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PASMINCO EXPLORATION

TULLAH EL 22/90

ANNUAL REPORT
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SUMMARY

During the 1996-97 reporting period a shift in emphasis from Pb-Zn to Au exploration occurred within the licence area. Exploration work culminated in the completion of 7 RC holes (567.5m) and 3 DDHs (204.0m) in the Tullah EL 22/90 licence area.

These holes intersected significant but low grade gold mineralisation in the Lakeside Prospect on the southern shores of Lake Rosebery approximately three kilometres south of the HEC Township of Tullah. The best intercepts are:

LSRC 5	8m @	2.26 g/t Au (45-53m)
LSD 9	3m @	3.08 g/t Au (59-62m)

Although these grades do not approach those obtained at the Henty Gold Deposit located in a structurally similar position some 9 kilometres to the south it is recommended that further exploration is conducted in this area. After a comprehensive review of the combined titles, it has been decided to continue exploration for both Pb-Zn and Au mineralisation.

1. INTRODUCTION

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This report details exploration undertaken on Tullah EL 22/90 and adjoining titles Sterling River EL 24/91 and Mount Farrell EL13/96, between September 1996 and September 1997. The ELs are located east of Rosebery, western Tasmania (Figure 1).

The Tullah and Sterling River ELs cover units of the Cambrian Mt Read Volcanics centred on a 16km long section of the Henty Fault in Western Tasmania. The ground is well mineralised, with numerous showings and sub-economic deposits of base metals and precious metals (Figures 3&4).

The area has a long history of previous mining (mainly small-scale Pb-Ag) and is one of the more heavily explored parts of the Mt Read Volcanics, with over 100 surface diamond drill holes and a further 78 holes drilled underground in the old Farrell Mines. Much of the drilling, as well as geophysical and geochemical surveys, has been concentrated along the Henty Fault. Less accessible zones, such as the southern and eastern parts of the Sterling River licence and east of the Farrell Mines, have received minimal attention.

During 1996-97 the focus of exploration has shifted from Pb-Zn mineralisation to Au mineralisation associated with the Henty Fault Zone.

Other exploration completed in these titles during the 1996-97 period include:

(a) A review of prior exploration in the Sterling Valley area.
(b) A study of the paragenesis of mineralisation at the Lorrigan's Luck (previously the Arsenic Prospect), Lakeside and Sterling Valley.
(c) Soil Orientation surveys over the Lakeside Prospect and across the Sterling Valley.
(d) Mapping and RC sampling in the Sterling Valley area.
(e) A geophysical appraisal of prior data over the Tullah licence area.
(f) A recommendation for drilling on an I P target north of the Lakeside Prospect.
(g) A review of past exploration in the South Stitt area (EL 24/91).
(h) A prospecting review using the Pasminco GIS system of past exploration data.

2. TENURE

Tullah EL 22/90 covers $18km^2$, of which $2.6km^2$ is vested in the HEC and Mine Lease 63M/80 ($.16km^2$) is excluded from the EL (Figure 2). On 20 October 1995, the EL was reduced from $24km^2$ as required by statutory regulations. The relinquished area comprised part of the Farrell Range and a small section of the Murchison Gorge.

The Tullah EL was applied for in August 1990 by Peko Exploration Limited, a subsidiary of North Broken Hill Limited. In September 1990 the EL application was transferred to Pasminco Australia Limited (of which NBH then owned 45%). The EL was granted on 20 October 1990.

Sterling River EL 24/91 covers $48km^2$ around Mt Murchison south of the Tullah EL. The granted area is $42km^2$, with $2.7km^2$ of Pasminco's Rosebery Mine Lease and $2.4km^2$ vested in the HEC, being excluded from the EL.

Sterling River was originally applied for by Pasminco Exploration as $42km^2$ in August 1991, but an area $6km^2$ to the SE of Mt Murchison was added to the application in October 1991. The EL was granted on 10 January 1992. In 1992 the renewal and reporting date for Sterling River was made the same as that for Tullah EL 22/90.

Mount Farrell EL 13/96 was applied over two square kilometres in the vicinity of Mount Farrell. This was a portion of the ground relinquished on 20 October 1995 and covers the Owen Conglomerate/Murchison Volcanics contact zone just south of Mount Farrell and over the Osborne alteration zone. This licence has a small zone vested in the HEC along the Lake Rosebery dam area.

The land categories for Tullah, Sterling River and Mount Farrell licence areas are shown in Figure 2. About 75% of EL 24/91 is covered by the Mt Murchison RAP (Crown Land).

In June 1997 an application was made to amalgamate the three titles. The titles will be collectively reported under the title of EL 22/90 Tullah.

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3. GEOLOGY

The Tullah, Sterling River and Mount Farrell licences cover units of the Cambrian Mt Read Volcanics extending either side of a 16km length of the Henty Fault. The latter is a major NNE-trending and steeply west-dipping structure located towards the eastern margin of the volcanic belt (Figures 3 & 4).

Within the ELs volcanics range form rhyolitic to basaltic in composition but are predominantly rhyolitic to dacitic. They include lavas, intrusives, pyroclastics, volcaniclastics, epiclastics and sediments.

West of the Henty Fault the dacitic to andesitic volcanics of the Mt Black Volcanics are dominated by lavas and reworked volcaniclastics. On the western side of the Sterling Valley there is a large wedge of andesitic and basaltic lavas, sills and clastics the Sterling Valley Volcanics (Allen 1995).

Lying along the eastern side of the Henty Fault there is an extensive unit of west-dipping and facing fine interbedded sediments including black shales - the Farrell Slates. East of and stratigraphically below the Farrell Slates are the rhyolitic to dacitic Murchison Volcanics, which comprise lavas, intrusives and volcaniclastics. These are intruded by the chemically-similar Murchison Granite (Cambrian), and unconformably overlain by Ordovician Owen Conglomerate.

Most of the volcanics are hydrothermally altered to some degree. In particular, the Murchison Volcanics contain intensely-altered zones, most significantly and extensively along their upper contact with the overlying Farrell Slates.

Pb, Zn, Cu, Ag, Au, Sn and As mineralisation is widespread, most particularly in the Farrell Slates and Murchison Volcanics east of the Henty Fault. The only known mineralisation west of the fault is the Au-As-Cu-Sn at Lorrigans Luck, formerly known as the 'Arsenic Resource', part of which occurs within the mafic Sterling Valley Volcanics.

Most of the known mineralisation is of a structurally-controlled lode and vein style. Many lodes are conformable with the primary layering in the enclosing rocks, with lodes and bedding closest to the Henty Fault tending to parallel the steep west dip of this structure. Small, massive base metal sulphide boudins occur in the Farrell Slates near Mackintosh Dam.

The presence of Au-Sn mineralisation, as well as evidence from lead and sulphur isotopes, suggests that much of the mineralisation in the Tullah-Sterling River area is a Cambrian-Devonian hybrid (Purvis 1992). The gold, as well as some of the base metals and silver, are apparently of Cambrian volcanogenic origin and were remobilised in the Devonian largely due to the influence of the granite intrusion, with inputs at that time of Sn, As, further base metals and silver. Gold is a notable absentee from the Pb-Zn-Ag Farrell orebodies at Tullah - the largest (now 80% mined out) of the known resources on the ELs.

The main known mineral showings are shown on Figure 4. Two of the larger mineralised bodies (the Lakeside gold deposit with 750,000 @ 2.1g/t Au, and Lorrigan's Luck with 480,000t @ 5% As & 1g/t Au), are not exposed at surface and were found by drilling in the 1980s.

4. PREVIOUS EXPLORATION

Previous exploration in the Sterling Valley was carried out under EL 4/73 by (Asarco (Aust) Pty Ltd - 1973-74), Cominco Australia Pty Ltd (1975-78), EZ Co. (1979-86) and Billiton Australia (1987-88). Previous work is detailed in reports referenced in Randell (1989; TSV59) and Lorrigan (1991; TSV64). Modern systematic exploration of the Sterling Valley commenced in the late 1950's with a range of geophysical surveys which included IP, ground magnetics and fixed loop EM (Refer Section 6). Asarco conducted a stream sediment survey over EL 4/73 in early 1973 which defined a number of base metal and tin anomalies. The area was favoured for testing the tin potential and Arsarco Joint Ventured with Cominco to conduct exploration. Samples were not analysed for Au. Exploration including bedrock auger sampling, magnetics, EM and IP surveys culminated in the drilling of holes SV1 to SV3. Poor tin intersections led to the withdrawal of Asarco from the JV.

In 1979, a JV was formed involving EZ as manager. The majority of the work completed by EZ was in the NW corner of the EL, over the Henty Fault zone. Mapping, soil geochemistry, IP and ground magnetics were completed over the rehabilitated grid, and the ungridded eastern portion of the EL was covered by stream sediment sampling, rock sampling and mapping. There was no sampling for Au.

