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Prospect 601

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PACMINEX PTY. LIMITED

**MICROFILMED**

PROGRESS REPORT ON ACTIVITIES

SOUTHERN PART OF E.L. 18/74

PIEMAN RIVER, TASMANIA.

TO JUNE 1ST, 1975

PMR 40/75

SYDNEY  
JULY, 1975

A.L. GOVEY

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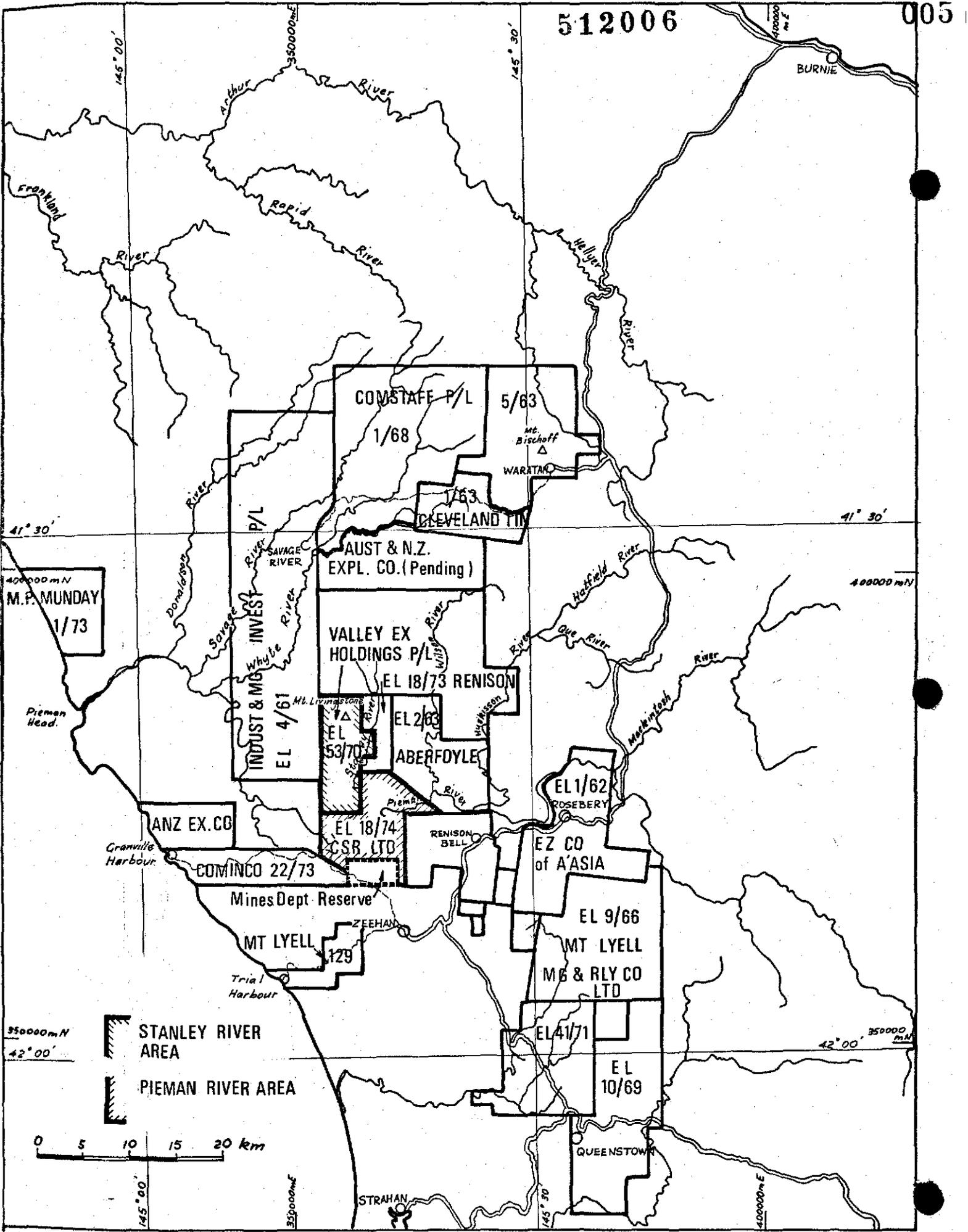
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- 1878 GEOLOGY, E.L.'s 18/74 AND 53/70,  
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- 1874 DRAINAGE GEOCHEMISTRY - COPPER, E.L. 18/74,  
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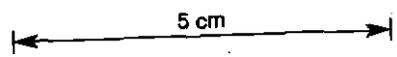
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ZINC  
GOLD  
TIN  
9OONAH QUARTZITE  
9SUCCESS CK PHASE  
9E L 18/74



**LOCALITY MAP  
STANLEY RIVER & PIEMAN RIVER E.L.s  
WEST TASMANIA**



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1. INTRODUCTION

1.1 E.L. 18/74, an area of 88 km<sup>2</sup>, was granted to CSR Limited in October, 1974. It adjoins the southern boundary of E.L. 53/70 (see Figure 1). E.L. 53/70 is currently held by Valley Exploration (Holdings) Ltd., and is subject to a joint venture agreement with CSR Limited.

1.2 The main interest in E.L. 18/74 is :-

- (a) the possibility of a continuation of Pb-Zn-Cu mineralisation reported in a Mines Dept. Reserve (Taylor, 1951). A series of old leases are shown extending northward from the Reserve area into E.L. 18/74 (see Figure 1 and PMX DWG NO. 1878).
- (b) two other leases west of Trail Creek held in a former time for copper.
- (c) possible "Success Creek Phase" rocks (a favourable horizon for mineralisation in the Zeehan area) in the south-east part of the E.L.

2.3 Ground work to date has consisted mainly of drainage sampling and mapping and has been concentrated in the area south of the Pieman River which is accessible from a base in Zeehan.

2.4 An airborne E.M. survey planned for November, 1974, was delayed due to equipment failure. The contractor eventually completed some 450 line km of airborne magnetics and E.M. over the E.L. in April, 1975.

## 2. SUMMARY

2.1 The Onah Quartzite and Slate of Upper Proterozoic or Lower Cambrian age is the most prominent geological unit in the area. Many mines in the Zeehan area are inferred to occur within the upper part of this formation which is known informally as the "Success Creek Phase".

2.2 A series of old leases extend north-westwards from the old Big Ben and Montana Mines into E.L. 18/74. These are believed to have been pegged originally for silver-lead-zinc-copper mineralisation. In addition, two leases were taken out for copper in the Trail Creek area while a doubtful occurrence of "Success Creek Phase" rocks is inferred in the south-east section of the E.L. on the Zeehan 1-mile geological sheet.

2.3 A helicopter-borne INPUT/E.M. survey planned for November, 1974, was delayed due to equipment non-performance (requiring modifications) and later by helicopter "problems" and poor weather. The survey was finally completed during April, 1975. Some 450 line km of airborne E.M. and magnetics were flown at 0.2 km line spacing over the whole E.L. using a McPhar H400 system. No final report has been received to date from the contractors (Geoex Pty. Limited), but preliminary results seen in the field during the survey indicated both magnetic and E.M. anomalies within the E.L. Ground inspection of two of these indicated an association with a black shale environment.

2.4 300 geochemical samples were collected during the field season, November 1974 to March 1975. The survey was hampered by heavy rainfall and difficulty of access. Work was concentrated in the area south of the Pieman River with operations being based at Zeehan.

2.5 Two anomalous areas were delineated by the geochemical survey. However, one occurs in an area of probably

unprospective dolerite outcrop and the other is considered to be due to contamination from mine waste materials outside the E.L.

2.6 Unless the results of a Mines Department Survey of an area immediately to the south of the E.L. or those from checking INPUT E.M. anomalies, prove encouraging, it is recommended that the area south of the Pieman River be relinquished. The potential of the area north of the Pieman River is unknown. No prospects are recorded in this area. The follow-up work on any E.M. anomalies in this area should decided the future activity on the Exploration Licence.

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3. GEOCHEMICAL SURVEY

3.1 A geochemical survey was commenced late in November, 1974, by Mr. P.M. Macnamara (geologist) and Mr. D. Sahl (technical assistant). Mr. L. Govey (geologist) took over the programme in December. In addition, three students were employed as field assistants at different stages of the survey.

The programme was operated from Zeehan as logistically this was the best base for the southern part of the E.L.

3.2 Access to the area is via a dirt road skirting the western boundary of the E.L., or a track which runs northward through the Mines Department Reserve to the aerial cableway on the Pieman River.

Several bridges on the Pieman River track required repairs and one deeply rutted uphill section required re-building.

Inclement weather in December and early January prevented ridge-top travel by vehicle, necessitating frequent long walks to remote stream systems. Most of the creeks south of the Pieman River within three hours walk of the access tracks have now been covered.

Rapid access is possible along the button grass ridge tops, but this contrasts with the slow progress attained when one descends through the almost impenetrable ti-tree scrub and horizontal vines which grow profusely along the steep banked, deeply incised stream channels.

3.3 The difficulty of access and the often high stream levels (due to very heavy rainfall) limited the number of geochemical samples collected to approximately three hundred. These consist of sievable (-80 mesh) stream

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sediment mainly, plus partially pan-concentrated sediment, rock chip, float and bank outcrop samples. Many of the bank outcrop samples were taken from limonite encrustations which in several localities indicated possible mineralisation although pyrite was the only sulphide seen. The partially (pan) concentrated samples were collected as a possible cross-check on results from sieved samples, especially for anomalous values. These may be further concentrated either by using bromoform or by sieving to (say)-30 mesh and then analysed. Such chemical analyses will be considered further when the airborne E.M. anomaly locations are known.

Sample details are given in Appendix 1.

3.4 Drainage samples were collected from high level Tertiary gravels on the track to the Pieman River. Past experience indicates these are likely to contain alluvial tin which on filtering down to stream level yield spurious geochemical drainage anomalies. An attempt will be made to geochemically discriminate such "false" anomalies from those due to sulphide-tin bodies by comparison of geochemical scans of stream sediments from each type of area.

4. GEOLOGY

4.1 The Oonah Quartzite and Slate is the dominant formation in the area. On the Zeehan 1 Mile Sheet (First Edition, 1962), it is shown to be of Upper Proterozoic age, and as such is the oldest formation in E.L. 18/74. The quartzites and slates have been intensely folded and faulted.

The upper part of this formation (the "Success Creek Phase") is thought to be the most prospective horizon in the area as many of the mines in the Zeehan area occur within it.

4.2 Two areas doubtfully assigned to the overlying Crimson Creek Formation are shown on the Zeehan One Mile Sheet in the south-east corner of E.L. 18/74. These are of probable Lower Cambrian age. No outcrop of the formation was observed in the field, but the area is covered by thick scrub. These occurrences imply the possible existence of the underlying "Success Creek Phase" rocks adjoining them.

