 ppm Sn, 56 Cu, 200 Zn beneath mud
	4550N	4800W-4825W	I	5	Samples 600183-187 show very weak Sn, Cu, Zn anomalies
	4550N	4815W-4868W	II	10	Sn +4,000 ppm, Cu +4,000 ppm
	4600N	4825W	II	10	140 ppm Sn, 70 Cu, 115 Zn
THER (WEAK) OMALIES (i)	4000N	5762W	II	3	200 ppm Sn, 9 ppm Cu - bank alluvials, near Stanley River.
(ii)	4200N	4250W	II	5	180 ppm Sn, 70 ppm Cu : east edge of E.L. 53/70
(iii)	4400N	4225W	II	8	60 ppm Sn, 60 Cu : edge of E.L. 53/70 (possibly joins with (ii) above?).
(iv)	4400N	5687W-5637W	II	7	Alluvials - Stanley River flood banks.

least at 4550N/4830W (Appendix II, page 10) where roots of an overturned tree have brought to the surface weathered limonitic dolomitic shale containing +4,000 ppm Sn and +4,000 ppm Cu. This anomaly was confirmed and expanded by check augering during the early 1977 programme, the results of which will be reported on in greater detail in a subsequent report.

10.5 Table II lists a number of other weak tin anomalies which may be worth checking further by (say) deep augering. Other elements showing anomalous values occur in some of the remaining samples, listed in Appendices I to IV. These locations are not listed on Table II but may be worth checking also. They appear to have a lower priority than Table II anomalies.

10.6 Visual scanning of values confirms a general lithogeochemical difference between soils collected from the Oonah Quartzite and Slates and those from overlying units (ie. the dolomites, shales etc under the "button grass" flats and the khaki clay weathering Crimson Creek Formation units east of the main boulder/mud flats). Oonah Quartzite and Slate background values are generally less than 10 ppm for Cu, Zn, Pb, and Bi, although some interbedded (black?) shales have higher values, apparently on a par with the overlying units. These overlying units have Cu, Zn, Pb and Bi values between 10 and 50 ppm with average values towards the mid range. There are no obvious differences apparent to date in the background values of the various individual units overlying the Oonah Quartzite and Slates but this aspect needs further study. As the Crimson Creek Formation sub-units are strongly weathered to an apparently uniform khaki clayey soil, lithogeochemical differentiation by soil sampling could be useful for structural correlations from line to line if sub-units proved to have distinctive lithogeochemical character.

TABLE III

DRILL HOLE LOCATIONS

Drill Hole No.	Grid Co-ordinate		Collar Inclination	Average Inclination	Hole Depth (m)	Direction
	Northing	Westing				
LCD 1	6481N	5010W	-55°	-54°	70.1	219°M
LCD 2	6490N	5032W	-40°	-41°	39.9	244°M
LCD 3	6516N	5112W	-65°	-66°	46.3	056°M
SRD 4	4906N	4868W	-45°	-45°	142.3	137°M
7914N 1 (=SRD 5)	4999N	4721W	-45°	-50°	274.8	218°M
7914N 2 (=SRD 6)	4911N	4619W	-45°	-45°	199.5	218½°M

11. DIAMOND DRILLING : 1974

11.1 Pacminex drilled four diamond drill holes totalling 299 m in 1974, and two holes totalling 464 m in 1976, i.e. 763 m in all.

In order of drilling these have been numbered :- LCD 1, LCD 2, LCD 3, SRD 4, 7914N1 (=SRD 5) and 7914N2 (=SRD 6). The LC and SR designation refer to Livingstone Creek and Stanley Reward respectively. The later system used (7914N) is a Pacminex regional system.

Drill hole locations and survey data are shown on Table III.

Geological logs and assay data covering the four holes drilled in 1974 are recorded in Macnamara (1974). Hole positions are shown on DWG's K555-3 and 4 in this report.

11.2 The section of the Livingstone Creek Tin Gossan tested by holes LCD's 1-3 is shown on DWG 1982. No section drawing was made for SRD 4 which apparently remained in the one dolomite unit for its entire length.

11.3 As shown on DWG 1982, LCD 1 (70.1 m) passed from gravels into granite without intersecting mineralisation. LCD 2 (39.9 m) intersected a total of 12.5 m of 0.35% Sn and 0.1% Cu in limonitic "gossan" between 4.4 m and 19.0 m depth. The limonitic material was cut by a 1.6 m section of granite at 7.9 m depth.

LCD3 (46.3 m) did not intersect mineralisation and passed from hornfelsed sericitic siltstone quartzite into granite at 31.3 m depth.

Potential of the Livingstone Creek Tin Gossan was shown to be limited on the section drilled. Potential remains

open to the south along strike and down plunge.

11.4 SRD 4 (142.3 m) was sited to intersect a dolomite occurrence reported by Waterhouse (1914) to have lead-zinc associated and which occurs beneath the "button grass" covered boulder terrace. The dolomite had been exposed by alluvial tin mining operations at the time of Waterhouse's inspection but is now covered again by boulders and its exact location could not be pinpointed on the information available. As the helipad at 5000N/4900W was the only nearby readily available drill pad on the "button grass" mud flat it was decided to collar from here and drill towards the reported dolomite. (A 1 kg lump of galena was subsequently found by the writer on a boulder dump on line 4900N at 4827W in 1976).

SRD 4 (142.3 m) remained in the same (fairly pure) dolomite unit after passing through 3.1 m of boulder terrace at the collar. Crenulation (slumped?) banding at 15-20^{o} to the core axis indicated the hole was drilled in a direction close to the strike of the dolomite. Traces of sphalerite were seen. At 138.6 m depth, 0.3 m of 0.18% Sn was intersected in a black magnetite skarn section.

12. DIAMOND DRILLING : 1976

12.1 Two diamond drill holes, totalling 464 m, were cored between January-March, 1976. Geological logs and assay data are attached (Appendix V). Hole positions are shown on Table 3, DWG's K553-4 and cross-section DWG's 1971 and K553-7.

12.2 DDH 7914N 1 (SRD 5)

12.2.1 This hole, on line 5000N, was sited to test possible southward extensions of the Stanley Reward Tin Gossan which crops out between 5100N and 5300N. Geology along the line of the gossan is concealed by talus and boulder terrace material on lines 5100N, 5000N and 4800N (the only adjacent lines cut at the time of drilling).

Some weak colluvial tin anomalies of doubtful significance, up to 180 ppm Sn, occur on line 5100N (see Appendix I, page 6).

12.2.2 On line 5000N, at 4766W, a number of in-situ hornfelsed biotitized pyritic shale samples contain 4,000+ ppm Sn (samples 600214-222, Appendix I, page 6). These results are plotted on DWG 1971 which also shows the I.P./resistivity, ground magnetics and geological data available just prior to drilling. I.P. response is weak but resistivity and magnetic responses are strong in the vicinity of the tin anomaly at 4766W. Sparse outcrop information indicated a steep easterly dip and magnetics and resistivity tended to confirm this dip direction.

12.2.3 Cross-section DWG 1971 shows the following lithologies in DDH 7914N 1 :-

(i) An upper highly weathered section (to 58.3 m depth) resembling the Crimson Creek Formation argillites/soils seen elsewhere on the grid.

(ii) Five dolomitic beds including three major ones. The top two carbonate beds are separated by a quartz studded mauve chert (which may be related to the "Marker Sequence" of Newnham (1975)). The other carbonate beds are separated by dark biotitic hornfelsed calcareous often strongly magnetic (pyrrhotite and magnetite) siltstones. These probably account for the resistivity-indicated conductors and also for the magnetic peaks on the total field magnetic profile shown on DWG 1971.

(iii) A basal grey-white siltstone hornfels represents a distinct change compared with the dark biotitic siltstone hornfels bands above it. It could have affinities with the Oonah Quartzite and Slates.

12.2.4 DDH 7914N1 did not intersect any major cassiterite-sulphide concentrations. The surface geochemical anomaly at 4760W to 4790W might be represented by the limonite recovered at 50 m depth in the hole but chemical analyses for tin etc. are low for this section. Loss of values may have occurred due to the poor (less than 50%) core recovery in the first 55 m of drilling.

12.2.5 The 46 m section of dolomite between 104 m and 150 m depth averaged a constant 160 ppm Sn but the significance of this high background is not apparent. There are no associated higher background values for Cu, Zn, Pb or Bi. The high background may have some zoning significance.

12.3 DDH 7914N2 (=SRD6)

12.3.1 Attention is drawn to DWG K553-7 which shows drill hole 7914N2, a magnetic profile and the available local geology along the section drilled on line 4900N.

12.3.2 The hole was sited to check the following aspects :-

(i) The contact between (or near) the granite and the country rock for contact metasomatic mineralisation.

(ii) A deeper non-weathered extension of the weathered zone of poor recovery in the top 60 m of DDH 7914N1 which had tin values at the surface on line 5000N.

(iii) Possible lead-zinc mineralisation around 4900N/4827W where a 1 kg lump of galena had been located amongst gravel dumps presumed to originate from the base of the boulder terrace during former alluvial mining operations.

(iv) The possibility that the strong magnetic anomaly centred at 4900N/4775W was related to magnetic massive cassiterite-sulphide mineralisation.

12.3.3 As line 4900N had been cut only a few weeks prior to the drilling, no geochemical sampling results were available. Subsequent 30 cm deep soil sampling, using a mattock, indicated that the gravels were so extensive and deep that even augering was unlikely to penetrate down to in situ soils or rock.

12.3.4 Cross-section DWG K553-7 shows the lithologies encountered by DDH 7914N2. The hole passed out of granite at 58 m depth into a dark biotitic siltstone hornfels. After passing through this band into an alternating series of dolomite-black hornfels-dolomite-black hornfels the hole encountered granite again from 176 m to 189.5 m at which depth it was terminated.

12.3.5 Minor tin mineralization (400 ppm) was encountered over 4 m at 171 m depth in dark green and black magnetite-calc silicate skarn (after calcareous siltstone?) adjacent to the granite.

12.3.6 The irregular nature of the granite contact shown by hole 7914N2 indicates that future holes near the granite might need to be directed towards the contact (ie. towards the east) even though this is the general dip direction of sediments on the grid.

13. GROUND MAGNETIC SURVEYS

13.1 Aeromagnetic contoured maps of the E.L. have been presented previously by Haigh (1975).

13.2 Pacminex DWG's K553-5 and 6 show total force ground magnetic profiles along all grid lines. On both the aeromagnetic maps and the ground magnetic profiles, the Livingstone Creek and Stanley Reward Tin Gossans report as strong features. In both cases however the granite is in contact with the gossan and adjacent country rock. It is not certain what contribution is made to the magnetic signature by contact alteration effects due to the granite, such as :-

(i) the formation of magnetite, and perhaps pyrrhotite from pyrite, by hornfelsing of country rock (ie. biotite-magnetite formation in hornfelsed siltstones; magnetite in skarned dolomites), and

(ii) auto-metasomatic changes in the granite itself at the contact (such as on line 5300N) which again apparently releases magnetite.

13.3 It is presumed that contact aureole effects, although present, have not strongly altered the primary magnetic signature of the sediments and volcanoclastics near the E.L. border around line 4000N. No outcropping granite is known to occur nearby. These southern magnetic profiles can tentatively be regarded as the "normal" response of the sedimentary units present on the grid.

13.4 Passing northwards from line 4000N, the granite encroaches further and further westwards at outcrop (and at depth?). Thus contact alteration minerals probably tend to influence the signature increasingly passing from south to north along the grid.

13.5 Crenulation folding seen in drill core, an apparent widening out across strike of the dolomitic units north of line 4000N, plus outcrop observations, indicate folding could be strongly developed in places. Folding would tend to complicate the magnetic signature by causing repetitions, averaging effects etc on magnetic profiles.

13.6 Faulting is also present and causes displacements of magnetic signature between adjacent lines or other complications to the profile. For instance the Livingstone Creek Tin Gossan is obviously faulted between lines 6400N and 6500N and displacement of the magnetic signature between these lines reflects this fault. Complications in magnetic signature between lines 5100N and 5000N (east of line 5000W) infer a fault just north of line 5000N.

13.7 In summary then, the following aspects are probably operative on the grid :-

13.7.1 Magnetic profiles on the southern lines reflect mainly the primary regional character of the sedimentary/volcanoclastic units themselves.

13.7.2 Passing northwards, the granite could cause effects due to :-

- hornfelsing of siltstones releasing magnetite and perhaps pyrrhotite.

- skarn formation in dolomitic beds releasing magnetite.

- autometasomatic alteration of the granite releasing magnetite.

13.7.3 Magnetic effects due to any cassiterite-pyrrhotite-magnetite bodies and resulting gossans.

13.7.4 folding - causing repetitions and "smoothing" effects on the profile.

13.7.5 faults - causing repetitions, displacements, etc.

13.8 A comparison of Newnham's (1975) magnetic profiles with those around the E.L. border near line 4000N indicate marked similarity. This suggests that the "Marker Sequence" occurs in this area, but is concealed near the eastern margins of the main alluvial flat by Crimson Creek Formation scree and possibly by slumped soil debris originating on higher ground to the east.

13.9 The tin-copper geochemical anomaly at 45N/48W is associated with a number of magnetic fluctuations which are apparent on adjacent lines also. These require further study and checking for correlation against other types of geophysical response. A detailed study of all geophysical work done to date will be the subject of a later report.

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APPENDIX I

1975 GEOCHEMICAL SAMPLING
LINES 3800N TO 6500N

INDEX

APPENDIX

GRID SAMPLING, STANLEY REWARD GRID,
E.L. 53/70, STANLEY RIVER, TASMANIA

(Assays in ppm)

KEY: M = mud in drainage channels
S = soil samples (approx. 0.2 m deep)
R = rock chip samples
P = partially pan concentrated samples
TS = thin section made
Oonah = Oonah Quartzite and Shale (normally a siliceous "quartzite" siltstone in this area).

Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 001M	X	2	X	6	8	2	X	6	X	0.4	X			5900N/5235W	Creek sand/clay, organic matter.
002P														5235W	As for 600 001.
003R	20	14	10	18	8	18	16	19		0.4	8			5235W	Pyritic siltstone, biotitic hornfelsing (T.S.).
004M	X	2	X	8	X	2	X	1	X	X	4			5160W	Black organic "button grass" drainage.
005M	40	2	X	10	X	2	X	1	X	X	4			5115W	Little Livingstone Creek, sandy, no outcrop.
006P														5115W	As for 600 005.
007M	20	2	2	14	4	2	X	3	X	X	4			5910N/5017W	Livingstone Creek, sandy; granite outcrop.
008P														5017W	As for 600 007.
009P														6680N/5000W	Livingstone Creek, (?)tourmalized granite outcrop.
600 010M	X	2	2	12	X	2	2	2	X	X	X			5000W	As for 600 009.
011M	X	2	4	8	4	2	X	7	X	X	X			6475N/5025W	Livingstone Creek, opposite North Adit (LCD1-3).
012M	X	X	X	10	X	2	X	1	X	X	X			57N/5208W	"Button grass" drainage, 0.5 m wide.
013M	X	2	X	12	X	2	X	1	X	X	X			57N/5156W	"Button grass" drainage, 0.3 m wide.
014M	20	2	X	14	X	2	X	4	X	X	X			57N/5096W	Little Livingstone Creek; sandy.
015M	20	2	4	14	4	2	2	4	X	0.4	X			57N/5045W	Livingstone Creek; sandy.
017M	X	X	X	10	X	2	2	X	X	0.4	X			4475N/5630W	Cruncher Creek near track; 5 m wide, quartzite cobbles. No granite cobbles seen.
018M	X	X	4	10	X	2	2	3	X	X	X			4670N/5500W	Gully on track; black sh-qtzite (Oonah) outcrop.
019M	X	X	X	8	4	2	2	6	X	X	X			4870N/5250W	Gully on track; organic mud.
600 020M	X	X	X	8	4	2	2	2	X	X	X			4930N/5240W	Creek crossing track.
021M	2640	18	14	18	72	4	6	X	X	0.8	8			4965N/4750W approx.	F.g. sandy sediment, draining possible mineralised zone.
022R	80	58	84	30	12									4950N/4715W	Khaki siltstone, limonitic, in Stanley River Bed.
023R	160	12	18	60	28	22	18	23		4.8	28			4658N/4992W	White dolomite, ?silicified; brown metamorphic mineral. 295°M/70°E dip.
024M	X	X	4	8	X	2	X	X	X	X	4			4620N/4995W	Livingstone Creek; sandy; shale outcrop nearby.
025M	20	2	X	8	4	2	2	1	X	X	4			4635N/5005W	Dark grey sand.
026R	X	10	14	18	12	12	10	12		1.2	16			4567N/4960W	Grey-white banded pyritic chert with shaley bands.
027R	40	16	26	24	12	14	14	7		1.2	24			4600N/5010W	Grey pyritic banded chert and cherty shale. (As for 600 026).
600 030S	40	2	8	24	8									L38/5150W	Pale sst. (Oonah), grass roots.
031S	X	2	6	20	8									5175W	As for 600 030.
032S	20	X	6	16	12									5200W	Grey muddy fine Oonah chips, grass roots.
033S	20	X	16	24	12									5225W	Grey and brown clay, grass roots.
034S	X	2	12	16	8									5250W	Grey clay.
035S	X	2	10	14	4									5275W	Qtz. and clay, dark (Oonah?).
036S	X	20	12	28	16									5300W	Grey clay.
037S	X	X	4	10	8									5325W	Sandy, grass roots.

Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 038S	X	2	8	16	8									L38/5350W	Black swamp clay.
039S	20	X	4	10	8									5375W	As for 600 038, and Oonah pebbles.
600 040S	X	X	4	14	8									L38/5400W	Dark swamp sand.
041S	X	X	6	14	8									5425W	As for 600 040.
042S	20	X	6	14	8									5450W	As for 600 040.
043S	X	4	8	14	8									5475W	As for 600 040, and clay.
044S	X	6	6	14	4									5500W	As for 600 043.
045S	X	4	6	22	4									5525W	Grey, black swamp clay and roots.
046S	X	2	6	20	8									5550W	As for 600 045.
047S	X	6	12	24	4									5575W	As for 600 045.
048S	60	12	76	50	12									5600W	Brown limonitic clay.
049S	40	10	32	36	16									5625W	Red brown clay soil.
600 050S	X	X	8	16	8									5650W	Grey clay and (Oonah?) pebbles and roots.
051S	20	X	8	20	4									5675W	Pale grey, sandy clay.
052S	X	X	10	10	8									5700W	As for 600 051, and roots (swamp?).
053S	40	62	62	36	20									L4000N/4500W	Dark brown clay and red brown limon. slst (Sh?).
054S	20	60	58	34	20									4525W	As for 600 053.
055S	20	44	42	30	16									4550W	As for 600 053.
056S	20	30	34	28	16									4574W	As for 600 053.
057S	20	22	30	28	16									4600W	As for 600 053, and red brown limonite patch.
058S	20	22	28	30	20									4625W	As for 600 053.
059S	40	18	26	26	16									4650W	As for 600 053.
600 060S	40	40	34	32	16									4675W	As for 600 053.
061S	60	44	66	30	24									L4000N/4700W	As for 600 053, and dark brown cherty (?) shale pebbles.
062S	40	30	52	24	16	14	38	12	X					4725W	As for 600 053, and dark brown shale with silic. limonite coatings.
063S	X	X	8	10	8									4750W	Grey sand soil, sst. and black oolitic chert in a white matrix.
064S	X	X	6	12	8									4775W	Dark grey sandy soil and (?)Oonah pebbles.
065S	X	X	4	8	8									4800W	Pale grey clayey soil (=? shale).
066S	20	2	4	10	8									4825W	As for 600 065.
067S	40	2	4	16	12									4850W	As for 600 065.
068S	20	4	4	8	8									4875W	Pale grey clay and white? Oonah slst. pebbles.
069S	20	X	4	4	4									L4000N/4900W	As for 600 068, and sericite.
600 070S	20	X	6	14	8									4925W	Grey clay and (?) Oonah pebbles.
071S	X	2	4	14	8									4950W	As for 600 070.
072S	20	X	4	10	4									4975W	As for 600 070.
073S	X	X	2	12	8									5000W	Dark grey clayey sand and (?)Oonah pebbles.
074S	X	X	4	12	4									5025W	Dark grey clay (swamp).
075S	X	X	6	16	4									5050W	Dark grey sandy clay and (?Oonah) pebbles.
076S	X	X	4	10	8									5075W	As for 600 075.
077S	X	4	6	16	8									5100W	As for 600 075.
078S	20	2	4	16	8									5125W	As for 600 075.
079S	20	6	6	30	8									5150W	As for 600 075.

Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 080S	X	2	8	24	8									L4000N/5175W	Dark grey clay (swamp) and (?)Oonah pebbles.
081S	X	2	8	28	4									5200W	As for 600 080.
082S	X	2	8	24	8									5225W	Grey sandy clay and Oonah pebbles.
083S	X	X	6	20	8									5250W	As for 600 082.
084S	X	X	6	28	8									5275W	Grey clay and grey shale chips.
085S	X	X	6	30	12									5300W	As for 600 084.
086S	X	X	10	32	4									5325W	As for 600 084.
087S	X	10	8	26	8									5350W	As for 600 084.
088S	20	4	6	18	8									5375W	Grey clay soil and silic. slst. chips (Oonah?).
089S	X	X	6	16	8									L4000N/5400W	As for 600 088.
600 090S	X	X	8	22	4									5425W	As for 600 088, and shale.
091S	X	4	12	20	8	8	6	9	X					5450W	Grey sandy clay (swamp?).
092S	X	6	8	20	8									5475W	As for 600 091.
093S	X	X	2	16	8									5500W	Grey clayey soil and silic. slst. (Oonah) chips.
094S	X	4	6	24	8									5525W	As for 600 093.
095S	X	X	8	26	8									5550W	As for 600 093.
096S	X	2	4	18	8									5575W	As for 600 093.
097S	X	2	10	24	8									L4000N/5600W	As for 600 093.
098S	X	X	8	10	8									5625W	As for 600 093.
099S	60	16	64	40	20									5650W	Yellow-brown clay, limonitic staining in places.
600 100S	20	16	40	38	12									5675W	Pale grey clay, limonitic patches.
101S	X	4	6	50	4									5700W	As for 600 100.
102S	60	2	14	12	8									5725W	Grey clay, roots (swamp?).
103S	40	X	12	20	8									5750W	Grey clay and grey shale chips.
104S	60	32	30	36	16									ML18/ 525E	Khaki clay (shale?) soil.
105S	60	36	30	40	16									500E	As for 600 104, and red brown cherty (?) shale.
106S	20	6	10	16	8									475E	Grey sandy silt (swamp?).
107S	20	8	20	20	4									450E	Dark brown organic material (swamp) only.
108S	X	X	4	10	8									425E	Pale grey clay and roots (swamp?).
109S	X	2	6	14	4									400E	Dark grey sandy soil (swamp?).
600 110S	20	2	4	12	8									375E	Pale grey clay and roots.
111S	X	4	8	22	8									350E	Brown clay soil.
112S	40	10	14	22	12									325E	As for 600 111.
113S	20	4	6	10	8									ML18/ 300E	Dark grey organic clay, roots (= swamp?).
114S	X	X	6	12	8									275E	Grey clay and slst. chips (Oonah?).
115S	X	X	6	10	4									250E	Grey sandy clay, roots.
116S	X	X	6	10	X									225E	As for 600 115.
117S	X	X	10	8	4									200E	Black organic clay, white (?) Oonah chips (swamp).
118S	20	X	4	10	4									175E	Dark grey sandy clay (swamp).
119S	X	X	4	8	4									150E	As for 600 118.
600 120S	20	X	6	10	4									125E	As for 600 118.
121S	X	X	4	10	4									100E	Black sandy clay (swamp).
122S	20	X	6	10	4									75E	Dark grey sandy clay, Oonah chips.

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Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 123S	X	X	6	14	4									50E	As for 600 122.
124S	40	X	4	10	12									25E	As for 600 122.
125S	40	4	6	12	8									0E	As for 600 122.
126S	20	36	34	38	20									00-	Khaki clay with brown limonite spots.
127S	X	X	4	10	4									ML19/ 500S	Black organic sandy clay roots (swamp).
128S	60	X	4	10	8									475S	Dark grey sandy clay, Oonah chips.
129S	X	2	4	10	4									450S	As for 600 128.
600 130S	20	X	6	8	4									425S	As for 600 128.
131S	40	2	6	12	X									400S	As for 600 128.
132S	40	X	2	10	4									375S	As for 600 128.
133S	20	X	4	10	4									350S	As for 600 128.
134S	20	X	4	12	8									325S	Grey sandy clay (= Oonah?).
135S	20	2	4	12	12									300S	Grey-dark grey clay, roots.
136S	40	2	4	12	4									275S	As for 600 135.
137S	40	X	4	10	8									250S	As for 600 135, and (swamp?).
138S	20	X	6	8	8									225S	As for 600 135.
139S	X	2	4	12	X									ML19/ 200S	As for 600 135.
600 140S	20	X	4	8	8									175S	As for 600 135.
141S	X	X	4	10	4									150S	Grey sandy clay, brown shale chips.
142S	X	2	4	12	8									125S	Grey sandy clay.
143S	40	2	6	10	4									100S	Pale brown clay, roots.
144S	40	4	6	12	8									75S	Medium grey clayey sand.
145S	20	44	28	34	8									50S	Brown clay, greenish grey "slst" (volcanic?), without quartz.
146S	60	56	54	40	12									25S	Khaki clay and blue grey f.g. (?) slst. (no qtz).
147S	60	42	48	36	16									ML19/ 00S	Dark khaki clay.
148S	60	44	48	40	16									25N	As for 600 147.
149S	X	44	46	40	8									50N	As for 600 147.
600 150S	60	56	52	46	12									75N	Dark brown clay, red limonitic patches.
151S	40	46	46	40	12									100N	Khaki clay, red limonitic patches.
152S	X	40	42	36	12									ML20/ 25S	Khaki clay, red limonitic patches.
153S	60	52	56	40	16									00-	Khaki clay.
154S	40	46	58	38	20									25N	As for 600 153.
155S	20	42	60	38	16									50N	As for 600 153.
156S	20	44	52	36	12									75N	As for 600 153.
157S	20	50	48	40	12									100N	As for 600 153.
158S	X	52	46	42	16									125N	As for 600 153.
159S	20	50	50	40	20									150N	As for 600 153.
600 160S	40	60	58	42	16									175N	Khaki clay, d.f.g. granular rock (volcanic hornfels?).
161S	40	60	58	40	16									200N	Khaki clay, dark brown ferruginous (?) Sh. chips.
162S	20	56	58	44	24									225N	Khaki clay.
163S	40	50	58	42	12									250N	As for 600 162.
164S	40	40	50	40	16									275N	As for 600 162.

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Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 165S	20	38	36	36	16									ML20/ 300N	As for 600 162.
166S	20	74	48	40	16									325N	As for 600 162, and limonitic grey-blue shale.
167S	40	76	50	40	8									350N	Khaki clay.
168S	X	76	60	40	4									375N	As for 600 167.
169S	40	86	60	40	12									400N	As for 600 167.
600 170S	20	90	58	44	16									425N	As for 600 167, and red limonitic patches.
171S	60	86	60	32	4									450N	As for 600 170.
172S	20	4	6	8	4									4550N/5175W	Dark grey clay, roots (Oonah?).
173S	20	4	6	8	X									5150W	As for 600 172.
174S	40	4	6	10	4									5125W	As for 600 172.
175S	20	26	20	56	8									5100W	Red brown clay soil, red limonite patches.
176S	X	6	8	14	8									5075W	Grey clay, roots (Oonah?).
177S	20	6	10	14	8									5050W	Grey clay.
178S	X	2	16	14	12									5025W	As for 600 177.
179S	20	2	8	14	8									5000W	Dark grey sandy clay.
600 180S	X	2	10	16	8									4975W	Grey sandy clay.
181S	X	X	10	18	12									4950W	As for 600 180.
182S	20	X	16	28	12									4925W	Pale grey clay, limonite patches.
183S	60	6	14	20	8									4900W	Pale grey clayey soil.
184S	X	4	16	16	16									4875W	Medium grey clayey soil.
185S	60	20	44	20	12									4850W	As for 600 184.
186S	20	46	68	30	8									4825W	Dark grey clay soil, greenish grey shale chips of "agate" chert.
187S	X	96	110	44	8									4550N/4800W	Khaki clay soil.
188S	20	20	56	18	8									4775W	Dark grey soil.
189S	X	50	36	36	8									4750W	Limonitic dark brown clay soil.
600 190S	40	58	54	34	8									4725W	Khaki clay, limonite spots.
191S	20	78	52	54	12									4700W	Dark brown limonitic clayey soil.
192S	40	60	68	36	8									4675W	Dark brown khaki clay soil, roots.
193S	20	56	40	40	4									4650W	Dark brown limonitic clay.
194S	20	44	34	32	4									4625W	As for 600 193.
195S	40	70	44	44	8									4600W	Dark brown limonitic clay, limonite chips (S?=).
196S	40	56	42	38	4									4575W	Dark brown limonitic clay.
198S	40	76	50	44	8									4550W	As for 600 196.
199S	20	70	52	40	8									4525W	As for 600 196.
600 200S	40	76	52	38	16									4500W	As for 600 196.
201S	40	96	56	48	16									4475W	As for 600 196.
202R	60	80	56	44	16									4450W	As for 600 196, and limonitic grey slate, T.S.
203S	40	80	56	40	8									4425W	As for 600 196.
204S	40	82	54	40	12									4400W	As for 600 196.
205S	40	X	8	16	4									4800N/4710W	Grey sandy clay with qtz (granitic in part).
206S	X	4	14	32	8	8	10	28	X					4775W	Pale brown clay, slight limonite, no quartz.
207S	3040	94	28	40	108	14	14	57	X					4825W	Dark organic brown clay ("A"), limonite specks.
208S	X	2	14	14	16									4850W	Pale grey brown sericitic clay (Sh?).

Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 209S	60	6	26	16	8									4800N/4875W	Pale grey brown, limonite specks.
600 210S	60	2	8	14	8									4900W	As for 600 209.
211S	40	2	6	10	8									4925W	Grey soil, qtz rich (=granitic source?).
212S	X	X	6	10	8									4950W	Dark grey with f.g. qtz (= silic. slst?).
213S	20	X	6	8	8									5100W	Pale grey clay.
214S	800	2	6	10	8									4995N/4766W	Coarse quartz and quartz-tourmaline pebbles (= altered granite slope wash).
215S	4000-	78	28	80	128									4994N/4766W	Pale brown "talcose" (sericitic") shale, limonite and biotite specks.
216S	20	X	6	12	4									5000N/4620W	Grey granitic soil.
217S	40	X	6	14	4									4665W	As for 600 216.
218S	60	X	8	12	8									4682W	Brown-grey soil (no quartz).
219S	40	4	10	20	12									4718W	Pale brown slst? limonite specks.
600 220S	40	4	12	12	8									4729W	Grey brown soil, minor qtz, (granitic contribution).
221S	4000+	6	8	10	8									4790W	Grey brown soil with f.g. qtz. (silic. slst).
222S	220	6	10	10	8									4800W	Colluvial limonitic speckled grey (granitic?) sandy soil (0.15 m depth) from tree roots.
223S	20	6	4	8	8									5069W	Pale brown grey qtz rich soil (=granite?).
224S	X	8	4	8	8									5187W	Dark grey clay, organic and Oonah sericitic slst. chips.
225S	X	4	8	10	12	4	4	6	X					5221W	As for 600 224S.
226S	X	4	6	18	12									5250W	Pale brown soil, hard shale chips.
227S	X	4	6	10	4									5275W	Medium grey clay (=Sh?).
228S	X	6	16	34	12									5214W	Limonitic yellow-brown and grey clay (=Sh).
229S	X	4	12	10	12									5310W	Dark grey organic soil and quartz chips (=Oonah?).
600 230S	X	2	2	18	X	4	2	4		X	4			5100N/4675W	Weathered brown granite soil, no cobbles.
231S	40	2	4	10	X	2	2	5		X	4			4704W	Coarse quartz grit, no clay:granite, in situ?
232S	40	X	2	14	X	2	X	1		X	X			4725W	Coarse quartz grit, no clay - qtz ?actinolite. cellular altered granite.
233S	180	2	6	14	4	2	X	5		X	X			4750W	Quartz grit, few fines - granite.
234S	20	2	4	16	4	2	X	4		X	X			4775W	Quartz granitic grit, qtz-actinolite pebbles.
235S	60	X	4	16	12	2	X	7		X	X			4800W	Quartz grit, few fines - granite?
236S	40	6	2	12	X	2	X	4		0.4	X			4825W	Coarse qtz grit, few fines = granite.
237S	20	12	6	12	4	2	X	2		X	8			4850W	Dark organic soil on slope wash soil.
238S	700	52	18	28	24	6	10	1	X	0.8	8			4871W	Alluvial bank of channel 600 239M.
239M	I.S.	160	100	66	32	8	14	1	2.2	1.2	12			4872W	Minor drainage off gossan zone.
600 240S	20	X	X	8	X	2	X	1		X	X			5125W	Grey sediment in "button grass" channel.
241S	X	X	X	10	X	2	X	X		X	X			5154W	Grey soil on siltstone (Oonah?).
242S	360	2	4	6	X	X	X	4		0.4	4			5200N/4825W	Grey quartz grit, little fines; chloritic granite pebbles.
243S	300	X	2	8	X	2	X	9		0.4	X			4850W	Quartz grit, few fines; qtz chlorite altered granite pebbles.
244S	4000+	470	58	50	170	12	10	72		3.6	28			4870W	Soil on gossan.
245S	4000+	480	50	70	200	14	10	13		4	96			4875S	Brown soil, gossan chips, ? shale chips.
246M	600	160	250	30	28	14	54	17	0.2	1.2	16			4900W	Slope wash in drainage channel below gossan.

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Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 247S	X	12	4	24	8	4	X	6		X	8			5200N/4950W	Soft weathered granite, fine and coarse grained ("hybrid").
248S	X	X	X	6	4	2	X	2		X	X			5175W	Grey siltstone soil (Oonah).
249S	X	4	4	10	8									5300N/5200W	Dark brown grey organic soil.
600 250S	X	X	10	6	4	2	2	3	X					5225W	As for 600 249 and biotite veined sericitic slst. (=Oonah) contact alteration.
251S	20	4	12	10	4									4898W	Dark grey quartz rich grit = granite.
252S	20	4	8	14	12									5400N/4925W	As for 600 251.
253S	20	X	8	8	8									5150W	Dark grey soil, Oonah sericitic slst. and quartz-tourmaline fragments.
254S	X	2	4	6	12									5200W	Dark grey organic soil and ?Oonah slst. chips.
255S	20	2	6	8	4									5225W	As for 600 254.
256S	X	2	6	8	X									5500N/5183W	As for 600 254.
257S	20	X	4	10	4									5200W	As for 600 254.
258S	20	2	4	10	8									5225W	Dark grey organic soil.
259S	20	2	4	10	4									5250W	As for 600 258.
600 260S	40	4	4	4	4									5275W	Dark grey sericitc soil.
261S	X	2	4	8	4									5300W	As for 600 260.
262S	20	2	4	12	8									5325W	As for 600 260, with sericitic slst. chips (Oonah?).
263S	X	2	4	6	4									5350W	Dark grey organic soil.
264S	X	2	6	8	4									5358W	As for 600 263 and sericitic slst. chips.
265S	X	2	2	4	12									5375W	As for 600 263.
266S	X	2	2	44	8									5400W	Grey soil and biotitic slst (contact alteration?)
267S	X	X	2	4	4									5425W	Grey soil, biotite alteration to sericitic slst.
268S	X	2	4	8	8									5450W	Grey sericitic slst. and quartz chips.
269S	20	X	2	12	4									5475W	As for 600 268.
600 270S	X	2	4	10	8									5500W	Grey sericitic soil, biotite altered slst.
271S	X	4	22	10	8									5600N/4900W	Dark organic grey soil and quartz grit (= granite source).
272S	20	X	4	8	4									5194W	Dark grey organic soil, sericitic slst chips (=Oonah?).
273S	X	X	4	6	8									5212W	Dark grey organic soil, limonitic sericitic slst chips (=Oonah?).
274S	20	X	4	4	8									5225W	Dark grey oranic soil (=swamp).
275S	X	X	4	4	8									5250W	As for 600 274 plus sericitic slst (=Oonah) swamp
276S	X	X	6	6	12									5275W	As for 600 275.
277S	20	2	4	10	4									5303W	As for 600 275.
278S	20	4	6	6	4									5700N/4900W	Organic quartz rich grit (=granite).
279S	40	2	4	8	8									5227W	Grey sericitic clay.
600 280S	20	4	8	10	8									5255W	Black organic swamp soil.
281R	40	18	22	42	12									5895N/5119W	White soft quartz chlorite kaolinitic (altered?) granite.
282R	X	6	14	20	8									5896N/5022W	As for 600 281.
283S	20	X	4	8	8									5900N/5050W	Black organic soil, biotite altered slst.chips.
284S	20	X	4	10	4									5075W	Black organic sericitic soils.

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Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 285M	20	X	4	8	4									5900N/5100W	As for 600 284.
286S	X	2	6	14	4									5125W	Black organic soil, quartz tourmaline, biotite veined sericitic slst pebbles.
287S	X	X	4	10	8									5150W	Dark brown grey org., sericitic clay soil.
288S	X	X	4	14	8									5175W	As for 600 287.
289S	X	X	4	8	12									5200W	As for 600 287.
600 290S	X	X	4	8	4									5225W	As for 600 287.
291S	20	X	4	8	8									5250W	As for 600 287, plus sericitic slst chips.
292S	X	X	4	10	4									5275W	As for 600 291.
293S	20	X	4	10	8									5287W	Dark brown organic, sericitic soil.
294S	20	2	10	10	8									5300W	Black organic soil (mainly roots).
295S	X	2	4	10	12									5325W	Black grey soil, sericitic slst chips with minor biotite alteration.
296S	40	2	6	12	12									5350W	As for 600 295.
297S	X	2	4	8	8									5375W	As for 600 295, plus quartz.
298S	20	X	2	8	8									5400W	As for 600 297.
299S	20	X	2	10	8									5412W	Black organic soil, sericitic slst chips.
600 300R	3360	150	440	76	120	108	58	85	0.028	6.8	56	80	0.7	6487N/5029W	Gossan - limonitic, radiating crystals? (tremolite?). (Nth Adit).
301R	2560	260	340	46	60	82	32	235	X	6.4	56	50	0.7	6486N/5032W	Limonitic gossan (Livingstone Ck. gossan) (X/35m)
302S	1920	160	190	44	108	40	14	20		4	28			6487N/5037W	Soil on gossan near northern adit. (X/40 m).
303R	2960	40	240	44	92	80	30	49	X	6.4	52	50	0.5	6488N/5045W	Gossan. (X/51 m).
304S	3440	36	54	38	68	10	6	24		2.8	16			6492N/5048W	Dark brown soil on gossan. (X/55 m).
305S	300	26	26	20	16	6	4	1		1.6	4			6495N/5065W	Dark brown and org. soil on gossan. (X/69 m).
306R	3120	160	260	42	60	72	30	59		6.4	48			6495N/5065W	Gossan chips. (X/69 m).
307S	680	8	18	22	12	6	2	9		1.2	4			6500N/5073W	Red-brown soil near gossan (X/82 m).
308S	X	2	X	8	X	X	2	3		X	X			6506N/5085W	Slope wash, quartzite and gossan soil. (X/95 m).
309S	X	X	2	10	4	X	X	3		X	X			6508N/5094W	Dark brown organic soil on siltstone. (X/105 m).
600 310S	X	X	4	10	4	X	X	6		X	X			6512N/5104W	Dark brown organic soil on siltstone. (X/120 m).
311S	X	X	2	8	8	X	X	12		X	X			6512N/5115W	Pale brown soil on siltstone. (X/130 m).
312R	40	300	62	24	8									4550N/4475W	Black aphanite - ?hornfels shale - T.S.
313R														4800N/5100W	Pale grey qtzitic siltstone (Oonah) - T.S.
314R	3200	420	42	130	152									4994N/4766W	Hornfelsed?, pyr. biotitic sh. near Sn horizon (T.S.).
315R	X	10	36	18	8									5000N/5302W	Brown grey cherty laminated(?) sslt/volcanic (Oonah) - T.S.
316R	20	20	22	28	4									5000N/5288W	Pale grey f.g. silicified siltstone, quartz veined (Oonah) - T.S.
317R	20	62	14	24	8	14	32	11	X					5000N/5224W	Black f.g. silicified shaley sslt (Oonah) - T.S.
318R														5100N/5154W	Grey siltstone (Oonah?) - not analysed.
319R	X	18	4	8	4									5100N/4775W	Granite (porphyritic quartz-actinolite contact rock - T.S.).
600 320R	0.95	300	70	46	160	54	24	2500		5.6	44			5125N/4860W	Hornfelsed shale near gossan - T.S.
321R														5125N/4860W	Shaft dump, hornfelsed qtzite, red shale, gossan
322R	1.15	250	72	50	24	68	28	500	X	6	44	120	3	5175N/4860W	Gossan, limonitic banding, trem. shale - T.S.

Sample No.	Sn	Cu	Zn	Pb	Bi	Co	Ni	As	Au	Cd	In	W	Mo	Co-ordinates (m)	Description
600 324R	80	110	120	48	8									5175N/4862W	Green shale west side of gossan, ?hornfels - T.S.
325S	200	104	70	38	8	8	26	15		1.2	12			5175N/4862W	As for 600 324.
326S	100	60	52	30	8	10	30	18		0.8	16			5175N/4863W	Soil on grey green shale.
327R	2720	900	84	66	100	70	30	2450	X	6.4	52	120	3	5200N/4870W	Gossan; limonitic banding, ?tremolite - T.S.
329R	40	12	6	10	16									5200N/5175W	Pink-white weathered slst (Oonah?) - T.S.
600 330R	40	30	20	34	4	16	16	8	X					5300N/5212W	Dark grey banded siltstone (Oonah?), hornfels? - T.S.
331R	40	10	8	20	4	10	6	27	X	0.8	20			5400N/5225W	Limonite speckled grey siltstone (Oonah).
332R	20	42	28	26	8									5500N/5258W	Brown shale (Oonah?) - T.S.
333R	40	14	22	38	8	14	16	10	X					5500N/5224W	1-4 mm banded grey siltstone (Oonah?) - T.S.
334R	X	10	6	150	8									5500N/5325W	Weathered pink-white quartzite (Oonah) - T.S.
335R	20	10	10	12	8									5600N/5214W	Grey siltstone (Oonah) - T.S.
336R														5897N/5275W	Grey quartzite siltstone (Oonah?), sericite - T.S.
337R														ML19/ 25N	Not analysed.
338R														ML20/ 400N	Black aphanite - hornfelsed shale or volcanic - T.S.
339R														ML20/ 250N	Black aphanite - hornfels(?) - T.S.

APPENDIX II

1976 GEOCHEMICAL SAMPLING
LINES 3300N TO 6100N

INDEX

Northing	Westing	Sn	Cu	Zn	Pb	Bi	Ag	Description
3300N	5600W	x	1	4	4	x	0.4	Alluvial flat; dark grey brown (Oonah Formation?), soil, quartz fragments.
	5575W	x	2	4	1	x	0.4	Alluvial; dark black soil (as for 5600W).
	5550W	x	2	4	2	x	0.4	As for 5600W; alluvial "button grass" black mud (Oonah).
	5525W	x	2	6	7	x	x	As for 5600W.
	5500W	x	2	2	4	x	0.2	Light grey brown Oonah siltstone soil; residual or slopewash.
	5475W	x	2	4	5	x	0.2	As for 5500W.
	5450W	x	2	2	2	x	0.4	As for 5500W.
	5425W	x	2	4	2	x	x	As for 5500W.
	5400W	x	2	10	5	x	0.2	Light grey clay (Oonah) - slopewash?
	5375W	x	2	4	3	2	0.2	Grey Oonah slope residual soil.
	5350W	x	2	4	3	2	x	Dark grey brown Oonah - slopewash.
	5325W	x	2	10	3	2	0.2	As for 5350W but alluvial.
	5300W	x	2	2	6	2	0.2	Black organic Oonah soil on flat.
	5275W	x	4	18	10	4	0.2	As for 5300W.
	5250W	x	4	8	5	6	0.2	As for 5300W.
	5225W	x	2	4	4	6	x	As for 5300W.
	5200W	x	x	4	4	4	x	Grey Oonah soil (alluvial).
	5175W	x	1	6	10	4	x	Residual grey soil; silicified Oonah quartzite rubble.
	5150W	x	1	4	7	4	x	Dark organic Oonah siltstone soil.
	5125W	x	2	5	7	8	x	Grey brown Oonah siltstone soil.
	5100W	x	2	4	6	8	x	As for 5125W.
	5075W	x	x	7	4	6	x	As for 5125W.
	5050W	x	2	14	4	8	0.2	Dark organic alluvial (Oonah) soil.
	5025W	x	1	12	5	6	x	Grey Oonah soil.
	5000W	20	3	4	3	10	0.4	Grey Oonah soil - residual.
3400N	5800W	x	2	4	6	2	x	Organic grey Oonah Formation siltstone soil - flat ground.
	5775W	x	1	6	3	2	0.2	As for 5800W.
	5750W	x	2	4	5	2	0.4	As for 5800W.
	5725W	x	1	4	5	4	x	Dark organic Oonah silty soil, boggy soil.
	5700W	x	2	8	6	2	0.2	As for 5725W.
	5675W	x	2	26	6	x	0.4	As for 5725W.
	5650W	x	5	8	6	2	0.6	As for 5725W.
	5625W	x	2	4	5	4	0.4	As for 5725W.
	5600W	x	2	6	6	4	x	As for 5725W.
	5575W	x	2	2	5	x	0.6	As for 5725W.
	5550W	x	2	4	5	x	0.4	As for 5725W.
	5525W	x	2	6	6	2	0.4	As for 5725W.
	5500W	x	1	14	4	x	x	As for 5725W.
	5475W	x	2	8	8	2	x	As for 5725W.
	5450W	x	1	6	5	2	x	Grey brown Oonah silty soil, organic.
	5425W	x	1	8	7	2	0.2	Grey brown Oonah silty soil, organic.
	5400W	x	1	8	5	4	0.4	Grey brown Oonah silty soil, organic.
	5375W	x	3	10	5	4	x	Grey brown Oonah silty soil, on outcrop.
	5350W	x	1	2	2	x	0.6	Grey brown Oonah silty soil.
	5325W	x	2	6	7	6	x	Grey brown Oonah silty soil.
	5300W	x	2	4	6	6	0.2	Grey brown Oonah soil on outcrop.
	5275W	x	1	2	4	2	x	
	5250W	x	2	2	11	2	x	Grey brown Oonah silty soil, on sub-outcrop.
	5225W	x	2	2	5	x	x	As for 5250W.
	5200W	x	1	6	5	2	x	Soil, Oonah silt, grey brown organic.
	5175W	x	2	4	10	4	0.2	As for 5200W, dark organic.
	5150W	x	2	6	5	2	0.2	As for 5200W.
	5125W	x	2	4	4	2	0.6	Dark organic mud (Oonah).
	5100W	x	2	8	5	x	0.4	As for 5125W.
	5075W	x	2	4	4	2	x	Soil, grey brown Oonah silt on outcrop.

Northing	Westing	Sn	Cu	Zn	Pb	Bi	Ag	Description
3400N	5050W	x	2	4	3	2	x	Soil, grey brown Oonah silt, organic.
	5025W	x	1	2	4	x	x	As for 5050W.
	5000W	x	1	2	3	x	x	Soil, Oonah on sub-outcrop quartzite.
3500N	5800W	x	2	22	10	2	0.4	Soil, light grey, on strike of black shale.
	5775W	x	2	10	13	2	0.4	Soil, light grey clayey (shaley siltstone - Oonah).
	5750W	x	2	12	9	2	0.4	Soil, brown Oonah silt.
	5725W	x	2	14	7	2	0.6	Soil, dark brown organic, (Oonah).
	5700W	x	1	2	5	2	0.2	As for 5725W.
	5675W	x	1	4	2	2	0.2	As for 5725W.
	5650W	x	1	2	3	2	0.6	Soil, light grey brown on Oonah quartzite rubble.
	5625W	x	3	6	8	2	0.6	Soil, dark organic, grey clayey.
	5600W	x	3	16	8	2	0.4	Soil, yellowish silt (Oonah) - shale?
	5575W	x	2	6	6	4	0.4	Soil, yellow brown clayey shale (Oonah).
	5550W	x	2	4	4	4	x	Soil, grey brown Oonah, organic.
	5525W	x	1	2	3	2	x	Soil, dark grey brown organic (Oonah).
	5500W	x	2	2	5	x	x	Soil, very dark organic black soil.
	5475W	x	1	6	6	2	x	As for 5500W.
	5450W	x	1	4	3	2	x	As for 5500W.
	5425W	x	2	4	4	2	x	As for 5500W.
	5400W	x	2	4	4	2	0.2	Soil, grey brown Oonah silt.
	5375W	x	1	10	5	2	x	Mud, gully - dark organic.
	5350W	x	2	4	6	x	0.4	Soil, grey brown Oonah silt.
	5325W	x	2	6	8	4	0.4	As for 5350W.
	5300W	x	1	4	8	4	x	As for 5350W.
	5275W	x	24	48	20	12	1.0	As for 5350W (NB: values seem inappropriate).
	5250W	x	2	2	12	4	x	Soil, grey brown (Oonah) silt.
	5225W	x	2	4	21	4	0.4	As for 5250W.
	5200W	x	4	8	14	6	0.8	As for 5250W.
	5175W	x	1	4	6	2	0.4	Soil, grey brown (Oonah) silt.
	5150W	x	1	4	6	2	x	As for 5175W.
	5125W	x	2	8	7	2	0.4	As for 5175W, limonitic.
	5100W	x	4	8	6	4	0.2	Mud, dark organic, black shale fragments.
	5100W	20	6	20	9	2	0.4	R: rock - black shale.
	5075W	x	2	6	35	2	0.4	Soil, grey black (Oonah) silt.
	5050W	x	1	4	2	2	0.2	As for 5075W.
	5025W	x	1	2	3	2	0.2	Soil, grey brown (Oonah) silt.
	5000W	x	1	2	5	2	0.2	As for 5025W.
3550N	(R)5806W	x	5	3	7	2	0.2	R- rock, limonitic silty shale.
3800N	5000W	x	2	4	6	2	0.4	Soil, Oonah Formation grey silt, quartz fragments.
	4975W	x	2	4	4	2	0.4	As for 5000W.
	4950W	x	2	6	4	2	0.2	As for 5000W.
	4925W	x	1	4	3	2	x	As for 5000W.
	4900W	x	1	6	2	2	0.2	As for 5000W.
	4875W	x	1	4	2	4	0.2	As for 5000W.
	4850W	x	1	8	4	2	0.4	As for 5000W.
	4825W	x	2	4	4	2	0.2	Soil, black shale plus Oonah Formation silt soil.
	(R)4825W	x	2	2	6	2	0.2	R - black shale in roots of overturned tree (125°/80°W).
	4800W	x	4	6	7	2	0.2	Oonah Formation, grey brown silt, quartz fragments.
	4787W	x	2	4	5	2	0.2	As for 4800W (side slope).
	4775W	x	4	4	5	2	x	As for 4800W.
	4750W	x	2	4	4	2	0.4	As for 4800W.
	4747W	x	2	4	5	2	0.4	As for 4800W.
	4725W	x	4	20	9	4	0.4	Pale grey brown shale on flat.
	4715W	x	2	4	4	2	0.2	Pale grey brown silt (Oonah Formation) soil.
	4700W	x	2	2	5	2	0.2	As for 4715W.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
3800N	4683N	x	1	8	5	2	0.2	As for 4715W (base of slope) - Oonah?
	4675W	x	2	6	2	x	0.6	As for 4715W.
	4658W	x	1	2	3	2	0.2	Oonah Formation?, grey clay (black shale?) - base of slope
	4650W	x	3	10	5	x	0.4	Yellow brown clay.
	4639W	x	54	44	25	24	1.4	Yellow brown residual clay - Crimson Creek Formation?
	4625W	x	21	68	18	14	1.0	Yellow brown clay.
	4622W	x	48	38	24	14	1.4	As for 4625W.
	4600W	x	31	88	25	10	1.4	Crimson Creek Formation clay.
	4568W	x	60	52	27	20	1.6	Yellow brown clay; dark grey residual shale.
	4566W	x	37	90	27	8	1.4	Yellow brown clay (Crimsom Creek Formation); dark grey f.g. residual shale.
	4550W	x	19	36	22	6	0.8	Crimson Creek Formation clay.
	4525W	x	27	64	18	10	0.8	As for 4550W. (May be 3800N/4545W).
	4545W	x	1	10	3	x	x	Values seem low.
3900N	5000W	x	2	4	7	2	0.4	Oonah Formation grey silt, quartz fragments.
	4975W	x	1	2	4	2	x	As for 5000W.
	4950W	x	2	4	5	2	x	As for 5000W.
	4925W	x	2	4	4	2	x	As for 5000W (side slope).
	4900W	x	2	4	4	2	x	As for 5000W.
	4875W	x	2	2	5	x	0.2	As for 5000W.
	4850W	x	2	4	4	2	0.2	As for 5000W.
	(R) 4850W	x	2	3	3	2	x	Rock - base of slope; Oonah Formation siltstone.
	4825W	x	2	4	4	2	x	Oonah Formation scree? - mud flat.
	4806W	x	2	2	3	x	x	Oonah Formation? on slight ridge; possibly residual.
	4800W	x	5	2	5	x	x	Alluvial flat - Oonah Formation scree?
	4775W	x	3	2	2	x	0.2	As for 4800W.
	4750W	x	2	2	3	x	0.2	As for 4800W (ridge at 4742W?).
	4738W	x	2	2	3	x	0.2	Light grey brown sericite shale soil (Oonah Formation?)
	4725W	x	2	2	3	2	x	Alluvial flat.
	4700W	x	2	2	3	x	x	As for 4725W (Oonah Formation slope wash soil?).
	4687W	x	50	40	32	14	1.0	Yellow brown Crimson Creek Formation clay - residual?
	4675W	x	38	38	28	12	1.0	As for 4687W - residual? (yellow brown Crimson Creek clay).
	4662W	x	43	38	29	14	1.4	As for 4675W.
	4650W	x	37	36	26	16	1.4	As for 4675W.
	4637W	x	43	40	29	12	1.6	As for 4675W.
	4625W	x	47	52	30		1.0	As for 4675W.
	4612W	x	60	60	44	18	1.0	As for 4675W.
	4600W	x	55	64	34	14	1.0	As for 4675W.
	4587W	x	50	54	30	12	1.0	As for 4675W.
	4575W	x	55	62	28	18	1.2	Yellow brown Crimson Creek Formation clay soil.
	4562W	x	52	50	32	12	1.6	As for 4575W.
	4550W	x	50	56	32	14	1.0	As for 4575W.
	4545W	Not received.						As for 4575W.
	4537W	x	46	48	28	16	1.2	As for 4575W with black hornfels fragments.
	4525W	x	44	46	29	12	0.8	As for 4537W.
4000N	5800N	x	1	6	6	2	x	Grey soil, shaley residual.
	5787W	x	1	2	4	2	0.4	Grey residual soil, quartzite and shaley fragments.
	5775W	x	1	2	6	4	x	Grey residual soil, shaley.
	5762W	200	9	10	17	12	0.2	Grey yellow brown sandy soil.
	5750W	x	13	8	14	4	x	Mud - drainage channel.
	5737W	x	2	10	12	8	0.2	Grey residual soil.
	5725W	x	2	14	5	4	x	Grey shaley soil, residual, shale fragments.
	5712W	20	2	4	12	6	0.2	As for 5725W.
	5700W	x	3	4	15	2	0.4	As for 5725W.
	5687W	x	3	8	19	12	x	As for 5725W.
	5675W	x	7	12	15	4	0.4	Drainage on quartzites, sandstones and shales.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
4000N	5662W	x	8	8	20	4	0.2	Grey clayey soil.
	5650W	x	12	52	26	6	0.8	Grey brown soil micaceous quartzite.
	5637W	20	23	48	30	16	1.0	Brown soil; residual from weathered sandstone.
	5625W	x	1	2	4	x	0.4	Grey residual soil from quartzites.
	5612W	x	2	2	4	6	0.4	Grey brown residual soil quartzites.
	5600W	x	3	4	18	4	x	As for 5612W.
	5575W	x	2	4	11	2	x	Grey residual soil from shales.
	5550W	x	2	4	17	2	x	Dark brown soil.
	5525W	x	2	2	9	4	x	Grey soil, residual, quartzites.
	5000W	x	2	2	4	4	x	Oonah Formation grey silt, quartz fragments.
	4975W	x	4	4	5	2	x	As for 5000W.
	4950W	x	3	4	7	2	0.6	As for 5000W.
	4925W	20	1	2	4	4	0.4	Black soil (similar to 5000W?).
	4900W	x	4	6	6	4	x	Grey Oonah Formation, silty soil.
	4875W	x	5	6	8	6	0.4	As for 4900W.
	4856W	x	1	2	4	4	0.4	Grey shale soil, slight limonite (Oonah Formation?).
	4850W	x	3	2	14	4	0.4	Grey shale soil, no quartzite (Oonah Formation?).
	4825W	x	2	4	2	4	0.4	Grey brown Oonah Formation soil.
	4800W	x	3	6	4	x	x	Pale brown clay (Oonah Formation? shale) - residual?
	4787W	x	4	24	6	4	0.2	Alluvial soil; pale brown shale fragments.
	4775W	x	2	2	3	2	x	Alluvial flat; Oonah Formation soil and quartz fragments.
	4762W	x	2	2	3	4	0.2	Alluvial, pale sandy (as for 4775W).
	4750W	x	1	4	4	2	0.2	Alluvials plus grey "oolitic" chert or black 1 mm breccia clasts.
	4737W	x	15	14	11	6	0.4	Yellow brown clay (Crimson Creek Formation), quartz fragments - alluvials.
	4725W	x	33	42	23	10	0.8	Dark brown clay (Crimson Creek Formation), quartz specks (Oonah Formation?).
	4712W	x	45	64	26	10	1.0	Residual or slope wash yellow brown Crimson Creek Formation clay.
	4700W	x	42	58	25	16	1.0	Khaki clay soil (Crimson Creek Formation clay).
	4687W	x	31	24	23	20	1.2	As for 4700W (residual) - not outcrop.
	4675W	x	27	22	20	12	1.0	As for 4687W.
	4662W	x	24	21	17	8	0.8	As for 4687W.
	4650W	x	18	20	15	14	0.8	As for 4687W.
	4637W	x	25	24	16	8	0.8	As for 4687W.
	4625W	x	22	20	12	4	0.8	As for 4687W.
	4612W	x	25	26	18	6	0.8	Yellow brown (khaki) clay after Crimson Creek Formation.
	4600W	x	21	23	15	10	0.8	As for 4612W.
	4587W	x	24	26	17	10	1.2	As for 4612W.
	4575W	40	25	20	17	6	0.8	As for 4612W.
	4562W	x	42	29	20	14	1.6	As for 4612W, limonitic patches.
	4550W	x	34	38	15	8	1.0	As for 4612W.
	4537W	x	33	35	15	10	0.8	As for 4612W; f.g. greywacke, sst scree.
	4525W	x	41	40	19	10	1.0	As for 4612W.
	4512W	x	48	50	16	10	1.2	As for 4537W (possibly greywacke or volcanics).
	4500W	20	44	44	17	12	1.0	As for 4612W.
4100N	5031W	80	2	2	2	2	0.2	Oonah Formation in gully, grey brown silt, quartz and quartzite fragments.
	5000W	x	2	2	2	2	0.2	Grey brown Oonah Formation silty soil.
	4937W	x	2	3	4	2	0.4	As for 5000W.
	4880W	x	6	3	7	4	0.4	Grey Oonah Formation soil.
	4865W	x	10	44	19	4	0.6	Pale brown shale (Oonah Formation).
	4830W	20	1	2	2	x	0.2	Pale brown clayey silty shale (Oonah Formation).
	4792W	20	1	1	1	4	0.2	Slope wash? - Oonah Formation soil (shale base?).
	4775W	20	3	5	4	2	0.1	Alluvial flat dark brown soil (Oonah Formation).
	4762W	20	5	9	5	2	0.2	Alluvial; mixed khaki soil and Oonah Formation types.