In 1980, DDHs STP217 and STP218 were designed by EZ to test for Sn mineralisation over coincident ground magnetic and IP anomalies. Mineralisation intersected included pyrrhotite, pyrite and arsenopyrite, with the best Sn intersection of 1m @ 0.5% Sn in the Mt Black Volcanics. A further 5 holes were drilled from 1980 to 1981, but halted in 1981 because of insignificant Sn results. Drilling targets in the Lorrigan's Luck area within the current Tullah-Sterling River ELs are summarised in Table 1.

The potential of the high As intersected in the holes was considered in 1984 as an alternative commodity. An informal "ore reserve" calculation of 4 sulphide lenses in holes STP217, STP221, STP231 and STP234 estimated 480 000t @ 5% As in the "Arsenic Resource" (McDonald, 1984). Mineralisation was open 450m to the north, to the south and at depth.

Routine split core analysis for Au by aqua regia AAS had been established for holes drilled after STP217, but had been dropped by the time STP234 was drilled due to the apparent lack of significant Au in the sampling. However, polished sections examined from STP217 and STP234 identified Au (as "an ovoid bleb in pyrrhotite", T20799, - STP217) which led to assaying of these holes for Au. The aqua regia AAS technique did not detect all the Au in the samples due to the presence of sulphides, therefore understated the Au content in the holes.

Drill core from STP217, STP231, STP234, STP232A and STP232A1 was re-assayed for Au by Fire Assay analysis in 1985 by EZ (McDonald, 1985). Twelve samples returned greater than 1 g/t Au, with the highest intersection of 0.6m @ 5.0 g/t Au in STP234 (313.25 - 313.85m), immediately east of the Henty Fault Zone. Of the 54 samples which returned values higher than 0.1 g/t Au, Fire Assay analysis consistently gave a higher assay than the aqua regia method employed earlier.

A gold content for the Sterling River area Arsenic Zones was calculated using the arsenic "ore reserve" intersections presented by McDonald (1984), which estimated an ore content of 480,000t @ 5.02% As, 0.84 g/t Au. It is postulated that greater Au was intersected in this area, but drill core samples in the best As intersections were removed for metallurgical testing and subsequently never analysed for Au.

In 1982 a soil geochemistry survey was conducted over the Mt Black Volcanics in the Sterling Valley south of the Arsenic Resource, close to the Henty Fault (Sainty, 1982a). Anomalous Sn results led to excavation of a costean on line 3260N, from which rock chip sampling returned high Au assays. Selected rock chips of quartz-schorl-sulphide veins returned Au values of 26.6 g/t and 8.9 g/t Au (by Fire Assay) (Sainty, 1982b). No further work was carried out at the time however as the vein style mineralisation was considered to be unattractive. In 1985 EZ drilled STP283 underneath the costean, also targeting a low resistivity zone identified from IP surveying. Minor sulphides were intersected throughout the hole, concentrated in zones of quartz breccia and fine grained chloritic rock (McDonald, 1986).

Additional drilling in the Sterling Valley continued to test geophysical targets, also testing the Henty Fault Zone and interpreted cross-structures. STP284 targeted a

Dighem EM anomaly along strike from the southern extension of the Henty Fault and across strike from significant sulphide mineralisation intersected in DDHs STP217, 221, 231 and 234. The hole was completed entirely within Farrell Slates with only rare sulphides associated with veins. SVD87-1 was designed to test for Au mineralisation on the Henty Fault zone, continuing ESE from DDH STP283. The hole stopped at 30m due to poor recoveries in oxidised lavas, and SVD87-1A was drilled with the same objectives. Because of recovery problems in SVD87-1, the second hole was collared steeper than proposed and intersection on the fault was 100m vertically below original plans. The hole intersected only traces of Au in a 10m zone of pyrite-pyrrhotite-arsenopyrite-fluorite mineralisation.

Several points and observations from previous works are summarised below, and have provided criteria for recent and recommended exploration in the area:

1) Many Au values are associated with high As (arsenopyrite), Cu (chalcopyrite) and pyrite. It is still uncertain after petrographic examination of mineralised zones whether Au is directly associated with the pyrite or arsenopyrite.
2) The Au is related to sulphide mineralisation but not directly proportional to the amount of sulphide present.
3) Fire assay consistently reports higher Au values than early Aqua Regia analyses, indicating that early Au reports underestimate the occurrence of Au.
4) Metallurgical testing of As-rich sulphide lenses in drill core from the Arsenic Resource area resulted in the removal and destruction of core prior to analysis for Au. Because of the association of arsenopyrite with Au, it can be assumed that higher Au than reported was intersected but not assayed in these lenses.
5) The "ore reserve" calculations for the Arsenic Resource were based on sulphide lenses of only 4 holes and are therefore highly speculative. Further drilling in this area is highly recommended.
6) The Arsenic Resource is open to the north and south, and only tested by 5 holes through the Henty Fault. Shallow drilling through the fault zone is recommended.
7) Cross structures and offset of the Henty Fault identified in past exploration need to be better defined. Geophysics is recommended to help delineate the fault zone because of a lack of outcrop and glacial and alluvial cover.

8) Soil geochemistry signatures need to be defined by a soil orientation programme over areas of known mineralisation, using conventional 'C' horizon sampling methods where possible, and a trial MMI sampling programme. A soil geochemistry survey may be conducted depending on the orientation results.
9) Mineralisation appears to be contained in quartz-sulphide veined and brecciated rocks, primarily in the Mt Black Volcanics west of the Henty Fault. Quartz-chlorite ± tourmaline ± fluorite alteration is common and suggests derivation from granite-related fluids. Petrographic examination has identified disseminated cassiterite, variably associated with quartz or fluorite eg. T20799, STP217.

5. WORK COMPLETED 1996-97 REPORTING PERIOD

5.1 Review of Work Completed

Previous work conducted in the Sterling Valley, particularly in the Lorrigan's Luck area, has been collected and added to Pasminco's GIS where appropriate. All core has been examined, and logs compiled into a folder containing all holes drilled into the Lakeside and Lorrigan's Luck Prospects. Summary logs have been added to datcol and techbase. Previous assay results are listed with logs in the folder and these have been added to techbase. Petrological reports included in past reports accompany logs in the folder and additional polished sections from DDHs STP221, STP234 and STP283 have been examined to determine mineralogy and petrogenesis. Summaries of drill targets, Henty Fault intersections and best Au intercepts are summarised in Tables 1 and 2 (Refer to Section 4). Current work completed in the Lorrigan's Luck area has also included a review of the existing ground magnetic data and mapping over the refurbished Sterling Valley grid.

Mineralisation and alteration

Au mineralisation in the Sterling Valley appears to be contained in quartz-sulphide veined and brecciated rocks, primarily in the Mt Black Volcanics west of the Henty Fault. Gold bearing samples from drill core and rock chip sampling also contain high As (as arsenopyrite) and elevated Cu (chalcopyrite) and Ag. Pyrite is also abundant (reflected by high Fe geochemistry). The assemblages suggest that pyrite and/or arsenopyrite is associated with the Au mineralisation although it is still uncertain after petrographic examination of mineralised zones whether Au is associated with the pyrite or arsenopyrite.

It is probable that quartz-chlorite-tourmaline ± fluorite veins hosting mineralisation are derived from granite-related fluids. Highest Au occurs in veins and alteration in brecciated and faulted zones in the Mt Black Volcanics, although increasing Au assays with depth (McDonald, 1986) may be associated with closer proximity to the Henty Fault to the east which may have acted as a pathway for Au-bearing fluids.

Intersection of the Henty Fault Zone and best Au intersections in Lorrigan's Luck - Sterling Valley are summarised in Table 2. Only five holes drilled in the area intersected the fault zone.

Mineralisation and alteration north of Sterling Valley

Recent drilling at the Lakeside Prospect to the north has confirmed shallow Au mineralisation footwall of the Henty Fault, in Farrell Sequence sediments, highlighting Lakeside as an easily accessible and definable drill target. Au mineralisation commences within 10-20m of the Henty Fault zone, regardless of depth. The Farrell host rocks are typically coarser grained sandstones, providing a permeable rock for fluid transport following the fault. Structural complexity in the Sterling Valley however, such as offsets of the Henty Fault, could easily provide alternative pathways for fluid movement and vein-style mineralisation which is more easily confined to the fault zone at Lakeside to the north. Mineralisation intersected at Lorrigan's Luck and in holes to the south of Lorrigan's Luck eg. STP283 and STP234 is commonly hosted in veins in breccias and brittle fractures, probably because these provide the easiest pathways for mineralisation.