4.3 A faulted syncline, consisting of an alternating series of quartzites, shales and slates of Siluro-Devonian age, occurs in the south-eastern extremity of the E.L. It plunges in a south-easterly direction.

4.4 An area of horizontally bedded pebbly mudstone occurs to the south in the Mines Department Reserve and unconformably overlies the Oonah Quartzite and Slate. Two small outliers of similar lithology are to be found immediately south of the Pieman River. On the Zeehan One Mile Sheet these pebbly mudstones are shown to be the Zeehan Glacial Formation of Permian age.

4.5 Jurassic dolerite crops out in the southwest of the E.L. and is the only in situ igneous rock type observed in the area.

4.6 Tertiary gravels unconformably overlie the Oonah Quartzite and Slate south of the Pieman River. The deposits form a ridge capping, and are more extensive than shown on the Zeehan 1 Mile Sheet.

The thickness varies from a few centimetres to 10-15 metres. There is some evidence of a gradation from coarse cobbles and pebbles at the base to fine gravels toward the top of the deposit.

The dominant lithologies of the pebbles are fine grained quartzite and quartz-tourmaline. The quartz-tourmaline pebbles are very similar to those found in a deposit on the Stanley River near Mt. Livingstone in E.L. 53/70. Whether or not both deposits have the same source area is unknown. The Heemskirk and/or Meredith Granites are the most likely source rocks for quartz tourmaline.

4.7 Two small deposits of gravels, which may be younger than the Tertiary deposit discussed above, are found adjacent to the Pieman River and Trail Creek. The latter deposit appears to delineate an old river terrace approximately 50 metres above the present level of Trail Creek.

Quartzite is the dominant lithology in both deposits.

A Quaternary age is suggested for both.

## 5. RESULTS

5.1 Results of analyses of copper, lead and zinc contents in 169 stream sediment, 26 rock and 14 limonite samples are given in Appendix II. 36 stream sediment samples were also analysed for gold. Values for Cu, Pb, Zn and Au are plotted on PMX DWG NOS. 1874-1877 respectively.

5.2 Threshold values for Cu, Pb and Zn in stream sediment samples of 10, 24 and 15 ppm respectively were estimated by visual interpretation of graphs showing metal content and corresponding frequency.

The only significant copper anomaly (160 ppm) occurs in an area of dolerite outcrop.

A number of Pb (up to 2000 ppm) and Zn (up to 540 ppm) anomalies occur in Big Ben Creek. However, this creek is most probably contaminated by waste from the old Montana Mine located south of E.L. 18/74. A further Pb-Zn anomaly is coincident with the Cu anomaly mentioned above.

5.3 Maximum values for rock chip and float samples are Cu 28 ppm, Pb 170 ppm and Zn 110 ppm, none of which appear to be significant.

5.4 Maximum values for limonite samples are Cu 28 ppm, Pb 850 ppm and Zn 260 ppm. Several samples show high lead and/or zinc values, but this is to be expected as the breakdown of pyrite (observed in outcrop) often leads to concentration of these elements due to scavenging by limonite.

5.5 The results for gold are extremely low and appear to be insignificant.

5.6 Thus no obvious targets for follow-up work have been delineated by the geochemical survey to date.

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5.7 A -80 mesh sediment sampling orientation survey aimed at selecting pathfinder elements characteristic of sulphide anomalies was done on samples draining "gossans" in the Livingstone Creek-Stanley Reward area (E.L. 53/70). Results were inconclusive because the anomalies were not detected at any sufficiently reasonable distance below the sulphide "gossan" to enable a useful sampling interval to be selected. On the other hand, soil sampling over the "gossans" indicated anomalous values for all elements tested for i.e. Sn, Cu, Zn, Pb, Co, Ni, As and Bi.

Spurious tin anomalies have been reported in the past associated with high level gravel of granitic derivation. Such gravels occur within the sample area, mainly in the headwaters of many of the sampled streams. These streams probably contain spurious anomalous amounts of tin especially as many contain a high proportion of tourmaline in their heavy minerals. For these reasons as well as the results of the orientation work mentioned above, drainage sampling for sulphide mineralisation appears inappropriate. Soil sampling follow-up of airborne E.M./magnetic anomalies appears more appropriate and will be carried out during the next field season on any anomalies detected within the Exploration Licence.

5.8 As a possible check on any -80 mesh drainage anomalies and/or E.M./magnetic anomalies, a number of partially concentrated (panned) samples were collected from main drainages. These have been retained and further work will be done on them if warranted when the airborne E.M./magnetics anomaly locations are known.

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6. RECOMMENDATIONS

Unless the results of the airborne INPUT E.M. survey, or those from the Mines Department survey of the Reserve area, prove fruitful, the area south of the Pieman River in E.L. 18/74 should be relinquished.

The potential of the area north of the Pieman River, whilst still unknown, is possibly low. Its potential should be reassessed when results of the E.M. survey carried out in April, 1975, are appraised.

7. REFERENCES

TAYLOR, 1951, : Report on G.W. Clark's Discovery near Zeehan.  
Open File, Mines Department Typescript report.

BLISSET, A.H., 1962 : Geological Survey Explanatory Report  
on the Zeehan 1 Mile Sheet. Tas. Department of Mines.

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APPENDIX I

SAMPLE DETAILS

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SAMPLE DETAILS

S, m= Sediment, sediment mud

R = rock chip

P = Panned Concentrate (partial)

F = Float

B = Bank

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601001S	0.5	0.5 Colluvial	Dolerite, sub-crop; organic.
601002S	0.6	0.6 Colluvial	Dolerite scree; organic.
601003P			Location as for 601002S; magnetic cons. (4 pans).
601004S	10	2 Outcrop	Dolerite outcrop; below Heemskirk Falls. Sediment beneath moss.
601005S	2	0.5 Colluvial	Outcrop black shale with quartz veins and silicification; minor f.g. black heavy minerals, minor light h.m.; fast flow.
601006P			
601007S	10	1-4 Outcrop	Near mouth of Pieman River (possibly contaminated by Renison sulphides?). Outcrop black sandy shale; also Permian(?) conglomerate nearby.
601008P			
601009S	1	0.2 Outcrop	Outcrop dolerite; organic.
601010S	2	0.1 Alluvial	Organic alluvial flats; black fines, white sand; outcrop Oonah Quartzite.
601011P			
601012S	1	0.2 Alluvial	Alluvial flat, black soil; no outcrop. Drains Puo and Jdl.
601013S	0.6	Colluvial	No outcrop (Oonah?).
601014S	0.6	0.3 Alluvial	Oonah rubble in stm.
601015P	1	0.3 Alluvial	No outcrop (below 013, 014).
601016S	2	0.5 Colluvial	Outcrop Oonah Quartzite and Slate quartzite and blue black slate 275°/40-90°N to 045/25°N dip in quartzite.
601017S	0.6	0.3 Alluvial	Outcrop Oonah Quartzite and Slate
601018S	0.3	0.1	Oonah Quartzite and Slate outcrop; white sand - quartz rubble in sediment.
601019	0.3	0.2 Colluvial	Oonah Quartzite and Slate scree

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Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601020S	1	0.3	Oonah Quartzite & Slate outcrop; strike 090/dip 20-40°S to strike 250°. 210/30°E dip, 150 m below 601020. d.grey sh., no pyrite; further below 260°/dip 20° upstream.
601021S 601022P	} 2	0.5	Oonah Quartzite and Slate outcrop
601023S	1.5	0.5	Outcrop contorted Oonah Q & S; rubble qtz, qtz veined Oonah.
601024S	1	1 Alluvial	Outcrop Oonah; boulders of Oonah and quartz vein material.
601025S	0.6	0.6 Alluvial	
601026S 601027P	} 2	0.6	Outcrop Oonah Q & S; Oonah and quartz scree.
601028S 601029P	} 8	Alluvial	Outcrop d. grey sh. 255/60°S.
601030S	1.5	0.5	Outcrop qtz veined Oonah Q & S; organic (main creek here appears to follow strike of rocks for the last 3 bends). 080/60°S dip at mouth of 601030.
601031S			Outcrop Oonah Q & S. 085/75°S dip
601032S	1.5	5 Outcrop	Outcrop Oonah. Waterfall area.
601033S	1	4	Waterfall: outcrop Oonah Q & S 090-130/20°N (100 m below 601032S)
601034S	1.5	0.5 Alluvial	Crenulated Oonah Q & S; 090-120/60°. P 060/60°.
601035S	1	0.3 Alluvial	Outcrop Permian Conglomerate possibly dipping 10-20° NNE near track (contaminated by road).
601036S	3	2 Alluvial	Possible contamination from Montana Mines; limonitic crust to bank alluvial sand (tailings?)
601037S 601038P	} 2	2 Alluvial	Near reported Mines Dept. mineral isation; area recently soil sampled? (see 601041R).

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601039S 601040P	1.5	1 Alluvial	Near reported Mines Dept. Reserve Pb-Cu occurrence.
601041R			
601042S	0.3	0.7 Alluvial	Possibly contaminated by Renison sulphides from the Pieman River.
601043S	0.3	0.3	Possibly contaminated by Renison sulphides from the Pieman River.
601044S 601045P	1-2	1 Colluvial	Outcrop Oonah Q & S.
601046S			
601047S 601048P	1.5	1 Colluvial	Outcrop Oonah
601049R			
601050S 601051P	20	Colluvial	Location 601047S; chips of Oonah Q & S for geochem. background purposes; d.grey sandy shale-siltstone 055/70°SE.
601052S			
601053P 601054S	3	2 Colluvial	Stanley River; 1st rapid above Pieman River. Quartzite, argillite boulders, mica in sed.
601055S			
601056S	1	Colluvial	Quartzite - argillite boulders.
601057S 601058P	3	Colluvial	210° strike Oonah Quartzite 90° dip, ripple marked.
601059P 601070S			
601060S	1	Colluvial	Oonah 330°/60°W
601061S 601062P	2	0.5 Colluvial	Oonah Quartzite; abundant black h.m.
	1.5		No outcrop; abundant f.g. brown h.m. (see 601059).
			Oonah Q & S; shale outcrop.
			Oonah Q & S outcrop.