Northing	Westing	Sn	Cu	Zn	Pb	Bi	Ag	Description
4100N	4750W	20	17	21	10	8	0.4	Alluvial mud, some Crimson Creek clay.
	4740W	20	42	28	17	12	1.0	Khaki clay (colluvial or residual?) Crimson Creek Formation
	4723W	x	52	34	22	14	1.0	Khaki clay, red limonite patches (Crimson Creek Formation).
	4700W	x	18	19	9	10	1.0	As for 4723W; red f.g. limonitic? hornfels or chert fragmen
	4675W	x	20	19	12	6	1.0	Khaki clay; Crimson Creek Formation.
	4650W	x	22	20	13	8	0.8	Khaki clay, grey patches (=shale?) Crimson Creek Formation.
	4625W	20	29	24	17	12	0.6	Khaki soil with minor grey soil.
	4600W	x	39	33	20	16	1.0	Khaki soil.
	4575W	x	38	38	20	16	1.2	Khaki and grey clayey soil.
	4550W	60	39	41	20	14	1.0	Khaki soil.
	4525W	x	53	58	22	14	1.0	Khaki soil, greywacke rock float.
4185N	(S)5000W	x	9	5	7	2	0.2	Rock; blue black silty shale - non-pyritic?
4200N	4960W	20	4	9	55	6	0.6	Alluvial grey brown silt - Oonah Formation.
	4935W	40	4	7	18	8	0.2	As for 4960W.
	4908W	20	2	5	3	x	0.4	Pale brown silty soil; Oonah Formation - limonite specks.
	4882W	x	1	3	3	4	0.2	Residual; Oonah Formation siltstone.
	4850W	20	1	3	3	4	0.2	As for 4882W.
	4837W	x	2	2	5	4	0.2	Alluvial? Oonah Formation; pale grey brown silt.
	4815W	20	2	2	2	4	0.4	Alluvial flat - as for 4837W.
	4797W	20	8	14	7	6	0.4	Pale brown alluvial sand plus pale yellow brown clay (not Crimson Creek Formation).
	4775W	x	5	54	22	16	0.8	Black organic mud on (?) pale quartzite chert.
	(R)4762W	x	120	175	28	8	0.4	Yellow & red limonitic cherty rock,wollastonite or tremoli
	4755W	20	4	19	8	8	0.4	Residual?; chert, goethite, yellow siltstone, pale brown so
	4737W	x	13	14	11	8	0.6	Olive brown muddy sand - alluvial.
	4725W	x	15	13	11	10	0.6	As for 4737W; minor cherty pieces.
	4715W	x	18	13	14	6	1.0	Alluvials plus minor limonitic and yellow brown chert fragm
	4700W	20	27	18	14	6	1.2	Khaki clay - Crimson Creek Formation - slope wash soil.
	4687W	40	37	18	20	16	1.6	Khaki clay, limonite shale fragments (Crimson Creek Formati
	4675W	x	34	15	20	12	1.2	Khaki clay, limonitic cherty shale and greywacke.
	4650W	20	35	30	17	8	1.2	Khaki clay.
	4625W	20	29	30	21	10	1.2	Khaki and olive grey residual soil.
	4600W	x	30	32	20	6	1.0	Khaki residual soil.
	4575W	40	32	42	20	12	1.0	As for 4600W.
	4550W	x	37	41	22	8	0.6	Khaki clayey soil residual.
	4525W	x	34	40	20	8	1.0	As for 4550W.
	4500W	20	26	35	13	8	1.0	Khaki soil - dark grey, black hornfels.
	(R)4488W	x	150	40	26	18	1.6	Rock; hornfels, black crystals (check ZnS).
	4487W	x	55	60	34	16	1.4	Khaki soil; hornfels with black crystals as scree.
	(R)4478W	x	42	34	18	12	1.0	Rock; limonitic banded orange shale, yellow epidote?
	4475W	x	60	60	36	14	1.4	Khaki soil, residual.
	4450W	x	50	58	35	12	1.6	As for 4475W.
	4437W	x	55	58	41	14	1.8	Khaki soil, black biotitic shale hornfels fragments.
	4425W	x	48	60	38	16	1.4	Khaki soil, dark grey - black hornfels.
	4412W	x	44	64	34	8	1.4	Khaki soil; fragments of quartz speckled f.g. hornfels.
	4400W	x	60	108	28	6	1.4	Khaki soil residual, weathered shales(?).
	4387W	x	52	40	33	14	1.4	Khaki soil plus fragments of banded grey siltstone? hornfel
	4375W	x	65	48	32	14	1.4	Khaki soil residual yellow-white bedded sandstone (weathere dark grey to black hornfelse.
	4362W	x	60	48	32	6	1.2	Khaki soil plus fragments dark f.g. hornfels, sub-outcrop?
	4350W	x	70	52	33	12	0.8	Khaki residual soil.
	4325W	40	75	58	31	12	1.4	Khaki soil, olive green volcanics(?).
	4300W	x	65	60	28	18	0.8	Khaki soil residual.
	4275W	x	75	58	30	8	0.8	Khaki soil, dark grey siliceous hornfels.
	(R)4250W	180	70	50	18	12	1.2	Rock; black hornfels, fine sulphide; shale or basalt?
	4250W	x	75	56	28	14	0.8	Khaki soil, olive coloured weathered volcanics(?).

Northing	Westing	Sn	Cu	Zn	Pb	Bi	Ag	Description
4200N	4225W	20	85	58	29	12	1.4	Khaki soil, dark grey siliceous hornfels.
4300N	5110W	x	2	2	3	2	0.2	Oonah Formation colluvial coil; grey silty soil.
	5090W	20	2	2	6	8	0.6	Pale brown (fawn) shale fragments in gully.
	5068W	20	1	2	3	4	0.4	Alluvial; pale grey brown silty clay - Oonah Formation.
	5050W	x	13	50	31	10	1.2	Yellow brown finely banded shale, limonite specks.
	5012W	x	4	4	150	6	0.2	Gully; Oonah Formation silt.
	4962W	20	4	2	12	2	0.2	Gully wash - Oonah scree.
	4923W	x	2	2	8	8	0.2	Gully sample; Oonah Formation wash.
	(R) 4919W	x	10	2	3	4	0.2	Rock; black ovoids ("oolites") in siliceous cherty rock scr
	(R) 4906W	40	8	15	16	16	1.2	Rock; white banded chert.
	4902W	x	3	14	21	4	0.6	Brown organic colluvial soil near chertified siltstone (Oon
	4877W	x	3	10	15	2	0.4	Soil on chertified pale green rock (calc-silicate chert?).
	(R) 4877W	x	3	25	13	4	0.2	Rock; chertified light green possible calc-silicate chert.
	4854W	40	2	4	8	4	0.4	Slope wash - Oonah Formation quartz and silt.
	4832W	20	6	8	8	6	0.2	Brown, slope wash.
	4806W	x	6	12	10	x	0.2	Brown organic soil (slope wash).
	4782W	x	8	14	10	x	0.4	As for 4806W.
	(R) 4756W	x	18	56	9	8	0.2	Rock; tremolite and calc. silicates.
	4756W	x	12	24	14	4	0.6	Altered dolomite below alluvial soil.
	4735W	20	32	32	20	6	0.8	Alluvial; dark brown khaki soil (partly Crimson Ck. Formati
	4725W	40	42	50	25	4	0.8	Alluvial mud with dark black brown hornfels pebbles.
	4710W	40	70	50	32	14	1.2	Dark brown clay (Crimson Creek Formation) - residual?
	4700W	20	47	42	26	10	1.0	Olivine brown clayey soil (Crimson Creek Formation).
	4675W	x	60	48	29	16	1.6	Khaki soil, hornfelsed dark shale (Crimson Creek Formation)
	4650W	20	60	58	32	16	2.0	Khaki soil, blue-black hornfels (sediment?) Crimson Creek Formation.
	4625W	x	60	56	31	8	1.6	Khaki soil, black hornfels fragments.
	4600W	x	65	62	29	12	1.6	Khaki residual soils and dark grey to black hornfels.
	4575W	x	70	62	28	12	1.2	As for 4600W.
	4550W	x	70	56	32	16	1.2	As for 4600W.
	4525W	20	60	68	29	8	1.6	As for 4600W.
	4500W	x	60	76	26	16	1.4	As for 4600W.
	4475W	x	60	70	29	16	1.8	As for 4600W.
	4450W	x	60	70	31	18	1.4	Khaki residual soil - olive green volcanics(?) or greywakce
	4425W	x	60	50	35	18	1.6	Khaki residual soils and dark grey to black hornfelse.
	4400W	x	46	40	28	12	1.4	Khaki soil residual.
	4375W	x	70	50	32	16	1.4	As for 4400W.
	4372W	x	3	8	14	6	0.6	As for 4400W.
	4350W	20	60	38	30	20	1.2	Khaki soil residual, dark grey-black hornfels and grey brow shales.
	4325W	x	60	36	32	20	1.4	Khaki soil residual, dark grey to brown micaceous shale.
	4300W	20	58	36	27	16	1.2	Khaki soil residual, dark grey to black fine-grained hornfe
	4275W	x	70	44	28	16	1.6	Khaki clayey soil residual.
	4250W	20	60	48	28	16	1.4	Brown and olive grey residual clayey soil.
	4225W	x	70	64	29	18	1.4	Khaki soil residual.
	4200W	20	45	56	28	18	1.8	Khaki soil - greywackes or volcanics.
4400N	5925W							Brown grey resiudal soil, quartzite fragments (sample numbe not on sample despatch sheet 004536).
	5900W	x	2	3	2	6	0.2	Grey residual soil quartzite fragments.
	5887W	20	2	4	4	6	0.2	As for 5900W.
	5875W	20	2	2	5	4	0.2	As for 5900W.
	5862W	x	1	2	3	8	0.4	Brown soil humus, quartzite fragments.
	5850W	Sample destroyed by laboratory						Brown-grey residual soil, quartzite fragments.
	5837W	x	2	3	3	4	x	Brown-grey residual sandstone fragments.
	5825W	20	2	4	5	6	0.4	Brown-grey residual soil, quartzite fragments.
	5812W	x	1	3	2	4	x	As for 5825W.

Northing	Westing	Sn	Cu	Zn	Pb	Bi	Ag	Description
4400N	5800W	Sample destroyed by laboratory.						Grey residual soil, shales grey.
	5787W	Sample destroyed by laboratory.						Tan soil residual.
	5775W	Sample destroyed by laboratory.						As for 5787W.
	5762W	Sample destroyed by laboratory.						Grey-brown residual soil, some quartz grains.
	5750W	Sample destroyed by laboratory.						Dark-brown soil, residual.
	5737W	Sample destroyed by laboratory.						As for 5750W.
	5725W	Sample destroyed by laboratory.						Grey soil, residual.
	5712W	x	1	3	5	8	0.4	Grey-brown residual soil with some grey sand.
	5700W	20	1	3	5	4	0.4	Grey sandy soil, alluvial.
	5687W	40	2	5	4	6	0.2	As for 5700W.
	5675W	560	6	21	20	4	1.2	Grey-white sandy soil, alluvial (Stanley R.).
	5662W	140	4	6	5	8	0.2	Grey soil, alluvial.
	5650W	180	6	8	10	8	0.2	Yellow-grey sandy soil, alluvial bank (Stanley R.).
	5637W	40	2	4	5	10	0.2	Grey soil, alluvial.
	5625W	20	4	5	8	6	0.4	Light grey brown sandy soil, alluvial.
	5612W	20	2	5	6	6	0.4	Grey sandy soil, residual.
	5600W	20	7	8	11	4	0.2	Brown-grey sandy soil, alluvial.
	5580W	40	2	6	5	4	0.1	As for 5600W.
	5125W	x	1	2	2	4	x	Oonah Formation; grey brown silty soil - residual.
	5100W	x	5	20	9	8	0.2	As for 5125W.
	5075W	x	2	3	10	4	0.4	Oonah Formation; pale brown shaley soil.
	5050W	x	2	2	10	2	0.4	Yellow brown or grey brown shaley silt soil (Oonah).
	5025W	x	3	1	5	4	0.2	Oonah Formation grey brown silty soil.
	5000W	x	32	43	150	4	0.4	As for 5025W.
	4975W	40	2	150	140	4	0.4	Alluvial brown clayey sand.
	4950W	x	2	4	5	6	0.2	Oonah soil plus yellow brown limonitic siltstone(tremolite?
	(R) 4950W	x	8	24	18	4	0.4	Rock; yellow brown limonitic siltstone, radiating crystals (tremolite?).
	4906W	x	2	1	3	2	x	Alluvial grey brown Oonah Formation soil.
	4880W	20	5	5	5	2	x	As for 4906W.
	4860W	20	4	4	4	4	0.2	As for 4906W.
	4837W	x	3	4	3	6	x	As for 4906W.
	4825W	x	4	5	5	6	0.4	As for 4906W.
	4806W	x	6	10	5	6	0.2	Alluvial olive brown clayey sand.
	4787W	x	18	31	14	x	0.8	Alluvial brown organic soil.
	4770W	80	10	14	8	6	0.4	Alluvial brown organic mud flat soil.
	4752W	20	10	7	8	6	0.2	Grey soil on tremolite calc-silicate rock.
	(R) 4752W	x	14	39	12	8	0.4	Rock; tremolite calc silicate and quartz rock.
	(R) 4740W	20	22	16	12	8	0.4	Soil on black shale - quartzite breccia limonitic.
	(R) 4740W		26	41	23	16	0.8	Rock; black shale - grey quartzite breccia, limonitic.
	4730W	20	34	270	24	12	1.4	Khaki soil - residual? Crimson Creek Formation, goethite fragments.
	4712W	20	35	14	18	26	0.6	As for 4730W.
	4700W	20	45	14	20	32	0.8	Khaki soil - colluvial?
	4687W	20	38	32	85	4	1.2	Alluvials on weathered black shale (0.3 m depth).
	4678W	20	30	140	36	4	1.0	As for 4687W (on hornfelsed black shale).
	4662W	40	40	51	17	6	1.0	Colluvial soil and rock fragments.
	4650W	x	40	28	17	8	1.0	Khaki soil and sandy fibrous textured rock.
	4637W	x	58	39	25	10	1.2	Khaki soil plus limonitic greywacke? fragments - residual?
	4620W	x	60	36	20	8	1.0	As for 4637W - in situ?
	4595W	20	58	25	24	12	1.0	As for 4637W.
	4575W	x	65	46	25	4	1.4	Limonitic greywacke shale residual (khaki sand).
	4550W	20	56	38	20	12	1.4	As for 4575W.
	4525W	20	45	35	21	8	1.2	As for 4575W.
	4500W	40	56	35	21	12	1.4	Khaki residual soil.
	4475W	20	41	37	19	14	1.2	Khaki residual soil, dark grey to black hornfelse.
	4450W	x	40	30	20	14	1.2	Khaki residual soil.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
4400N	4425W	x	41	33	17	12	1.0	Khaki, olive soil, wet.
	4400W	x	44	28	19	14	1.2	Khaki residual soil.
	4375W	x	48	25	15	8	0.8	As for 4400W.
	4350W	20	45	29	17	12	1.0	As for 4400W.
	4325W	x	50	28	18	14	0.6	Khaki residual soil, brown weathered greywackes or volcanic
	4300W	x	60	50	21	16	1.4	As for 4325W.
	4275W	20	54	48	20	8	1.4	Khaki residual soil, dark grey to black hornfelse.
	4250W	20	75	75	17	8	1.8	Khaki residual soil.
	4225W	60	60	38	17	12	1.0	Khaki residual soil.
4500N	5975W	x	1	2	5	4	x	Grey brown soil, quartz and sandstone fragments.
	5962W	x	2	5	10	2	x	Thin soil on weathered grey shale adjacent to quartzite outcrop.
	5950W	x	1	2	2	6	x	Light brown soil, quartz grains.
	5937W	x	4	12	8	4	0.4	Dark brown soil, some quartz grains.
	5925W	x	2	4	4	6	0.2	Grey brown soil with quartz fragments.
	5912W	x	1	13	4	2	x	As for 5925W.
	5900W	x	2	7	4	6	0.4	As for 5925W.
	5887W	20	2	5	4	4	0.2	As for 5925W.
	5875W	x	1	17	4	6	0.2	As for 5925W.
	5862W	x	1	11	4	6	x	As for 5925W.
	5850W	x	1	15	3	6	x	As for 5925W.
	5837W	20	1	18	4	6	x	As for 5925W.
	5825W	x	2	8	5	8	0.2	As for 5925W.
	5812W	x	2	16	4	4	x	As for 5925W.
	5800W	x	1	7	3	4	0.2	As for 5925W.
	5787W	x	2	15	2	8	0.4	Grey brown soil with sandstone fragments,
	5775W	x	2	5	3	4	0.4	Grey brown soil with quartz.
	5762W	x	2	8	3	4	x	As for 5775W.
	5750W	Sample destroyed by laboratory.						Grey clayey soil.
	5737W	x	1	3	2	4	x	Grey brown soil with quartz fragments.
	5725W	x	1	2	2	2	0.4	As for 5737W.
	5712W	x	1	2	1	4	x	As for 5737W.
	5700W	x	1	6	2	x	x	Grey sandy soil with quartz and sandstone fragments.
	5687W	x	2	15	3	4	0.4	Dark brown soil with quartz fragments.
	5675W	x	1	4	2	4	0.2	Grey brown soil with quartz grains.
	5662W	x	2	7	3	2	0.2	Grey brown soil.
	5650W	x	2	6	4	6	0.4	Grey soil.
	5637W	x	2	9	4	4	0.4	Drainage sample from creek.
	5625W	x	2	3	2	2	x	Grey clayey soil.
	5612W	x	2	6	2	4	0.4	Dark brown clayey soil.
	5600W	x	2	25	2	4	0.2	Dark brown clayey soil.
	5575W	x	2	4	4	4	0.6	Grey mud - swampy area.
	5550W	x	2	4	3	4	x	Grey clayey soil.
	5525W	20	2	2	2	2	x	Grey clayey soil with quartz grains.
	5500W	x	2	2	4	2	0.4	Grey clayey soil with quartz fragments.
	5475W	x	3	2	5	2	0.4	Dark grey clay soil with quartz fragments.
	5450W	Sample destroyed by laboratory.						As for 5475W.
	5425W	Sample destroyed by laboratory.						Grey clayey soil.
	5400W	Sample destroyed by laboratory.						Grey sandy soil, fine grained sand.
	5375W	Sample destroyed by laboratory.						Yellow grey sandy soil fine grained sand.
	5350W	Sample destroyed by laboratory.						Outcrop black shales sample silt fraction plus quartz fragm
	5325W	Sample destroyed by laboratory.						Fine grey soil.
	5300W	Sample destroyed by laboratory.						Grey sandy soil abundant quartz and siltstone.
	5275W	Sample destroyed by laboratory.						Grey clayey soil with quartz grains.
	5250W	Sample destroyed by laboratory.						Dark brown soil - humus.
	5225W	Sample destroyed by laboratory.						Dark brown soil with quartz fragments.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
4500N	5200W	x	4	2	3	2	0.2	Grey sandy soil with abundant quartz fragments.
	5175W	x	2	1	3	2	x	Grey clayey soil with quartz grains.
	5150W	x	1	2	1	2	x	Grey clayey soil with quartz fragments.
	5125W	x	2	3	3	2	x	As for 5150W.
	5100W	x	4	10	4	2	0.4	Brown humus soil, quartz and siltstone fragments.
	5075W	x	2	4	4	4	x	Grey soil with quartzite.
	5050W	x	2	4	5	4	0.4	Fine grey brown soil.
	5025W	x	2	6	8	4	x	Grey clayey soil with siltstone fragments.
	5000W	20	6	10	20	4	0.2	Yellow grey clayey soil.
	4975W	x	1	3	1	6	x	Grey brown Oonah Formation silty soil. No outcrop.
	4950W	x	2	5	1	4	0.2	As for 4975W plus hornfelsed? Oonah siltstone outcrop.
	4925W	Sample destroyed by laboratory.						Alluvial grey brown Oonah siltstone soil - on flat.
	4900W	Sample destroyed by laboratory.						As for 4925W.
	4875W	Sample destroyed by laboratory.						As for 4925W.
	4850W	Sample destroyed by laboratory.						As for 4925W (swamp).
	4847W	Sample destroyed by laboratory.						As for 4925W (swamp).
	4825W	20	21	27	15	8	0.8	As for 4847W.
	4820W	320	56	200	27	14	0.8	As for 4847W.
	4810W	20	28	45	22	14	0.8	As for 4925W (possibly some residual soil?).
	4800W	20	18	25	15	8	1.0	Dark brown organic alluvial soil - no outcrop.
	4784W	20	42	50	20	8	1.0	As for 4800W.
	4775W	20	23	25	15	2	1.2	As for 4800W.
	4762W	20	44	37	22	14	1.6	As for 4800W.
	4753W	x	30	30	18	10	1.4	As for 4800W.
	4742W	20	60	40	27	22	1.8	Khaki soil; residual?; Crimson Creek Formation.
	4732W	20	39	25	22	12	2.0	As for 4742W.
	4720W	20	38	30	21	16	1.4	As for 4742W.
	4700W	Sample destroyed by laboratory.						As for 4742W.
	4675W	Sample destroyed by laboratory.						As for 4742W.
	4650W	20	52	42	26	14	1.4	As for 4742W.
	4625W	20	56	33	26	14	1.6	As for 4742W.
	4600W	20	75	34	32	18	1.4	As for 4742W.
	4575W	20	60	36	30	18	1.2	As for 4742W.
	4550W	x	55	35	30	14	1.2	As for 4742W.
	4525W	20	53	50	28	16	1.2	As for 4742W.
	4500W	20	56	50	26	16	0.8	As for 4742W.
	4475W	x	49	47	23	18	1.6	As for 4742W.
	4450W	20	49	36	21	16	1.0	As for 4742W.
	4425W	20	60	30	26	12	1.0	As for 4742W.
	4400W	20	85	42	29	20	1.4	Brown-khaki residual soil friable weathered hornfelse.
	4375W	x	80	75	32	20	1.4	As for 4400W.
	4350W	x	90	65	34	16	1.8	As for 4400W.
	4325W	x	85	47	26	16	1.4	As for 4400W.
	4300W	20	95	45	25	16	1.0	Khaki soil - old workings.
	4275W	x	80	50	20	20	1.4	Khaki residual soil, hornfelse float.
	4250W	20	70	48	23	14	1.0	Khaki residual soil, hornfelse float.
	4225W	x	85	36	21	14	1.4	As for 4250W.
	4200W	x	70	37	28	16	1.6	Khaki residual clayey soil, dark grey-black hornfelse.
	4192W							Old workings - no sample.
	4175W	x	65	34	27	16	1.4	As for 4200W.
	4150W	x	70	31	30	16	2.4	As for 4200W.
	4125W	x	70	33	29	20	2.0	As for 4200W.
	4100W	x	70	29	30	18	1.6	Khaki soil residual dark grey quartzite(?).
	4075W	x	65	26	28	20	1.6	Khaki soil residual hornfelse rock.
	4050W	x	60	25	27	16	1.2	As for 4075W.
	4025W	x	45	29	21	14	1.6	As for 4075W.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
4500N	4000W	20	57	29	21	18	1.6	Khaki soil residual.
	3995W	x	57	120	22	14	1.0	Drainage sample, dark grey hornfelse rock.
4550N	4868N	100	29	52	14	4	0.8	Grey black alluvial soil.
	4830W	4000+	4500	300	29	4	5.6	Yellow limonitic shale soil (overturned tree).
	4816W	20	60	100	22	12	1.4	Alluvial soil on boulders (granite, siltstone, etc. rock t
	4766W	x	60	58	22	16	1.4	Khaki clay (1.5 m) on boulder - slope slump soil?
	4760W	20	85	65	29	18	1.6	Khaki clay - Crimson Creek Formation? - minor red shale, greywacke - in situ?
	4740W	20	50	32	20	12	1.0	1.5 m auger khaki clay, minor black shale at base - residu
	4729W	x	55	60	22	10	0.8	1.8 m? alluvial soil - mixed khaki clay, granite, grit, etc
	4712W	x	70	53	29	16	0.8	0.6 m yellow brown Crimson Creek Formation clay - in situ.
	4687W	x	70	59	27	14	1.0	Khaki with grey silty soil - Crimson Creek Formation - resi
	4668W	x	44	90	26	18	0.6	Khaki clay beneath 1 m mud - residual?
	4657W	x	80	60	30	16	1.6	Khaki soil with grey shale fragments.
4555N	4646W	x	85	60	36	16	2.0	Rock; grey brown weathered? siltstone.
4600N	4878W	20	11	17	5	4	0.4	Granitic detritus on black soil - alluvial.
	4847W	40	34	58	16	12	1.0	1.2 m olive brown alluvial soil on gravels (alluvial).
	4825W	140	70	115	26	16	1.8	1.2 m dark khaki clay on gravels (alluvial).
	4775W	x	45	100	21	8	1.2	Alluvial? khaki clay on tremolitic calc silicate.
	4775W	x	12	42	11	6	0.4	Tremolitic calc silicate rock (600451R).
	4750W	x	75	53	27	16	1.6	Yellow brown (residual?) limonitic hornfels shale fragments
	4735W	x	75	52	38	16	1.8	Yellow brown clay; Crimson Creek Formation?
	4725W	x	70	55	31	14	1.8	0.3 m yellow brown clay plus limonite, shale fragments.
	4700W	x	42	50	22	12	1.4	0.2 m alluvial soil.
	4687W	20	90	200	36	32	1.8	Olive brown banded clay (shale) beneath 1.2 m khaki clay.
	4677W	20	70	105	20	30	1.8	1.2 m green and brown clays (shale) - residual?
	4666W	x	26	190	22	4	1.6	1.2 m greenish brown residual Crimson Creek Formation?
	4659W	x	85	180	21	8	1.8	Blue black clay, white specks (hornfelsed black shale?).
	4646W	x	27	15	6	6	1.0	0.5 m pale white-blue siltstone clay - residual?
	4628W	40	70	200	13	10	1.4	0.3 m khaki f.g. shale (Crimson Creek Formation).
	4612W	x	58	44	23	2	1.4	Khaki clay.
	4600W	20	52	51	20	4	1.4	As for 4612W.
	4565W	Not received by laboratory.					As for	4612W.
	4550W	x	60	50	26	14	1.6	Khaki residual soils, grey-purple weathered volcanics(?).
	4525W	x	56	47	24	10	1.8	Khaki residual soils.
	4500W	x	52	52	25	8	1.8	Khaki residual soils, dark grey hornfelse.
	4475W	x	44	40	19	10	1.4	As for 4500W.
	4450W	20	80	30	19	20	1.8	As for 4500W.
	4425W	20	96	36	24	16	2.0	As for 4500W.
	4400W	x	65	40	22	16	2.0	As for 4500W.
	4375W	x	75	40	23	20	1.8	As for 4500W.
	4350W	x	65	35	26	16	1.8	As for 4500W.
	4325W	x	65	34	20	24	1.8	As for 4500W.
	4300W	x	75	39	22	18	1.8	As for 4500W.
	4275W	x	80	41	22	18	1.4	Khaki residual soils green-grey volcanics.
	4250W	x	60	45	21	16	1.6	Khaki residual soils.
	4225W	x	70	35	20	20	1.4	As for 4250W.
	4200W	x	60	25	22	20	1.4	As for 4250W.
	4175W	20	56	25	23	14	1.4	Khaki soil residual, fine grained bedded sandstone(?).
	4150W	x	52	27	21	14	1.2	Khaki residual soil.
	4125W	x	60	20	22	18	1.4	Khaki residual soil, dark grey fine grained hornfelse.
	4100W	x	60	20	22	4	1.4	Khaki residual soil.
	4075W	x	60	24	28	4	1.4	Khaki residual soil, dark grey fine grained hornfelse.
	4050W	x	60	20	24	16	1.6	Khaki residual soil.
	4025W	20	52	27	21	18	1.4	Khaki residual soil.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
4600N	4000W	x	57	30	20	8	1.4	Khaki residual soil.
	3975W	x	44	90	14	10	0.4	Drainage sample.
	3950W	60	6	17	7	2	0.4	Drainage sample - abundant quartz grains.
	3925W	x	40	17	14	8	1.4	Khaki residual soil.
	3900W	x	30	50	14	10	1.4	Khaki residual soil.
4690N	4725W							Rock; hornfelsed dolomite with calc. silicate minerals.
4692N	4744W	40	2	28	20	34	0.8	Rock; red limonitic sugary dolomite.
4690N	4752W	60	8	9	28	44	1.4	Rock; red limonitic sugary dolomite, Fe Mg hornfels.
4700N	4695W	60	90	250	12	38	0.4	0.6 m granite wash on limonite-veined grey-purple brown shale
	4669W	x	38	43	16	12	0.6	0.5 m granite wash on orange limonite speckled cream shale.
	4654W	x	40	20	35	10	0.6	1.1 m granite wash.
	4645W	x	70	150	20	18	1.2	0.5 m granite wash on limonite speckled grey brown sericitic shale.
	4635W	x	160	140	30	4	1.2	0.3 m granite wash on brown-black cream speckled hornfelsed shale.
	4616W	x	135	205	45	16	1.6	Green-black shaley siltstone soil - Crimson Creek Formation?
	4600W	x	100	185	28	18	1.0	Blue grey black siltstone soil - residual.
	4583W	x	52	190	34	24	1.6	Dark green khaki greywacke shale - residual.
	4575W							Khaki soil residual, dark grey hornfelse in creek adjacent to sample and 4550W.
	4565W	x	95	47	34	20	1.8	Dark yellow brown (?) greywacke siltstone.
	4550W	x	75	38	32	20	1.2	As for 4575W.
	4525W	20	95	115	28	20	1.2	Drainage sample.
	(M) 4518W	x	65	155	25	12	1.6	Drainage sample.
	4505W	20	170	59	38	30	1.6	Khaki soil - probably residual.
	4500W	20	52	140	22	16	1.2	Drainage sample.
	4475W	x	50	40	30	20	1.2	Khaki soil, residual dark grey hornfelse and grey volcanics.
	4450W	x	60	40	27	12	1.0	Khaki soil and olive grey soil, residual.
	4425W	x	46	49	27	14	1.4	Khaki residual soil, dark grey hornfelse.
	4400W	20	31	46	25	14	1.0	As for 4425W.
	4375W	20	51	34	22	16	1.2	Khaki residual soil.
	4350W	x	60	32	20	12	1.6	As for 4375W.
	4325W	x	47	33	22	14	1.6	As for 4375W.
	4300W	x	60	32	25	14	1.6	As for 4375W.
	4275W	x	60	27	20	18	1.6	As for 4375W.
	4250W	x	70	30	28	18	1.8	Khaki and olive green clayey residual soil.
	4225W	x	80	28	26	20	1.8	Khaki soil.
	4212W	No sample.						Volcanics - grey.
	4200W	x	80	31	28	22	1.8	Khaki residual soil.
	4175W	20	60	11	26	16	1.6	Khaki residual soil, weathered volcanics(?).
	4150W	x	43	27	18	18	1.6	Khaki residual soil.
	4125W	40	26	48	17	6	1.2	Stream sample coarse green quartzite sediments.
	4100W	No sample.						Old workings.
4725N	4730W	x	28	16	38	10	0.8	Rock; pale shale beneath alluvials (tremolite?).
	4730W	40	70	160	22	20	1.4	Black pugh on top of tremolite calc. silicate rock at base of gravels (possibly include alluvial material) = 600450R.
4800N	4675W	x	6	10	11	8	0.4	Brown clayey soil with granitic soil, granitic soil transpor
	4650W	40	9	17	16	6	0.6	As for 4675W.
	4625W	x	12	23	16	10	0.4	As for 4675W.
	4600W	x	2	6	6	4	0.4	Granitic soil, grey white colour transported.
	4575W	x	6	9	13	12	0.4	Drainage sample, granitic soil.
	4550W	x	41	24	22	16	1.0	Khaki residual soil.
	4525W	x	45	31	25	16	1.0	As for 4550W.
	4500W	x	41	26	24	16	0.8	As for 4550W.
	4475W	x	80	30	29	18	0.8	Khaki residual soil, dark grey to black, weathered to blue grey volcanic or greywacke.
	4450W	x	60	22	25	14	0.4	As for 4775W.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
4850N	4725W	20	19	18	13	8	0.6	Grey granitic soil, fine grained on bank of Stanley River, river alluvial.
	4700W	x	2	3	6	2	x	Grey brown granitic soil, fine grained in part from granitic in part from non-granitic rock type, probably transported.
	4675W	x	4	8	5	4	0.4	As for 4700W.
	4650W	x	4	15	9	6	0.6	As for 4700W.
	4625W	20	32	17	13	14	0.4	Brown soil.
	4600W	x	13	9	10	6	0.2	Grey granitic soil.
4950N	4700W	20	2	6	7	4	0.2	Grey granitic soil, fine grained on bank.of Stanley River - river alluvial.
	4675W	x	2	5	20	4	0.4	Brown clayey granitic soil - slope wash.
	4650W	x	2	5	3	8	0.2	Granitic soil beneath shallow (< 30 cm) humus slope wash(?)
	4625W	x	1	2	4	4	0.2	As for 4650W.
	4600W	x	1	2	4	6	0.4	As for 4650W.
4900N	5900W	x	2	4	25	4	0.4	Grey residual soil with shaley fragments.
	5887W	x	2	5	7	2	0.2	As for 5900W.
	5875W	x	2	5	39	x	0.2	As for 5900W.
	5862W	x	2	15	10	2	0.2	As for 5900W.
	5850W	x	2	12	5	2	x	As for 5900W.
	5837W	x	2	4	9	6	0.2	As for 5900W.
	5825W	x	2	7	7	6	0.2	As for 5900W.
	5812W	x	2	4	20	4	0.2	As for 5900W.
	5800W	x	2	4	10	4	x	As for 5900W.
	5787W	x	2	4	15	4	x	Grey residual soil with shale and quartz fragments.
	5775W	x	1	2	4	6	0.6	As for 5787W.
	5762W	x	2	3	4	6	0.4	Grey soil with quartzite fragments.
	5750W	x	2	3	5	4	0.2	As for 5762W.
	5737W	x	1	3	4	4	x	As for 5762W.
	5725W	x	1	2	5	4	x	As for 5762W.
	5712W	x	2	4	6	2	x	As for 5762W.
	5700W	x	1	4	7	4	x	As for 5762W.
	5675W	x	1	2	10	4	x	As for 5672W.
	5625W	x	4	6	7	x	x	As for 5762W.
	5175W	x	2	4	5	4	0.2	Grey soil quartzites (Oonah).
	5150W	x	1	2	3	4	0.2	Grey soil, shaley.
	5125W	x	1	3	2	x	0.2	Drainage gravels mainly smokey quartz.
	5100W	x	2	5	5	4	0.2	1 m deep brown sandy soil - button grass.
	5075W	x	2	3	4	4	0.2	Grey brown, sandy soil transported - alluvial.
	5050W	x	1	2	2	4	x	Fine grained - bank sample, Livingstone Creek.
	5025W	x	1	2	3	2	x	Brown humus soil, button grass, ½ cm quartz grains.
	5000W	x	2	2	4	4	0.2	Brown humus soil, button grass - quartz grains.
	4975W	x	2	5	4	4	0.2	Grey fine grain, sandy soil alluvial.
	4950W	x	1	3	3	4	x	As for 4975W.
	4925W	x	2	3	5	4	x	As for 4975W.
	4900W	1.S.	8	24	14	18	1.6	Brown black humus soil swamp.
	4850W	2000	75	40	25	76	0.6	Brown black wet soil - old channels.
	4775W	80	4	4	6	6	x	Grey fine sandy soil alluvial.
	4750W	20	4	8	10	4	0.4	Brown grey sandy soil, alluvial.
	4725W	60	7	10	8	4	0.2	Grey granitic drainage - Stanley River.
	4700W	20	4	6	7	x	0.2	Grey granitic soil.
	4675W	x	3	12	11	10	0.4	As for 4700W.
	4650W	x	2	8	6	8	0.2	As for 4700W.
	4625W	x	4	7	10	2	0.2	As for 4700W.
	4618W							As for 4700W.
	4618W	x	1	4	10	4	0.2	Rock.
	4600W	x	1	3	4	2	x	As for 4700W.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
4900N	4575W	x	2	4	5	8	x	Grey granitic soil under thin (< 30 cm) humus cover.
	4550W	x	2	2	4	8	x	As for 4575W.
	4525W	x	2	5	4	2	0.2	As for 4575W.
	4512W	x	6	5	4	4	0.4	Grey granitic soil.
	4500W	No sample in despatch book.						Grey quartz - granitic gravels.
4993N	(R)4761W	x	15	58	80	12	1.0	Rock; 0.7 m channel in biotitised shales, adjoins 4762W.
	4762W	3500	38	25	325	150	1.4	Rock, 0.7-1.7 m in biotitised hornfelsed shale.
	4763W	2600	34	38	30	92	1.6	Rock; 1.7-2.6 m in biotitised hornfelsed shale.
4994N	(R)4761W	240	90	30	100	12	0.6	Rock; 0.5 m channel at old sample site (6002155); hornfelse biotitised shale.
	(R)4762W	260	65	17	58	18	0.6	As for 4994N/4761W.
5000N	6025W	x	2	2	9	x	0.2	Grey residual soil, quartzite fragments.
	6000W	x	3	1	16	x	0.2	As for 6025W.
	5987W	x	2	1	5	2	x	As for 6025W.
	5975W	x	2	4	5	x	0.2	As for 6025W.
	5962W	x	6	6	5	x	0.6	Brown humus soil.
	5950W	x	1	1	3	x	x	Grey residual soil, quartzite fragments.
	5937W	x	1	1	5	x	0.2	Grey residual soil, quartzite fragments.
	5925W	x	1	3	12	4	0.2	As for 5937W.
	5912W	x	2	5	12	4	0.4	Grey soil residual shale fragments.
	5900W	x	2	x	16	2	0.2	As for 5912W.
	5887W	x	1	x	10	2	0.2	As for 5912W.
	5875W	x	1	x	15	x	0.2	Grey residual soil, some shale and quartzite fragments.
	5862W	x	1	2	11	x	x	Grey residual soil, quartzite fragments.
	5850W	x	1	1	30	x	0.2	As for 5862W.
	5837W	x	1	1	30	x	0.2	As for 5862W.
	5825W	x	2	4	15	6	0.2	As for 5862W.
	5812W	x	2	7	11	4	0.2	As for 5862W.
	5800W	x	2	3	10	x	0.2	As for 5862W.
	5787W	x	3	5	12	x	0.4	As for 5862W.
	5775W	x	3	3	14	x	0.2	Grey residual soil with shale fragments.
	5762W	x	2	3	10	8	0.4	Grey brown sandy soil.
	5750W	x	5	5	14	x	0.4	Grey soil residual, quartzite fragments.
	5737W	x	1	4	10	x	x	As for 5750W.
	5725W	x	1	4	8	2	x	As for 5750W.
	5712W	x	2	5	7	4	0.2	As for 5750W.
	5700W	x	2	4	6	4	x	Grey residual soil with quartzite fragments.
	5675W	x	2	5	8	6	x	As for 5700W.
	5650W	x	2	3	5	x	0.2	As for 5700W.
	5625W	Not received by laboratory.						As for 5700W.
	5600W	x	1	4	3	2	0.2	Brown humus soil, quartzite fragments beneath.
	5575W	x	1	2	2	4	0.2	Grey residual soil, quartzite fragments.
	5550W	x	2	5	3	2	x	Brown humus soil some quartzite fragments.
	5525W	x	2	2	4	2	x	Brown humus soil.
	5500W	x	1	2	3	2	0.2	Grey-white residual soil - shale fragments.
	5475W	x	3	2	5	6	0.2	Grey residual soil, quartzite fragments.
	5450W	x	1	2	1	2	0.2	As for 5425W.
	5425W	x	2	2	2	2	x	Brown soil drainage.
	5400W	x	1	2	2	x	0.4	Grey soil quartzite fragments.
5150N	(R)4841W	20	4	4	13	8	0.4	Rock; granite - near contact at base of slope.
	(R)4854W	200	35	8	160	22	0.4	
5200N	5912W	x	6	7	8	4	0.2	Brown humus soil and grey residual soil.
	5900W	x	2	2	15	8	0.2	Grey residual soil shaley.
	5887W	x	2	2	4	2	x	Dark grey residual soil, shaley.
	5875W	x	2	2	7	4	0.2	As for 5887W.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
5200N	5862W	x	3	5	9	4	x	As for 5887W.
	5850W	x	2	2	9	8	0.2	As for 5887W.
	5837W	x	1	4	3	6	x	As for 5887W.
	5825W	x	2	2	5	4	x	Brown humus soil.
	5812W	x	1	2	5	6	x	Grey residual soil, quartzite fragments (Oonah).
	5800W	x	1	2	5	6	x	As for 5812W.
	5787W	x	1	2	5	2	x	As for 5812W.
	5775W	x	1	2	6	6	x	As for 5812W.
	5762W	x	1	3	5	4	0.2	As for 5812W.
	5750W	x	2	3	6	6	x	As for 5812W.
	5737W	x	1	1	10	4	0.2	As for 5812W.
	5725W	x	3	2	22	8	0.2	As for 5812W.
	5712W	x	1	x	18	8	x	As for 5812W.
	5700W	x	1	2	8	12	x	As for 5812W.
	5687W	x	1	2	4	4	x	Brown humus soil with some quartzite fragments.
	5675W	x	2	5	5	6	x	Dark brown humus soil.
5237N	(R) 4854W	4000	300	52	40	140	2.4	Rock; "gossan" limonitic outcrop, 2-4 m wide.
5250N	(R) 4858W	40	135	85	36	44	2.4	Rock; limonitic outcrop ("gossan").
	(R) 4863W	460	180	90	37	46	2.6	Rock; limonite "gossan".
5256N	(R) 4852W	2000	145	70	40	44	2.6	Rock; limonitic.
5258N	(R) 4849W	>4000	120	60	250	440	1.0	Rock; limonitic shale adjacent to granite contact.
5300N	(M) 4880W	x	1	6	7	4	x	Base of slope alluvial soil.
	4860W	x	2	10	14	8	0.8	Weathered granite soil.
	(R) 4851W	40	44	32	22	10	0.4	Rock; limonitic granite in costean.
	4850W	20	2	6	10	6	0.6	Weathered granite soil - residual.
	4831W	20	2	6	7	8	0.4	Granite soil with dark brown organic clays.
	(M) 4766W	560	1	5	14	4	0.2	Gully; granite detritus, granite outcrop.
5350N	(M) 4960W	x	2	6	5	2	0.2	Granite wash in drainage with cobbles of granite, hornfels Oonah Formation, minor limonite fragments. Origin of limon unknown; possibly the top gossan (DDH LCD 1-3 location).
	(R) 4960W	2200	500	100	34	880	2.8	Rock; limonite pebbles from creek (from Livingstone Ck. gos
5500N	6100W	x	4	2	8	2	0.4	Grey residual soil with shale fragments.
	6087W	x	1	1	3	x	0.2	Grey residual soil with quartzite fragments.
	6075W	x	1	2	4	2	x	As for 6087W.
	6067W							Grey residual soil with shale fragments.
	6062W	x	1	2	7	x	0.2	
	6050W	x	2	3	6	2	0.2	As for 6067W.
	6043W	x	1	1	9	2	0.2	Drainage sample.
	6037W	x	1	1	3	x	0.2	Drainage sample.
	6025W	1.S.*	2	14	4	4	0.4	Brown humus soil.
	6012W	x	2	5	3	4	0.2	As for 6025W.
	6000W	1.S.*	4	14	14	4	0.4	As for 6025W.
	5987W	1.S.*	4	7	9	4	0.2	As for 6025W.
	5975W	x	3	5	7	4	0.2	As for 6025W.
	5962W	x	4	6	4	4	0.8	As for 6025W.
	5950W	1.S.*	4	8	10	8	x	As for 6025W.
	5937W	1.S.*	4	10	4	8	x	As for 6025W.
	5925W	1.S.*	4	9	9	4	x	As for 6025W.
	5912W	x	1	4	3	4	x	Light-brown to grey humus soil.
	5900W	x	1	1	4	4	x	Grey soil.
	5887W	x	1	3	2	4	x	Light grey - brown humus soil.
	5875W	x	1	2	2	2	x	Grey soil.
	5862W	x	3	2	2	4	0.4	As for 5875W.
	5850W	x	1	1	4	10	0.2	As for 5850W.