Mineralisation style and paragenesis

Two samples were selected for polished thin section examination of mineralisation and paragenesis from the Lorrigan's Luck Prospect (DDHs STP221 and STP234) and two samples taken from DDH STP283 1km south of Lorrigan's Luck in the Sterling River EL. The samples are from various alteration and mineralisation zones in diamond drill core, and have been compared to mineralisation and alteration parageneses investigated at the Lakeside Prospect 1km to the north.

Examination of the sections have provided the following interpretations for mineralisation paragenesis:

early grey mineral (cassiterite?) (replacing pale grey mineral?)
chalcopyrite
pyrrhotite
pyrite
arsenopyrite
(sphalerite)
carbonate

chlorite

The alteration assemblages associated with mineralisation appear to be quartz-carbonate, with later carbonate-chlorite ± tourmaline observed consuming the margins and along fractures of mineralisation. The mineralisation paragenesis appears to be consistent with two samples examined from the Lakeside Prospect to the north (76778, RED87-3, 112.7m and 76779, RED87-7, 247.0m). Mineral abundances vary over the area, with a greater abundance of pyrrhotite present in the Lorrigan's Luck samples and pyrite-arsenopyrite dominating the assemblages at Lakeside and in the Sterling Valley. Only traces of pyrrhotite are observed in the Lakeside and Sterling Valley samples.

Thin and polished section examination of veins sampled by EZ (Sainty, 1982b) also report a "granitic (quartz-schorl) vein and replacement paragenesis" with the main sulphide phases being arsenopyrite, pyrite, pyritised pyrrhotite, lesser altered chalcopyrite and cassiterite. Accessory galena, sphalerite, tetrahedrite-tennantite and extremely rare Ag with supergene Cu and Cu-Fe sulphides (covellite, digenite) were observed. Au was not detected. Secondary Fe-free arsenates are thought to partially explain the discrepancy between assayed As and Fe (Sainty, 1982b). A further study by Taheri and Green (1990) shows a more complex paragenesis with tourmaline being introduced earlier and at a later stage galena and sphalerite.

Soil Geochemistry

Two small scale MMI and C horizon soil orientation survey were undertaken at Lakeside and Sterling Valley. The aim of the surveys was to test areas of known Au mineralisation and to investigate the potential of soil geochemistry to determine the location of the Henty Fault, which is covered by glacial sediments. The Lakeside line was repeated in drier conditions to compare the MMI response.

20 MMI samples were collected in the Lakeside area along grid line 54 375 300N, from 384400E to 384780E, parallel on surface to LSRC3 and DDH RED87-6. No Au was detected, but elevated Ag is present over a mineralised zone at depth in RED87-6, and approximately around the surface location of the Henty Fault zone, as projected from drill hole intersections. Elevated Ag + Ni at 384500E is thought to be due to contamination about the drill collar of DDH RED87-6. Low detection levels in the

limited data set makes the method a dubious mapping technique for locating the Henty Fault.

The sampling was repeated two months later in drier conditions. The results show a different MMI response than the earlier survey. Two samples detected Au, with a greater detection also of Ag and Ni. Elevated Ag is present with Au at 384400E and 384420E. The best Ag + Ni response (up to 2.58ppb Ag) coincides with the best response from the earlier survey, thought to be in an area contaminated by the drill collar site of DDH RED87-6. Projection of the Henty Fault Zone to 384620E (sample 164212) shows elevated Ag, but does not show any geochemical characteristics associated with the fault. The fault zone intersected in RED87-6 lies vertically below 384560E, which does not show any high geochemical response either.

20 MMI and C horizon soil samples were collected along grid line 54 373 400N in Sterling Valley, from 383780E to 384180E. Anomalous Au was detected in both MMI and C horizon surveys along grid line 54 373 400N in the Sterling Valley. High Ag and Ni values also occur with the anomalous Au in the MMI samples, and the sample sites coincide with elevated Au and high As, Fe ± Zn and Pb results in the C horizon soil data. This orientation line was selected to test an area proven anomalous from previous surveys (Sainty, 1982), and the most anomalous zone, at 383920E & 383900E, coincides with an area where rock chip samples have returned anomalous Au, As & Sb. It is concluded that MMI sampling over glacial covered areas could be a cost effective exploration tool.

Structure and geology

Mapping in the Sterling Valley area has been unsuccessful in locating any surface expression of the Henty Fault. The fault contact between the Mt Black Volcanics to the west and Farrell sediments to the east is reported from previous work to be 011/65°W (AMG) (McDonald, 1984). The area where the fault trace is expected to outcrop is covered by glacials and/or alluvium, which appears to fill a depression created by the fault. Mapping in the Sterling River and creeks in the area has located cleaved and chloritic volcanics (Mt Black Volcanics) to the west of the fault, and cleaved sediments (sandstone-slate) to the east, delineating the location of the fault zone at minimum to lie in an 80m zone between mapped volcanics and Farrell sediments (5373300N). This zone is covered by glacial and alluvial sediments.

Structure and geophysics

Previous ground magnetic surveys conducted in the Tullah and Sterling River ELs by EZ (1980) have been digitised and imaged at 1:10,000 scale and magnetic susceptibility was measured on available core from STP234, STP221, STP217 and SVD87-2. The objective of magnetic susceptibility readings was to investigate any magnetic character that may be associated with either lithology or the fault zone, and also the response of pyrrhotite intersected in veins.

The magnetic data has been re-examined and shows a broad high with a shallow high frequency response within it. The broad high is centred over the Lorrigan's Luck area, weakening in a subtle linear trend to the NNE, more or less following the interpreted trace of the Henty Fault. The high frequency response seen in the magnetic data is due partly to a microdiorite magnetic unit within the Mt Black Volcanics. The broad high is a combination of Mt Black Volcanics interpreted at depth and pyrrhotite mineralisation at depth.

A cross section through DDHs STP234, STP221, STP217, STP284, STP231 and SVD87-2 (5374376mN), was drawn to project intersections of the Henty Fault to surface, assuming a westerly dip of 65°. All holes except STP284 intersected the fault zone. Best Au mineralisation intercepts are 60 - 80m up-hole from the Henty Fault in brecciated and faulted zones. The mineralisation occurs in veins and alteration in brecciated and faulted zones in the Mt Black Volcanics, dominantly quartz-chlorite-tourmaline vein-style replacement paragenesis.

Three cross-structures have been interpreted approximately E-W across the Henty Fault zone, in the vicinity of the broad magnetic high frequency response. The cross-structures are thought to be post magnetic features in the Mt Black Volcanics, but whether they are pre- or post-mineralisation remains questioned.

DDH STP217 intersected a highly magnetic intrusive unit beneath surface glacials from 17.2 - 58.9m, which was logged as trachy andesite (Mollison, 1980) and described as microdiorite in thin section. Magnetic susceptibility readings down the hole shows the intrusive to be characteristically magnetic, averaging 20 S.I./1000. Additional high readings in the hole can be attributed to veins containing pyrrhotite.

STP221 appears to drill through or about (above or below?) the broad "high" zone observed in the ground magnetics. Magnetic susceptibility readings highlight veins with pyrrhotite from 30.8 - 49.8m, for which the background is 1.5 S.I./1000. The mineralisation is described as pyrrhotite with pyrite and arsenopyrite in veins and stringers, ranging from 2 - 44 S.I./1000.

STP234 and SVD87-2 measured elevated magnetic susceptibility only in response to pyrrhotite veining.

From the available drill hole data, it appears that the high pyrrhotite responses in STP221 are related to the broadest ground magnetic responses seen in the image.

5.2 Diamond Drill Hole - SV4

This hole was completed in early 1996 and presented in the 1996 Annual Report (McGunnigle 1996). However, the upper hole assay data and interpretation on the drill hole cross section were not included with the annual report and are enclosed in this report. The drill log and assay results for SV4 are included in Appendix 1, and the cross section of the hole is illustrated in Figure 5.

The drill results for samples collected across the upper portion (hanging wall) of the Henty Fault only recorded subdued assay values. Unfortunately, the sericite/graphitic schist zone logged just beneath the Henty Fault Zone was not sampled. No obvious zones of silicification and sulphurdation were logged east of the Henty Fault in a similar stratigraphic position to the Henty Mine mineralisation.

The very high arsenic value of 4.96% As obtained between 137.3-137.75m contained 2.25 g/t Au. This maybe a similar style of mineralisation to that obtained in Lorrigan's Luck (previously Arsenic) Prospect, but the latter mineralisation is on the hanging wall side of the Henty Fault Zone.

Drill hole SR3 was drilled 300m to the north of SV4. This hole targeted to intersect under the Sterling Valley Mine. It also intersected several elevated arsenic zones on the foot wall side of the Henty Fault Zone over narrow intervals indicating an arsenic-gold association through this interval (Purvis 1995).