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Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601063S 601064P	10	0.5 Colluvial	Outcrop Oonah Q & S
601065S 601066P	1.5	0.5 Colluvial	Contorted black shale (Oonah Q & S) outcrop
601067S	0.5	1 Outcrop	Outcrop Oonah Q & S
601068S	0.5	0.5 Colluvial	Outcrop Oonah Q & S
601069S	0.5	0.5	Outcrop Oonah Q & S
601070S			See 601059P
601071P 601072S	2.5	Colluvial	Oonah Q & S 090/80° dip. Abundant black h.m.
601073P 601074S 601075R	2.5	1 Colluvial	Float : slate, quartzite, quartz vein matter; Oonah Q & S outcrop 270°/45°N. Float : qtz tourmaline and qtz vein in black slate with(?) S= Abundant black h.m. (tourmaline?).
601076P 601077S	1.5	Colluvial	Oonah Q & S outcrop; high conc. of black h.m. (tourmaline ?).
601078S 601079P	1-2	Colluvial	Outcrop - Oonah qtzte - vertical? joint plane, strike 220°. Float is dark grey quartzite; negligible h.m.
601080S 601081P	1-2	Colluvial	No outcrop; abundant rounded boulders of qtzite & siliceous conglomerate float (Tg ?).
601082S	1	Colluvial	Float : rounded qtz & qtzite (Tg?) Outcrop : vertical highly cleaved Oonah slates, strike 030°.
601083S	1	Colluvial	Float : rounded qtzite and congl. (argillaceous matrix). No o/c.
601084S	1-2	1 Alluvial	Float : qtz, black slate, Tg boulders (some qtz/tourmaline) O/c : highly cleaved Oonah slates.
601085S	1	Colluvial	O/c : Black Oonah slates Float : slate, qtzite, qtz.

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Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601086S	1	Colluvial	Float : qtz, qtzite, black slate, Tg ( qtz/tourmaline). No outcrop.
601087P	2	1 Alluvial	From below junction of above 3 streams, all of which drain off Tertiary gravels. No o/c. Float as above. Abundant black h.m.
601088S 601089P	2-3	1.5 Alluvial -2	Qtzite, qtz, slate. Float - some Tg boulders. O/c - Oonah Qtzite. Abundant black h.m.
601090S	1	Colluvial	Float : qtz. and qtzite. No o/c.
601091S	1-2	0.5 Alluvial	Float : qtz, qtzite
601092P 601093S	1-2	0.5 Alluvial -1.0	Float : qtz and Oonah qtzite. No o/c.
601094S 601095P	2-3	Alluvial	Creek drains through swamp flat. Qtz & qtzite gravels. No o/c. Black h.m.
601096S 601097P	1	0.5 Alluvial	Drains Siluro-Devonian qtzites & slates in synclinal structure. Qtz & qtzite float. No o/c. Abundant black h.m.
601098S	1-2	Colluvial	No o/c; phyllite, slate, minor qtzite, qtz, qtz/tourmaline. Tg boulders - Float.
601099S	0.5	Colluvial	O/c - black slate, 155°/45°NE
601100P 601101P	2	Colluvial	No o/c; float - micaceous metased. qtz, slate.
601102S 601103P	2	Colluvial	O/c - Oonah Q - 240°/70°NW. Float : slate and qtzite.
601104S 601105P	8	1 Alluvial	Trail Ck at junction with Pieman River. O/c - Oonah Qtzite. Float : qtzite, qtz, slate, Red-silicified congl.-v.coarse, orthoclase porphyry, brown fine grained conglomerate.
601106S	1	Colluvial	O/c - Oonah Q. - trend 060 Float : Oonah and qtz.

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601107S	1	Colluvial	As for 601106S.
601108B 601109R	2-3	Colluvial	O/c ( 20 m) of grey qtz-veined & brecciated qtzite with pyrite mineralisation - strike 045, NW dip. Much limonite in banks. 601108B is limonite ooze from banks.
601110S 601111P	3	1.0 Colluvial	O/c - qtz veined qtzite. Float - qtz, qtzite, slate.
601112S	1	Colluvial	No o/c; qtzite float
601113S	1	Colluvial	Oonah Slate o/c.
601114S 601115P	2-3	Colluvial	O/c - Oonah Q, 045°/45°NW Float - slate, qtzite.
601116S 601117P	3	Colluvial	As for 114S, 115P
601118S	1	Colluvial	O/c - black slate, trend NE: Qtzite float.
601119S	0.5	Colluvial	Qtzite float, some vuggy to qtz-veined grey qtzite.
601120S	2	Colluvial	O/c - black slate - qtzite float.
601121S 601122P	0.5	0.5 Alluvial	Siluro-Devonian qtzite float; brown h.m.
601123S 601124P	1	0.5 Alluvial	Siluro-Devonian qtz and qtzite fine-grained float - some qtz Abundant black h.m.
601125S	0.5	0.3 Alluvial	Float - qtz, qtzite.
601126S 601127P	1-2	0.3 Alluvial	Float - fine sands, qtz, qtzite Black h.m.
601128S 601129P	6	1.0 Alluvial	Trail Ck; Float - qtzite, qtz, black slate. Very little h.m.
601130S 601131P	2-3	1.0 Alluvial	Float - qtzite, qtz, slate, orthoclase porphyry. Many highly rounded pebbles (Tg?). Downstream from this creek in Trail Creek - Boulders of rounded qtz-porphyry.

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Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601132S	1	Alluvial	Bank appears to be palaeo-alluvia plain (Tertiary or Recent) - compacted gravels. Occurs approx 30 m above present bed of Trail Ck. - v. fine black organic muds.
601133S 601142P	1	0.5 Alluvial	No o/c; white to brown angular qtz and qtzite float.
601134S	0.75	0.5 Alluvial	No o/c or float - on alluv. fan.
601135S	2	8 Colluvial	Seepage; no flow in creek proper Phyllite & minor qtz float; organic mud.
601136S 601137P	1.5	3-4 Colluvial	Fe-rich grey qtzite (blocky) o/c Float as above & qtz with minor limonite. Brown h.m.
601138S 601139P	2	1 Alluvial	Black slate, qtz veined o/c. Qtz, qtzite, slate float.
601140S	1	Colluvial	No o/c; qtz, qtzite, slate float.
601141S	0.5	2 Alluvial	No o/c; minor qtz float.
601143S 601144P	2-3	Colluvial	Qtz, qtzite, slate float. Oonah o/c.
601145S 601146P 601147B 601148R	10	Colluvial	O/c - grey qtzite & slaty phyllit Strike 115°, dip 70°NE. 20-30 m of limonite ooze - py in grey qtzite; sands v. dark.
601149B		0	East bank; Oonah strikes 135°, dip 70°NE; mineralised rocks not detected.
601150S 601151P 601152R 601153F	10	Colluvial	O/c - Oonah, strike 115°, dip variable; qtz, qtzite, slate, Tg (qtz/tourmaline) float; tourmaline in pan conc. Py in rocks & float - float is also gossanous & <u>green</u> stained.
601154S	1	Colluvial	Oonah o/c & float; organic mud.
601155B 601156R	10	Colluvial	Limonite ooze, associated with jointing in Oonah. py. bearing grey qtzite - west banks.

025

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601157B 601158R	8	Colluvial	Oonah o/c - strike 085, dip 45N limonite ooze - disseminated py in grey, qtz veined, qtzite - wes bank.
601159B 601160R	8	Colluvial	Thick limonite deposit. py. in black slate, west bank - assoc. with joint. Small limonite shows on opp. bank. Oonah trends 085.
601161S 601162P 601163B	1-2	Colluvial	Oonah o/c and float - no mineralised rock detected.
601164S	1	Colluvial	Oonah o/c and float; very few fines.
601165S	1	Colluvial	O/c; grey qtz veined qtzite. v. few fines.
601166B 601167R	2	Colluvial	Oonah o/c; limonite ooze, some py. mineralisation in grey qtz-veined qtzite.
601168S 601169P	3	1 Alluvial	Qtz, qtzite, slate float. Abundant tourmaline in pan conc.
601170S	2-3	6 Colluvial	Qtzite float
601171S	3-4	6 Colluvial	Qtzite & minor slate float. Qtzite o/c, much qtz veining strike 090, dip 50N.
601172B	-	-	Limonite seepage
601173F	-	-	Qtz float containing limonite.
601174S 601175P	4	6 Colluvial	Oonah float; some qtz appears mineralised. See 601173F.
601176S 601177P	3	0.5 Alluvial	No o/c; qtzite & minor slate float.
601178S	1.5	0.5 Alluvial	Qtz, qtzite & slate float.
601179	Not yet used (see above 601186S)		
601180S	0.5	0.5 Alluvial	Oonah o/c; qtzite float.
601181S	1.5	0.5 Alluvial	No o/c; qtzite float.
601182S	0.5 to 1.0	0.5 Alluvial	Oonah qtzite & slate o/c and float

026

512027

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601183S	0.5 to 1.0	0.5 Alluvial	No o/c; Qtzite float.
601184S	} 2-3	Colluvial	Qtzite, Qtz, minor slate float.
601185P			No o/c; brown h.m.

SAMPLE DETAILS

(Week Ending 18/1/75)

S = Sediment

F = Float

P = Panned Concentrate

B = Bank

R = Rock Chip

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601179S	0.5	0.5 Alluvial	Oonah Qtzite o/c and float.
601186S	20	4-6 Alluvial	Swampy drainage way. No o/c; fine qtz float.
601187S	0.5	0.5 Alluvial	No o/c, no float; drainage way 7 m wide.
601188S	0.5	0.5 Alluvial	No o/c, no float; alluvial flat
601189S	2	Alluvial	Broad alluvial drainage, 30-40 m wide; qtzite/qtz float. No o/c. Fine black & brown h.m.
601200P			
601190S	2	1.0 Colluvial	Qtzite float & o/c - strike 090, dip 30N.
601191S	2.5	1.0 Alluvial	Qtzite & phyllite float. Qtzite o/c.
601192S	1.0	Colluvial	Qtzite/phyllite float and o/c. V.flat dip, strike?
601193S	1.5	2-3 Colluvial	Qtzite float.
601194S	1.0	Colluvial	Qtzite float.
601195S	1.5	1.0 Alluvial	Qtzite float & o/c; no slate.
601196S	1.0	4 Colluvial	Float : qtzite & vuggy qtz with limonite staining.
601197F	-	-	Vuggy qtz with surface limonite staining.
601198S	1.0	4 Colluvial	Qtzite float; no phyllite.
601199S	?	?	Qtzite o/c & float; qtz very vuggy; strike 100°?
601201S	0.5	1 Alluvial	No float; o/c grey qtzite/qtz.
601202S	0.5	Colluvial	Grey qtzite/qtz o/c; no float.
601203S	0.5	10 Colluvial	Extensively qtz veined grey qtzite; float same.