* Insufficient sample.

/1

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
5500N	5825W	x	1	2	5	6	0.2	Brown humus soil.
	5800W	x	4	2	5	4	0.2	Brown and grey soil, residual quartzite fragments.
	5790W	x	1	2	8	4	0.2	Drainage sample.
	5775W	x	3	3	10	4	0.2	Grey and brown residual humus soil with quartzite fragments at the bottom.
	5750W	x	2	2	5	4	0.2	As for 5775W.
	5725W	x	1	1	6	6	0.2	Grey soil.
	5700W	x	1	3	5	6	0.4	As for 5725W.
	5675W	x	2	2	8	4	0.2	Light brown humus soil.
	5650W	x	1	1	5	2	0.2	Grey soil.
	5625W	x	2	1	5	4	x	As for 5650W.
	5600W	x	1	4	3	4	x	As for 5650W.
	5575W	x	1	4	3	6	0.2	As for 5650W.
	5550W	x	1	2	4	4	0.2	As for 5650W.
	5525W	x	1	1	3	4	x	As for 5650W.
	5500W	x	1	1	7	6	x	As for 5650W.
5700N	6075W	1.S.*	3	9	5	4	0.2	Brown humus soil.
	6062W	x	1.5	1.5	1.5	1.5	1.5	As for 6075W.
	6050W	x	5	19	11	4	0.2	As for 6075W.
	6037W	x	4	18	6	2	x	Chocolate brown humus soil.
	6025W	x	2	16	5	x	0.2	As for 6037W.
	6012W	x	3	4	7	2	0.2	Drainage sample, grey sludge.
	6000W	x	x	2	4	x	x	Grey soil.
	5990W	x	x	3	4	2	0.2	Grey residual soil (Oonah).
	5987W	x	1	4	6	2	0.4	As for 5990W.
	5975W	x	1	5	6	x	0.2	Brown humus.
	5962W	x	1	3	2	2	x	Brown humus and grey soil.
	5950W	x	3	10	8	4	0.2	Light brown humus soil.
	5937W	x	2	9	7	4	0.2	Grey soil.
	5925W	1.S.*	6	10	16	4	0.4	Brown humus soil.
	5912W	x	1	4	5	2	0.2	Brown humus soil.
	5900W	x	6	22	8	4	0.2	Brown humus soil.
	5887W	x	3	11	3	2	0.4	Brown humus soil.
	5875W	x	x	3	2	2	0.1	Brown humus soil and grey soil.
	5862W	x	1	3	2	4	x	Grey soil.
	5850W	x	1	2	2	2	x	Grey soil.
	5837W	x	3	5	5	6	0.2	Grey and brown humus soil.
	5825W	x	x	1	3	2	0.2	As for 5837W.
	5812W	x	2	1	4	2	0.2	Brown and grey humus soil "button" grass.
	5800W	x	1	1	6	4	0.2	As for 5812W.
5800N	5425W	x	1	1	3	4	x	Grey sandy residual quartzite and sandstone fragments (Oona
	5400W	x	1	1	1	4	x	As for 5425W.
	5375W	x	1	2	1	4	x	Grey sandy residual soil (Oonah).
	5356W	Not received by laboratory.						
	5350W	x	1	2	3	6	x	Drainage - quartz gravels and black soil.
	5325W	x	1	3	3	8	x	As for 5350W.
	5300W	x	2	1	4	4	x	As for 5350W.
	5275W	x	2	1	4	6	0.2	As for 5350W.
	5250W	x	2	x	5	3	x	Black alluvial soil with quartz and quartzite gravels, occasional granite boulder - button grass valley.
	5225W	x	x	2	2	2	x	As for 5250W.
	5200W	x	1	1	2	2	x	As for 5250W.
	5175W	x	1	1	2	2	0.2	Black alluvial soil, some sand and gravel.
	5150W	x	1	1	2	2	0.2	As for 5750W.
	5125W	x	1	1	4	2	0.2	Alongside creek grey sandy soil - creek wash.
	5100W	x	1	1	4	2	0.2	Black soil alluvial sand and gravel.

Northing	Easting	Sn	Cu	Zn	Pb	Bi	Ag	Description
5800N	5075W	x	1	1	2	4	0.2	As for 5100W.
	5050W	x	1	x	4	2	0.2	As for 5100W.
	5025W	20	2	3	3	4	0.2	Drainage Livingstone Creek.
	5000W	20	1	4	6	4	x	Black soil and quartz gravels - button grass.
	4975W	I.S.*	1	6	3	2	0.2	As for 5000W.
6000N	5356W	x	2	2	2	4	x	Grey fine grained sandy residual soil.
	5325W	x	1	5	1	8	x	Brown soil quartz gravels to ½ cm transported(?)
	5300W	x	x	1	1	4	x	Drainage grey sandy soil.
	(M) 5287W	x	1	1	4	6	0.2	Drainage sample.
	(M) 5285W	x	2	6	5	12	0.2	
	5275W	x	1	2	4	6	x	Grey, fine-grained sandy soil - probably flood section of creek.
	5250W	x	1	x	5	4	x	Black clayey soil with fine grained quartz grains, transpor
	5225W	x	2	1	3	4	x	Black humus soil, button grass, transported.
	5200W	x	1	1	5	4	0.2	As for 5225W.
	5175W	x	1	1	3	6	x	Drainage sample.
	5150W	x	1	2	5	2	x	Drainage - bank of creek.
	5125W	20	1	2	4	4	0.2	Black soil, lot of gravels - alluvial.
	5100W	20	2	3	7	6	0.2	As for 5125W.
	5075W	x	1	1	3	8	0.4	As for 5125W.
	5050W	20	2	3	4	6	x	As for 5125W.
	5025W	20	2	3	5	4	x	Drainage grey sandy soil bank of Livingstone Creek.
	5000W	x	2	5	2	4	0.2	Black soil and quartz gravels, alluvial button grass.
	4975W	x	1	1	2	4	x	As for 5000W.
6100N	5187W	x	1	1	1	4	x	Grey soil slope wash with quartz gravels.
	5162W	x	1	x	1	4	x	Grey brown alluvial soil with quartz gravels.
	5145W	x	1	2	5	4	x	Drainage sample, grey sandy soil.
	5125W	20	2	2	4	2	0.2	Dark grey clayey soil with quartz grains and gravel - alluvial, button grass.
	5100W	20	1	3	4	8	0.2	As for 5125W.
	5075W	x	2	3	5	4	0.1	As for 5125W.
	5050W	x	1	4	3	2	0.2	Brown grey clayey soil, some quartz grains.
	5025W	x	2	3	4	6	0.2	Grey brown sandy soil - Livingstone Creek, western bank.
	5000W	x	2	3	5	2	0.2	Drainage - Livingstone Creek.
	4975W	x	1	3	2	8	x	Brown-black soil and quartz gravels, alluvial - button gra

* insufficient sample.

APPENDIX III

1976 GEOCHEMICAL SAMPLING

LINES 6600N, 6550N, 6500N, 6450N, 6400N, 6350N, 6300N, 6250N, 6200N.

Northing	Westing	Sample Number	Sn	Cu	Zn	Pb	Bi	Ag	Description
6600N	5083W	600400S	x	2	2	12	4		Light grey brown Oonah Formation soil plus granitic(?) soil in part.
	5074W	600401S	x	2	2	12	1		Oonah Formation slope wash.
	5068W	600402W	x	2	2	10	4		Grey-brown gully mud (Oonah?).
	5052W	600403S	x	2	2	12	4		Biotitised Oonah Formation (quartzitic) soil.
	5052W	600404R							Hornfelsed biotitised Oonah Fm. (quartzitic siltstone
	5042W	600405M	x	2	2	10	2		Gully sample; biotitic Oonah Formation plus porphyritic granite cobbles.
6550N	5081W	600406S	x	2	2	10	x		Pale grey-brown Oonah Formation soil plus quartz pieces (veining or granite?).
	5075W	600407S	x	2	2	16	2		Dark brown organic soil - Oonah Formation?
	5055W	600408R	3600	190	255	24	300	2.8	Limonitic ("gossan") outcrop, chip sample 5033W-5060W
6500N	5167W	600409S	x	2	2	12	4		Grey-brown Oonah Formation soil.
	5142W	600410S	x	2	2	10	2		Dark brown organic Oonah soil.
	5123W	600411S	x	2	2	10	2		Grey-brown organic Oonah soil.
	5100W	600412S	x	2	2	8	2		
	5046W	600413R	2600	65	210	20	150	3	Limonitic "gossan".
6450N	5180W	600414M	x	2	2	10	2		Biotitic Oonah Formation cobbles in gully.
	5168W	600415S	x	2	2	10	2		Oonah Formation? soil.
	5151W	600416S	x	x	2	10	2		Oonah soil - no outcrop.
	5123W	600417S	x	2	2	10	x		Oonah soil - no outcrop.
	5098W	600418S	x	8	2	8	x		Oonah soil.
	5087W	600419S	60	x	2	10	x		Hornfelsed Oonah quartzite soil.
	5075W	600420S	500	10	28	20	28		Limonitic "gossan" scree near contact. No outcrop.
6462N	5071W	600421R	340	52	150	36	50	2.6	Gossanous material plus quartz fibrous contact metamorphic sample -, scree "gossan" surface.
6450N	5065W	600422R	740	25	75	22	160	2.6	Chip sample - scree "gossan" surface.
	5050W	600423S	240	12	48	32	20		Gossanous soil.
6400N	5150W	600424S	40	2	2	8	6		Coarse quartz grit plus Oonah Formation soil
	5122W	600425S	20	2	2	10	2		Coarse quartz grit (granitic) plus Oonah Fm. fragment
	5108W	600426R	1080	14	85	28	100	3.0	Limonitic "gossan" scree.
	5092W	600427S	1200	26	200	36	32		Soil from "gossan" scree near slope.
	5095W	600428R	1700	10	100	25	155	2.8	Limonitic scree and chips, 5092W-5100W.
6350W	5172W	600429M	x	2	2	12	x		Gully with Oonah Formation pebbles.
	5154W	600430S	140	2	4	10	4		Coarse quartz grit (granite?); Oonah Fm. soil on slo
6351N	5129W	600431S	100	2	2	10	4		Spoil from old pit - Oonah Formation material.
	5112W	600432S	360	10	28	18	10		"Gossanous" soil - west edge of "gossan".
	5100W	600433R	1600	140	230	20	84	2.6	Limonitic "gossan" - chips from 5112W-5087W.
	5080W	600434R	2700	20	255	22	96	2.8	Limonitic "gossan" -, chips from 5087W-5077W.
6300N	5156W	600435S	x	2	2	8	4		Edge of scarp - Oonah Formation soil.
	5127W	600436W	20	2	2	8	2		Oonah scree - no outcrop.
	5118W	600437S	1040	68	74	30	50		Limonitic "gossan" scree - edge of limonite.
	5105W	600438R	640	100	200	140	80	2.4	Limonitic "gossan" -, chips from 5118W-5098W.
	5092W	600439R	1100	18	165	22	38	2.4	"Gossan" with radiating limonitic crystals (contact metamorphic mineral).
6250N	5180W	600440S	20	2	2	8	4		Oonah Formation soil on flat area.
6254N	5154W	600441S	20	2	2	10	6		Dark organic Oonah soil in bank of gully.
6250N	5125W	600442S	20	2	4	10	6		Grey brown soil - Oonah Formation on flat area, no gossan, quartz plus possible granite grit.
	5100W	600443S	80	2	4	12	2		Oonah soil - slope wash.
6200N	5172W	600444S	60	2	2	4	4		On rising ground above alluvials; no outcrop; Oonah
	5150W	600445	20	2	2	6	2		Dark organic marshy soil on flat.
	5124W	600446	80	4	6	14	14		Soil alluvial bank of gully - contains limonitic pebbles of "gossans".
	5124W	600447R	760	18	195	20	40	2.2	Transported (or local) limonitic pebbles of gossan i alluvial gravels (check magnetics).

APPENDIX IV
1976 GEOCHEMICAL SAMPLING
CROSS LINES CC1 AND CC3

Cross Line	Northing	Sn	Cu	Zn	Pb	Bi	Ag	Description
CC1	4720N	x	38	34	21	16	1.0	Khaki soil residual, fine-grained black hornfelse.
	4740N	x	46	36	27	18	1.2	Khaki soil residual.
	4760N	x	54	48	29	18	1.2	Khaki soil residual green-grey volcanics(?).
	4780N	x	70	36	33	14	1.4	Mauve sandy quartzites.
	4800N	x	58	20	20	16	1.2	Brown soil dark grey-black greywacke weathers blue-gr
	4810N							Granite boulders - no sample.
	4820N	x	30	15	28	12	1.0	Grey granitic soil and granite boulders.
	4840N	x	15	17	20	6	1.0	Brown soil with fine quartz grains - granitic.
	(M) 4850N	x	12	20	15	4	0.8	
	4860N	x	2	3	8	2	0.4	Grey white granitic soil transported.
	4880N	x	2	3	4	8	x	As for 4860N.
	4900N	20	2	3	14	4	0.4	As for 4860N.
CC3	4840N	20	2	5	7	4	0.4	Grey granitic soil transported(?).
	4860N	20	6	35	10	4	x	As for 4840N.
	4880N	x	2	4	5	4	x	As for 4840N.
	4900N	x	2	8	8	6	0.4	Grey-brown granitic soil transported(?).
	4920N	x	2	4	6	4	0.2	Drainage area from drilling water flow. Granitic soil transported and brown soil.
	4940N	x	2	3	5	4	x	Brown soil and granitic gravels.
	4960N	x	2	3	8	6	x	Brown humus soil and granitic gravels.
	4980N	1.5.	3	5	7	4	x	As for 4960N.
	5000N	x	2	3	8	8	0.2	As for 4960N.
	5020N	x	2	5	8	4	0.4	As for 4960N.
	5040N	x	2	5	8	x	x	Brown humus soil.
	5060N	x	3	10	15	x	0.4	As for 5040N.
	5080N	x	6	28	16	x	0.8	As for 5040N.
	5100N	x	6	8	8	6	0.2	As for 5040N.
	5110N	x	2	5	5	x	0.2	As for 5040N.