The presence of the Sterling Valley magnetic low some 400m north of drill hole SR3, and the arsenic-gold association noted to the south in these two drill holes indicates a potentially mineralised zone. It is recommended that the IP traverses in this area are again reviewed to see if a chargeability anomaly indicating increased sulphides is present in the area immediately north of drill hole SR3 associated with the Sterling Valley magnetic low, a zone of intense alteration.

5.3 Lakeside - Lorrigan's Luck Prospect

These prospects occur along the Henty Fault Zone south of Lake Rosebery. The Lorrigan's Luck Prospect occurs approximately 1500m south of Lake Rosebery. The Lakeside Prospect occurs adjacent to the southern shoreline. The 500m or so between the two prospects has not been explored.

During the 1995-96 reporting period Paul Basford reviewed the Lakeside Geophysical Surveys (McGunnigle 1996). Both prospects were discovered by testing IP anomalies with diamond drill holes. Basford noted that IP could be used to delineate the Henty Fault Zone and several IP anomalies at these prospects appear to be untested, with the intervening ground between the two prospects untested by both geophysics and drilling.

During this reporting period, seven RC holes (567.5m) and three DDHs (204.0m) were completed on the Lakeside Prospect. The diamond drill core was examined to determine structural orientations.

5.3.1 Drill Targets

In August 1996 after reviewing prior exploration data (Refer Section 4) a recommendation for a series of shallow drill holes was made.

Earlier exploration had targeted several IP anomalies which intersected elevated tin mineralisation. Further follow-up drilling was undertaken through glacials that were up to 40m thick. This exploration occurred in 1979 and in the mid 1980s re-assaying of the core resulted in anomalous gold mineralisation being outlined. A total of thirteen diamond drill holes was completed. The best intersections were obtained on the immediate foot wall of the Henty Fault c.f. the mineralisation at Lorrigan's Luck Prospect which occurred on the hanging wall side of the Henty Fault Zone. The gold mineralisation appeared to be associated with anomalous arsenic and/or copper mineralisation.

From cross and longitudinal sections it was deduced that the mineralisation could be in a rod-like zone plunging north under Lake Rosebery.

The best intercepts include:

RED87-3	6.65m @ 5 g/t Au
RED87-5	2m @ 4 g/t Au
RED87-6	8.9m @ 1.5 g/t Au
RED87-7	3.5m @ 3.6 g/t Au

A series of shallow RC holes were sighted to assess this mineralisation at a shallow depth and seven were completed.

Figure 5 shows the location of the prior drill holes and the intercepts made. It also shows the location and traverse of the drill holes completed during the reporting period.

Appendix 3 contains two memoranda by McGunnigle and Dibben on the positioning of a series of shallow RC holes to further assess the Lakeside Prospect. When these first results were reviewed (Appendix 5) it was decided, as Lake Rosebery was so low, that three short diamond drill holes would also be drilled between drill hole LSRC 7 and around drill hole MRP 233 which intersected 16.5m @ 1.16 g/t Au or 6m @ 2.4 g/t Au (refer Figure 5).

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5.3.2 RC Drill Results

A total of seven RC holes were completed in October 1996 on the Lakeside Prospect. The drill hole logs and assay results can be found in Appendix 4. A discussion of the drill hole results in Appendix 5 and a plot of the drill hole positions in Figure 5.

Drill Hole LSRC 1

This hole drilled at 3845655375245 at -60° to 90° magnetic was completed at 86m.b.c. The hole intersected shallow glacial cover rocks then Mount Black Volcanics before passing through the Henty Fault Zone at about 30m. The hole intersected a wide zone of anomalous and elevated gold values from 41 to 62m.b.c., on the foot wall of the Henty Fault Zone. Drill hole LSRC 1 was sited to test the up-dip position of RED88-2 which had failed to intersect anomalous mineralisation.

The 21m intercept averaged 0.57 g/t (42-62m.b.c.) including 3m @ 1.19 g/t Au (48-51m) and 3m @ 1.03 g/t Au (53-56m.b.c.).

This hole showed a wide zone of sub-economic mineralisation with thin zones of marginal ore associated with anomalous arsenic, up to 2.76% As.

Drill Hole LSRC 2

This hole was drilled 25m north of LSRC 1. It too intersected a similar sequence of rock units. Again a wide elevated gold rich zone with corresponding elevated arsenic values was located between 46m.b.c. and 65m.b.c., a zone of 19m. This zone averaged 0.65 g/t Au with the zone 50-57m.b.c. averaging 1.04 g/t Au, or 5m from 52m.b.c. averaging 1.35 g/t Au, which has been used on Figure 5.

The consistent wide envelope of potential mineralisation is considered very encouraging. This again corresponds to the wide zone of arsenic mineralisation which returned up to 4.79% As.

277025

Drill Hole LSRC 3

This RC hole was located at 3845665375294 which is approximately 25m north of LSRC 2. The hole was drilled -60° and 90° magnetic. The hole was completed at 86m. The hole intersected glacials to a depth of 12m and then Mount Black Volcanics. The Henty Fault Zone is interpreted as being around 47-51m and then the Farrell Slates were intersected.

This hole intersected little anomalous mineralisation with no values over 0.3 g/t Au. The elevated Arsenic results are confined to that area interpreted as the Henty Fault Zone and only reach 1.33% As.

Drill Hole LSRC 4

This hole located at 3845755375319 drilled grid east at -60° was completed at 73m. The hole is again sighted 25m north of LSRC 3.

The first 13m consisted of glacial overburden. The Henty Fault Zone separating the Mount Black Volcanics from the Farrell Slates is estimated to be at 40m.

Elevated gold results commence at 45m to 58m again outlining a wide elevated zone. This 13m zone averages 0.59 g/t Au and corresponds almost exactly with the elevated arsenic results. The highest gold result of 3.29 g/t Au corresponds with the highest arsenic result of 6.82% As.

Drill Hole LSRC 5

This hole located at 3845795375344 was drilled grid east at -60°. The hole was completed at 90m after intersecting some 25m of glacials then the Henty Fault Zone separating the Mount Black Volcanics from the Farrell Slates at around 40m.

The review of prior drilling at this section line revealed the deeper intercept of RED87-5 was 2m @ 4 g/t Au. Drill hole LSRC 5 obtained another wide zone of very highly elevated to anomalous gold values on the foot wall of the Henty Fault Zone between 42m.b.c. and 69m.b.c. over a distance of 28m.

The zone from 45 to 53m returned 1.72 g/t Au and the zone from 55 to 60m returned 1.96 g/t Au. The 28m zone from 42m.b.c. averaged 1.01 g/t Au. This wide zone again corresponds almost exactly with the highly anomalous arsenic results which returned up to 12.4% As.

Drill Hole LSRC 6

This hole is the northern most hole along the Henty Fault Zone in this program and lies 25m north of LSRC 5. The hole is situated at 3845895375367 and was drilled grid east at -60°, and was completed at 80m.

A similar sequence of rocks to those intersected in prior holes was obtained and from the geochemistry, the Henty Fault Zone appears to be around 33m, although logged as a volcanic in the drill log. The anomalous gold geochemistry extends from 33 to 52m.b.c. which is confirmed by the anomalous arsenic geochemistry.

The gold grades reach up to 3.98 g/t Au which corresponds to the highest arsenic result of 8.08% As. The overall zone from 35 to 52m.b.c. returned 17m @ 0.82 g/t Au within which a zone from 43m to 52m returned 1.16 g/t Au over the 9m, (Including 43 to 47m.b.c. which returned 4m @ 1.96 g/t Au).

Drill Hole LSRC 7

This hole sited at 3843445374716 was drilled grid east at -60° and completed at 73m. The hole was drilled to test the zone between the Lakeside Prospect and Lorrigan's Luck Prospect to the south (Refer Figure 7). The hole intersected approximately 53m of glacials before the Mount Black Volcanics. The hole was abandoned at 73m when strong water flows made the hole undrillable.

No elevated gold or arsenic results were returned and it is thus concluded that the Henty Fault Zone target was not reached.

Discussion

The six RC holes (apart from LSRC 3) all showed wide zones of elevated gold and arsenic mineralisation. The deeper intercept of RED87-6 (2m @ 4 g/t Au) under LSRC 3 which returned negligible gold may indicate the separation into two lode horizons. The wide mineralised zones are considered encouraging and the old intercepts should be re-appraised in regard to the Au-As envelope of mineralisation. It is concluded that the mineralisation at Lorrigan's Luck and Lakeside is essentially the same (high As-Au) and the cross over point with the Henty Fault Zone may contain more mobilised material and higher grade gold values.