U28

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601204F	-	-	Trial Creek; pyrite in qtz veins in black slate.
601205S 601206P	} 2	0.5 Alluvial	Qtzite/qtz float, minor slate Orange-brown sands.
601207B	-	-	Limonite ooze; no mineralised rocks detected.
601208S	0.3	Colluvial	Beige qtzite float, v.few fines.
601209S	0.8	0.5 Alluvial	Qtzite/qtz float; no o/c.
601210S	1.5	2 Colluvial	Qtzite float; Tertiary gravel qtzite similar to Oonah Q.
601211S	0.5	Colluvial	Oonah Qtzite o/c & float, highly jointed.
601212R	-	-	Fractured zone, 1 m wide in Oonah Qtzite; limonite seepage; strike 300, dip vertical.
601213B	-	-	Limonite seepage on extensive phyllite o/c.
601214S	1.0	Colluvial	O/c - interbedded qtzite/phyllite repeated bands 1-5 cm wide each, over 1 m; strike 060, dip 75S. Float - qtzite/qtz, minor phyllit
601215S	1.0	1 Colluvial	Qtzite o/c, dip 40N.
601216B	-	-	Limonite on qtzite.
601217F	-	-	V.limonite rich qtzite(?) float.
601218S	0.5	1.5 Colluvial	Qtzite o/c.
601219S	0.5	2 Colluvial	Qtzite o/c & float.
601220S	0.5	0.3 Alluvial	No o/c; qtzite/qtz float.
601221S	1.0	0.5 Alluvial	No o/c; qtzite/qtz float.
601222S	1.5	Colluvial	O/c - Oonah qtzite/slate. Qtzite, minor slate float.
601223S	0.5	Colluvial	O/c - Oonah qtzite/slate. Qtzite, minor slate float.

SAMPLE DETAILS

(Week Ending 1/2/75)

S = Sediment

B = Bank

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601224S 601225S	10	2 Alluvial	Flow width 0.3 m - grass filled channel; no o/c or float, v. fine black organic mud.
601226S 601227S	10	2 Alluvial	Flow width 0.3 m; some fine Tertiary gravels; fine black organic mud.
601228S 601229S	0.75	1 Alluvial	Tg banks; qtz/qtzite float.
601230R	-	-	Fe-rich qtzite with limonite in joint planes. Assoc. Fe-rich shales.
601231S	1.5	Colluvial	Fe-rich qtz/qtzite float.
601232S	0.5	3 Colluvial	Qtzite float and o/c; some Fe staining.

030

512031

SAMPLE DETAILS

(Week Ending 25/1/75)

S = Sediment  
R = Rock Chip

F = Float

Sample No.	Creek Width (m)	Bank Height and Type	Remarks
601233S	0.5	2 Colluvial	Limonite stained qtzite float; area generally limonite-rich; qtz veining.
601234S	1.0	1 Colluvial	Qtzite/qtz o/c; qtzite float. Some Fe staining.
601235F	-	-	Highly fractured Fe stained float - minor sulphides?
601236S	0.5	0.5 Colluvial	Qtzite float
601237S	1.0	3 Colluvial	Qtzite & shaley qtzite o/c - qtz veined; float same. Dip 10°N?, strike ?
601238R	-	-	Fe rich o/c in bed; dip constant at 10°N? for 100 m. Sulphide mineralisation including <u>bornite</u> Creek sands Fe stained.
601239F	-	-	Near 238R; vuggy; green coloured qtz from contact with black slate
601240S 601241S	10	0.5 Alluvial & Colluvial opposite bank.	Drainage gully - no flow channel. V. fine qtz float.
601242S 601243S			
601244S 601245S	0.5	0.5 Alluvial	Qtz/qtzite, Tg (qtzite) float. No o/c.
601246S 601247S			
601248S 601249S	3-4	Colluvial	Flow width 0.3 m - grass filled gully - some angular qtz float; v.fine muds; no Tg.
601251S			
601252S	1	Colluvial	Qtz veined qtzite o/c; strike 045, dip NW. Qtzite float.

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601253B	1	Colluvial	Limonite ooze (minor) near 601252S assoc. with qtz veining no sulphide apparent.
601254S	0.5	Colluvial	Qtzite, o/c and float, strike/d
601255S	1	0.5 Alluvial	Qtzite, minor slate float; no o/
601256S )	6	Colluvial	Grass filled gully; no o/c or float; black organic mud.
601257S )			
601258S )	6	Alluvial	Grass filled gully; no o/c or float; black organic mud.
601259S )			
601260S )	0.3	Colluvial	D.grey qtzite o/c; strike/dip? Some qtzite float.
601261S )			
601262S )	8	Colluvial	Flow width 0.3 m - grass filled gully; no o/c or float. Black organic muds.
601263S )			
601264S )	6	Colluvial	Flow width 0.3 m - grassy channel drains off Tg-tourmaline in sands; qtz/tourmaline float.
601265S )			
601266S )	6	Colluvial	Flow width 0.3 m; grassy channel; fine rounded Tg float.
601267S )			

032

512033

SAMPLE DETAILS(FEBRUARY, 1975)

S = Sediment

F = Float

B = Bank

A =

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601268S 601269S	} 0.5	Colluvial	Qtzite (some Fe staining), slate o/c; qtzite, slate, Tertiary gravel (qtz pebbles) float;
601270S 601271S	} 0.5	Colluvial	No o/c; qtzite, Tg (qtz pebbles) float.
601272A 601273A	} -	-	Soil samples from old Mines Dept? sampling sites - abundant tourmaline.
601274S 601275S	} 0.3	Colluvial	Grass-filled channel; some qtzite float.
601276S	5	Colluvial	Grey qtz veined qtzite float, some limonite staining - just downstream conformable shale/qtzite contact, dipping NW at approx. 30°
601277S	0.5	Colluvial	Qtz/qtzite float.
601278B	-	-	In East Trail Ck - limonite ooze on o/c of rapidly alternating shale/qtzite layers.
601279S	0.3	Colluvial	No flow; alternating qtzite/shale-slate o/c; angular qtz/grey qtzite float.
601280S	1.5	Colluvial	Qtzite float & o/c, NW strike 45° NE dip.
601281S	1	Colluvial	Qtzite/qtz, slate float; no o/c.
601282S	10	Colluvial	Crenulated qtzite o/c & float (320°/40° SW).
601283F	10	Colluvial	Grey qtzite float with pyrite.
601284F	10	Colluvial	Gossanous qtz with fresh pyrite and some <u>green</u> staining.
601285F	10	Colluvial	Pyritic gossanous qtz float.

033

512034

- 2 -

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601286S	1	Colluvial	Qtzite o/c with qtz veining along joint planes (010°/45°W) - Qtzite slate float.
601287S	0.5	Colluvial	Qtzite o/c (095°/34°S)

SAMPLE DETAILS(FEBRUARY, 1975)

S = Sediment

R = Rock

F = Float

Sample No.	Creek Width (m)	Bank Height (m) and Type	Remarks
601288S	0.3	1.5 Alluvial	Fine qtzite float; no o/c.
601289S	1.5	1.5 Alluvial	Alluvial plain 30 m wide; qtzite/qtz float - some rounded qtzite cobbles (Tertiary gravels? O/c : brecciated, qtz veined, gre micaceous qtzite - strike/dip?
601290S	1	Colluvial	O/c : qtzite - strike 011, dip? Qtz veins striking 040. Float : qtzite/qtz.
601291S	0.2	Alluvial	Alluvial plain 30 m wide. Fine qtzite float & sand; no o/c.
601292S	0.3	0.5 Alluvial	Qtzite float; no o/c.
601293S	0.5	0.5 Alluvial	Braided channel in grassy alluvial fan 30 m wide. No o/c or float.
601294S	0.3	Colluvial	Qtzite o/c (285/23N); secondary iron colouration on surface.
601295S	1	1 Alluvial	Qtzite float; no o/c.
601296S	0.3	Colluvial	No o/c or float.
601297F	-	-	Green tourmaline/qtz Tertiary cobble from creek system west of Pieman track.
601298F	-	-	Black tourmaline/qtz Tertiary cobble from creek system west of Pieman track.
601299F	-	-	Nodular pyrite in shaly cleaved Permian (?) boulder (same location as 601283F).
601300R	-	-	Pyrite/chalcopyrite, siderite in joint planes and disseminated(?) in hard grey qtzite (310/10E). Duplicate sample retained for petrology.

035

Sample No.	creek Width (m)	Bank Height (m) and Type	Remarks
601301R	-	-	Pyrite disseminated in grey quartzite- duplicate sample retained for petrology.
601350M	1	0.5 Colluvial	Oonah : near E.M. anomaly.
601351M	1.5	0.5 Colluvial	Oonah : outcrop black shale 105°/75°N dip.
601352R	-	-	Oonah : outcrop 601351 - black and dark grey slate.
601353M	0.5	0.5 Colluvial	Oonah : slumped slope wash.
601354R	1	0.5	Oonah outcrop of black pyritic shale, crenulated; strike 150°M.
601355R	1	0.5	Oonah : black very crenulated pyritic shale with sulphides (chalcopyrite?) below E.M. anomal
601356M	1	0.5 Colluvial	Site of 601355
601357M	1	0.5 Colluvial	Oonah : black shale outcrop 010°M/70°W, crenulated.

APPENDIX II

RESULTS OF ANALYSES

937

# GEOCHEMICAL AND MINERALOGICAL LABORATORIES PTY. LTD.

21 WYNARD STREET, BELMONT, PERTH, W.A. 6104

Registered Laboratory Number 847



Phone: 65-4322 (3 Lines)  
Telex: 92418  
Cables: Geochem Perth

Your Ref: <b>601 EL 18/74</b>	Our Ref: <b>S20929/P11187</b>
Date In: <b>13.1.75</b>	Date Out: <b>23.1.75</b>
Client: <b>PACMINEX PTY. LTD.</b>	
Samples Identification: <b>As per sheets</b>	

512038

## ANALYTICAL REPORT

REMARKS \* = These samples have been checked.  
Cu Zn Fe Mn (Code 06) to follow.

ANALYTICAL TECHNIQUE	ELEMENTS	PRECISION AT LEVEL		LIMIT OF DETECTION
AAS (HClO <sub>4</sub> )	Cu Pb Zn	10%	300ppm	2
LG50	Au			0.004
LG5	Au	20%	10ppm	0.05

**AAS** Geochemical Analysis by Atomic Absorption Spectrophotometry. Sample attack by methods giving highest extraction within cost-limitations. Conditions carefully controlled to give high precision. Suitable for levels up to 1%.

**Sorting** Sorting Analysis. As above but technique extended to operate in percentage range. Generally suitable for levels up to 15%.

**Colorimetric** Geochemical Analysis by Colorimetry. Used for elements which cannot be determined by AAS due to poor sensitivity - Sample attack by methods giving highest extraction within cost limitations. Generally suitable for levels up to 1000 ppm. Above 1000 ppm AAS can usually be used.

PRECISION is determined with standards similar in composition to the samples. The value given is  $\pm$  two standard deviations. This means that if the analysis is repeated sixteen times, on average only one result will differ from the mean by more than the value given. Results are usually rounded to the nearest 0.5 standard deviation.



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These results, comprising 5 pages, have been obtained in accordance with the Association's terms of registration.

*Frank*

NATA SIGNATORY

038



# GEOMIN LABORATORIES

SYDNEY — DARWIN — KALGOORLIE — PERTH

## GEOCHEMICAL ANALYSIS

All results in parts per million unless otherwise stated.

512039

REPORT No. SHEET No.



Typist: S. Keeley  
S20929 P11187 / 1.