APPENDIX V

LOG DDH 7914N1 (=SR5)

AND

DDH 7914N2 (=SR6)

08

298083

PACMINEX PTY. LTD. — DETAILED DRILL LOG

ASSUME HELIPAD AT Scoom/4ooN IS RL230m

AREA	0 STANLEY RIVER	PROJECT NUMBER	600
STATE	TAS	LOCATION	EL53 70
DIP (0m)	45	BEARING	218M
DATE STARTED	160176	DATE COMPLETED	140276
CONTRACTOR	A.D.D.	DRILLER	S. BATCHELOR
CO-ORDINATES N	499900	W	472100
COLLAR R.L.	232	DEPTH	27490
AREA OF INFLUENCE		DRILL TYPE	DC
HOLE NUMBER	7914N1 1 (SR5)	PAGE	1 OF 14
HOLE SIZE	HQ TO 15m & NQ TO 38	ASSAY TYPE	A.A.S (Sn by NH4I; Cu, Pb, etc by HClO4)
LOGGED BY	P. MACNAMARA		

% Core Recovery	Metres	Summary Description	Rock Type	S.G.	Visual Log	Start Depth	Finish Depth	Sample Interval	Sample Number 7914N1	Min. Type	Sn (ppm)	Cu	Zn	Pb	Bi
	0	UNCONSOLIDATED OVERBURDEN 0-4.0m clays, quartz-tourmaline (granitic) boulders - clays not recovered				0.00	4.00	4.0	026		00	6	14	20	20
7															
		4.0-9.3m GREY QUARTZITIC HORNFELS dark grey pyritic granular quartzose sericitic hornfels, trace chalcopyrite. Possibly in situ. Limonitic				4.00	9.30	5.3	027		010	104	120	44	26
	5														
7															
		9.3-49.3m GREY BLUE SHALEY SILTSTONE (= CRIMSON CREEK FORMATION ?), hornfelsed, biotite-sericite alteration. In situ.				9.30	11.50	2.2	028		00	64	360	30	26
100	10	9.3-14.0m weathered soft (Mohs H=1), limonitic-yellow, chloritic, dark grey-brown claystone with one patch of hard hornfels (as for 4-9.3m); possibly brecciated.				11.50	14.00	2.5	029		10	38	300	34	26
2															
		14-17.5 limonitic grey brown slate (?14-14.2m?) followed by 0.08m harder blue grey bedded shaley siltstone. Bedding angle to core axis (BCA) 65-75°.				14.00	17.50	3.5	030		20	76	230	28	24
	15					15.00	SLUDGE	2.5	001		00	82	130	34	22
6															
		17.5-20.5 As for 14-17.5m BCA 70-90° (variable) limonite stains on fractures. Grey blue siltstone with clayey sections. Some slickensides.				17.50	20.50	3.0	031		20	66	290	30	24
						17.50	SLUDGE	3.0	002		00	80	108	34	18
17	20														

085

298084

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA	0
STATE	
LOCATION	
PROJECT NUMBER	
DIP	
BEARING	
DATE STARTED	
DATE COMPLETED	
CONTRACTOR	
DRILLER	
CO-ORDINATES N	
E	
COLLAR R.L.	
DEPTH	
LOGGED BY	
AREA OF INFLUENCE	
DRILL TYPE	
HOLE NUMBER	SR5 791 4N1 1
PAGE	2 OF 14
HOLE SIZE	NQTT 38 TO 66m
&	86 TO 274.9m
ASSAY TYPE	TO

% CORE RECOVERY	DEPTH	SUMMARY DESCRIPTION
17	20	20.5 – 22m : soft (Mohs H1-2) clayey grey blue shaley siltstone; ? biotite alteration (hornfelsing); limonite on fractures; b.C.A. 60°
23		22-23.5m : banded (1-3mm) siltstone, grey-blue (as for 20.5-22m), hardness 2-3, biotite along bedding bands in places; b.CA 60°/22.1m, 30°/23.3m
23		23.5 – 25m : siltstone, grey-blue (as above); b.CA 45-60°, flattened ellipsoid "inclusions" along bedding (0.5×3cm) are black and white in colour, (pumice ?)
6	25	25 – 29.5 : no recovery.
0		
0		
0		
	30	29.5 – 32.5 : siltstone yellow-brown limonitic khaki clay and blue siltstone 31.5-32.5m (b CA 70°) biotite alteration; quartz-limonite veining 29.5 – ? 31.5m.
13		32.5 – 35.5m : No recovery
0	35	35.5 – ?36m : siltstone, grey-blue (as above) biotite alteration, shaley lenses; b CA 60-70°
25		?36 – 39.5m : completely weathered (H=1) yellow-brown limonitic shale, light grey clay in places; biotite alteration.
26	40	39.5 – 41.2 : shale, silty, blue grey limonitic, clay in places; brecciated 40 – 41m.

ROCK TYPE | S.G | VISUAL LOG

LOG SCALE 1:100	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914N1/	Sn	Cu	Zn	Pb	Bi
	2050	2200	1.5	032	20	86	286	36	24
	2050	SLUDGE	1.5	003	04	90	130	32	22
	2200	2350	1.5	033	00	72	150	34	24
	2200	SLUDGE	1.5	004	00	86	120	32	20
	2350	2500	1.5	034	00	126	326	46	24
	2350	SLUDGE	1.5	005	00	80	130	34	20
25	2500	SLUDGE	1.5	006	00	92	140	36	22
	2650	SLUDGE	1.5	007	00	56	120	32	26
	2800	SLUDGE	1.5	008	00	84	140	34	24
	2950	3250	3.0	035	20	64	320	36	26
30	2950	SLUDGE	1.5	009	00	84	140	38	24
	3100	3250	1.5	010	00	76	140	34	22
	3250	SLUDGE	1.5	011	00	76	130	34	24
	3400	SLUDGE	1.5	012	00	76	130	36	24
35	3550	3850	3.0	036	20	84	290	30	22
	3550	SLUDGE	1.5	013	00	86	140	32	24
	3700	SLUDGE	1.5	014	00	78	120	32	24
	3650	4000	1.5	037	20	220	250	30	26
	3850	SLUDGE	2.0	015	00	74	32	48	22
40	4000	4120	1.2	038	20	210	140	28	26

084

298085

PACMINEX PTY. LTD. — DETAILED DRILL LOG

SR5

AREA	0	PROJECT NUMBER		DATE STARTED		CO-ORDINATES N		COLLAR R.L.		AREA OF INFLUENCE		HOLE NUMBER	79 14 N 1 1
STATE		DIP		DATE COMPLETED		E		DEPTH		DRILL TYPE		PAGE	3 OF 14
LOCATION		BEARING		CONTRACTOR		LOGGED BY						HOLE SIZE & ASSAY TYPE	TO / TO / TO
				DRILLER									

% CORE RECOVERY (by run, top to bottom): 21, 63, 53, 67, 23, 13, 11, 24, 21, 50, 62, 36, 50, 85, 69, 76

METRES: 40 – 45 – 50 – 55 – 60

SUMMARY DESCRIPTION

41·2 – 44·2m : siltstone, blue grey and khaki in places. Bedding inclusions of quartz fragments and minor speckled black and white lenses ("pumice" appearance). Limonite on fractures and bedding. Biotite alteration with magnetite 43·6 – 44·2 ; b.C.A. 70°/41·3m, 60°/41·6m, 45°–60°/41·9m (inclusions on bedding occur here), 65°/43·6m, 70°/43·9m, 75°/44m

44·2 — 45·6m : siltstone grey blue and clayey, yellow brown ; red shale bands in places nr. 45·5m, biotite alteration especially 45·6 – 47·5m.

45·6 – 47·5 m : yellow brown limonite clay, blue grey clay and quartz – limonite – goethite fragments ("gossan") in minor quantities in places.

47·5 – 49·3m : limonitic yellow brown clay, blue grey clayey shale and minor quartz – limonite – goethite fragments.

49·3 – 50·5m : CELLULAR GOETHITE

3cm fragments of hard dense microcellular limonitic goethite ("gossan")

50·5 – 58·30m : RED BROWN BIOTITIZED SHALE

(= Cronin Creek Formation ?)

50·5 – 52·2m : dark red brown biotitic (hornfelsed) shale limonitic, H = 2 ; b.C.A. 70°/50·8m ; no limonite "gossan" recovered

52·2 – 53·2m : dark yellow brown and greenish brown clayey shale with chlorite biotite alteration in places ; bCA 70°/52·5m

53·2 – 53·3m : broken hard limonite ("gossan") – cave-in ?

53·3 – 56·5m : yellow brown chocolate and greenish brown clay shales. hard goethite "gossan" 54·85 – 55·0m. bCA 40°/55·2 45°/55·5. Chlorite slickenside alteration (clay) with 10 – 30° fractures at 54m and 56m, strong at 55·5m.

56·5 – 57·8m : banded dark brown limonitic shale. pale quartzite 57·20 – 57·25m with bCA 40°, interbanded pale grey shale and purplish brown siltstone 57·5 – 57·8m with sedimentary breccia zones with white chert, limonitic siltstone pale shale fragments plus blue-green chloritic clay and sericite

58·30 – 62·0m : DOLOMITE

58·30 – 59·0m porous, microcellular pale pink dolomite. bCA 80°/58·7m. voids on bedding (weathering?) lined with yellow siliceous clay 58·30 – 58·50m

59·0 – 62·0m : grey white dolomite, crystalline in places with irregular chloritic clay lined voids in places. green (?) muscovite in some cells ; no sulphides on bedding.

ASSAY

LOG SCALE	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	Sn	Cu	Zn	Pb	Bi
	4050	SLUDGE	0·7	016	00	90	120	34	26
	4120	4210	0·9	037	20	160	230	30	30
	4120	SLUDGE		017	00	96	120	32	24
	4210	4360	1·5	040	00	88	150	30	28
	4210	SLUDGE	1·5	018	00	88	120	30	22
	4360	4450	0·4	041	00	40	210	38	30
	4360	SLUDGE	0·9	019	00	84	120	36	26
	4450	4560	1·1	042	20	44	230	40	36
45	4450	SLUDGE	1·5	020	00	90	130	32	26
	4560	4750	1·9	043	20	78	240	64	38
	4600	SLUDGE	1·0	021	00	84	120	36	24
	4700	SLUDGE	5·0	022	00	88	118	34	24
	4750	4930	1·8	044	40	78	240	34	30
	4930	4980	0·5	045	00	116	280	38	58
	4980	5050	0·7	046	40	120	330	40	52
50	5050	5200	1·5	047	00	190	250	54	30
	5200	5320	1·2	048	00	250	310	68	36
	5200	SLUDGE	3·0	023	00	82	120	38	24
	5320	5500	1·8	049	00	130	420	48	48
55	5500	5650	1·5	050	20	320	400	52	36
	5500	SLUDGE	1·5	024	00	80	110	36	20
	5650	5750	1·0	051	20	150	420	42	42
	5650	SLUDGE	1·0	025	00	76	118	36	22
	5750	5830	0·8	052	20	84	400	40	44
	5830	5930	1·0	053	40	12	120	40	64
	5930	6000	0·7	054	40	30	34	40	68
60	6000	6050	0·5	055	40	18	30	40	66

085

298086

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA 0 | PROJECT NUMBER | DIP 63m 47 | BEARING | STATE | LOCATION

DATE STARTED | DATE COMPLETED | CONTRACTOR | DRILLER

CO-ORDINATES N | E | COLLAR R.L. | DEPTH | LOGGED BY

AREA OF INFLUENCE | DRILL TYPE

HOLE NUMBER 7914N1 (SR5) | PAGE 4 OF 14 | HOLE SIZE & ASSAY TYPE

% Core Recovery	Metres	Summary Description
	60	trace limonite, hard dolomite 60.5-60.8. black spotted dolomite
34		band at 60.8m studded with 1-3mm fragments possibly of material
		62-65.15m : galena traces.
31		
		62-65.15m QUARTZ SPECKLED MAUVE CHERT with
100		disseminated pyrite? – pyrite in a brownish mauve siliceous matrix.
100		No effervescent carbonate. Possibly an acid volcanic with fragment of
100		coarse quartz porphyry in a mauve matrix ; B.C.A. 45°/62.1m,
93		40°/62.3m 35°/62.54m 35°/62.7m 50°/62.9m 55°/63m 50°/63.2m
		55°/63.5m, 60°/63.8m, 60°/63.9m. Cave-in 64.0-65.15 (only
27	65	cave-in recovered ?)
		65.15- 90.1m — DOLOMITE
		65.15-65.4m : grey dolomite, limonite on fractures
100		65.4-75.7m : [illegible] dolomite, generally grey, massive; sections
		of white chert, grey black dolomite with pink (?) oolite,
100		pink dolomite. limonite on fracture at 69.05, 69.25, 69.50, 72.6m. B.C.A.
		[illegible] to 66.9m (+50°?), 40°/68.9, 45-55°/69.2m, 55°/69.4m
44		60°/73.8m, 50°/74.1m. bedding generally [illegible] 40-50° to CA in the dolomite
		White porcellaneous microgranular chert (replacement?
		73.80-73.65, 73.95-74.3m, 77.65-77.8. Contact 65°/73.85m.
		Banded 68.95-69.5m, some materials as for 62-65.15m with
100	70	pink chert at 68.95-69.25m and dark dolomite with pink
		and black inclusions (oolites? volcanic detritus?) 69.5-70.45m
		Dark grey dolomite 76.7-77.6m (detritus contribution ?)
94		
	75	
100		
100		
		78.7-79.15m grey dolomite
		79.15- 79.60m cherty porcellanite, green chlorite
100		([illegible] (?) selvage 35°/79.15m and 45°/79.60m,
	80	banding 45°/79.5m by (?) epidote / light green
		clay

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N/	Sn	Cu	Zn	Pb	Bi
60.50	62.10	1.6	056	40	46	34	40	62
62.10	62.50	0.4	057	10	100	50	32	32
62.50	62.90	0.4	058	90	120	42	36	34
62.90	63.70	0.8	059	60	200	32	24	24
63.70	65.20	1.5	060	40	190	40	24	24
65.20	65.50	0.3	061	60	12	20	34	66
65.50	66.50	1.0	062	40	6	20	38	64
66.50	67.50	1.0	063	60	8	20	36	66
67.50	68.90	1.4	064	40	16	18	36	66
68.90	69.60	0.7	065	20	4	22	24	38
69.60	70.50	0.9	066	40	20	50	40	66
70.50	71.50	1.0	067	60	6	14	38	76
71.50	72.40	0.9	068	60	6	26	38	68
72.40	72.85	.45	069	20	6	34	20	24
72.85	73.95	1.1	070	40	8	32	40	58
73.95	74.30	.35	071	00	12	22	16	12
74.30	76.30	2.0	072	40	2	22	34	62
76.30	77.65	1.35	073	40	16	34	40	66
77.65	78.70	1.05	074	00	12	18	18	10
78.70	79.15	.45	075	60	4	26	38	72
79.15	79.65	.50	076	00	6	52	24	24
79.65	81.50	1.85	077	60	30	26	40	66

U86

298087

PACMINEX PTY. LTD. — DETAILED DRILL LOG

SR5

AREA: 8 | PROJECT NUMBER: | DATE STARTED: | CO-ORDINATES N: | COLLAR R.L.: | AREA OF INFLUENCE: | HOLE NUMBER: 7914N1 1

STATE: | LOCATION: | DIP 9Øm 52° | BEARING: | DATE COMPLETED: | E: | DEPTH: | DRILL TYPE: | PAGE 5 OF 14

CONTRACTOR: | DRILLER: | LOGGED BY: | HOLE SIZE & ASSAY TYPE: ___ TO ___

% Core Recovery	Metres	Summary Description	Start Depth	Finish Depth	Sample Interval	Sample Number 7914Ni/	Sn	Cu	Zn	Pb	Bi
100	80	79.60m – 86.5m: medium to light grey dolomite with green chlorite-									
		carbonate and green chlorite-white porcellanite zones:									
		81.7 – 81.8m: green chlorite-carbonate zone banded 70° to CA.									
		82.4 – 82.45m: as for 81.7-81.8m, 35° to CA.	815Ø	8395	2.45	Ø78	4Ø	1.2	22	36	64
100		82.7 – 82.8m: elliptical chlorite-carbonate zones with									
		serpentine outer rim (= crenulation slump, serpentine selvage)									
		84.0 – 84.2m: 55-65° to CA cream banded porcellanite									
		84.65 – 84.7m: pale green chlorite-carbonate zone, 35° to CA	8395	842Ø	.25	Ø79	ØØ	1.4	2Ø	26	1.4
		85.55 – 85.65m: crenulation band (30°→0°→30° to CA) of yellow	842Ø	862Ø	2.Ø	Ø8Ø	4Ø	8	2Ø	4Ø	7Ø
		clay-chlorite-carbonate, limonite fracture 81.5, 83.5m									
100	85	84.5m: 5mm chert band 30° to CA.									
		86.5 – 90.1m: mid grey massive dolomite (as for 79.6-86.5m),									
		darkens below 89.7m, pale green (?) chlorite-light carbonate	862Ø	882Ø	2.Ø	Ø81	4Ø	6	24	4Ø	64
		zones (as above) 1E crenulated zone 40°-0°-40° to CA 87-87.15m, dark									
		green chlorite-clay 87.75-87.90m, pale green clayey zone 88.3-88.4m									
		89.15 – 89.65 cream carbonate-pale cream clay with chlorite									
100		serpentine selvage, 30° contact 89.15m. Bedding/banding	882Ø	891Ø	Ø.9	Ø82	4Ø	6	18	42	7Ø
		angle to core axis (to CA) = 0° crenulated 87.1m; 30°/87.3m,									
		35°/88.8m, 20°/89m, 35°/89.5m.	891Ø	8974	Ø.6	Ø83	4Ø	4	3Ø	3Ø	44
			897Ø	9Ø1Ø	Ø.4	Ø84	4Ø	28	22	35	76
	90	90.1 – 102.4m: DARK BIOTITIC CHERTY CALC-SILICATE	9Ø1Ø	92Ø5	1.45	Ø85	2Ø	28	88	34	38
97		HORNFEL, banded and (slump?) crenulated and brecciated									
		with pyrrhotite and magnetite.									
		90.1 – 91.1m: black, dark green and grey pyrrhotite banded to									
100		brecciated aphanite, 1-25mm angular fragments with green FeMgs	92Ø5	93Ø5	1.Ø	Ø86	ØØ	112	4Ø	2Ø	76
		in the centre, biotite margins, magnetic. to CA 25°/90.2, 35°/90.8-91.4m									
		91.1 – 92.65m grey black banded carbonate, 3mm rock fragments. biotite	93Ø5	937Ø	Ø.65	Ø87	ØØ	46	32	16	8Ø
		fissility bedding (to CA 35-55°, average 40°). Magnetic, but little	937Ø	948Ø	1.1	Ø88	ØØ	42	34	18	14
97		apparent pyrrhotite.									
		92.65 – 93.55m. pale green hard, finegrained to coarse grained altered	948Ø	96Ø5	1.25	Ø89	ØØ	76	44	2Ø	2Ø
	95	dolomite (FeMgs serpentinised) - calc silicate weakly magnetic to CA 40°									
		93.55 – 93.70m - chert and green quartzite, crenulation slump on pyrrhotite zone.									
		93.70 – 96.05: black and dark green chert, strong pyrrhotite sections, biotite	96Ø5	97Ø5	1.Ø	Ø9Ø	ØØ	2Ø	32	28	3Ø
		in places (alteration) and FeMgs (skarn?) slump breccia. magnetic									
100		possibly B.I.F type. banding 0-40° generally 25-30° to CA.	97Ø5	98Ø5	1.Ø	Ø91	2Ø	54	54	34	54
		96.05 – 96.35 dark biotite zone spotted with 2-10mm quartzose patches. to CA 45°									
		96.35 – 96.60 white carbonate in part with pyritic chlorite (3mm) "spots";	98Ø5	9895	Ø.9	Ø92	ØØ	2Ø	5Ø	26	56
91		chlorite zone, 30° to CA (to CA?)	9895	9995	1.Ø	Ø93	ØØ	42	4Ø	3Ø	24
90		96.60 – 96.70m: 45° to CA banded pyrrhotitic chert, grey and pink.									
89		96.70 – 98.95m banded pink-green cherty sections plus grey black	9995	1Ø1Ø	1.15	Ø94	ØØ	38	28	16	14
	100	banded biotite speckled hornfels to CA 30-45° crenulated; green									
		clay zone 97.75-97.85m parallel to bedding (shear?)									
		98.95 – 101.10 – banded pink-light green-grey cherts, minor									
		biotite fine grained bands, some pyrrhotite.									

08

298088

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA	8
STATE	
LOCATION	
PROJECT NUMBER	
DIP	
BEARING	
DATE STARTED	
DATE COMPLETED	
CONTRACTOR	
DRILLER	
CO-ORDINATES N	
CO-ORDINATES E	
LOGGED BY	
COLLAR R.L.	
DEPTH	
AREA OF INFLUENCE	
DRILL TYPE	
HOLE NUMBER	SRS 7914N1
PAGE	6 OF 14
HOLE SIZE	TO
& ASSAY TYPE	TO

% CORE RECOVERY	METRES	SUMMARY DESCRIPTION
100	100	101.10 – 102.40m – sharp brecciated green FeMg – minor chert – pyrrhotite hornfels
100		
		102.4 – 159.5m: DOLOMITE, GREY, dark bands in places
100		102.4 – 116.5m grey dolomite, 30% dark bands to 107.5m, then 10% to 116.5m; dark mineralised FeMgs (skarn) and fine sulphide (pyrrhotite?) i.CA 45°, range 30–65°; crenulatic dark bedding / bands 0–20°, 110.3 – 111.5m 2–6 breaks per metre
	105	
100		
100		
	110	
100		
100		
100	115	
		116.5 – 139.6m As for 102.4 – 116.5m – mainly light grey crystalline dolomite; dark bands 117.8 – 118.2, 124.95 – 127.1 ([illegible] fossile [illegible]) 125.1 – 126.50m, 130.9 – 131.7m 1 break/metre
100		
	120	

START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914N1/	Sn	Cu	Zn	Pb	Bi
10110	10240	1.3	095	00	104	190	40	24
10240	10340	1.0	096	20	12	12	35	56
10340	10440	1.0	097	40	12	22	35	64
10440	10540	1.0	098	160	12	14	40	60
10540	10640	1.0	099	140	6	20	40	58
10640	10740	1.0	100	140	6	14	41	52
10740	10890	1.5	101	80	4	12	40	56
10890	11040	1.5	102	160	10	14	35	60
11040	11190	1.5	103	160	8	24	40	56
11190	11340	1.5	104	160	6	16	35	60
11340	11490	1.5	105	160	4	12	41	58
11490	11640	1.5	106	160	6	12	40	56
11640	11780	1.4	107	140	6	12	38	56
11780	11820	0.4	108	140	12	24	45	56
11820	12020	2.0	109	160	4	16	40	56
12020	12220	2.0	110	160	4	16	40	61

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA 0 | PROJECT NUMBER | DIP 120m 52° | STATE | LOCATION | BEARING

DATE STARTED | DATE COMPLETED | CONTRACTOR | DRILLER

CO-ORDINATES N | E | LOGGED BY

COLLAR R.L. | DEPTH | AREA OF INFLUENCE | DRILL TYPE

HOLE NUMBER SR5 7914N1 1

PAGE 7 OF 14

HOLE SIZE ____ TO ____ & ____ TO ____

ASSAY TYPE ____ TO ____

% CORE RECOVERY	METRES	SUMMARY DESCRIPTION	ROCK TYPE	S.G.	VISUAL LOG	LOG SCALE 1" TO 20	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914N1/	SAMP. TYPE	ACCEPTED ASSAY Sn	Cu	Zn	Pb	Bi
100	120															
100	125						1,222¢	1,243¢	2.0¢	1111		.16¢	.6	1.6	4.0	6.6
100							1,242¢	1,261¢	1.9	1112		.14¢	.6	1.4	4.0	6.4
100						125	1,261¢	1,265¢	1.4	1113		.12¢	1.0	3¢	4.0	5.6
100							1,265¢	1,285¢	2.0¢	1114		.14¢	2.2	2.6	4.0	6.6
100	130						1,285¢	1,309¢	2.4	1115		.14¢	.4	1.2	3.6	6.0
98		132 - 139.6 light grey crystalline dolomite, 5 breaks/m. Limonite on 5° fracture 134.5-135.5m. Crenulated darker section 131.4-136m, minor pyrobetule: LCA 45°/ 132m, 60°/134m, 58°/134.5m; crenulated 0-45°/134.6m; 65°/ 136m; 55°/136.5m; 50°/137.7m; 50°/138.5m 65°/ 139.6m.					1,309¢	1,318¢	0.9	1116		.14¢	.6	2.0	4.0	6.2
91	135					130	1,318¢	1,336¢	2.0¢	1117		.10¢	3.2	2¢	4.4	6.6
86							1,338¢	1,358¢	2.0¢	1118		.16¢	.6	2.6	4.0	6.6
100							1,358¢	1,378¢	2.0¢	1119		.16¢	.4	1.2	4.4	6.0
100						135	1,378¢	1,398¢	2.0¢	1120		.14¢	.4	1.2	3.8	5.8
	140	139.6 - 146.1 m - grey white dolomite, minor dark fabric only; white 140.1 - 143.5 m, grey to 145m, white to 146.1m; clay on fractures 5°/ 140.4m; limonite fracture 25°/ 145.7m; L.C.A. 55°/ 140.2m 60-70°/ 141.1m; 60°/ 141.8m, 60°/ 142.5m.					1,398¢	1,418¢	2.0¢	1121		.16¢	.4	1.0	4.2	6¢
						140										

298090

PACMINEX PTY. LTD. — DETAILED DRILL LOG

SR5

AREA 0 | PROJECT NUMBER | DATE STARTED | CO-ORDINATES N | COLLAR R.L. | AREA OF INFLUENCE | HOLE NUMBER 7914N11

STATE | LOCATION | DIP 152m 52° | DATE COMPLETED | E | DEPTH | DRILL TYPE | PAGE 8 OF 14

BEARING | CONTRACTOR | DRILLER | LOGGED BY | HOLE SIZE ____ TO ____ | & ____ TO ____ | ASSAY TYPE ____ TO ____

% CORE RECOVERY	METRES	SUMMARY DESCRIPTION
100	140	
97		
98	145	
		146.1 – 151.7m : grey and white fine grained crystalline dolomite ; green chloritized FeMg zone 146.90 – 147.10m crenulated c. 25° – c° to C.A. Black and green crenulated zone 149.7 – 150.15 m. to C.A. crenulated/147m, 25 – 30°/148 – 149.5m, 30°/150.7m, 25°/151.2m.
100		
100	150	
		152.15 – 157.8m : grey dolomite, occasional dark bands and patches ... pyrrhotite ; to C.A. 30°/152.1, 30°/152.2m – 153.3m, 25° crenulated/153.6m, 30°/154m, 25°/155m, 25°/155.5m, 15°/155.7m, 20°/156.1m, 45°/156.5m.
100		
100	155	
		157.8m – 159.5m : dolomite, 10 – 20% dark bands (magnetite) with FeMg, ? pyrrhotite ? magnetite. Crenulation breccia in part. to CA 30° crenulated/157.8m, 50°/155.2m, 35°/158.6m, 40 – 50°/158.8 – 159.5m.
100		
		159.5 – 172.65 : DARK PYRRHOTITIC CHERTY HORNFELS (second pyrrhotitic cherty argillite zone) : slump brecciated in places : ...
	160	

START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914N1/	Sn	Cu	Zn	Pb	Bi
14180	14380	2.0	122	160	4	12	40	62
14380	14580	2.0	123	140	6	10	40	54
14580	14780	2.0	124	160	6	14	40	60
14780	14965	1.85	125	160	6	8	40	58
14965	15015	.50	126	140	4	12	40	56
15015	15215	2.0	127	100	4	12	44	56
15215	15415	2.0	128	100	4	14	36	70
15415	15615	2.0	129	100	4	16	60	78
15615	15815	2.0	130	100	8	14	38	80
15815	15950	1.35	131	60	10	44	38	100
15950	16090		132	00	54	70	44	40

090

298091

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA 0 | PROJECT NUMBER | DIP | BEARING | STATE | LOCATION
DATE STARTED | DATE COMPLETED | CONTRACTOR | DRILLER
CO-ORDINATES N | E | COLLAR R.L. | DEPTH | LOGGED BY
AREA OF INFLUENCE | DRILL TYPE
HOLE NUMBER 7914N1 1 (SRS)
PAGE 9 OF 14
HOLE SIZE ___ TO ___ & ___ TO ___
ASSAY TYPE ___ TO ___

SUMMARY DESCRIPTION

% core recovery: 100, 100, 100, 100, 100, 97, 100, 100, 100 — Metres: 160, 165, 170, 175, 180

159·5 – 164·95m: grey brown pyrrhotite chert mainly, banded and brecciated structure plus black and dark green banded/brecciated sections with (?) magnetite. b.C.A.: contact 159·5m/ 35–50° crenulated with pyrrhotite: 35°/ 159·8m: 30°–10°–45° to 161·2m. crenulated 30°/ 161·4–163·0; 0–40° crenulated/163·7–164m. Carbonate sections and green FeMg (skarn mineral?) in places

164·95 – 166·2m: pale green carbonate rock, some darker bands crenulated 0–20° (down hole slump direction?)

166·2 – 167·4m: dark crenulated banded dolomite with pale sections: slump structures in parts (down hole slump?) . b.C.A. 30–40°.

167·4 – 170·8 banded to (slump) breccia (5–40mm) crenulated grey black and dark brown carbonate. b.CA 40–50°, skarnoid reaction rims on breccia pieces.