5.4 Diamond Drilling

Because of the low water levels in Lake Rosebery and the encouraging values obtained in drill hole RED87-7 (3.4m @ 3.6 g/t Au or 8.9m @ 0.78 g/t Au) which was drilled from an island in Lake Rosebery and lies 120m north of LSRC 6, it was decided to drill some short diamond drill holes between LSRC 6 and the low water edge.

This drilling was completed in February 1997 and a total of 204m was completed. The results were discussed in a memorandum from Ms S Dibben on 14 April 1997 (Appendix 6). Dibben also undertook some structural orientation measurements from these holes and reported these in a memorandum dated 11 March 1997 (Refer Appendix 6). The drill hole assay results have been tabulated and are attached in Appendix 7. Two plans (Figures 9 and 10) show the profiles and graphic logs of diamond drill holes LSD 8, 9 and 10.

LSD 10 was sited only 20m north of LSRC 6. This hole was similar to the RC holes and intersected a wide zone of anomalous arsenic from 43m to 62m, of which 15m from 43m returned 0.36 g/t Au. Within this zone 2m from 53m.b.c. returned 1.30 g/t Au. The gold results are some what lower than would be expected and this maybe a volume problem between RC chips and half diamond core sampling.

LSD 8 and LSD 9 were drilled on the same section some 40m north of LSD 10. LSD 9 was drilled on 3845935375442 at -60° to 90° magnetic and was completed at 76.9m. This hole intersected a wide zone of anomalous gold and arsenic geochemistry. Within this zone assay results returned 11m from 51m.b.c. @ 1.29 g/t Au, including 3m from 59m.b.c. @ 3.11 g/t Au.

LSD 8 was located at 3846305375431 and drilled 090 magnetic at -60° and completed at 66m. This hole was sited 37m east of LSD 9 and from Figure 5 would appear to be too far east to intersect the Henty Fault Zone. The assay results confirm this with only the interval 56-57m returning 0.45 g/t Au.

It is interesting to note that the RC and DDHs were not assayed for all elements that may provide a geochemical picture of the alteration and mineralisation. These elements include Sn (for which exploration in this area initially targeted), F for fluorite and B for tourmaline metasomatism. It is considered important if further exploration is undertaken in this area that these samples are re-assayed for these elements.

The diamond drill holes were re-examined in February - March 1997 by Ms S Dibben to look at the structural implications of the mineralisation (Refer Appendix 6).

Her conclusions from this study were:
The loci of the mineralisation is strongly influenced by the position of the Henty Fault Zone. The mineralisation is generally located 10-15m below the foot wall of the fault and appears to be located closer to the fault with an increase in depth. The Henty Fault Zone dips at 50-60 degrees to the west and has a NE trend. The mineralisation parallels this zone.

The report on the Henty Gold Deposit (Halley and Roberts 1997) reveals that mineralisation in this deposit trends away from the Henty Fault Zone with depth. The trend of mineralisation closer to the Henty Fault Zone with depth may explain why the mineralisation 1000m to the south is found on the hanging wall side of the Henty Fault Zone, with the possibility that the outcrop of the Henty Fault Zone is deeper as one goes south.

The full memorandum of this structural work can be found attached in Appendix 6.

5.5 Students' Mapping

In conjunction with the Orientation Soil Traversing (Refer Section 5.1) two students were given the assignment of mapping across the Sterling Valley area. They noted a number of bedrock exposures and their mapping is attached as Figures 7 and 8. They took a number of rock chip samples and these results have been tabulated and can be found in Appendix 2. No anomalous results were obtained.

5.6 South Stitt Prospect, Sterling River EL 24/91

A review of previous exploration in the South Stitt area was undertaken, as the area appeared to have several characteristics which could be indicators for Henty style gold mineralisation. This memorandum is included as Appendix 9.

Previous Exploration activities mainly occurred north of 5369000N. There are regional alteration features indicating the high potential of the area to host economic gold mineralisation including:

- the proximity of intersecting faults
- pink and siliceous, brecciated and deformed volcanics east of the fault from drilling
- pyrite alteration with silica pink alteration
- quartz veining and traces of Au and base metals
- evidence in drill core for multiple fluid events
- untested anomalous IP responses.

The area of best perceived potential lies on the steep western slope under the Owen Conglomerate. This area, bounded by 5368000 to 5369000N and 381000 to 382000E, lies on the:

- convergence of the Henty Fault, a sub-parallel N bearing fault and NW fault termed the Quinn Creek Fault.
- it lies just north of the Moxon Saddle alteration zone and, because the area is scree covered, this alteration zone may trend into this area.
- exploration to the north has outlined some very interesting and untested anomalies which might be peripheral to the main zone.
- Purvis (1995) imaged and interpreted the aeromagnetics and a granite cupola underlies this zone, the contour depth being 1000m.
- the presence of the granite cupola is very important for both remobilised sulphides and gold but also for the potential of Sn mineralisation.

6. GEOPHYSICAL REVIEW

A review of the geophysical data collected over the current Tullah EL 22/90 (incorporating Sterling River EL 24/91) tenement was conducted to determine:

a) What surveys have been conducted over the licences
b) What the overall geophysical coverage is like
c) The geophysical anomalies tested
d) Geophysical anomalies that remain untested
e) Anomalous areas previously undetected

Data is generally restricted to paper format, however several data sets can be digitised for future use.

The tenement has been held by a variety of companies under several exploration licences, and has had various periods of tenure under joint venture conditions. Previous exploration licences were Mt Black 1/62, Sterling Valley 4/73, Sterling Valley 29/88, East Rosebery J/V 1/62 and, more recently, Sterling Valley 24/91.

In 1980 Getty undertook a review of all data over there joint venture tenements with EZ and generated maps of all the available data. The Getty Review contains all grids and survey data (usually as contours or anomalies for geophysics) up until and including part of 1980. There are three base sheets used in the Getty Review, of which Sheets 1 and 2 cover the current Tullah EL.

A written review of the geophysical data collected over the Sterling Valley, Tullah (including Murchison River grid) and Farrell areas was carried out by John Bishop (1980) for EZ. The review is thought to have been conducted in conjunction with the development of the Getty maps. It outlined what data had been collected and what interpretations were made for data sets. Bishop recommended several regions for further investigation. From the compilation information it is clear that the extent of coverage has not been as wide as initially thought. Also the range of surveys has been surprisingly limited. In general, surveys have concentrated over the Farrell Slate sequence, extending west to and generally over the Henty Fault Zone (HFZ) and east to the contact between the slates and the Murchison Volcanics.

Grids over the tenements (Fig. 11) include the Farrell, Tullah (old and new), Murchison River (often called Murchison), Duttons Area, Farm Creek, Sterling Valley, Tullah Flats, Lakeside, Murchison Mine, North Sterling Valley, South Sterling Valley and Murchison.

The geophysical exploration philosophy has been generally restricted to the blanket use of IP and ground magnetics over most grids. Several types of electromagnetic techniques have been trialed, and minor amounts of gravity has been collected.

Since 1990 when Pasminco took over the Tullah lease, there has been a regional gravity survey, reported by D Leaman (1993), numerous DHEM surveys and three other ground geophysical surveys - the first being a small surface EM line at Tullah Flats in the region of MM1, the other two being a line of induced polarisation and a MALM survey around Makintosh Dam (MD1). All of these surveys have been interpreted and reported by Neil Hughes (1993-1994) and P Basford (1994-1996). Several aeromagnetic surveys have been conducted, in 1991 and 1993. Leaman (1991, 1993 and 1994) and Dickson (1995a and 1995b) have interpreted parts of this data.

Overview

Several generations of IP data have been collected over the same grids. Survey arrays consisted of dipole-dipole, gradient and one Schlumberger set up. Earlier surveys were performed in frequency domain and recorded to a pseudodepth of n=3. Later surveys were conducted using time domain equipment, often recording to pseudodepth n=6. Plan locations and profiles for the various surveys are spread across a multitude of reports.

Coincident IP and magnetic anomalies were often drilled for tin/gold resources. Several magnetic targets have not been followed up due to a lack of induced polarisation response, however, the coverage of IP has not always extended across the magnetic targets.

After initial examination of where data has been collected, it is apparent that there are gaps in the coverage along the HFZ and over the Farrell Slates. Three areas that may well be of interest, due to the proximity of known mineralisation, but appear to be under-surveyed are;

1) Zone between Farrell and Tullah grids
2) Area north of Farrell mine
3) Area south of Sterling Valley Mine to the South Stitt

In addition there is a lack of coverage along the eastern edge of the Farrell Slates and into the Murchison Volcanics. The only known data coverage over the Murchsion Volcanics is UTEM and ground magnetic data collected by Billiton in 1989 (Randell). The probably associated with the UTEM data however is that the coupling from the loops with the 'Farrell fault may have been weak as the geological contact dips west with loops located 800m plus to the east. Coupling to the remainder of the volcanics remains unknown.