Analyst	EC	EC	EC
Sample No.	Cu	Pb	Zn
601001S *	16	18	24
2S	30	24	42
4S	14	24	34
5S	8	20	16
7S *	6	210	160
9S *	160	120	1800
10S	2	8	4
12S	4	14	8
13S	2	14	4
14S *	2	12	6
INTERNAL STANDARD	300	44	102
16S	2	14	4
17S	4	16	6
18S	2	10	4
19S	2	8	2
20S	2	12	2
21S	4	12	6
23S	6	20	10
24S	8	20	10
25S	6	10	6
26S *	6	18	10
28S	6	24	18
30S	2	10	6
31S	4	20	4
32S	x	10	2
601033S	x	12	2

are requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.  
These results are authentic only when accompanied by cover sheet signed by the registered NATA signatory

039



# GEOMIN LABORATORIES

SYDNEY — DARWIN — KALGOORLIE — PERTH

REPORT No. SHEET No.  
**512040**



S20929/P11187/2

## GEOCHEMICAL ANALYSIS

All results in parts per million unless otherwise stated.

Analyst	EC	EC	BK
Sample No.	Cu	Pb	Zn
601034S	4	18	8
35S	2	28	16
36S *	18	2000	540
37S	x	20	4
39S *	2	10	4
42S *	30	44	78
43S	6	18	28
44S	4	14	6
46S	4	8	10
47S	2	14	6
INTERNAL STANDARD	300	46	98
50S	2	16	6
52S	2	12	4
54S	2	14	4
55S	6	18	20
56S *	6	16	36
57S	4	12	6
60S	2	12	4
61S	4	8	4
63S *	6	320	260
65S	4	18	10
67S	4	20	12
68S	4	18	6
69S	4	14	6
70S	4	18	10
601072S *	2	18	6

ite requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.  
These results are authentic only when accompanied by cover sheet signed by the registered NATA signatory

040



# GEOMIN LABORATORIES

SYDNEY - DARWIN - KALGOORLIE - PERTH

## GEOCHEMICAL ANALYSIS

512041  
REPORT NO. SHEET NO.



S20929/P11187/3

All results in parts per million unless otherwise stated.

Analyst

Sample No

EC	EC	BK
Cu	Pb	Zn

601074S	6	16	2
77S	6	12	4
78S	4	18	8
80S	6	22	6
82S	4	20	6
83S	6	24	6
84S	2	16	30
85S	2	10	4
86S	2	14	4
88S *	4	14	2
INTERNAL STANDARD			
90S	2	18	4
91S	2	14	4
93S	4	6	2
94S	2	36	12
96S	x	12	14
98S	6	20	6
99S	4	24	4
100S	4	20	8
102S	4	20	6
104S *	2	18	4
106S	4	16	4
107S	4	18	4
108# B	22	36	30
110S	2	14	4
601112S	2	14	4

ote requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.  
 These results are authentic only when accompanied by cover sheet signed by the registered NATA signatory



042



# GEOMIN LABORATORIES

SYDNEY - DARWIN - KALGOORLIE - PERTH

## GEOCHEMICAL ANALYSIS

All results in parts per million unless otherwise stated.



512043  
REPORT NO. SHEET NO.

S20929/P11187/1A

Analyst

EC

Sample No.

Au (LG50)

Limit of detections

601007S **	✓	0.034	
601036S **	✓	0.025	
37S **	✓	x	0.005
39S **	✓	0.023	
47S **	✓	x	0.008
50S **	✓	0.023	
54S **	✓	0.020	
61S **	✓	x	0.005
63S **	✓	x	0.013
65S **	✓	0.015	
INTERNAL STANDARD			
72S **	✓	x	0.006
74S **	✓	x	0.007
93S **	✓	x	0.006
94S **	✓	x	0.013
100S **	✓	0.016	
104S ***	✓	x	
108S **	✓	x	0.020
114S *	✓	0.011	
116S	✓	0.012	
128S **	✓	x	0.007
601130S	✓	0.012	

\*\* = Fractional Weight

\*\*\* = Insufficient sample for LG50 technique, hence analysed by LG5 technique.

643

# GEOCHEMICAL AND MINERALOGICAL

## LABORATORIES (WA) PTY. LTD.

21 WYNARD STREET, BELMONT, PERTH, W.A. 6104

Registered  
Laboratory  
Number 847



Phone: 65 4322 (3 Lines)  
Telex: 92418  
Cables: Geochem Perth

Your Ref. <b>601</b>	Our Ref. <b>S21016/P11365</b>
Date In <b>28.2.75</b>	Date Out <b>10.2.75</b>
Client <b>Pacminex Pty. Ltd. Tasmania.</b>	
Samples Identification <b>As per sheets.</b>	

512044

# ANALYTICAL REPORT

### REMARKS

\* = These samples have been checked.

ANALYTICAL TECHNIQUE	ELEMENTS	PRECISION AT LEVEL		LIMIT OF DETECTION
AAS (HClO <sub>4</sub> ) LG 50	Cu Pb Zn Au	10%	300ppm	2 0.004

### AAS

*Geochemical Analysis by Atomic Absorption Spectrophotometry. Sample attack by methods giving highest extraction within cost-limitations. Conditions carefully controlled to give high precision. Suitable for levels up to 1%.*

### Sorting

*Sorting Analysis. As above but technique extended to operate in percentage range. Generally suitable for levels up to 15%.*

### Colorimetric

*Geochemical Analysis by Colorimetry. Used for elements which cannot be determined by AAS due to poor sensitivity -- Sample attack by methods giving highest extraction within cost limitations. Generally suitable for levels up to 1000 ppm. Above 1000 ppm AAS can usually be used.*

**PRECISION** is determined with standards similar in composition to the samples. The value given is  $\pm$  two standard deviations. This means that if the analysis is repeated sixteen times, on average only one result will differ from the mean by more than the value given. Results are usually rounded to the nearest 0.5 standard deviation.



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These results, comprising 6 pages, have been obtained in accordance with the Association's terms of registration.

*Frady*

NATA SIGNATORY

044



# GEOMIN LABORATORIES

SYDNEY - DARWIN - KALGOORLIE - PERTH

## GEOCHEMICAL ANALYSIS

All results in parts per million unless otherwise stated.



012040  
REPORT NO. SHEET NO.

Typist: S.Halse.

S21016/P11365/1.

Analyst	CP	EC	EC
Sample No	Cu	Pb	Zn
601134S *	4	38	40
135S	12	20	6
136S	2	12	8
138S	2	12	4
140S	2	14	4
141S	2	18	14
142S	2	14	4
143S	x	10	x
145S *	8	800	410
150S *	4	50	18
INTERNAL STANDARD	320	40	96
154S	2	20	10
161S	x	10	2
164S	x	8	4
165S	2	10	2
168S	2	22	6
170S	2	10	x
171S	2	12	2
174S	2	12	2
176S	2	14	2
178S *	x	10	2
179S	x	8	2
180S	2	16	4
181S	x	10	4
182S	x	12	x
601183S	2	12	2

See requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.  
These results are authentic only when accompanied by cover sheet signed by the registered NATA signatory

045



# GEMIN LABORATORIES

SYDNEY - DARWIN - KALGOORLIE - PERTH

## GEOCHEMICAL ANALYSIS

All results in parts per million unless otherwise stated.



512046  
REPORT No. SHEET No.

S21016/P11365/2.

Analyst	CP	EC	EC
Sample No	Cu	Pb	Zn
601184S	x	8	x
186S	x	12	2
187S	2	14	6
188S	x	10	4
189S *	x	10	2
190S	x	10	10
191S	x	10	4
192S	x	8	4
193S	2	14	4
194S	x	14	x
INTERNAL STANDARD			
195S	x	8	2
196S	4	14	4
198S	2	10	2
199S	2	12	x
201S *	2	18	8
202S	2	12	6
203S	x	10	2
205S	2	12	4
208S	4	16	2
209S	x	12	4
210S	4	12	4
211S	2	18	4
214S	2	10	2
215S	x	12	2
601218S *	x	18	4

te requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.  
These results are authentic only when accompanied by cover sheet signed by the registered NATA signatory

046



# GEOMIN LABORATORIES

SYDNEY -- DARWIN -- KALGOORLIE -- PERTH

REPORT No. 519047 SHEET No. 7

## GEOCHEMICAL ANALYSIS



S21016/P11365/3.

All results in parts per million unless otherwise stated.

Analyst	CP	EC	EC
Sample No	Cu	Pb	Zn
601219S	2	14	4
220S	x	10	2
221S	x	10	x
222S	2	14	6
223S	2	12	4
231S	2	12	2
232S	2	14	4
<i>233S to be analysed</i>			
234S	2	12	2
236S	2	14	2
237S *	2	14	2
INTERNAL STANDARD	310	40	98
250S	2	16	x
251S	10	30	6
252S	4	18	2
254S	6	16	8
255S	4	16	6
276S	2	10	2
277S	2	12	4
279S	2	14	4
280S	2	10	x
281S *	2	24	6
282S *	8	550	440
286S	6	12	4
287S	2	12	8
288S	2	10	4
601289S	x	8	4

Requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.  
 These results are authentic only when accompanied by cover sheet signed by the registered NATA signatory

947



# GEOMIN LABORATORIES

SYDNEY — DARWIN — KALGOORLIE — PERTH

## GEOCHEMICAL ANALYSIS

All results in parts per million unless otherwise stated.



512048

REPORT No. SHEET No.

S21016/P11365/4.

Analyst	CP	EC	BC
Sample No	Cu	Pb	Zn
601290S	x	8	x
291S	x	6	2
292S	x	8	x
293S	x	8	2
294S *	x	12	4
295S	4	10	4
601296S	x	10	2
601148R ✓	42	20	20
152R ✓	64	14	18
156R ✓	42	60	110
INTERNAL STANDARD	300	40	106
158R ✓	20	32	12
160R ✓	24	66	26
167R ✓	20	16	26
212R ✓	16	34	26
230R * ✓	18	10	18
238R ✓	52	12	16
300R ✓	10	12	10
601301R ✓	16	24	16
601153F ✓	26	18	24
173F ✓	14	10	6
197F ✓	20	12	4
204F ✓	12	20	12
217F ✓	10	30	18
235F ✓	12	10	12
601239F * ✓	30	10	30

-te requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.  
 These results are authentic only when accompanied by cover sheet signed by the registered NATA signatory



049



# GEOMIN LABORATORIES

SYDNEY - DARWIN - KALGOORLIE - PERTH

## GEOCHEMICAL ANALYSIS

All results in parts per million unless otherwise stated.



512050

REPORT No. SHEET No.

Typist: S.Halse.

S21016/P11365/1.A

Analyst

EC

Sample No.

Au

601134S ✓	x
145S ✓	x
150S ✓	x
161S ✓	x
168S ✓	x
176S ✓	x
184S ✓	x
189S ✓	x
190S ✓	x
191S ✓	x

INTERNAL STANDARD

205S ✓	x
255S ✓	x
276S ✓	x
282S ✓	x
289S ✓	x
601295S ✓	x

Note requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.