170·8 – 171·5 m: light dolomite to 171·3, then dark; b.CA 45°, crenulated (slumped)

171·5 – 171·85m: purplish-green FeMg-carbonate rock; contact 45° b.CA; slumping down hole direction?

171·85 – 172·4 dark and light zoned dolomite.

172·4 – 172·65: contacts 45° b.CA; dark brown f.g. granular-cherty carbonate with dark grey carbonate either side. partly brecciated

172·65 – 205·4m : DOLOMITE, light grey

173 – 173·65m red-purplish zone (as above)
White clay (infill?) 175·7–175·75, 175·85–176·15m.

176·95 – 177·1m: crenulated pale carbonate with dark green selvages 20°–0°–20° to CA.

177·7 – 178·0m: white cherty and carbonate zone, green selvage (pre-skarn band?); annular skarn growth in upper part

179·8 – 180m: white recrystallized dolomite with some white chert; b.CA 45°/ 174·3, 20°/176, 50°/178·1 crenulated 0–20° to 186·4 from 181; 15°/ 187·4m

ASSAYS (Log scale 1:100; Sample number prefix 7914N1/)

Start depth	Finish depth	Sample interval	Sample number	Sn	Cu	Zn	Pb	Bi
16090	16180	0·9	133	00	50	60	22	70
16180	16240	0·6	134	00	14	20	20	18
16240	16320	0·8	135	40	32	90	30	30
16320	16495	1·75	136	00	36	60	24	28
16495	16620	1·25	137	00	10	12	20	24
16620	16740	1·2	138	60	10	50	46	50
16740	16840	1·0	139	40	14	36	44	52
16840	16940	1·0	140	40	36	42	45	49
16940	17080	1·4	141	20	24	42	40	60
17080	17150	0·7	142	20	16	34	40	52
17150	17185	0·35	143	00	8	74	30	36
17185	17240	0·55	144	20	6	34	40	60
17240	17265	·25	145	20	52	52	40	42
17265	17320	0·55	146	40	6	24	40	52
17320	17420	1·0	147	60	8	28	40	52
17420	17620	2·0	148	40	10	14	32	34
17620	17820	2·0	149	60	6	14	36	46
17820	17970	1·5	150	60	6	14	40	56
17970	18170	2·0	151	40	4	28	54	46

298092

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA: 0 | PROJECT NUMBER | DATE STARTED | DATE COMPLETED | CONTRACTOR | DRILLER | CO-ORDINATES N / E | COLLAR R.L. | DEPTH | AREA OF INFLUENCE | DRILL TYPE | LOGGED BY | HOLE NUMBER: 7914N1

STATE | LOCATION | DIP | BEARING

PAGE 10 OF 14

HOLE SIZE ____ TO ____

& ____ TO ____

ASSAY TYPE ____ TO ____

% CORE RECOVERY	METRES	SUMMARY DESCRIPTION	ROCK TYPE	S.G.	VISUAL LOG	LOG SCALE 1:100	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914 N1/	MIN. TYPES	ACCEPTED ASSAY Sn	Cu	Zn	Pb	Bi
	180															
							181.70	183.20	1.5	1.52		.4	4	24	38	54
		hard clayey porcellanite 183.25–183.4 (45° contact 183.25m); patchy 183.5–184.2m. 186.2–186.95 (cumulative 45° contact 186.95m)! 190.4–190.7, 190.8–191.0m; 191.55–191.9 – chalky white porcellanite, cumulative contacts					183.20	184.20	1.0	1.53		.8	8	22	20	16
							184.20	186.20	2.0	1.54		.6	6	28	38	56
	185					185										
							186.20	186.95	.75	1.55		.2	4	34	26	16
							186.95	188.95	2.0	1.54		.8	12	10	38	52
							186.95	190.40	1.45	1.57		.6	6	12	34	52
	190					190										
							190.40	191.90	1.5	1.58		.2	6	20	24	24
							191.90	193.90	2.0	1.59		.8	2	10	36	54
		193.5 cumulated 0–15° to CA bedding														
							193.90	195.60	1.7	1.60		.6	4	10	38	56
	195	195.6–196.2m: white dolomite, cumulated 0–45° green FeMg zone				195										
							195.60	196.20	.6	1.61		.4	4	26	60	44
							196.20	198.45	2.25	1.62		.4	2	12	36	58
		198.45–199.2m: white porcellanite zone, green FeMg silicate cumulated 0–15° to CA					198.45	199.20	.75	1.63		.2	34	46	34	38
		199.4–200.0m green FeMg zone, 15–20° to CA cumulated white clay (porcellanite)					199.20	200.20	2.0	1.64		.6	6	26	40	64
	200					200										

09

298093

PACMINEX PTY. LTD. — DETAILED DRILL LOG

SR 5

AREA 0 | PROJECT NUMBER | DATE STARTED | CO-ORDINATES N | COLLAR R.L. | AREA OF INFLUENCE | HOLE NUMBER 7914N1

STATE | LOCATION | DIP 213m 51° | BEARING | DATE COMPLETED | CONTRACTOR | DRILLER | E | DEPTH | DRILL TYPE | LOGGED BY | PAGE 11 OF 14 | HOLE SIZE TO & TO | ASSAY TYPE TO

% CORE RECOVERY	METRES	SUMMARY DESCRIPTION
100	200	
96		
		202.8–203.2 light and dark green FeMg and porcellanite zone 0–15° to CA; dark FeMg zone 203.2–203.55m (= serpentinized FeMg). Fine 1mm radiating crystals (actinolite?) 200.4–202m (as for 205.4–219.9m)
100		
100	205	205.4–219.9m: SPECKLED 1mm-(?) ACTINOLITE DOLOMITE with radiating? FeMg crystals (10% actinolite?) ∠ CA? 205.5m / 20° ∠ CA = parallelism of crystals.
100		White dolomite with parallel green FeMg (chloritized serpentine?) bands 10° ∠ CA 206.3–206.6m; ditto 207.2–207.5, crenulated. 209.2–209.5: white and brown recrystallized calcite zone, no apparent FeMgs
100	210	209.5–210.3m: 2% actinolite specks; brownish magnetic material from 210.3m. ∠ CA = 0–25°? 3cm of green FeMg serpentine 209.8–210.7 with black FeMg zone 210.45–210.50m.
100		
100	215	215–215.40m: green chlorite FeMg–carbonate zone crenulated 0–15° to CA. 215.5–219.9m: dark grey dolomite with patches and crenulations of dark FeMg. Black and red brown biotite magnetite section 215.5–215.6m ∠ CA 0–25°, crenulated; minor pyrrhotite.
96	220	219.9–232.0m: DARK CHERTY HORNFELS – crenulated; brown (?) biotite – green FeMg – black contact metamorphic minerals plus dark grey dolomite in places = banded argillite – dolomite skarned sediment (= third dark brecciated zone); minor [illegible] 15° / 219.5; ∠ CA 15° / 221.5m.

LOG SCALE 1:100	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914N1/	Sn	Cu	Zn	Pb	Bi
	20120	20280	1.6	165	60	10	20	38	50
	20280	20320	0.4	166	40	4	56	32	42
	20320	20355	.35	167	40	10	112	28	20
	20355	20750	1.95	168	60	4	20	36	54
205	20550	20750	2.0	169	60	6	40	42	60
	20750	20950	2.0	170	40	6	40	42	60
	20950	21150	2.0	171	40	4	40	40	54
210	21150	21350	2.0	172	40	8	42	42	60
	21350	21550	2.0	173	40	6	30	40	58
215	21550	21750	2.0	174	40	20	30	40	56
	21750	21950	2.0	175	40	22	28	38	52
	21950	21990	0.4	176	20	16	48	40	54
220	21990	22180	1.9	177	00	72	110	36	50

298094

PACMINEX PTY. LTD. — DETAILED DRILL LOG

SR5

AREA: 0 | PROJECT NUMBER: | DATE STARTED: | CO-ORDINATES N: | COLLAR R.L.: | AREA OF INFLUENCE: | HOLE NUMBER: 7914N1 1

STATE: | LOCATION: | DIP: | BEARING: | DATE COMPLETED: | CONTRACTOR: | DRILLER: | E: | DEPTH: | DRILL TYPE: | LOGGED BY:

PAGE 12 OF 14

HOLE SIZE ____ TO ____ & ____ TO ____ ASSAY TYPE ____ TO ____

SUMMARY DESCRIPTION

220 — 20°/220.6m ; 0-10° crenulated /221.2m.

219.9 – 221.5m : brecciated (brittle) zone with dark grey dolomite ; crenulated and brecciated ; grey dolomite 222.1 – 222.6 , contact 25-20°/ 222.1m.

225 — 225.95 – 226.5m : crenulated white porcellanite with green FeMg ; crenulated ≤25° to CA.

227.8 – 227.95m : white porcellanite.

230

232.0 – 242.0m : CHERTY DOLOMITE, pale green to white; pale cherty shale in places, some banding and minor black green FeMg hornfels sections. Skarned pale shale – dolomite ? wollastonite : disseminated minor chalcopyrite and pyrrhotite. Banding white (?) sericitic and porcellanite material and (?) wollastonite.

235 — 232 – 238.9m. to C.A. ?10-20°?, slumped and crenulated : dark green FeMg section 238.9 – 239.5m , banding 25° to C.A.

240

% core recovery: 100, 100, 100, 98, 97, 100, 96

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N1/	Sn	Cu	Zn	Pb	Bi
22180	22280	1.0	178	40	38	36	44	70
22280	22480	2.0	179	40	20	52	54	70
22480	22595	1.15	180	20	22	60	44	66
22595	22650	0.55	181	00	18	106	28	54
22650	22850	2.0	182	40	16	28	34	62
22850	23050	2.0	183	40	10	34	34	58
23650	23200	1.5	184	20	18	30	36	74
23200	23400	2.0	185	00	220	48	20	1300
23400	23600	2.0	186	00	30	18	12	370
23600	23800	2.0	187	00	2	20	10	130
23800	23880	0.8	188	00	4	16	12	66
23880	23950	0.7	189	00	4	66	22	350
23950	24100	1.5	190	00	2	8	10	140

094

298095

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA	0
PROJECT NUMBER	
DIP	
BEARING	
STATE	
LOCATION	
DATE STARTED	
DATE COMPLETED	
CONTRACTOR	
DRILLER	
CO-ORDINATES N	
CO-ORDINATES E	
LOGGED BY	
COLLAR R.L.	
DEPTH	
AREA OF INFLUENCE	
DRILL TYPE	
HOLE NUMBER	7914N1 1 (SR5)
PAGE	13 OF 14
HOLE SIZE	TO
& ASSAY TYPE	TO

Summary Description

% Core Recovery	Metres	Summary Description
100	240	
94		241-241.50 : grey brecciated cherty zone
		242.0 – 259.0 m : DARK HORNFELS, after banded stressed chert - shale - carbonate, slumped, black and green banded cherty sections, dark grey "breccia" dolomite
100		
100		242-244 : mixed rock : dark grey dolomite - green cherty FeMg garnet hornfels, crenulated banding 70°/242.10 40°/242.5, 40°/243, 0-15/243.2-243.7 0-15 & 243.9m
100	245	
92		244 – 252.7m : black magnetite – green FeMg hornfels then pyrrhotite - chalcopyrite in places, some dark dolomite sections ; grey black finely granular (0.2-0.5mm) hornfels 244-248.4m, crenulated 0° to CA; black? magnetite rich banded hornfels with green FeMg; disseminated sulphides, slumped and banded (0 – 20° to CA), pink chert breccia pieces 250.5 – 251.25m in strongly pyrrhotite section ; crenulated ~ 20° to CA
95		
100	250	252.65 – 253.05 : pale green breccia with darker inclusions (irregular to lenticular)
		253.05 – 253.30m : pink quartzite, contact 253.05/50° to CA, lower contact 20° ; minor green FeMg.
		253.30 – 254.40m : 20° banded black and green hornfels shale to 253.6m, then green hornfels, banded 30° at base to CA.
100		254.4 – 255.7m : pale green breccia (as for 252.65-253.05m) with magnetite rich and other pale green and white breccia pieces b.C.A 0°.
	255	255.7 – 257.5m : grey black banded and crenulated and brecciated magnetite. b.C.A 0-15°; contacts 10-15° to CA
98		257.5 – 258.9m : pale white to grey brown pyrrhotite studded hornfels with crenulated pyrrhotite/FeMg shoads b.CA 0-20°. Lower contact is a 20 mm wide pink chert band crenulated 0-15° to CA (similar to 260.8-261.9m).
		258.9 – 274.8m : GREY-WHITE SILTSTONE HORNFEL- after a hornfelsed quartzose - carbonate siltstone cherty banded in places. (? slump) brecciated.
	260	258.9 – 260.8m : pale grey white hornfels siltstone, 1-2% (minor) pyrrhotite plus <10% 1-2mm FeMgs.

Samples and Accepted Assay

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N1/	Sn	Cu	Zn	Pb	Bi
24100	24200	1.0	191	00	6	34	14	12
24200	24270	0.7	192	20	42	60	32	36
24270	24320	0.5	193	20	6	50	36	54
24320	24400	0.8	194	00	4	30	24	22
24400	24600	2.0	195	00	20	22	16	16
24600	24750	1.5	196	00	114	16	16	10
24750	24840	0.9	197	00	230	30	20	12
24840	24940	1.0	198	00	18	64	26	20
24940	25040	1.0	199	00	130	68	24	16
25040	25140	1.0	200	00	310	26	20	14
25140	25265	1.25	201	00	40	32	26	16
25265	25305	0.4	202	00	6	22	20	10
25305	25330	0.25	203	00	6	10	10	4
25330	25440	1.1	204	00	28	28	24	18
25440	25570	1.3	205	00	28	54	32	24
25570	25750	1.8	206	40	22	40	40	50
25750	25890	1.4	207	20	250	82	34	28
25890	26080	1.9	208	00	64	300	30	14

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA 0 | PROJECT NUMBER | DATE STARTED | CO-ORDINATES N | COLLAR R.L. | AREA OF INFLUENCE | HOLE NUMBER 7914N1 1

STATE | LOCATION | DIP | BEARING | DATE COMPLETED | CONTRACTOR | DRILLER | E | DEPTH | LOGGED BY | DRILL TYPE | PAGE 14 OF 14 | HOLE SIZE ___ TO ___ & ASSAY TYPE ___ TO ___

% Core Recovery	Metres	Summary Description
100	260	260·8–261·9m: 3–10mm clots of chlorite FeMgs forming irregular "spots" in white quartzose hornfels; pyrrhotite associated; b CA 10°; lower contact 0–10° to CA.
100		0–30° fractures, slickensided on broken core 261·8–264·2, 263·5–263·9m, 267·6–270·6, 271·8–274·8m
		261·9–263·9m: green quartzose hornfels with brown (?) garnet and green FeMgs. disseminated sulfides; clots of carbonate with (?) garnet selvage in places
50		
100		263·9 – 273·2 pale grey quartzose hornfels with 1–10mm FeMg porphyroblasts plus pyrrhotite in fine grained matrix. Coarse 50mm FeMg clots in places.
100	265	
80		Broken core with bands of pyrite – pyrrhotite rich material 268–270·7, 272–274m. Coarse pyrite due to (?) shearing/recrystallization?
100		
100		Crenulated shearing 0–20° to CA in bands: slaty bands in contact with pink carbonate and FeMg–carbonate clots in breccia.
85		
94	270	
94		
75		
70		
90		273·2 – 274·8 m green clay and cave-in mainly
95		
6		
	275	End of hole 274·8 m.

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N1/	Sn	Cu	Zn	Pb	Bi
260.80	261.90	1.1	209	20	130	44	28	28
261.90	263.50	1.6	210	00	28	36	22	72
263.50	263.90	0.4	211	00	6	180	340	32
263.90	265.90	2.0	212	00	20	118	26	40
265.90	267.90	2.0	213	00	76	300	26	40
267.90	269.90	2.0	214	60	550	240	28	26
269.90	272.00	2.1	215	00	102	18	20	18
272.00	272.20	0.2	216	00	28	170	24	24
272.20	272.70	0.5	217	00	48	102	20	12
272.70	273.00	0.3	218	00	104	52	24	18
273.00	273.20	0.2	219	00	64	150	40	18
273.20	274.80	1.6	220	00	40	44	26	16

096

298097

PACMINEX PTY. LTD. — DETAILED DRILL LOG

ASSUME 5000N/4900W
HELIPAD RL 230m

AREA	0STANLEY RIVER	PROJECT NUMBER	600
STATE	TAS	LOCATION	EL53 70
DIP	45	BEARING	218M
DATE STARTED	260276	DATE COMPLETED	010376
CONTRACTOR	A.D.D.	DRILLER	S. BATCHELOR
CO-ORDINATES N	49100	W	46900
COLLAR R.L.	237	DEPTH	18950
AREA OF INFLUENCE		DRILL TYPE	DC
HOLE NUMBER	7914N2 1 (SRG)	LOGGED BY	P. MACNAMARA
PAGE	1 OF 10	HOLE SIZE	HQ TO 21.6m & NQ TO 8?m
ASSAY TYPE	BG TO 189.5m		

METRES	SUMMARY DESCRIPTION	ROCK TYPE	S.G.	VISUAL LOG	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914N2/	Sn	Cu	Zn	Pb	Bi	Ag
0	0 – 58.0m : GRANITE													
	0 – 19.0m : non-cored section – completely weathered granite collected as sludge only													
	19.00 – 50.3 slightly darker (than 50.3–58.cm section) more porphyritic granite with pronounced green FeMgs ([illegible] [illegible] ?). 10–20mm felspars in a 2–6mm matrix of quartz-felspar-chlorite FeMg matrix.													
	19.0 – 23.0m : granite, weathered (H = 3), limonitic				1900	2000	1.6	300	00	4	36	15	4	.2
20														

NON-CORED

298098

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA: 0 | PROJECT NUMBER | DATE STARTED | DATE COMPLETED | CONTRACTOR | DRILLER | CO-ORDINATES N / E | LOGGED BY | COLLAR R.L. | DEPTH | AREA OF INFLUENCE | DRILL TYPE | HOLE NUMBER: SR6 (791/4N/2) | PAGE 2 OF 10 | STATE | LOCATION | DIP | BEARING | HOLE SIZE | & | ASSAY TYPE

SUMMARY DESCRIPTION	ROCK TYPE	S.G.	VISUAL LOG	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 791/4N2/	ACCEPTED ASSAY Sn	Cu	Zn	Pb	Bi	Ag
23.0 – 43.0m : moderately to slightly weathered granite with pale limonite stained sections and white non limonite sections. White slightly bleached (weathering?) feldspars 26.04 – 25.5m, 26.0 – 29.8m) 32.2 – 35.2 m, the rock shows slightly impregnated with limonite. 6 – 8 breaks/metre.				2160	2164	1.0	3041	00	5	3.5	13	4	.2
				2400	2455	1.5	3042	00	3	2.4	13	4	.2
				2800	2955	1.5	3043	00	2	1.5	14	6	.4
				3160	3310	1.5	3044	00	4	3.8	21	12	.4
				3500	3555	1.5	3045	00	5	17.5	18.0	8	0.1
				3850	4000	1.5	3046	00	5	4.8	3.9	2	.1

298099

SR6

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA D | PROJECT NUMBER | DATE STARTED | CO-ORDINATES N | COLLAR R.L. | AREA OF INFLUENCE | HOLE NUMBER 791WN2 1

STATE | LOCATION | DIP 5cm 44° | BEARING | DATE COMPLETED | CONTRACTOR | DRILLER | E | DEPTH | DRILL TYPE | LOGGED BY | PAGE 3 OF 10 | HOLE SIZE ___ TO ___ | & ___ TO ___ | ASSAY TYPE ___ TO ___

SUMMARY DESCRIPTION

43– 58.0m : coarse grained granite with quartz – felspar – chloritized FeMgs ± biotite Actinolite or tourmaline on thin fractures

50.3 – 58.0 m : coarse grained biotite granite fine grained (?chilled) zone subparallel to 58.0m contact from 57.6–58.0m at 35–45° to C.A (core axis)

Top contact of this phase also chilled against the overlying porphyritic granite in an 0.1m zone of darker fine grained biotite granite at 50.3m at 30° to the C.A.

58.0 – 88.5m : DARK BIOTITIC SILTSTONE HORNFELS. Probably hornfelsed greywacke siltstone-shale. Characteristic red-brown biotite in fine including magnetite (magnetite?) sections. Unaltered dark grey non magnetic sections also. Minor sulphide

Core recovery (%): 100, 100, 100, 100, 100, 100, 98, 100, 100

Metres: 40, 45, 50, 55, 60

ACCEPTED ASSAY (PPM)

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N2/	Sn	Cu	Zn	Pb	Bi	Ag
41.30	41.60	0.3	307	00	2	34	125	4	[illegible]
44.50	46.50	2.0	308	00	1	16	10	2	[illegible]
51.00	53.00	2.0	309	00	3	19	10	4	.4
53.00	55.00	2.0	310	00	2	15	10	4	.4
55.00	57.00	2.0	311	00	1	12	8	4	.2
57.00	58.00	1.0	312	00	2	13	7	4	.2
58.00	59.00	1.0	313	00	80	65	12	8	1.2
59.00	60.00	1.0	314	00	17	54	15	14	1.2

298100

PACMINEX PTY. LTD. -- DETAILED DRILL LOG

AREA D | PROJECT NUMBER | DATE STARTED | CO-ORDINATES N | COLLAR R.L. | AREA OF INFLUENCE | HOLE NUMBER 7914N21 | SR6

STATE | LOCATION | DIP | BEARING | DATE COMPLETED | CONTRACTOR | DRILLER | E | DEPTH | DRILL TYPE | LOGGED BY | PAGE 4 OF 10 | HOLE SIZE TO | & TO | ASSAY TYPE TO

% CORE RECOVERY	METRES	SUMMARY DESCRIPTION	ROCK TYPE	S.G.	VISUAL LOG	SCALE 1:	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914N21	SAMPLE TYPE	ACCEPTED ASSAY Sn	Cu	Zn	Pb	Bi	Ag
100	60	58.0 - 73.5m : dark section - blue black and brown (biotite) hornfels : 1-2% pyrite. Strongly bleached at contact 58-60m on hanging wall. Less strongly on hanging wall 65-73.5m. Brittle hanging (reflecting bedding ?) to Core axis (CA) as follows : 35°/56.2m, 30°/58.3m, 30°/59.0m, 30°/59.5m, 35°/60.2m, 30°/60.4m crenulated ; 40°/60.8m ; crenulated 35-60°/61.6m ; hanging 70°/62.6m ; 35°/62.8m ; 45-60°/63-63.3m ; 45-70°/63.3-63.6m ; 70-80°/63.6-63.9m ; 60-80°/64.2m 45°/64.4m ; 40-60°/65.6m ; 45°/66.0m 70-90°/66.3-66.5m ; 45°/67.1m ; 50-80°/67.3-67.6m, 45-90°/68-68.5m ; 45-60°/68.6 ; 80°/69.7m ; ! bedding crenulated to 74.3m, mainly steep to CA but some flat zones.													
100							60.0	61.0	1.0	3115		0.0	7.0	9.5	1.5	8	1.2
100							61.0	62.0	1.0	3116		0.0	3.0	9.0	1.7	1.4	1.2
							62.0	63.0	1.0	3117		0.0	2.7	9.5	1.0	1.0	1.0
95							63.0	64.0	1.0	3118		0.0	1.2	9.5	1.0	1.6	1.0
							64.0	65.0	1.0	3119		2.0	8	7.5	9	1.0	1.0
	65					65	65.0	66.0	1.0	3120		2.0	1.3	8.0	1.2	1.2	1.4
100							66.0	68.0	2.0	3121		2.0	1.5	9.5	1.1	1.6	1.2
100																	
100							68.0	70.0	2.0	3122		0.0	1.0	7.5	1.0	1.2	1.0
69.7																	
100	70					70	70.0	72.0	2.0	3123		2.0	1.2	8.5	1.2	1.0	1.2
100																	
100							72.0	73.5	1.4	3124		2.0	1.8	9.0	1.4	1.6	1.2
100		73.5 - 83.0m : medium dark grey hornfels, probably calc-silicate (pale brown mineral - wollastonite ? tremolite) ; minor pyrite. Banding (bedding ?) to CA as follows :- 80-90°/74.3-75.5m, but crenulated and 0° section also ; ? 70°/75.5 - 80.3m ; ? 35°/81.3m 45°-50°/84.2-84.8m - prominent banding.															
100	75					75	73.5	75.5	2.0	3125		0.0	2.3	5.0	1.0	1.0	0.6
							75.5	77.5	2.0	3126		0.0	3.7	4.5	1.2	8	0.6
100							77.5	79.5	2.0	3127		0.0	2.7	4.0	1.0	6	0.6
100							79.5	81.5	2.0	3128		0.0	4.0	4.6	1.8	4	0.6
	80					80											

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA: 0 | PROJECT NUMBER: | DATE STARTED: | CO-ORDINATES N: | COLLAR R.L.: | AREA OF INFLUENCE: | HOLE NUMBER: 7914N2 1 (SR6)

STATE: | LOCATION: | DIP 78m: 44° | BEARING: | DATE COMPLETED: | CONTRACTOR: | DRILLER: | E: | DEPTH: | DRILL TYPE: | LOGGED BY:

PAGE 5 OF 10

HOLE SIZE ___ TO ___ & ___ TO ___ ASSAY TYPE ___ TO ___

SUMMARY DESCRIPTION (metres 80–100; % core recovery: 100, 100, 100, 100, 100, 100, 100, 100, 93, 100, 100, 100, 100)

83.0 – 88.5m: As for 58 – 73.5m – grey black hornfels, fine grained (0.5mm), pyrite poor.
Banding (bedding) 15°/85 – 85.2m; crenulated 10 – 30°/86.4 – 87.2m (brittle banding); 45°/87.2m to 87.6m; 35°/88.6m; 20°/88.9m
35° – 40°/89.1 – 89.4m

88.5 – 89.5m: TRANSITION ZONE – BLACK HORNFEL TO DOLOMITE.
Carbonate veined dark green cherty shale (88.5 – 88.7m), black shale to 88.9; grey dolomite enfold to 89m with 30° and 45° contacts; black crenulated pyrite – pyrrhotite shale to 89.5.

89.5 – 100.3 DOLOMITE, medium to dark grey with 10 – 40% black minerals in places; crenulated.
89.5 – 97.5m: medium dark grey dolomite some (?)epidote clay patches (crenulated bands?)
95.8 – 96.3m. Top contact 35° to CA.
Crenulated bedding: – 30 – 45°/89.5 – 89.8m; 0 – 20°/89.8 – 91.2m; 0 – 45°, average 20° to 92.5m; 30 – 45°/92.5 – 92.8m; 0 – 30°, average 15° to 94.6m. 20 – 30°/94.6 – 95.3m. 45° to 0°/95.3 – 96.3m; 45°/96.3 – 96.8m.

97.5 – 97.7m: Crenulated 45° → 0 → 35° (contact to contact) green to black clay shaley material: altered shale?
97.7 – 100.3m: dark grey dolomite mainly with disseminations/patches of black (?)FeMgs and serpentinised FeMgs
Bedding crenulated – 15°/98.3m.
0°/98.3 – 100.3m. Lower contact 10° to CA.

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N2/	Sn	Cu	Zn	Pb	Bi	Ag
81.50	83.00	1.5	329	20	30	60	12	10	5.6
83.00	85.00	2.0	330	20	3	65	15	14	1.0
85.00	87.00		331	20	7	65	12	12	1.0
87.00	88.50	1.5	332	20	205	125	16	14	1.0
88.50	89.50	1.0	333	40	300	1450	25	32	1.8
89.50	91.50	2.0	334	40	18	28	25	76	1.4
91.50	93.50	2.0	335	20	6	27	26	82	1.4
93.50	95.50	2.0	336	20	7	49	25	76	1.0
95.50	97.50		337	00	4	115	27	78	1.6
97.50	99.50	2.0	338	60	29	130	38	74	1.6
99.50	100.30	0.5	339	20	23	70	25	70	1.6

10

298102

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA: 0 | STATE: | LOCATION: | PROJECT NUMBER: | DIP: | BEARING:

DATE STARTED: | DATE COMPLETED: | CONTRACTOR: | DRILLER:

CO-ORDINATES N: | E: | COLLAR R.L.: | DEPTH: | LOGGED BY:

AREA OF INFLUENCE: | DRILL TYPE:

SR6

HOLE NUMBER: 7914N2 1

PAGE 6 OF 10

HOLE SIZE ____ TO ____ & ____ TO ____ ASSAY TYPE ____ TO ____

SUMMARY DESCRIPTION

% Core recovery (top to bottom): 100, 100, 100, 35/63, 92, 100, 100, 100, 100, 90, 100, 100, 100

Metres: 100, 105, 110, 115, 120

100·3 – 108·3m: DARK BIOTITIC SILTSTONE HORNFELS bCA 35° generally.

100·3 – 101·0m: black slate hornfels, crenulated pyrite bands, 25°/ at 101·0m.

101·0 – 101·6m: greenish and mauve calc-silicate banded rock, probably a cherty calc-quartzite

101·6 – 105·2m: banded red brown biotite - green FeMg - grey hornfels with 2-15mm bands. Similar to 101·0 – 101·6m except for grey blue zone (as for 58 – 58·5m)

105·2 – 108·3m: grey blue banded and laminated hornfels, some biotite bands. Banding 35° bCA; 40° at 108·3m.

108·3 – 110·7m: PALE GREEN CHERTY (?) SHALE, pink chert 15mm/108·3m. Infolded (slumped) dark hornfels (biotite) 109·10 – 109·5m, contacts irregular 45° bCA. Contact 75-90°/110·7m, sericitic.

110·7 – 159·7m: DOLOMITE, pale to dark grey.

110·7 – 112·1m: dark grey to grey black dolomite fine black laminae 40° to CA; no sulphide. Crenulated bedding:- contact 45°/110·8; 20 – 30°/110·8 – 112·4m.