Ground magnetic data over the Sterling Valley, Tullah and Murchison River grids collected in 1979 and 1980 has been digitised. Five significant aeromagnetic anomalies were highlighted by EZ, one of which is the Lorrigan's Luck Prospect, discovered in 1980 (Mollison). Three of the other anomalies have been tested by drill holes with causes presumed to be related to pyrrhotite in the Farrell Slates, however, these conclusions are often tentative, with suggestions that some targets may not have been properly tested. The fifth anomaly (denoted E in Hall et al, 1988; anomaly C by Purvis, 1994) has been attributed to magnetic dykes and basalt and tested in 1994 by DDH SR1.

In 1985 a new compilation was generated by EZ (McDonald, 1985a & 1985b).

6.1 Geophysical Review of Tullah EL 22/90

The most common geophysical survey technique used over the ground of the 'current' Tullah licence was Induced Polarisation (IP). These surveys data back to 1961. Geophysical surveys were conducted earlier then 1961, however, these were restricted to EM and SP.

Dominantly dipole-dipole array was employed for most of the IP surveys, however, some gradient array surveys were conducted, as was one Schlumberger array survey. Down hole IP surveys were also conducted down various holes.

6.1.1 Induced Polarisation

The earliest survey was conducted over the 1959 RTAE grid in 1961. A dipole-dipole array survey was conducted over 7 lines, 6 of which utilised a 300 foot dipole separation (28N, 12N, CL, 8S, 12S and 28S), whilst the 7th, 40S had a 200 foot separation (Hallof, 1961a). Data was collected down to a maximum of n=4 pseudo-depth (four dipole widths between transmitting dipoles and receiver dipoles). Data was collected in frequency domain with pseudo-section presentations containing apparent resistivity and metal factor (a value calculated from the apparent resistivity and percent frequency effect or induced polarisation). Several high induced polarisation, low resistivity anomalies are apparent, all located close to the base line. This indicates a strike continuous chargeable conductor along the centre of the grid. However, line 48S which utilised a 200 foot dipole separation did not contain as obvious an anomaly.

In 1970 four lines of IP (Hallof, 1970) were conducted for the EZ Company across the Farrell Shear north of the North Farrell Shaft (123N, 121N, 119N and 117N). One hundred foot dipole separation was employed for the survey, measuring apparent resistivity and percent frequency effect. Data was collected to pseudo-depth n=4. Several points were not recorded which has affected the integrity of the data as these missing points are often located next to apparent anomalies. Two distinct shallow anomalies are apparent on the two northern lines. Two drill holes, TP133 and TP134 were drilled south of each of the IP anomalies which is coincident with a previously interpreted EM conductor (1950's surveys).

In 1979 the Murchison area was intensely explored using geophysics, including three sets of IP surveys(Howland-Rose, 1979b). The first was a gradient array survey conducted along 12 lines (375100 to 376200). Three of these lines (376100, 376200 and 375300) were followed up with a dipole-dipole array survey, and later another line (376000) was followed up with both a dipole-dipole array survey and Schlumberger array survey.

DHIP was conducted down holes STP217, STP220, STP221, STP231, STP232-A and STP234 from 1980 to 1982 (McDonald 1981b).

Two lines of IP data extended far enough east to enter the south-eastern edge of the licence. The surveys were part of the Mt Black grid 1979 IP survey (Howland-Rose 1979a). The lines were 5375000N and 5374000N, extending to 384000E. Neither contained any anomalous responses.

It appears that no further IP surveys were carried out on the EL until 1987 when four different areas/grids had IP surveys conducted over them. These were the Tullah Flats (often called Murchison), Murchison Mine, Lakeside and North Sterling Valley grids. Two of the grids had gradient array surveys performed over them (Tullah Flats and North Sterling Valley) whilst the other two had dipole-dipole surveys carried out over them.

The Tullah Flats (also known as North Lakeside - Duttons Area and Murchison Area) grid was surveyed using a gradient array set up with the Zonge system. A total of 10 lines were surveyed (376500 TO 377400), from which the Henty fault has been interpreted (Hall et al 1987). The location of the fault is known south on line 6400N through hole MRP227 and the old Duttons workings. It is difficult to accurately locate the position of the fault on all lines. Contours of raw phase infer another significant structure in the region of 6900 and 6800N, 5100E. Both raw phase and apparent resistivity highlight the anomalous feature around 7100N and 7000N. Hole RED87-4 was drilled to test an anomalous response from the IP survey on line 7000N and also intersected the Henty fault. A transfer fault is interpreted to exist between lines 7100N and 7000N. There is also an indication of a phase (chargeability) anomaly on line 7100N, however, the line has data missing in the middle of the line which inhibits full interpretation. This feature may be worth following up.

Five lines were surveyed using a 40m dipole separation over the Murchison Mine Line grid. These were lines 376400, 376450, 376500, 376550 and 376600N (Hall et al 1987). The mine is located on line 376500N at 5680E, where a chargeability and resistivity anomaly is evident. The same feature is also evident on all other lines surveyed, indicating the mineralisation is within a distinct unit (lithological or mineralised) with strike length of at least 200m. Data also indicates the contact between the slates and Murchison volcanics (Farrell fault). Drill holes MP28, MP29, MP30 and MP32 have aided in defining the prospectivity of the area, however, it appears that holes MP28 and MP29 may not have tested the IP anomaly fully.

Lakeside, a gold prospect, had only two lines surveyed using 40m dipole-dipole spectral IP. One of these lines is actually on both the Lakeside and North Sterling Valley grid. The lines were 375100N (5100N) and 375300N (5300N), both of which have been compared to the 1979 gradient array data. Data was also used to determine if it was possible to discriminate between graphite and sulphides.

The spectral IP data indicates an anomalous response coincident with drill hole intersections. Chargeability data also indicates the location of the Henty fault. Hungerford (1988) inferred that both the mineralisation and Henty fault are also detectable in the gradient array data.

An alternative interpretation for the IP data on line 5100N is proposed. Chargeability data (and gradient array data) infers that the line may run parallel to a transfer fault, with the Henty fault located at both 4560E and 4700E. A chargeability high also occurs at 4700E which is coincident with a strange time constant anomaly. It is not clear if this feature has been drilled, however, if a transfer fault occurs here then this could indicate an offset extension to Lakeside.

A total of six lines of gradient array IP was conducted over the North Sterling Valley grid (Hall et al, 1988), to look for an extension to the Lakeside deposit (374600 to 375100). The location of the Henty fault can be interpreted from the data, however, the interpretation made by Billiton does not appear to fit the entire data set. There are also two small chargeability highs that may not have been investigated. One is directly on the fault on line 4700N, at 4440E, behind the collar of STP232, the other smaller anomaly is on line 4600N at 4520E. A transfer fault has been interpreted between line 4700N and 4600N and the chargeability anomaly on line 4600N may be associated with that fault.

It is understood that DHIP has been conducted on holes RED87-2, 3, 5, 6, 7 and 8. DHEM was also conducted on holes RED87-2 and 6. DHIP surveying consisted of 5 and 10m arrays, using an IPR-8 receiver. These logs indicated the presence of a halo of disseminated sulphides around the major sulphide lens, which had not been observed in geological logs (Halls et al 1987).

Farm Creek Grid

Only a small portion of this grid coincides with the current Tullah EL. Two lines of IP were conducted in 1979 - 381500N and 383500N. Both lines contained anomalies (on relinquished Burns Peak EL) which were followed up by further lines being read in early 1980 (Howland-Rose, 1979a and 1980a). I do not believe either were drilled.

6.1.2 Magnetics

The first recorded (and found) indication of a ground magnetic survey over the current Tullah EL 22/90 is in a 1980 report (McDonald, 1981a and 1981b). Several magnetic surveys were carried out in the 1980's, all of which are between the area known as Dutton's and the southern most portion of the tenement (south of Lakeside).

In 1980 ground magnetic surveys (McDonald, 1981a and 1981b) were carried out over the Murchison River grid and new Tullah grid (Figure 12). A survey was also carried out on the northern section of the Sterling Valley grid. These surveys were used as a principle component in the exploration program, with several anomalies targeted for drilling. Both the Tullah and Murchison grids extended east of 385000E, however, this data is only in contour format, thus difficult to use.

2.4 km of magnetic data was collected on lines 74900N to 75200N in 1984 (Fitzgerald et al, 1984). Data is only in contour format, which indicates a decreasing gradient from west to east. Data indicates a north-south strike, and several small 100nT plus anomalies are evident in the data. One feature is located east of the Max-min anomaly zone.