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11

21 WYNARD STREET, BELMONT, PERTH, W.A. 6104

Registered Laboratory Number 847



Phone: 65-4322 (3 Lines)  
Telex: 92418  
Cables: Geochem Perth

Your Ref. <b>601</b> <b>EL 18/74</b>	Our Ref. <b>S20929 P11187</b>
Date In <b>13.1.75</b>	Date Out <b>28.1.75</b>
Client <b>Pacminex Pty. Ltd.</b>	
Samples Identification <b>As per sheets.</b>	

512051

# ANALYTICAL REPORT

REMARKS \* = These samples have been checked.

ANALYTICAL TECHNIQUE	ELEMENTS	PRECISION AT LEVEL		LIMIT OF DETECTION
Cold Extraction	Cu Zn Fe Mn			

**AAS** Geochemical Analysis by Atomic Absorption Spectrophotometry. Sample attack by methods giving highest extraction within cost-limitations. Conditions carefully controlled to give high precision. Suitable for levels up to 1%.

**Sorting** Sorting Analysis. As above but technique extended to operate in percentage range. Generally suitable for levels up to 15%.

**Colorimetric** Geochemical Analysis by Colorimetry. Used for elements which cannot be determined by AAS due to poor sensitivity - Sample attack by methods giving highest extraction within cost limitations. Generally suitable for levels up to 1000 ppm. Above 1000 ppm AAS can usually be used.

**PRECISION** is determined with standards similar in composition to the samples. The value given is  $\pm$  two standard deviations. This means that if the analysis is repeated sixteen times, on average only one result will differ from the mean by more than the value given. Results are usually rounded to the nearest 0.5 standard deviation.



This laboratory is registered by the National Association of Testing Authorities, Australia.

These results, comprising  pages, have been obtained in accordance with the Association's terms of registration.

*Fraby*

NATA SIGNATORY

051



# GEOMIN LABORATORIES

SYDNEY — DARWIN — KALGOORLIE — PERTH

## GEOCHEMICAL ANALYSIS

All results in parts per million unless otherwise stated.



512052  
REPORTING SHEET NO.

Typist: S. Halse.  
S20929 P11187 / 1.

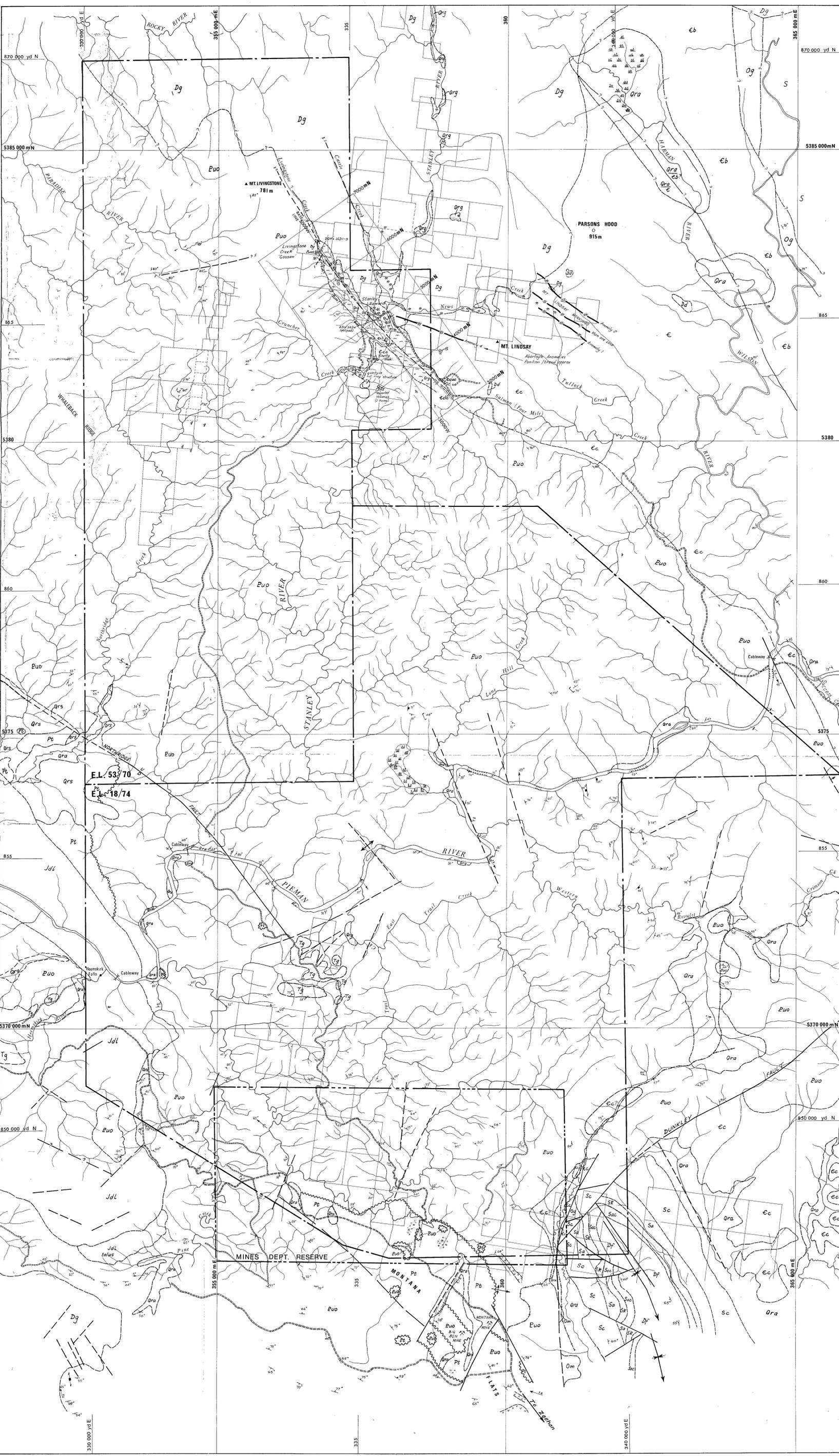
Analyst	BK	BK	BK	BK
Sample No.	CX Cu	CX Zn	CX Fe	CX Mn
601007 S	4	18	800	6
036 S	4	26	3520	2
037 S *	2	2	100	x
039 S	x	2	280	x
047 S	2	2	620	x
050 S	2	2	600	2
054 S	2	2	780	2
061 S	2	2	400	x
063 S	4	8	1560	4
065S	2	2	1400	6
INTERNAL STANDARD	46	14		120
072 S	2	2	320	2
074 S *	2	2	300	x
093 S	4	2	320	x
094 S	2	8	620	6
100 S	4	4	1400	26
104 S	I.S.	I.S.	I.S.	I.S.
108 S	8	10	2.2%	240
114 S	2	4	320	x
116 S	2	4	220	x
128 S *	2	2	380	x
601130 S	6	6	340	x

Note requested G.T. 1% greater than 1%. T/F to follow X below limit of detection S/P sent previously I.S. insufficient sample SNR sample not received.  
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052

512053

Sample No.	Cu	Pb	Zn	Sn	Co	Ni	Au	Bi	As
601233S	8	24	14	40				8	
601350M	6	12	8	20	2	4	x	8	7
601351M	6	8	14	40				x	
601352R	32	32	10					12	
601353M	4	14	18	20	10	12	x	12	
601354R	20	10	6					8	
601355R	10	16	8					12	7
601356M	4	10	6	20				12	
601357M	x	12	18	40				8	



REFERENCE

Ora	Alluvium
Org	Gravels
Ors	Older alluvium marsh deposits, dunnash etc.
Ol	Limonitic bodies
Tg	Gravels
Pz	ZEEHAN GLACIAL FORMATION Pebbly mudstone
Df	Ball Shale
Df	Florence Quartzite
Sac	Austral Creek Siltstone
Sa	Keel Quartzite
Sa	Amber Slate
Sc	Crotty Quartzite
Om	Gordon Limestone
Om	Maina Sandstone
Ec	CRIMSON CREEK FORMATION
Ec	Siltstone
Ec	Limestone
Ec	Chert
Ec	'Upper chert'
Ec	'Lower chert'
Euo	Oonah Quartzite & Slate
Jdl	Dolerite
Dg	Heemskirk and Meredith Granites
Df	diorite
Dap	quartz porphyry
eb	Basic and ultrabasic rocks (gabbro, serpentinite, dolerite etc.)
v	Volcanics (Proterozoic and Cambrian)

NOTE General notation: g - quartzite, s - siltstone, sh - shale, m - mudstone, c - chert, l - limestone, v - volcanics, t - tuff

	Geological boundary approx, inferred
	Angular unconformity
	Strike and dip of beds
	Vertical beds
	Bedding (photo interpreted)
	Joints
	Cleavage
	Strike and dip of shearing
	Fold axis plunge
	Drag fold
	Minor anticline
	Minor syncline
	Fault, inferred fault
	Prospect (approx position)
	Plunging anticline
	Plunging syncline
	Limonitic bodies (gossams etc)

	Watercourse
	Road, track
	Swamp
	E.L. Boundary
	Button grass
	Alluvium flats
	Expired lease boundary

NOTE Mapping based on field observations, 1:63860 Zeehan Tasmanian Dept of Mines Geological Map, Bulletin 15, and Mines Dept open file data.