112·1 – 116·6m: crenulated, mottled greenish to light grey dolomite, some chlorite serpentinized bands. No sulphides. Some white siliceous sections (introduced SiO2?). bCA crenulated 35° – 0°/ 112·4m; 0 – 45 average 25°/ 113 – 119m.

116·6 – 119·1m: greenish white, grey and medium grey crenulated dolomite, siliceous sections with chlorite-serpentine selvages. No sulphides.

119·1 – 132·4m: pale and medium grey with pink sections; 30° pink siliceous section 119·1 – 119·5m and 119·6 – 119·65m. White cherty dolomite band 125·00 – 125·07m at 45° to CA

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N2/	Sn	Cu	Zn	Pb	Bi	Ag
10030	10100	0·7	340	20	600	400	25	30	1·8
10100	10160	0·6	341	20	180	125	15	16	1·6
10160	10260	1·0	342	00	8	60	13	12	0·8
10260	10410	1·5	343	00	19	100	30	14	1·5
10410	10520	1·1	344	00	25	49	10	10	1·4
10520	10720	2·0	345	00	3	43	8	10	0·8
10720	10830	1·1	346	00	31	90	20	12	1·0
10830	11070	2·4	347	40	41	70	17	10	?·4
11070	11210	1·4	348	20	9	20	30	68	1·4
11210	11410	2·0	349	20	3	21	25	66	1·0
11410	11660	2·5	350	40	4	30	26	60	1·0
11660	11810	1·5	351	40	50	60	34	58	1·0
11810	11910	1·0	352	40	7	37	27	76	1·2
11910	12110	2·0	353	40	4	24	25	58	1·0

10.

298103

PACMINEX PTY. LTD. — DETAILED DRILL LOG

SR6

AREA 0 | PROJECT NUMBER | DATE STARTED | CO-ORDINATES N | COLLAR R.L. | AREA OF INFLUENCE | HOLE NUMBER 7914N2 1

DIP | DATE COMPLETED | E | DEPTH | DRILL TYPE | PAGE 7 OF 10

STATE | LOCATION | BEARING | CONTRACTOR | DRILLER | LOGGED BY | HOLE SIZE ___ TO ___ & ___ TO ___ ASSAY TYPE ___ TO ___

% Core Recovery	Metres	Summary Description
	120	mainly b CA <45°/ 129.5 – 136.5 but very crenulated and indistinct.
100		
100		
	125	
100		
100	130	
100		132.4 – 134.8 m: medium and darker grey with blackish crenulated serpentine bands. Minor coffee-green alteration (chlorite? phosphate?)
		134.8 – 136.5 : greenish-white mottled bands with serpentine.
	135	136.5 – 139.1 m : black and red brown spotted grey black dolomite crenulated & skarn minerals? = red brown b CA 30°/ 136.6 m. crenulated 70° – 0 – 50° average 30°/ 136.8 m, 55°/ 137.0 m ; 5°/ 137.1 – 137.6 m ; 15°/ 137.7 – 138.8 m ; crenulated 0°/ 139.3 – 139.6 m.
100		
	140	139.1 – 150.9 m : pale dolomite, greenish white pink and light grey with mottled greenish white siliceous sections 146.6 – 146.8 m [illegible] 139.5 – 139.6 and 139.8 – 139.9 m = [illegible]

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N2/	Sn	Cu	Zn	Pb	Bi	Ag
					4	12	23	66	1.6
1210	1230	2.0	354	20					
1230	1250		355	40	7	15	26	64	1.4
1250	1270	2.0	356	40	28	18	27	70	1.4
1270	1290	2.0	357	40	8	15	25	64	1.4
1290	1310	2.0	358	40	6	14	29	66	1.6
1310	1324	1.3	359	40	6	17	26	65	1.6
1324	1348	2.4	360	40	5	23	28	62	1.0
1348	1365	1.7	361	40	4	35	40	46	1.8
1365	1380	1.5	362	20	38	31	20	52	1.4
1380	1391	1.1	363	40	27	24	24	48	1.4
1391	1415	2.4	364	40	3	33	25	56	1.2

103

298104

PACMINEX PTY. LTD. – DETAILED DRILL LOG

SR6

AREA: 8 | PROJECT NUMBER: | DATE STARTED: | CO-ORDINATES N: | COLLAR R.L.: | AREA OF INFLUENCE: | HOLE NUMBER: 7914N2 1

DIP: 45 | DATE COMPLETED: | E: | DEPTH: | DRILL TYPE: | PAGE 8 OF 10

STATE: | LOCATION: | BEARING: | CONTRACTOR: | DRILLER: | LOGGED BY: | HOLE SIZE: TO | & TO | ASSAY TYPE: TO

SUMMARY DESCRIPTION

% Core Recovery	Depth	Summary Description
100	140	143.7 – 144.4m: greenish white chert, serpentine selvage; ditto 146.3 – 146.45m
		145.9 – 149.0: pink banded cherty silica
100		Crenulated banding (bedding) to CA:– 25°/ 139.9 – 140.4m; 10 – 50°/ 140.5 – 146m; 10 – 20°/ 146.1 – 148.4m; 0°/ 148.4 – 148.8m; 70°/ 145.9 – 149.1m; 25°/ 149.2 – 149.4m;
100		25 – 70°/ 149.6 – 150.6m.
82	145	
	150	
100		150.9 – 159.7m: medium to dark grey dolomite with yellowish-green siliceous clayey sections 153.7 – 153.8m
		157.5 – 157.9: milky green chert with serpentine selvages and green-black serpentine zones. to CA of banding:– Contact 45°/ 150.9m and 25 – 30° incl 0.7m each side
100		5°/ 151.3 – 152.3m; 10° crenulated 152.3 – 153.3m; 5°/ 153.3 – 155.3m; crenulated 10°/ 155.3 – 157.3; crenulated 20°/ 157.3 – 158.3m; 'crenulated'
	155	average 25°/ 158.3 – 159.7m.
100		
		159.7 – 176.2m: DARK HORFELS, mixed lithologies (dolomite – siltstone – chert) breccia in places magnetite and sulfides;
	160	159.7 – 160.5m: banded dolomite scarlet ... at 40° to CA,

ACCEPTED ASSAY

Log Scale	Start Depth	Finish Depth	Sample Interval	Sample Number 7914N21	Sn	Cu	Zn	Pb	Bi	Ag
	14150	14340	1.9	365	60	2	44	17	30	0.5
	14340	14540	2.0	366	40	4	40	22	36	0.8
145	14540	14740	2.0	367	60	2	35	23	56	1.0
	14740	14940	2.0	368	40	3	36	30	58	1.4
	14940	15090	1.5	369	40	3	26	26	62	1.4
150	15090	15290	2.0	370	40	3	14	29	68	1.4
	15290	15490	2.0	371	00	4	15	30	70	1.2
155	15490	15690	2.0	372	40	6	12	26	62	1.2
	15690	15890	2.0	373	60	4	17	26	64	1.2
	15890	15970	0.8	374	40	7	18	29	68	1.4
160	15970	16050	0.8	375	60	65	220	28	50	1.4

104

298105

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA	0
STATE	
LOCATION	
PROJECT NUMBER	
DIP	
BEARING	
DATE STARTED	
DATE COMPLETED	
CONTRACTOR	
DRILLER	
CO-ORDINATES N	
CO-ORDINATES E	
COLLAR R.L.	
DEPTH	
LOGGED BY	
AREA OF INFLUENCE	
DRILL TYPE	
HOLE NUMBER	7914N2 1 (SR6)
PAGE	9 OF 10
HOLE SIZE & ASSAY TYPE	TO

SUMMARY DESCRIPTION (% core recovery 100 throughout; metres 160–180)

160 siliceous hornfelsed bands (with SnO_2 ?)

160·5 – 161·0 m: pale green hornfelsed argillaceous quartzite shale; crenulated 15° 160·5 m contact 30° 161·0 m. siliceous cherty section 160·5 – 160·7 m.

161·0 m – 161·3 m: As for 159·7 – 160·5 m.

161·3 – 163·3 m: mixed yellowish greenish brown cherty pink bands and sulphides; crenulation breccia; greenish quartzite with sulphide breccia pieces 161·3 – 161·45 m; yellow green brown quartzite hornfels, pink bands of chert 161·45 – 162·0 m; crenulations 35° to CA; yellow brown quartzite 162·0 – 162·2 m (as for 161·4 – 161·5 m). pink green quartzite with yellow cherty breccia pieces 162·2 – 162·45 m with 25° contacts. 162·45 – 163·3 m: dirty yellow brown green quartzite with sulphides, green hornfels minerals.

165 163·3 – 165·6 m: dark brown biotite hornfels banded 25° to CA; some breccia bands, magnetite and some sulphides.

165·6 – 168·4 m: greenish banded cherty shale (or shaley quartzite) hornfels. b CA 30° – 50° to CA. pyrrhotite, pyrite, cpy, magnetite in places.

170 168·4 – 169·3 m: black crenulated shale hornfels, some dolomite.

169·3 – 171·6 m: White recrystallized and brecciated pyritic dolomite plus subsidiary quartz, 40–50° banding.

171·6 – 176·2 m: dark green and blue-black hornfels-skarn with magnetite; crenulated black shale in sections. "dolomite" skarn appearance elsewhere. Contact 25-30° 171·55, 25-30° 176·2 m.

175 176·2 – 189·5 m: BIOTITE GRANITE, variable texture somewhat similar to 50·3 – 58·0 m section but more irregular grainsize / texture features due to (i) variable grainsize – medium coarse to very coarse irregular "clots" / lenses. (ii) grey porphyry zones (chilling features?) very irregular but especially 176·2 – 176·4 and 178 – 181·6 m. (iii) xenolith patches. There is some suggestion of contacts 45° to CA with the grey porphyry patches and 45° lineation 176·5 – 180 m.

180

ASSAYS

Start Depth	Finish Depth	Sample Interval	Sample Number 7914N2/	Sn	Cu	Zn	Pb	Bi	Ag
160.50	161.00	0.5	376	0	24	80	12	12	0.2
161.00	161.30	0.3	377	40	60	950	25	24	1.2
161.30	162.30	1.0	378	00	120	70	12	10	4.4
162.30	163.30	1.0	379	20	130	190	22	14	1.2
163.30	164.30	1.0	380	00	7	48	15	10	0.8
164.30	165.60	1.3	381	00	4	55	15	14	1.0
165.60	166.60	1.0	382	00	120	59	13	10	2.8
166.60	167.60	1.0	383	20	900	1200	22	26	1.0
167.60	168.40	0.8	384	20	220	260	17	16	1.0
168.40	169.30	0.9	385	40	95	70	25	20	1.2
169.30	171.60	2.3	386	240	18	24	20	34	1.4
171.60	172.60	1.0	388	600	49	19	25	18	1.2
172.60	173.60	1.0	389	260	8	54	20	20	1.2
173.60	174.60	1.0	390	540	9	60	21	16	1.0
174.60	175.60	1.0	391	120	12	150	20	54	1.4
175.60	176.20	0.6	392	40	8	850	20	24	1.4
176.20	176.70	0.5	393	00	4	19	20	6	0.4
176.70	175.70	2.0	394	00	8	27	14	6	0.0
178.70	180.70	2.0	395	00	14	12	10	10	0.0

298106

PACMINEX PTY. LTD. — DETAILED DRILL LOG

AREA 6 | PROJECT NUMBER | DATE STARTED | CO-ORDINATES N | COLLAR R.L. | AREA OF INFLUENCE | HOLE NUMBER SR6

STATE | LOCATION | DIP | BEARING | DATE COMPLETED | CONTRACTOR | DRILLER | E | DEPTH | LOGGED BY | DRILL TYPE

PAGE 10 OF 10

HOLE SIZE ____ TO ____

& ____ TO ____

ASSAY TYPE ____ TO ____

% CORE RECOVERY	METRES	SUMMARY DESCRIPTION	ROCK TYPE	S.G.	VISUAL LOG	CORE SCALE	START DEPTH	FINISH DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER 7914NZ/	SAMPLE TYPE	ACCEPTED ASSAY Sn	Cu	Zn	Pb	Bi	Ag
100	180						1.8470	1.8270	2.0	396		0.0	.6	1.4	1.0	.6	6.6
100							1.8270	1.8470	2.0	397		0.0	.1	1.2	1.0	.5	6.2
100	185					185	1.8470	1.8670	2.0	398		0.0	.2	1.6	1.0	.6	6.2
100							1.8670	1.8870	2.0	399		0.0	.1	1.1	.8	.4	6.2
100	190					190	1.8870	1.8954	0.8	400		0.0	.2	1.3	1.0	.3	6.2

End of hole: 189.5m.

Inclinations: Eastman Single Shot (inside the steel rods.

Depth	Inclination	Bearing
0 m	− 45°	218°M
50	− 44°	138°M *
98	− 44°	063°M *
144	− 45°	221°M *

* bearings unreliable due to enclosure

6000mW 5500mW 5000mW 4500mW 4000mW

7000mN 6500mN 6000mN 5500mN

LINE 59 N LINE 57N LINE 56N LINE 55 N

E.L. 18/73 Renison Ltd

E.L. 53/70

STANLEY RIVER

Adit No1

REFERENCE

Survey :- Origin is designated 5000mN / 5000mW
Grid North is 316° Magnetic
Pegs at 25 m intervals
Note. Pegs not always on rectangular grid lines
LINE 51 N Pacminex cut line
ML 18 Renison cut line
River, Creek
Track
Alluvial flats
Button grass flats
Ti-tree scrub
Edge of flat area
Ridge top (especially 1st Ridge west of Livingstone Creek flat)
Edge of high level gravels (scarp)
Strike and dip of bedding
Strike and dip of jointing
Fault
Adit
Shaft
Diamond drill hole
Channel, trench
Lease boundary

QUATERNARY
Qra — Alluvium :- (i) button grass (ii) flats
Qrg — Gravels
Limonitic bodies :- 'gossan' etc.
TERTIARY Tg — Gravels

CAMBRIAN
A — CRIMSON CREEK ARGILLITE Khaki clay weathering rocks incl. green & purple mudstones, volcanoclastics, greywackes, (?) tuff etc.
M — MARKER SEQUENCE (inferred) Ideally a 50-150m thick sequence with a magnetic upper and lower chert horizon separated by dolomite. Its presence within EL 53/70 is inferred from magnetometer traverses in an area obscured by Crimson Creek Argillite talus/slump material.
D — DOLOMITIC CARBONATE-CHERT-SHALE Low flat-lying areas immediately above Oonah Quartzites & Slates.

PROTEROZOIC
N — OONAH QUARTZITE & SLATES Top units are finely bedded sericitic quartzite siltstones which typically form ridges separated by more easily eroded valleys on shales including black shales.
DEVONIAN — MEREDITH GRANITE Granite (G) with quartz porphyry (Gqp), diorite (Gd), etc phases.

v Volcanics (ie. Av Crimson creek Argillite Volcanics)
g Greywacke
s Siltstone; quartzitic siltstone (ie Ns)
sh Shale; black shale
m Mudstone
d Dolomitic carbonates
c Chert, oolitic chert
Soil (ie. granitic soil or slope wash.)

Alteration: h - hornfels (ie. hA = hornfelsed Crimson Creek Argillite)

Sample Numbers :- Prefix 600 for (xyg s) etc. series, others - by line co-ordinates
- Stream sediment mud (xyg M)
- panned concentrate (xyg P)
- rock chip (xyg R)
- Eluvial/scree/slope wash (xyg R)
- Creek boulder/float (xyg F)
- Limonite (gossans etc. (xyg L)
- Soil (0.3 M depth) } xyg S
- Auger at ≤ 1.6 m depth }

1975 Samples mainly by Sample Nos. (600 001 - 339)
1976 Samples mainly by co-ordinates. (600 400 - 447)

PACMINEX PTY. LIMITED

GEOLOGY – SAMPLE LOCATIONS

STANLEY REWARD
LIVINGSTONE CREEK AREA
E.L. 53/70 STANLEY RIVER
WEST TASMANIA

SCALE	1 2500
DRAWN	P.M.M. P.H.
DATE	JAN '77 / SEPT '77
REVISED	

298107
K 553 – 3
1701

5 cm

77 - 1337

1701

1702

6000mW 5500mW 5000mW 4500mW 4000mW

5500mN 5000mN 4500mN 4000mN 3500mN 3000mN

HELIPAD SRD 4 DDH 7914W DDH 7914W2

Pond Ash Pipe trench track Not Sampled

Alluvial Workings News Ck

ML 20 ML 19 ML 18

E.L. 53/70

PACMINEX PTY. LIMITED

GEOLOGY – SAMPLE LOCATIONS

STANLEY REWARD
LIVINGSTONE CREEK AREA
E.L.53/70 STANLEY RIVER
WEST TASMANIA

SCALE	1 2500
DRAWN	P.M.M. P.H.
DATE	JAN '77/SEPT '77
REVISED	

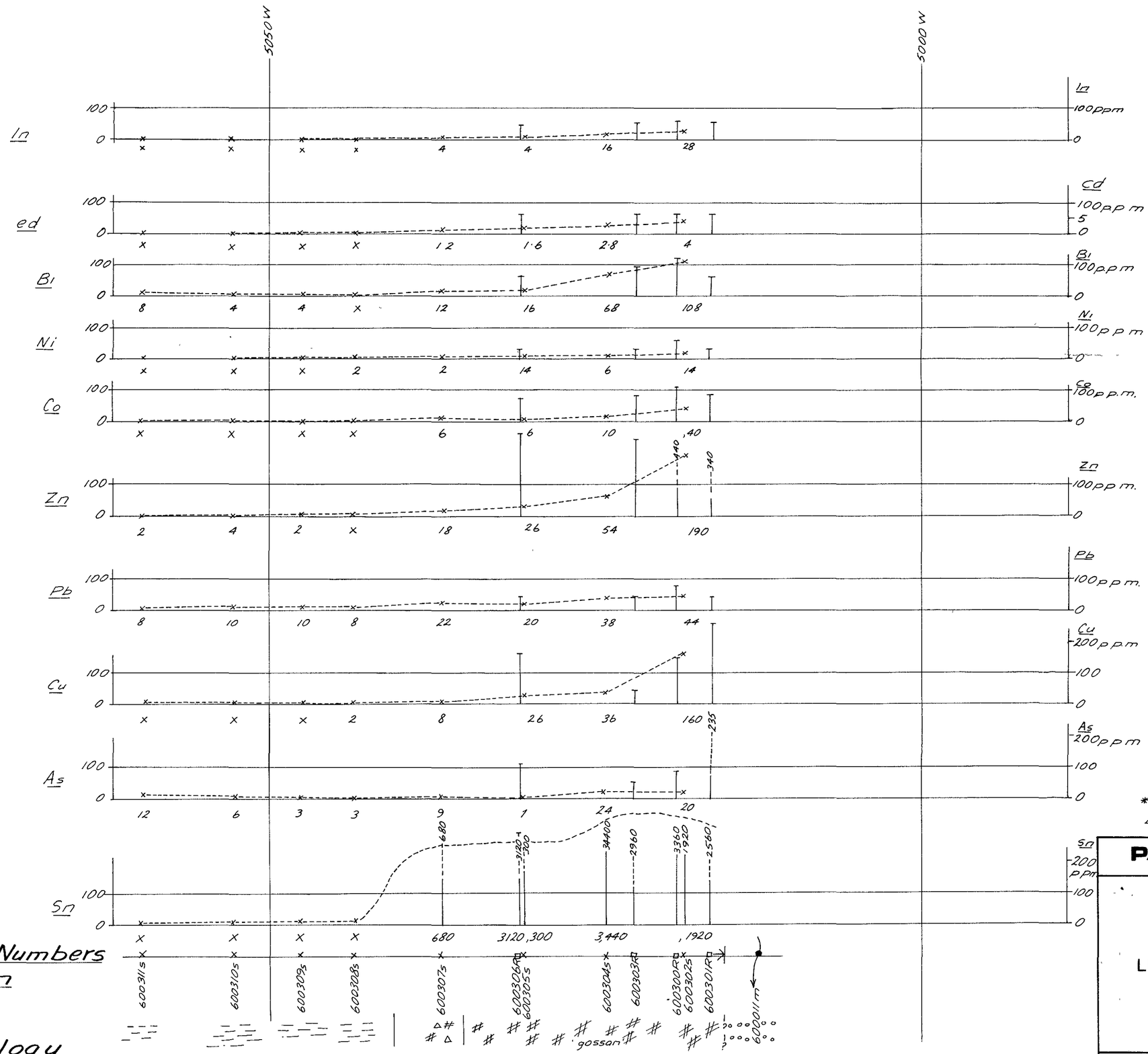
298108

K553-4

5 cm

1702

77-1227



Sample Numbers Plan

Geology (Plan)

REFERENCE

→	base of slope
x 600311S	soil sample
600011m	creek mud
□ 600303R	rock chip
T	rock chip result
x	below detection limit

5 cm

0 20 40 metres

*Approximate only taken through LCD 1-3 and Northern Adit

PACMINEX PTY. LIMITED

LINE 6480N *

SOIL GEOCHEMICAL PROFILE

LIVINGSTONE CREEK TIN GOSSAN

E.L. 53/70 STANLEY RIVER

WEST TASMANIA

298109

Scale	1983
Drawn P.M.M/G.N	
Date Nov 1975	
Revised	

77-1227

1703

Soil/Rock Chip Geochemical Results

5100W | 5000W | 4900W | 4800W | 4700W

In — 100ppm — 0

X | 51W | 8 | 16 | 96,52,28 | X | 4 | 48W

Cd — 10ppm — 5 — 0

X | 51W | X | 1 | 4,6,4 | 04 | 04 | 48W

Bi — 100ppm — 0

4 | 51W | 8 | 28 | 200,100,170 | X | X | 48W

Ni — 100ppm — 0

X | 51W | X | 54 | 10,30,10 | X | X | 48W

Co — 100ppm — 0

2 | 51W | 4 | 14 | 14,70,12 | 2 | X | 48W

Zn — 100ppm — 0

X | 51W | 4 | 250 | 50,84,58 | 2 | 4 | 48W

Pb — 100ppm — 0

6 | 51W | 24 | 30 | 66 | 70 | 900 | 8 | 6 | 48W

Cu — 100ppm — 0

X | 51W | 12 | 160 | 480 | 400 | 470 | X | 2 | 48W

As — 100ppm — 0

2450

2 | 51W | 6 | 17 | 13 | 2450 | 72 | 9 | 4 | 48W

Sn — 2000ppm — 1000 — 0

X | 51W | X | 600 | 4000 | 2000 | 4000 | 300 | 360 | 48W

Sample Number Plan

6002485 | 6002475 | 6002461 | 6002455 | 6003272 | 6002445 | 6002435 | 6002425

Geology Plan

52W | 51W | 49W | 48W | 47W

gosson

5200W | 5100W | 5000W | 4900W | 4800W | 4700W

REFERENCE

- base of slope
- Sn - limonite body (gossan)
- Oonah siltstone
- granite
- granite, soil
- "button grass", alluvials
- soil sample
- creek mud
- rock chip

Geochemical Results

- soil
- Creek mud
- rock chip
- below level of detection

5 cm

Scale

100 0 50 metres

PACMINEX PTY. LIMITED

LINE 5200N

SOIL GEOCHEMICAL PROFILES

STANLEY REWARD AREA

E.L. 53/70 STANLEY RIVER

WEST TASMANIA

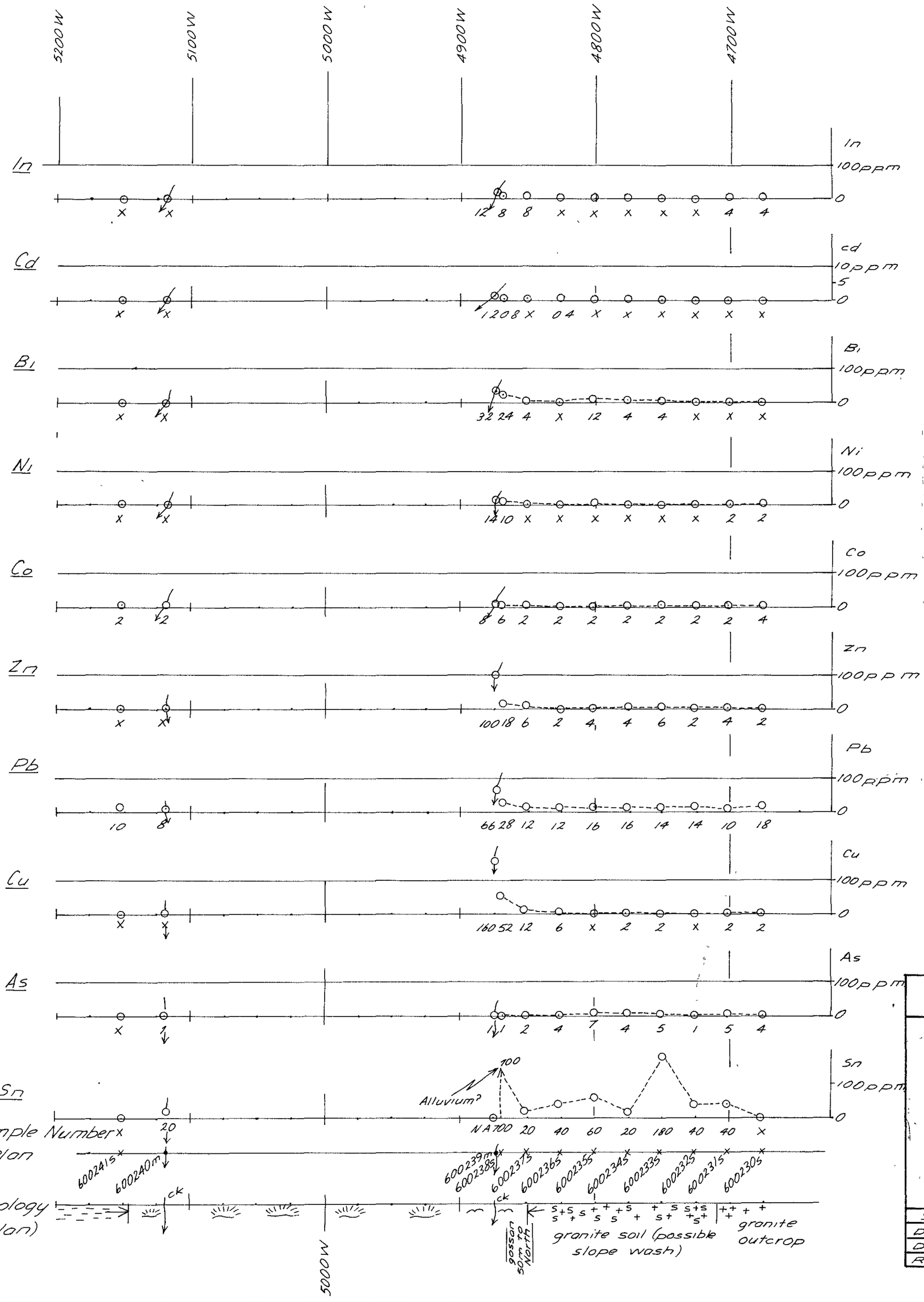
298110

Scale 1	1984
Drown PM M/G N	
Date Nov 1975	
Revised	

77-1227

1704

Soil/Rock Chip
Geochemical Results



REFERENCE

	Oonah Siltstone
+ s + + s s + s +	granite, soil
, m	button grass, alluvials
←	base of slope
x 600237s	soil sample
600239m	drainage mud
x	Results - below detection limit