Four lines of magnetics (75600 to 75900) were collected in 1986 (Randell et al, 1986) over the Murchison Bridge grid to coincide with an electromagnetic (max-min) survey which was designed exclusively for target generation. The magnetic data indicated two west dipping sources which were split by a conductor detected by the Max-min survey. This data covers the along strike extension of the conductor observed on the east end of the Lakeside holes and drilled by MR-1 and MR-2.

Further ground magnetic work was performed in 1987 (Hall et al, 1988a and 1988b), where three grids were surveyed. The Tullah Flats, Murchison Mine and North Sterling Valley grid were read to compliment other geophysical surveys. Extraction of the data has been difficult.

Line 376500N was read with a line of ground magnetics in conjunction with IP, Max-min and a gravity survey. Line 376700N was supposed to be completed however no data is present (Hall et al 1987). An interpretation is however available in the report, which indicates an anomaly in the Mt Black Volcanics at 384840E, and an anomaly within the Farrell sequence. The data on line 376500N contains two magnetic highs. The anomaly on the west of the line is located within the Mt Black volcanics and associated with magnetite (intersected in DDH MRP227), whilst the high on the east is made up of two shallow source features, probably related to pyrrhotite bodies within the Farrell Sequence. Any correlation between the sources in the Farrell sequence on lines 376700N and 376500N can only be made through surveying lines in-between.

18 lines were recorded over the Tullah Flats grid, totalling 8.52 line km. Measurements were taken using a Scintrex G856 Proton Precession magnetometer. Data is in contour format only, and although the plot does have readings associated with the plot, several are unreadable due to the plotting mechanism or overprinting of contours. Data indicates a magnetic unit running slightly east of north through the grid. This feature apparently extends from hole RED86-1 and has been interpreted to be associated with (primary) pyrrhotite within the Farrell sequence. An east-west fault has been interpreted at line

376200N. A second structure is apparent in the authors opinion on line 376700N.

Magnetic data collected over Murchison Mine (Line grid) covered from line 376200N to 378000N (Hall et al 1988b). Data is in profile format only (not really able to digitise) and displays two apparent trends, both of which have been interpreted as shallow. One trend is in a north-north-east direction (parallel to that observed over the Tullah Flats grid) covering most of the length of the grid, and has been attributed to a magnetite bearing rhyodacitic volcanoclastic unit. The second trend is on the western side of the grid and is less extensive. No explanation has been provided for the source of the anomaly, however, drill holes MP28 and MP29 may provide some key. There was no magnetic anomaly associated with the Murchison Mine.

Ground magnetic data was also collected over lines 376400N, 376450N, 376500N, 376550N and 376600N to coincide with induced polarisation data collected in 1987. The data is presented as profiles on the IP pseudosections. It has not been ascertained when the magnetic data was collected.

Six lines were surveyed on the North Sterling Valley grid in 1987 (Hall et al 1988a). The lines were 374600N to 375100N (spaced 100m apart), and both profile and contour format display are available. The survey is on an AMG grid, however, the coordinates are not true AMG values. Data indicated the presence of a highly magnetic unit open to the south. A NNW structure is also evident as a sharp magnetic low on the northern lines.

The last survey found was in 1989, over the renamed Murchison grid (Randell, 1989b). This is in fact an AMG version of the Sterling Valley grid. The northern section of this survey is coincident with the current Tullah EL 22/90. A total of 50 line km was surveyed at 10m station spacing, 200m line spacing. Data is in both profile and contour format and a plan interpretation is also available. The interpretation appears to have been made from the contoured data and has missed some of the information evident in the profiles, like magnetic character.

6.1.3 Gravity

Grid style gravity data collection did not occur on a company level over the Tullah EL 22/90 until Pasminco took over the lease. However, there have been lines of gravity collected over various areas to aid in target definition.

Two lines of gravity were surveyed on the Murchison grid in 1987 (Hall et al 1987). Line 5377100N indicates a distinctive anomaly that should be related to the Henty Fault, however the location of the feature is offset from the interpretation produced by the IP and drilling. Data for line 5377000N does not give as indicative fault signature, however, there does exist a possible fault response, again offset from the indicated Henty Fault position. Line 376500N was also read in conjunction with IP, magnetic and Max-min EM surveys. Line 376700N was supposed to be read, however it appears as if the line was not surveyed.

A line of gravity was also read at Lakeside, however, data was inferred to be noisy due to instrument problems. There appears to be a Henty Fault response which has been interpreted by N Hungerford (1988). The line was designed to determine if there was a density contrast observable between the Lakeside mineralisation and its host geology, and if so be used to generate an excess mass calculation. The single line is clearly not indicative for this style of calculation and conclusions made from the 'noisy' data should be taken with this in mind.

6.1.4 Mise-a-la-masse (MALM)

A MALM survey was trialed at Lakeside to aid in defining the strike extent of mineralisation (Hungerford 1988). Several factors affecting the conduction of the survey (not quality) meant that the original expectations were not realised, however, it was inferred that the mineralisation is limited towards the south. An alternative interpretation is that the mineralisation is within discrete pods and do not connect electrically. A possible west extension was inferred from the potential gradient data, however, this could only be confirmed if the survey was extended further north, which is impossible due to the presence of Lake Rosebery. This anomaly may be worthy of following up.

6.1.5 Electromagnetic Surveys (UTEM, SIROTEM and Max-min)

Electromagnetic (EM) surveys have been conducted over the Tullah EL 22/90 since the early 1950's. Two Turam surveys were conducted, the first in 1952 by Richardson over a detailed Farrell grid, the second in 1957, a follow up around the North Farrell Mine. Results from these two surveys are difficult to obtain, however, two strike extensive conductors were defined. Both surveys were designed to find extensions to the already established mineralisation. One of the anomalies from the 1957 (Tate) survey was drilled by holes TP133 and TP134 prior to the 1970 IP survey. The holes intersected lode shear and black slates with pyrite.

It wasn't until 1984 when the EM technique was used again in this area. Five lines of Max-min EM was performed over the Murchison River grid in 1984 (5374900, 5375000, 5375100, 5375150 and 5375175; Fitzgerald et al 1984). All data indicated a good conductor which appears open to the north and south, however, amplitude strength is diminishing to the south. This feature did not have an associated magnetic anomaly.

A VLF survey was carried out on lines 5375150 and 5375200N (Murchison River grid - 1984). This survey confirmed the northern strike of the conductor, which remains open to the north.

In 1986 Max-min was again used in a small target definition survey over the Murchison Bridge grid (Randell et al 1986). Lines 75700N, 75800N and 75900N were read with all recording a conductor coincident with the DIGHEM data. The conductor was bounded either side by a magnetic body, detected in ground magnetic data read along the same lines. This feature was later drill tested with hole RED86-1.

Also in 1986 (and 1985) a large scale UTEM survey was conducted over the old Mt Black EL 1/62 (Randell et al 1986). One loop from that survey is located on what is now the Tullah EL 22/90. A total of five lines were recorded from this loop (loop number 15) which is situated on the edge of the Murchison Highway near the Murchison Bridge, south of Tullah. Lines recorded were 377500, 377250, 377000, 376750, 376500.

In 1987 four Max-min surveys were conducted, along with another UTEM survey and a SIROTEM survey.

The Tullah Flats and Murchison Mine grids were surveyed with Max-min, to explore the glacial covered Farrell sequence (Hall et al 1988b). The Tullah Flats survey consisted of eleven lines, covering a total of 4.16 line km. A coil spacing of 100m was used, reading every 20m. Data did not extend across the Murchison Highway. Several north trending anomalies are evident in the data which coincide with previously delineated DIGHEM features, and extend from DDH RED86-1. The strike length of the feature is over 1 km and the features are similar to that observed at Lakeside and over RED86-1, which did not intersect significant mineralisation. A set of irregular weak anomalies, presumed to be related to a narrow lens of conductive shales, is also present in the data.

Eight lines of Max-min were carried out over the Murchison Mine grid, from line 376500N to 377200N. A total of 3.4 line km were surveyed, using a coil spacing of 100m and reading interval of 25m (Hall et al 1988b). In-phase data has been severely affected by the topography, therefore quantitative interpretation has not been carried out. A weak anomaly was recognised over the Murchison Mine, along with a string of weak responses stretching from the Mine to the north.

In 1987 lines 376700N and 376500N were read with Max-min EM (Tullah Flats grid), using a coil separation of 100m (Hall et al 1987). Line 376700N contains a strong anomaly at 385200E, however, no source has been postulated. A broad anomaly is also evident at 384800E coincident with a magnetic anomaly (no data provided), however, it is thought that chaining errors are accountable for the EM response. Line 367500N contained a strong conductor at 385150E thought to be related to graphite within the Farrell slates, due to the lack of any coincident magnetic or gravity feature.