512054

**PACMINEX PTY. LIMITED**

**GEOLOGY**

**E.L. 53/70 & E.L. 18/74**

**STANLEY and PIEMAN RIVERS**

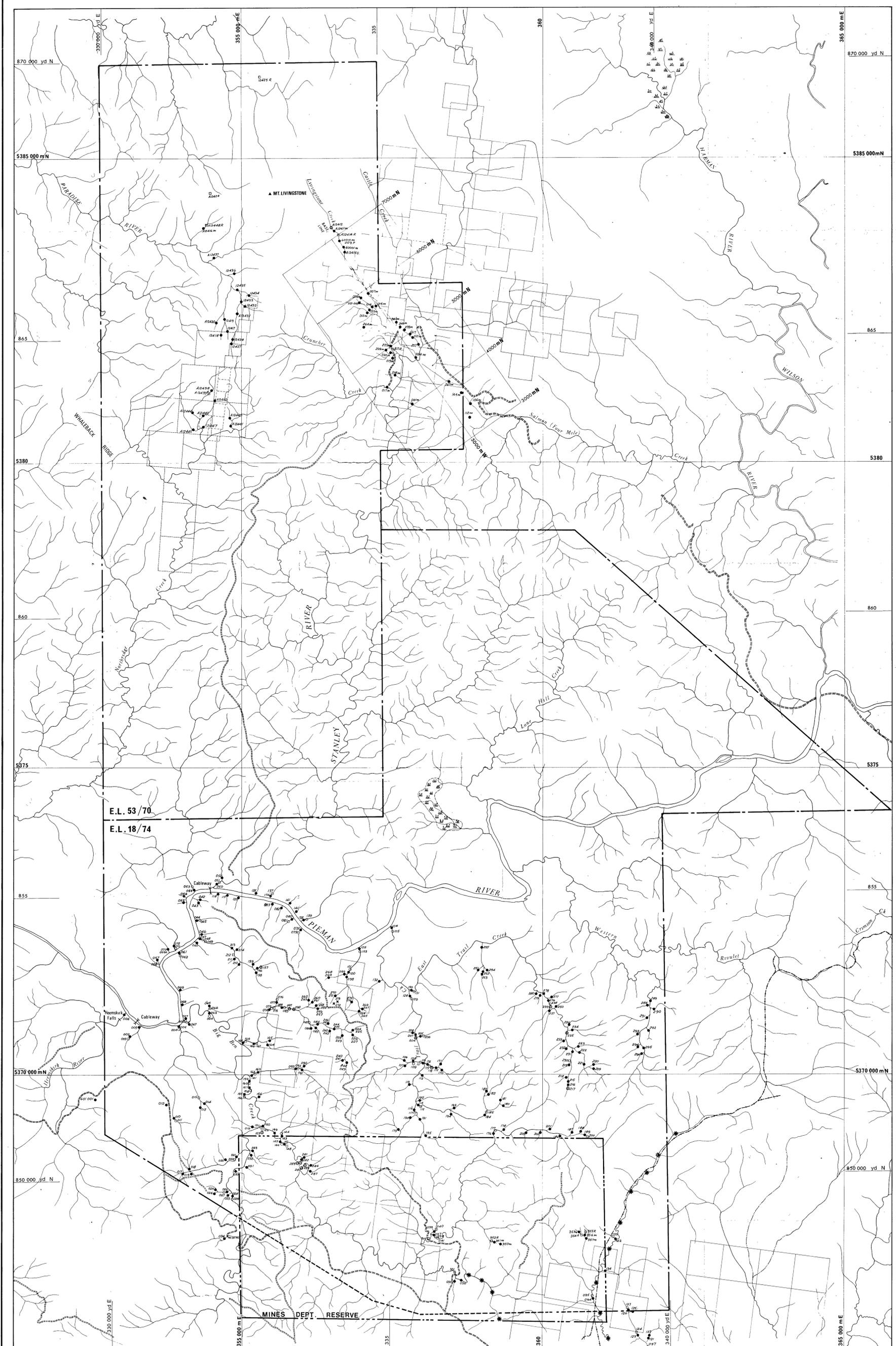
**WEST TASMANIA**

2365

Scale	1:20,000
Drawn	P.M.M. / P.H.
Date	August 1976
Revised	

1878

75-1107



- Watercourse
  - Road, track
  - Tramway, disused
  - E.L. boundary
  - Stream sediment mud (-50 mesh) xyz m
  - Panned concentrate xyz P
  - Rock chip xyz R
  - Sieve/slope wash soil
  - Creek boulder (float) xyz F
  - Gossan, limonite encrustation etc xyz L
  - Soil xyz S
  - Contaminated creek (ie dump drainage etc)
- Note: Sample Number Series used -  
 E.L. 53/70: 600 xyz and A1040 onwards  
 E.L. 18/74: 601 xyz

Scale 1:20,000  
 Drawn P.M.M. / P.H.  
 Date July 75  
 Revised

75-1107

**PACMINEX PTY. LIMITED**

512055

**SAMPLE LOCATION PLAN**

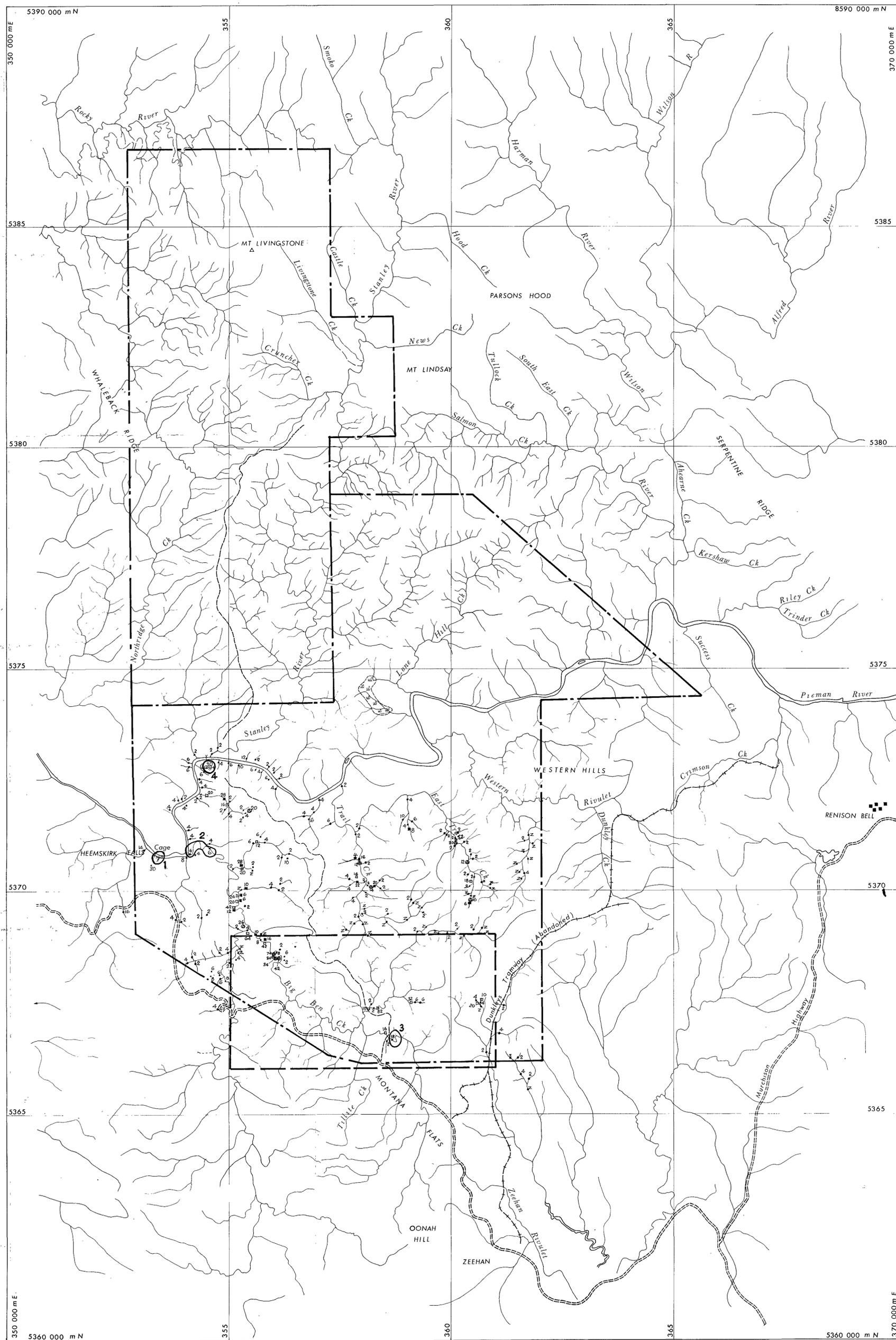
E.L. 53/70 & E.L. 18/74

**STANLEY and PEMAN RIVERS**

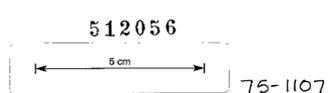
**WEST TASMANIA**

2366

**1879**



- REFERENCE
- Watercourse
  - Water race
  - Road, track
  - Tramway
  - Sieved (-80 mesh) stream sediment containing 4 P.P.M metal
  - Partially panned concentrate
  - Rock chip sample
  - Limonite ooze (bank outcrop or spring)
  - Float sample / Creek boulder
  - Soil sample
  - Below limit of detection



75-1107

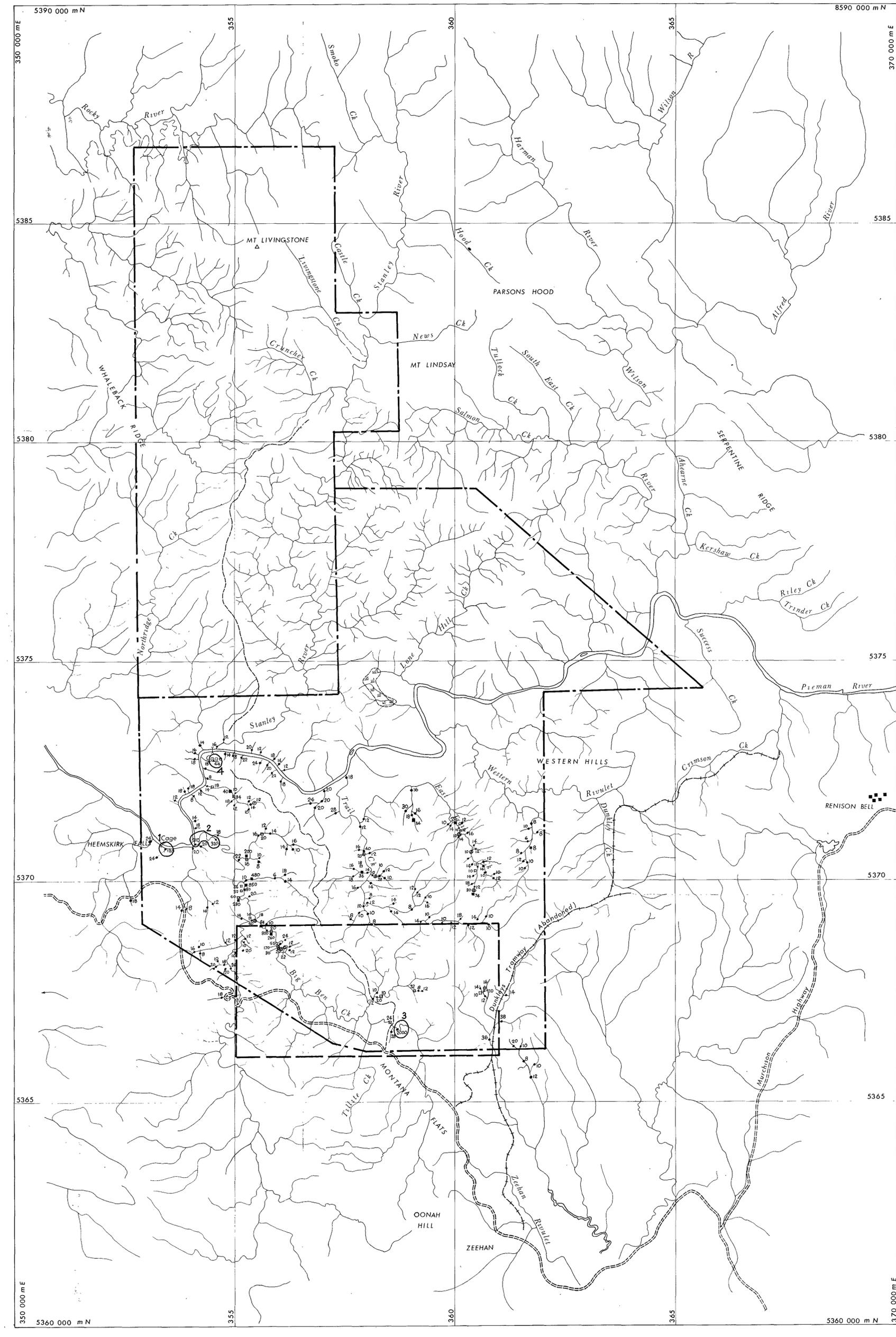
**PACMINEX PTY. LIMITED**

**DRAINAGE GEOCHEMISTRY  
COPPER**

**E.Ls. 18/74 and 53/70**

**PIEMAN RIVER TASMANIA**  
2367

Scale 1:40,000	<b>1874</b>
Drawn PMM / PH	
Date January 1975	
Revised	



- REFERENCE
- Watercourse
  - Water race
  - Road, track
  - Tramway
  - Sieved (-80 mesh) stream sediment containing .4 PPM. metal
  - Partially panned concentrate
  - Rock chip sample
  - Limonite ooze (bank outcrop or spring)
  - Float sample / Creek boulder
  - Soil sample
  - Below limit of detection