5 cm

Scale
100 0 50 metres

PACMINEX PTY. LIMITED

LINE 5100N
SOIL GEOCHEMICAL PROFILES
STANLEY REWARD AREA
E.L. 53/70 STANLEY RIVER
WEST TASMANIA

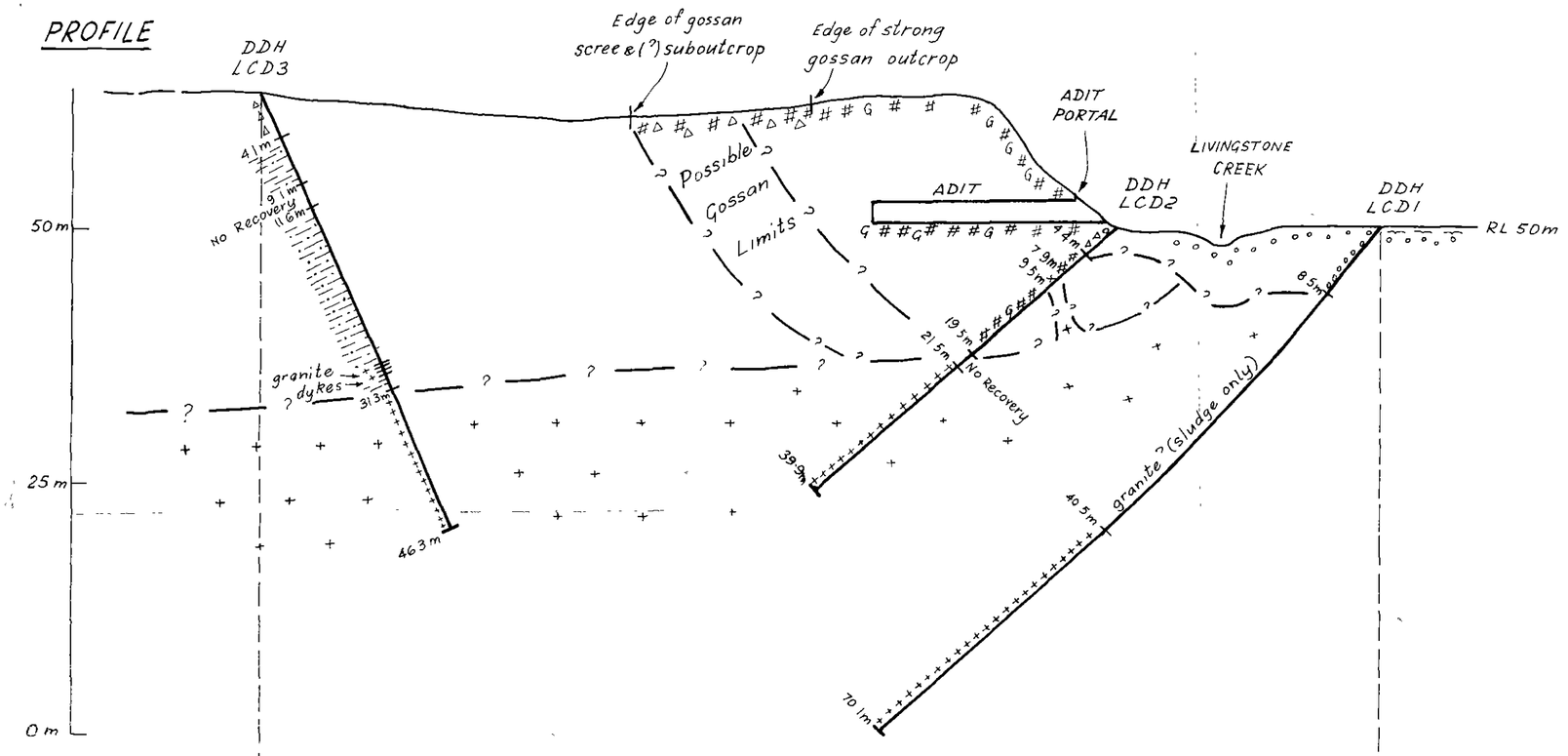
29811

Scale	1985
Drawn PMM/G.N	
Date Nov 1975	
Revised	

1705

77-1227

PROFILE

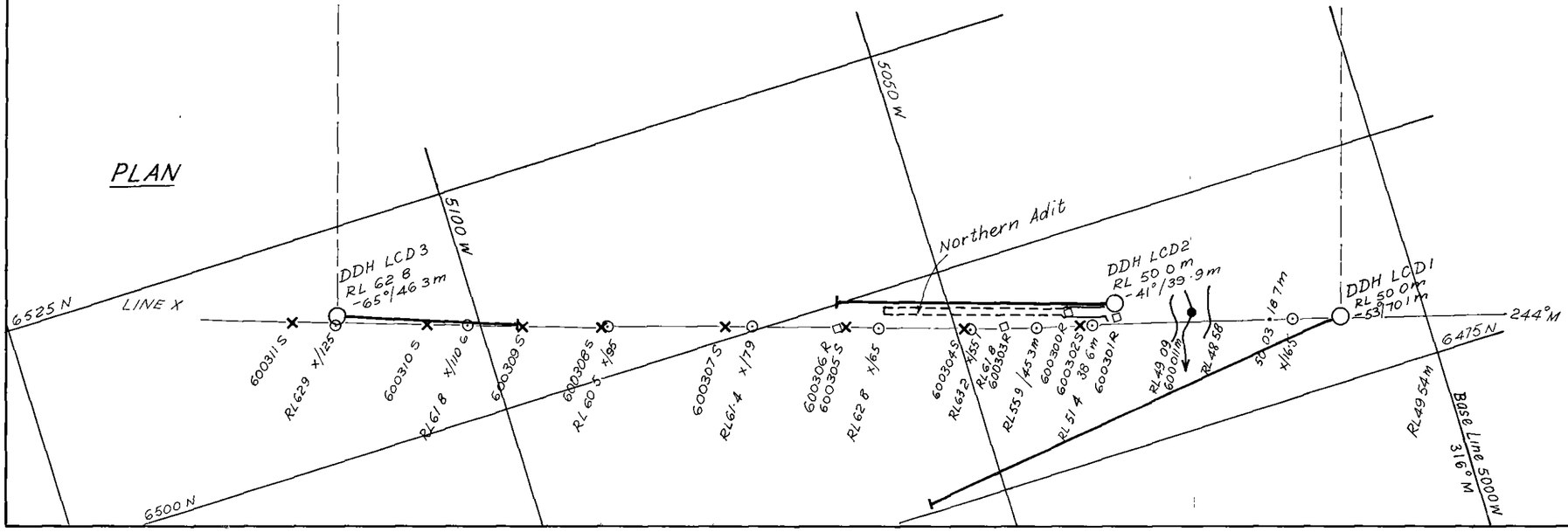


Reference

- Boulder terrace
- Scree (colluvium)
- Cellular(?) hedenbergite - limonitic gossan
- Sericitic siltstone, hornfelsed (Oonah Quartzite)
- Granite
- Soil sample
- Rock chip
- Stream sediment
- Peg

Note: R.L is obtained by Abney level from 5000N/4900W helipad (= RL 0)

PLAN



5 cm

0 5 10 15 20 25 30 m

PACMINEX PTY. LIMITED

PLAN & PROFILE of DIAMOND DRILLING

LCD1-3 LIVINGSTONE CREEK GOSSAN

E.L. 53/70 STANLEY RIVER

WEST TASMANIA 298112

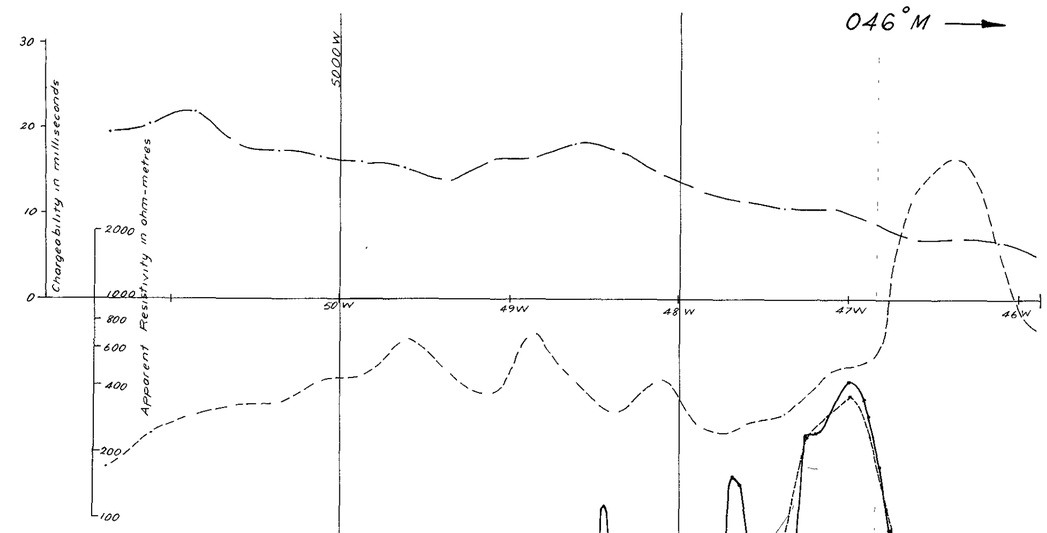
Scale	1 500
Drawn	PMM / PH
Date	Sept 75
Revised	

1982

1706

77-1227

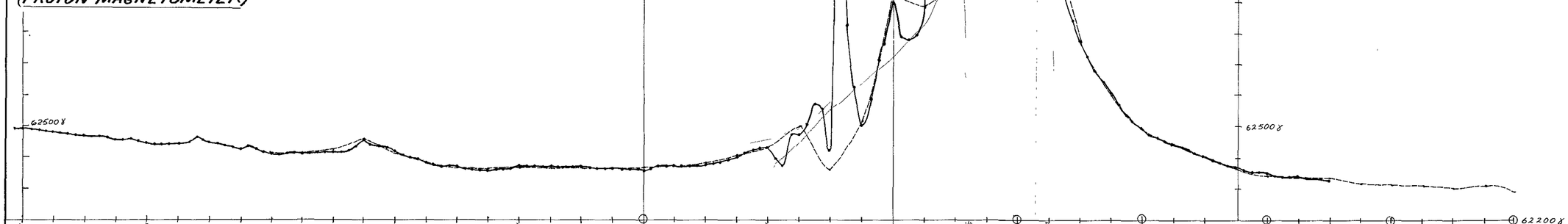
INDUCED POTENTIAL



Chargeability Scale
2cm = 10 milliseconds
Base Level = 0 milliseconds
Symbol = —.— GRADIENT

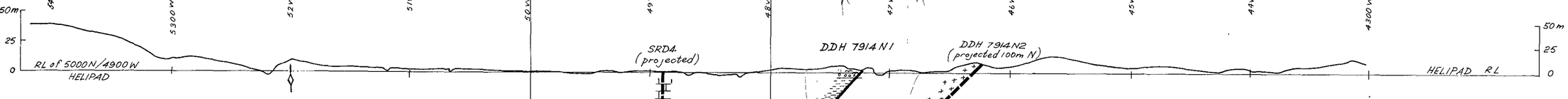
Resistivity Scale
5cm = 1 logarithmic cycle
Base Level = 1000 ohm-metres
Symbol = — — .— — GRADIENT

GROUND MAGNETICS: TOTAL FIELD (PROTON MAGNETOMETER)



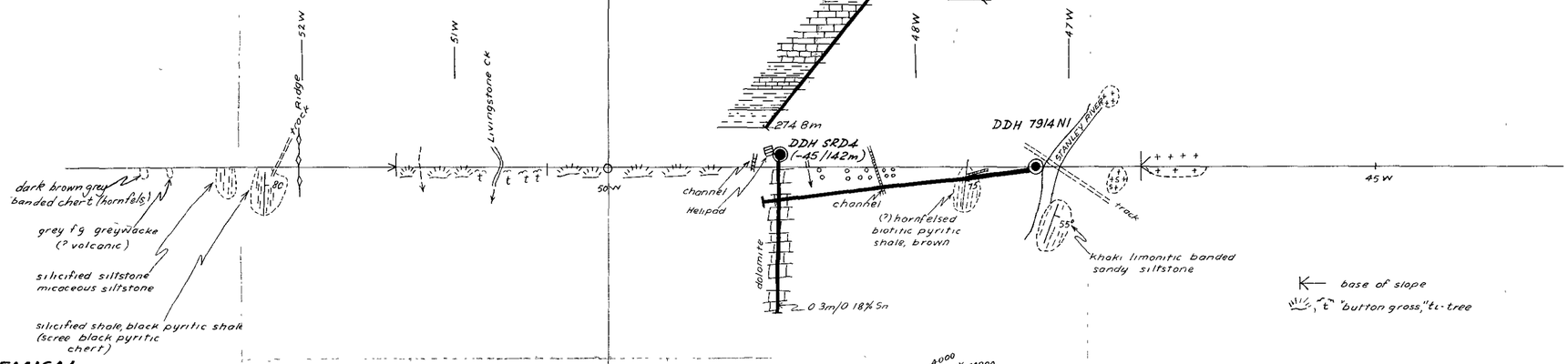
6.25 m spacing of readings
25 m spacing of readings

TOPOGRAPHY

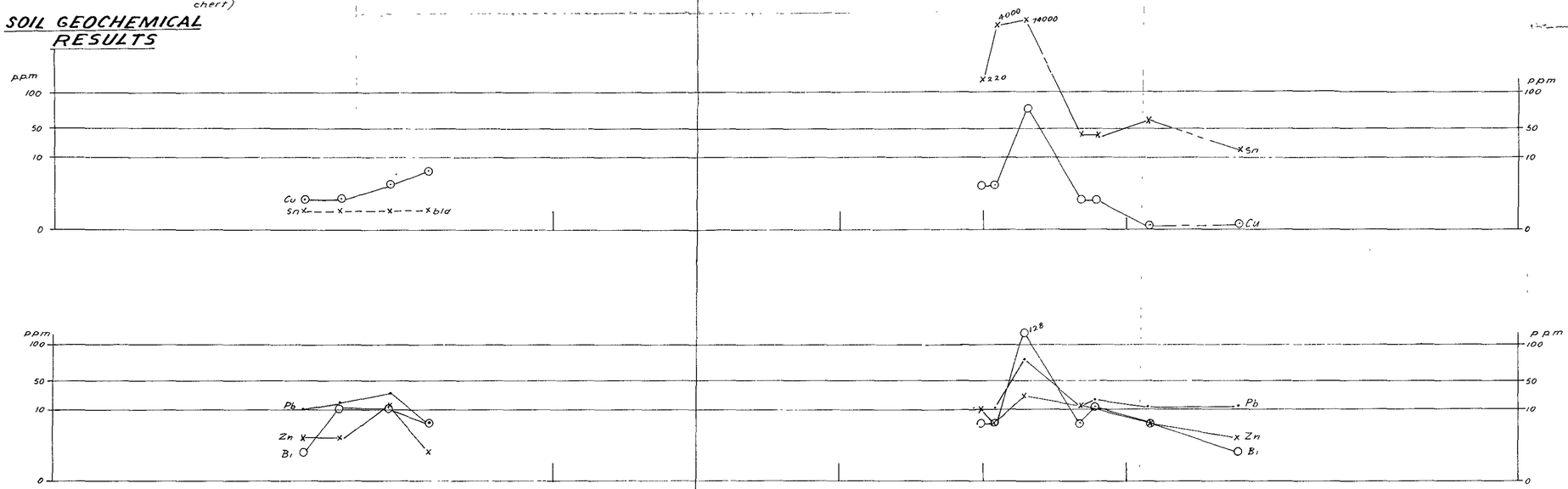


- Alluvium
- Boulders (alluvial?)
- Limonite
- Granite
- Siltstone (pyrrhotitic)
- Quartzitic siltstone
- Dolomite
- Spotted dolomite
- Chert

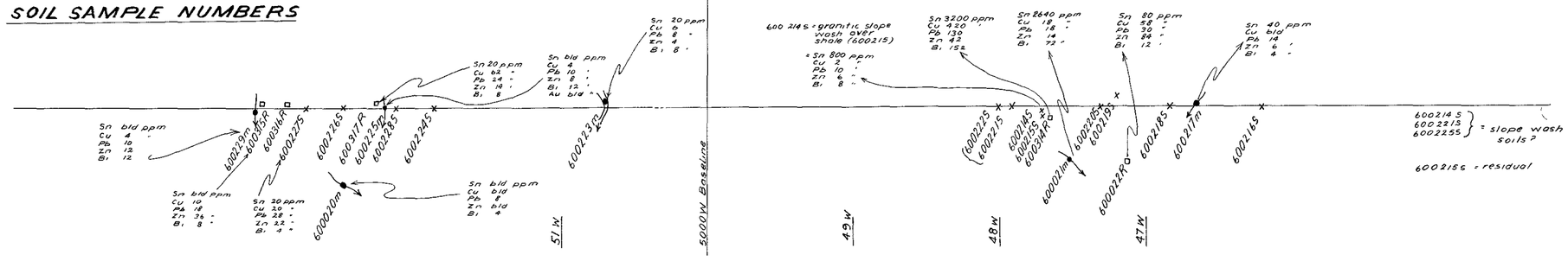
GEOLOGY (PLAN)



SOIL GEOCHEMICAL RESULTS



SOIL SAMPLE NUMBERS



5 cm

Scale 1 2500

0 100 200 metres

PACMINEX PTY. LIMITED

LINE 5000N
STANLEY REWARD AREA
E.L. 53/70 STANLEY RIVER
WEST TASMANIA

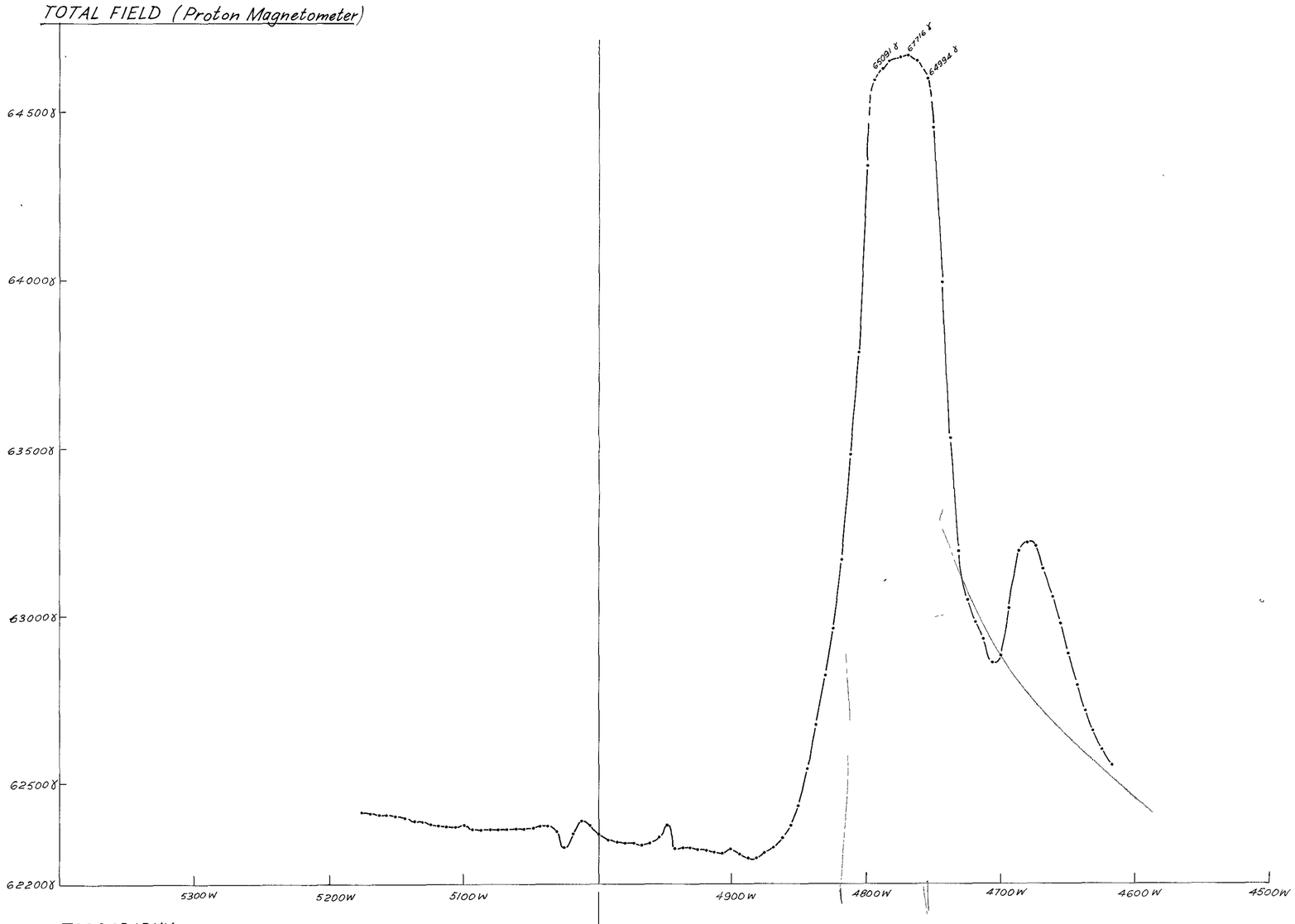
298113

Scale 1 2500	1971
Drawn PMM/GN	
Date Nov 1975	
Revised	

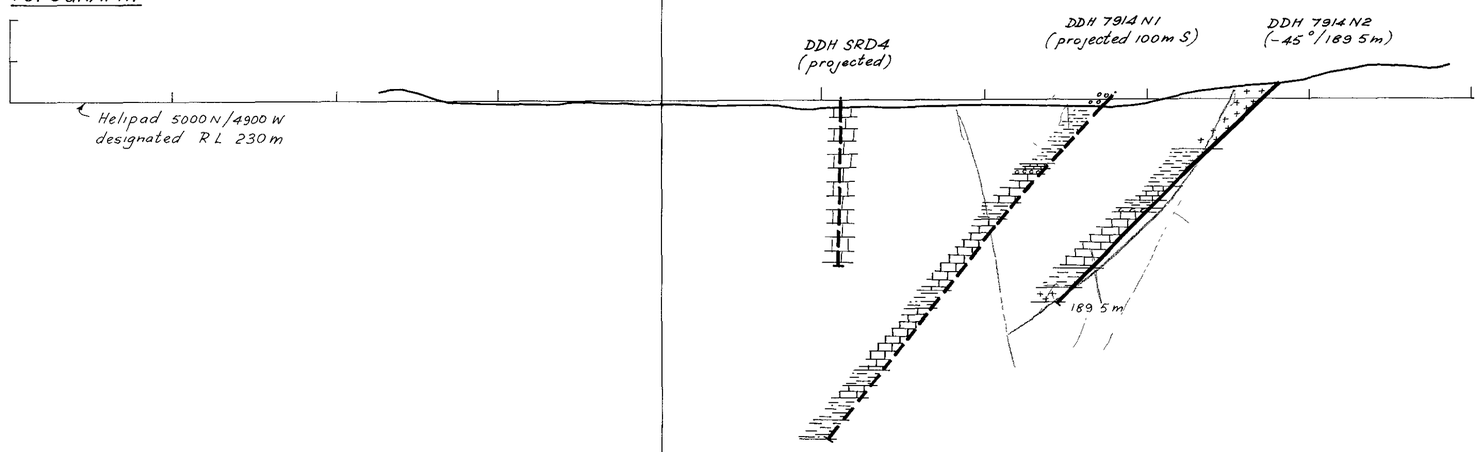
1707

77-1227

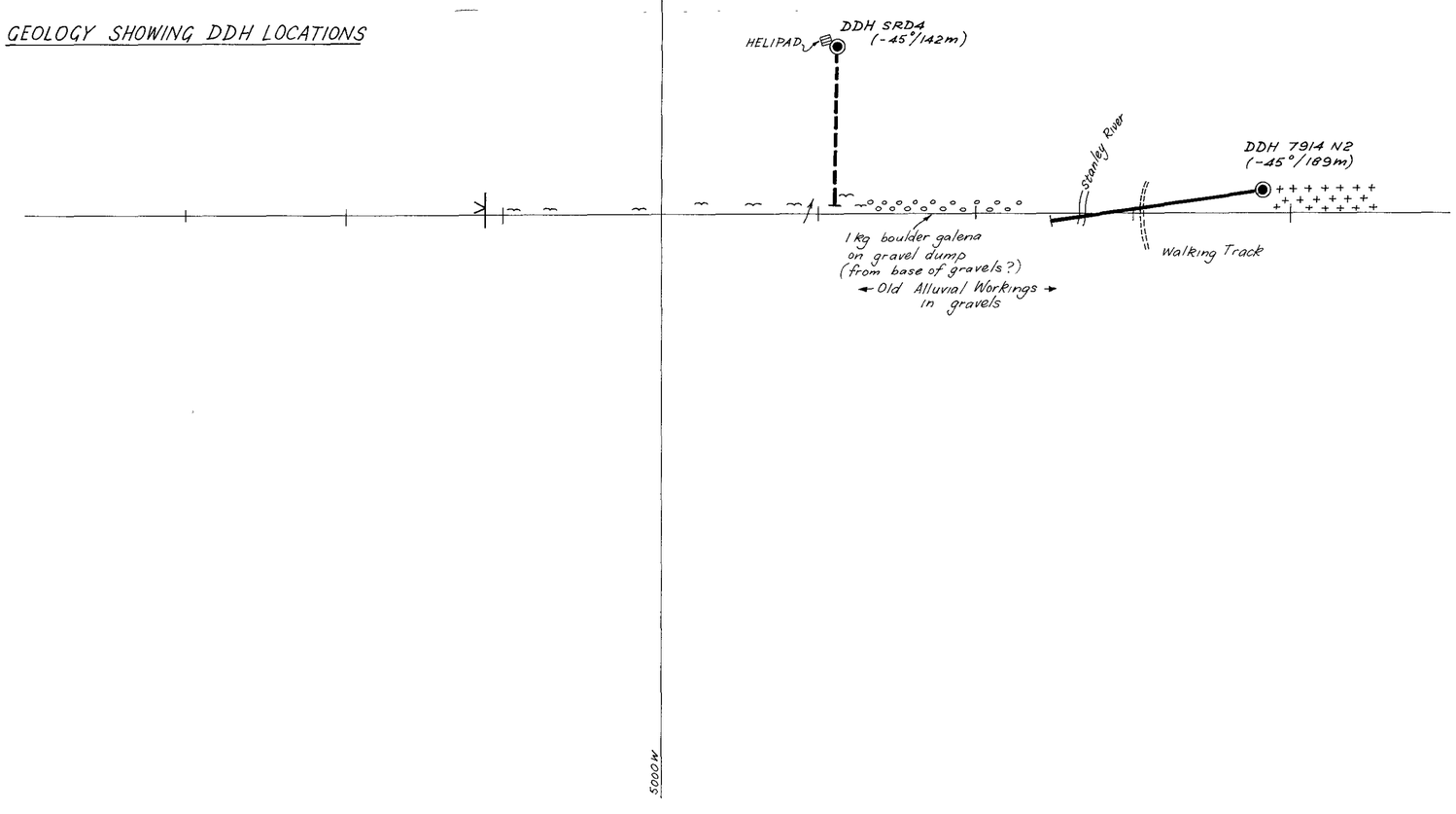
GROUND MAGNETIC
TOTAL FIELD (Proton Magnetometer)



TOPOGRAPHY



GEOLOGY SHOWING DDH LOCATIONS



5 cm

PACMINEX PTY. LIMITED

LINE 4900 N

STANLEY REWARD AREA

E.L. 53/70 STANLEY RIVER

WEST TASMANIA

298114

Scale 1 2500	K 553-7
Date JULY 77	
Drawn PMM	
Revised	

77-1227

1708

6000mW 5500mW 5000mW 4500mW 4000mW

7000mN
6500mN
6000mN
5500mN

LINE 59 N
LINE 57N
LINE 56N
LINE 55 N

REFERENCE

Survey: Origin designated 5000mN/5000mW. Grid North is 316°M

- Pegs at 25m intervals

Lines 3300N, ··· 6600N (Pacminex grid) ML 18-20 (Renison Ltd)

- River, Creek, Track
- Edge of alluvial flat
- Ridge top (especially 1st ridge West of Livingstone Creek flat)
- Scarp, edge of higher level gravels
- 75°, 40° Strike and dip of bedding/jointing
- Fault
- Open cut, trench
- Costean, with adit
- Shaft, pit showing depth (metres)
- Mine dump
- Diamond drill hole
- E.L. Boundary (approximate position)

E.L. 18/73 Renison Ltd
E.L. 53/70

STANLEY RIVER

REFERENCE

QUATERNARY
- Qra — Alluvium(i) button grass(ii) mud flats(iii) ti-tree
- Qrg — Gravels (g/ls)
- # # # # — Limonitic bodies :- 'gossan' etc.

TERTIARY
- Qrg — Gravels

CAMBRIAN
- A — CRIMSON CREEK ARGILLITE: khaki clay weathering rocks incl green & purple mudstones, volcanoclastics, greywackes(?) tuff etc.
- M — MARKER SEQUENCE (inferred): typically a 50-150m thick sequence with a magnetic upper (Mcu) & lower (Mcl) chert horizon separated by dolomite (Md). Its presence within E.L. 53/70 is inferred from magnetometer traverses in an area obscured by Crimson Creek Argillite (?) talus/slump material.
- D — DOLOMITIC SEQUENCE: dolomite (Dd), dolomitic siltstone (Dds), shale (Dsh), chert (Dc) etc. Forms a low lying alluvial covered area immediately above the Oonah Formation (N)

PROTEROZOIC ?
- N — OONAH QUARTZITE AND SLATE: top units are finely bedded sericitic quartzite siltstones (Nq) which typically form ridges separated by more easily eroded valleys (on shale/black shale?)
- (blank)

DEVONIAN
- G — MEREDITH GRANITE: granite (G) with quartz porphyry (Gqp), diorite (Gd) etc phases

- v — Volcanics (ie Av etc)
- g — Greywacke
- q — Quartzitic siltstone
- s — Siltstone
- sh — Shale, blackshale
- m — Mudstone
- sh1 — Pale grey brown to fawn coloured sericitic shale
- d — Dolomite (ie Md, Dd, etc)
- ds — Banded green micaceous dolomitic siltstone
- c, oc — Chert, black oolite chert
- Soil ie +S+S granite soil
- Scree-eluvial to slope wash soil (SWS)
- h — Prefix denoting hornfelsing (most rocks on the grid show signs)

- * — Auger hole
- d* — Dolomite at depth in auger hole (under alluvials)
- d or dolomite fragments (eluvial?) in auger hole ~ 1m depth
- EW/HW — Extremely weathered/highly weathered
- o/c, s/c — Outcrop, subcrop (inferred from auger drilling ≤ 1.5m depth)

62200S

Base line height of profile is 62,200 gamma (S)
Vertical scale - 1cm = 100S : 6.25m stations

Instrument :- Portable Proton Magnetometer Geometrics G816 Total Force

PACMINEX PTY. LIMITED

MAGNETICS – TOTAL FORCE
STANLEY REWARD
LIVINGSTONE CREEK AREA
E.L. 53/70 STANLEY RIVER
WEST TASMANIA

298115

SCALE	
DRAWN	P.M.M. P.H.
DATE	Jan 1977, Sept 1977
REVISED	

K 553-5

1709

77-1227

5cm

1709

1710

5500mN
5000mN
4500mN
4000mN
3500mN
3000mN
6000mW
5500mW
5000mW
4500mW
4000mW
E.L. 53/70
ML20
ML19
ML18
CC3
CC2
CC1
DDH 7914N
DDH 7914N2
HELIPAD
track
Sluiced Area
Alluvial Workings
5 cm

PACMINEX PTY. LIMITED

MAGNETICS – TOTAL FORCE
STANLEY REWARD
LIVINGSTONE CREEK AREA
E.L.53/70 STANLEY RIVER
WEST TASMANIA

77-1227

SCALE	
DRAWN	P.M.M. P.H.
DATE	SEPT 77
REVISED	

298116 1710
K 553-6