512057      75-1107

**PACMINEX PTY. LIMITED**

**DRAINAGE GEOCHEMISTRY  
LEAD**

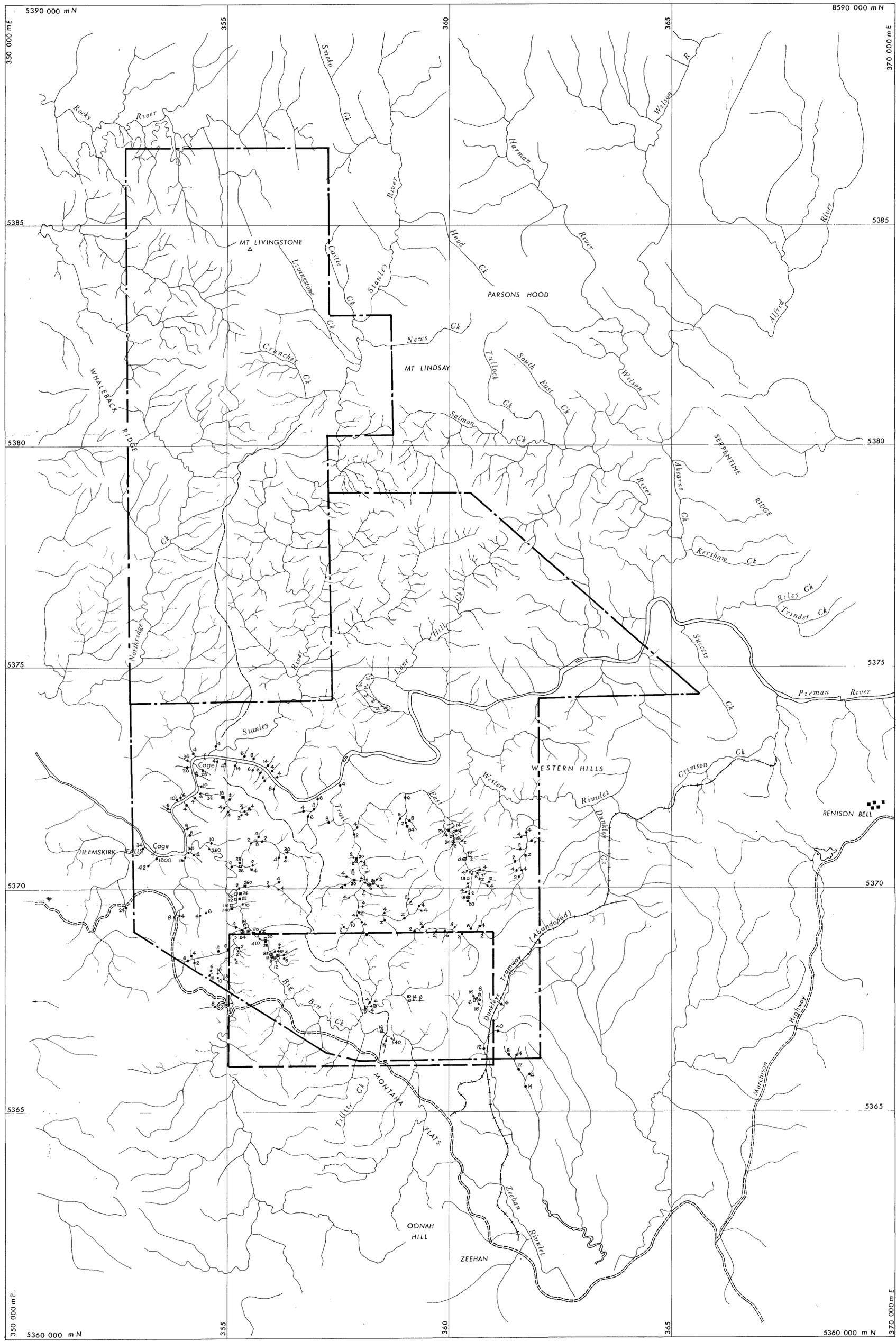
**E.Ls. 18/74 and 53/70**

**PIEMAN RIVER      TASMANIA**  
2368

Scale	1:40,000
Drawn	PMM / PH
Date	January 1975
Revised	

1875

5 cm



- REFERENCE
- Watercourse
  - Water race
  - Road, track
  - Tramway
  - Sieved (80 mesh) stream sediment containing 4 P.P.M. metal
  - Partially panned concentrate
  - Rock chip sample
  - Limonite ooze (bank outcrop or spring)
  - Float sample / Creek boulder
  - Soil sample
  - Below limit of detection

512058 75-1107

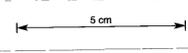
**PACMINEX PTY. LIMITED**

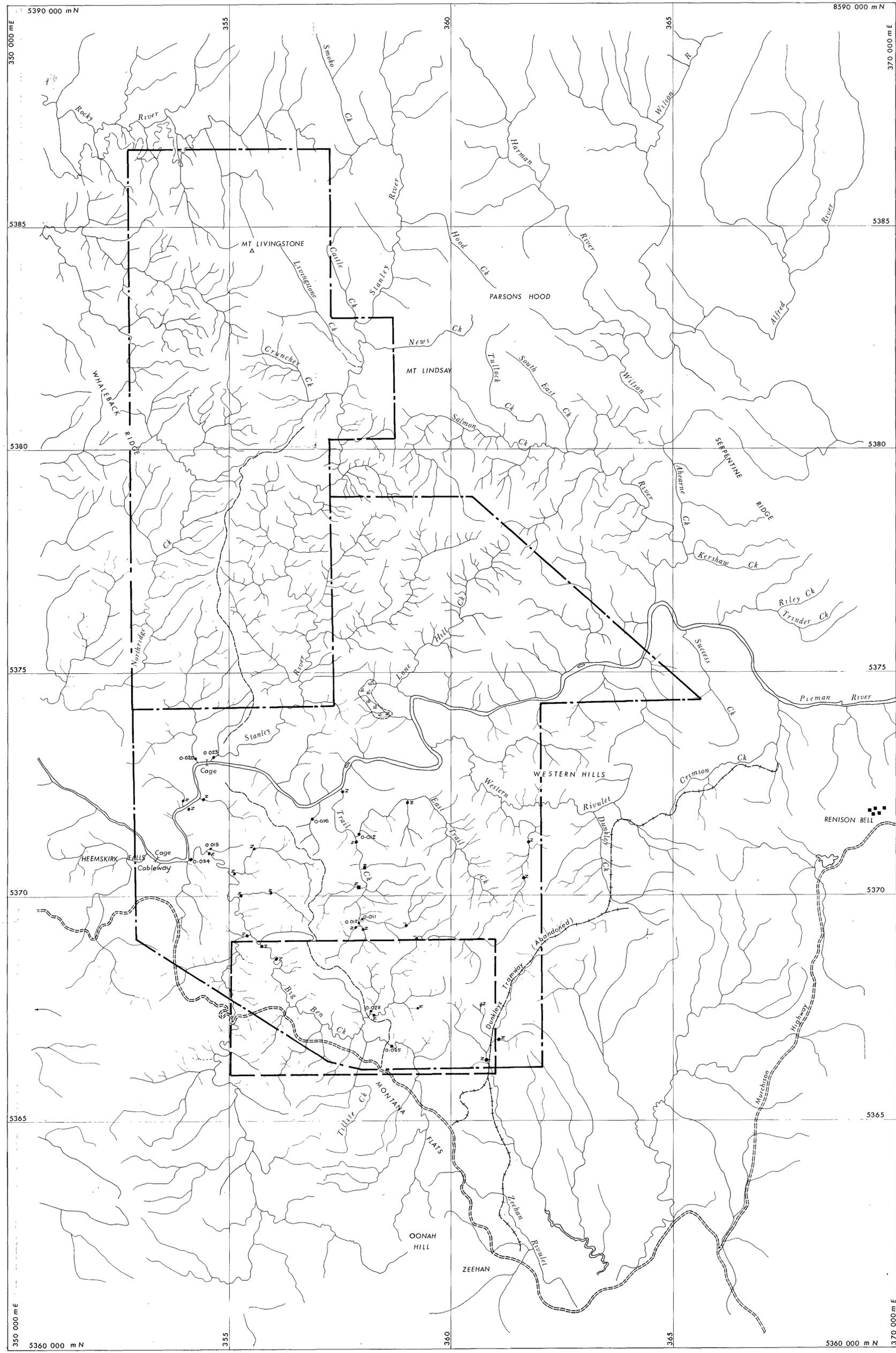
**DRAINAGE GEOCHEMISTRY  
ZINC**

**E.Ls. 18/74 and 53/70**

**PIEMAN RIVER TASMANIA**  
2369

Scale 1:40,000	<b>1876</b>
Drawn PMM / PH	
Date January 1975	
Revised	





- REFERENCE
- Watercourse
  - Water race
  - Road, track
  - Tramway
  - Sieved (-80 mesh) stream sediment containing 4 PPM metal
  - Partially panned concentrate
  - Rock chip sample
  - Limonite ooze (bank outcrop or spring)
  - Float sample / Creek boulder
  - Soil sample
  - Below limit of detection

512059 75-1107

**PACMINEX PTY. LIMITED**

**DRAINAGE GEOCHEMISTRY  
GOLD**

**E.Ls. 18/74 and 53/70**

**PIEMAN RIVER TASMANIA**

2370

Scale 1:40,000	1877
Drawn PMM / PH	
Date January 1975	
Revised	

5 cm