A single line of Max-min was carried out over line 375300N (Lakeside), to test the response over known mineralisation as well as to compared results with IP and UTEM data. A positive response was recorded on line 375300N, coincident with the anomalies in the IP and UTEM data. Depth to the top of the conductor has been calculated to be 40m. A conductance of 2 mhos was estimated, which is similar to that calculated for the UTEM data (Hall et al 1988b).

A small, three line UTEM survey (5300, 5200 and 5100) was conducted over the Lakeside grid to help determine if a deep massive sulphide existed below the known mineralisation (Hungerford 1988 and Hall et al 1988b). No clear deep responses were observed, however, it could be concluded that the massive mineralisation was detectable by EM methods. Data also inferred the mineralisation was continuous to the north under Lake Rosebery.

A Sirotem survey was conducted south of Lakeside to test for extensions to the Lakeside mineralisation along the Henty Fault zone. The fixed loop was positioned east of the survey lines which may have decreased the coupling capability of the survey. Interpretation by Billiton (Hall et al 1988b) inferred a gradual change in conductivity across the fault, which may in affect be due to the loop coupling. Petrophysical work was also carried out on rocks from the area to aid in interpretation. The statement "It appears that the Farrell Sequence are not graphitic and therefore should only be conductive if sulphides are present" is very unrealistic considering the recent holes drilled by Pasminco Exploration. Farrell slates are graphitic, however, the cause of the conductivity is still unresolved. Physical property studies conducted by Don Emerson on behalf of Pasminco on core from SR2 indicated that only intensely deformed Farrell slates have a low resistivity. Relatively less deformed slates indicate a higher resistivity.

A large UTEM survey was conducted in 1989 (Randell 1989b) along the revamped Murchison grid (old SV grid along AMG lines). The northern part of this survey is over the current EL 22/90. Five lines were read from loop 1, of which two lines are in the current Tullah EL 22/90. Loops were positioned to the east of reading lines, and above lines read due to topography. Coupling and field strength would have been diminished if the underlying geology dips towards the west as it has been recognised in the Farrell slates.

6.1.6 Self Potential

In the 1950's SP surveys were conducted in association with the Turam EM surveys. Anomalies recognised were coincident with the EM features. Contour plots are likely to be the only record of this work, in the Getty Review maps.

1961 Tullah grid - Bishop (1980) also inferred that a Self-Potential survey covered the same grid lines, however, it has not been found to this date.

It has been inferred in some reports that a Self Potential survey was also performed over the Tullah/Murchison grid in 1980 (from IP?) at the same time as magnetics, however, no conclusive records have been located.

6.1.7 Airborne Surveys

The review by Bishop in 1980 (Bishop, 1980) indicated an airborne electromagnetic survey was carried out over the region in the 1950's, however, I have found no other reports referencing the survey or results.

A 1983 Dighem survey (Dvorak, 1984 and McDonald, 1985a) covered a large portion of the west side of the current Tullah tenement (Fitzgerald and McNaught, 1985).

6.2 Geophysical Review of Sterling River EL 24/91

6.2.1 Induced Polarisation

Induced Polarisation (IP) is by far the most used geophysical technique within EL 24/91. There are two major grid areas within the tenement, the Sterling Valley grid and the Stitt grid. The Stitt grid has not been looked at in this review at this stage, as it will be treated later as a separate entity.

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The earliest IP survey conducted in the Sterling Valley was in 1961. Dipole-dipole array surveys were the dominant type used in EL 24/91, however, some gradient array surveys were also conducted. There have been a number of 'Sterling Valley' grids throughout the history of the tenement, each of which has been surveyed in part with IP.

In 1961 seventeen lines of IP were conducted over the original Sterling Valley grid (Hallof 1961). Fifteen of these lines utilised a 300 foot dipole separation, with the remaining two lines using a 200 foot dipole separation. There appears to be at least one distinctive shallow high IP, low resistivity signature throughout the entire grid. It is located east of the base line to the north and slightly west of the base line to the south. Several other anomalies and contacts are recognised on other lines.

Two lines of dipole-dipole array IP were conducted in the region of the Sterling Valley mine (Gregory 1963). The two lines ran across the line of lode, one north and the other south of the mine site. Both data sets contained broad anomalous responses. It appears that the responses recorded can be attributed to two distinct bodies. For line 12S, the greatest response is in the area of 1E, whilst line 20S clearly indicates two strong responses at 0.5E and 3.5E. This interpretation correlates with five lines of vertical loop EM done over the mine lease (data not available, but anomalous trends located in Gregory 1963), which is stated to infer the presence of two conductors, one along the line of lode, the other west. Both IP lines were later drilled, 12S by hole STP100 and 20S by STP98. Hole STP98 intersected lode sequence with polymetallic sulphides vertically below the IP anomaly at 3.5E. STP100 tested the entire broad IP response and intersected two zones of lode horizon, one west of the line of lode, the other along strike (as interpreted). Both of which returned poor economic sulphides, but did intersect pyrite at the position of the anomaly.

Cominco in 1976 carried out a test IP survey in the Sterling Valley over six lines (Simpson 1976). The data is degraded by the large quantity of noise, emphasised by the absence of data in vital areas of the pseudosections. There was however clear evidence of anomalism, with several shallow and some deeper features indicated. Several have since been directly or indirectly tested by drill holes.

It is apparent that four lines of the 1976 data are coincident with 1961 data. Direct comparisons between the two data sets revealed close correlations between the observed results. This infers the integrity of the 1961 data to be good and discounts any association of these baseline anomalies to the power line, as the power line did not exist in 1961.

In 1979 EZ followed up the 1976 test IP survey with a large dipole-dipole survey over the Sterling Valley grid. Unfortunately only fifteen of the grid lines were read (Howland-Rose 1980). All grid lines start west of the base line, with most lines stopping prior to or at the base line. Several anomalies have been recognised as having a spatial association with the base line, however, due to the lines stopping prior to it, anomalies have not been closed off. Other anomalies not spatially associated with the base line were detected, the best of which are located on the northern section of the grid.

A single line of IP data covered the north-western edge of the licence. The data was collected as part of the Mt Black grid 1979 IP survey (Howland-Rose 1979). Line 5373000N was collected to 384000E, with no anomalous response indicated.

Between 1980 and 1982 a reconnaissance IP survey was collected over the Stitt grid. A line spacing of 500m was used, with dipole-dipole and pole-dipole data collected on alternate lines. A total of 14 lines were surveyed, from 5372523N to 5366000N. A total of 29.44km of dipole-dipole data was collected and 23km of pole-dipole. Eleven anomalies were classified, one having follow up IP surveying. This was a feature on line 5372000N, from 382800E to 383000E. A gradient array survey was collected along this line, then three lines of dipole-dipole data were collected on lines 5372200N, 5372300N and 5372400N.

Four lines were surveyed using the dipole-dipole method in 1982 to follow up specific targets (Bishop 1982). One line was surveyed twice using different dipole separations. Line 3020 was surveyed to test a magnetic high, previously interpreted as a mafic intrusive. Although data did not fully cross the anomaly (lack of data to the west) it was interpreted that the lack of IP response reinforced the interpretation of a mafic intrusive. The remaining lines were used to test soil Sn and As anomalies as well as a magnetic anomaly. IP data indicated a resistivity anomaly and weak chargeability feature coincident with the magnetic data. The interpretation also indicated a north plunge to the feature. Modelling of the magnetic data defined a target which may have been drill tested with hole STP283.

In 1984 seven lines of dipole-dipole IP data was collected in the South Stitt area (Hall et al 1987). A significant amount of the IP data was affected by poor signal and topography. The survey was aimed at identifying targets in the vicinity of the HFZ, however, there is no indicative signature of the fault zone within the data. This is probably due to cover thickness (glacial cover) and poor data. One target was identified and drilled with DDH SS1.

The last IP survey conducted on the Sterling Valley grid was in 1987, where the area north and south of the Sterling Valley Mine was surveyed using the gradient array method (Hall et al 1988). Several distinct anomalies were indicated in the data, of which two (SVD89-1 and SVD89-2) were subsequently drilled. Neither hole intersected massive economic sulphides, both intersecting pyritic and graphitic shales. Data is available in contour format only.

6.2.2 Magnetics

The earliest known ground magnetic survey was conducted in the 1950's where a vertical intensity variometer survey was conducted over the original Sterling Valley grid. In 1976, Cominco conducted the next known magnetic survey, to compliment their trial IP survey. Since then the entire Sterling Valley has been surveyed with ground magnetics, with certain areas often repeated.

The 1957? vertical intensity variometer survey indicated the presence of numerous isolated bullseye type magnetic anomalies (Boniwell 1959). This survey, although difficult to use today due to exact location, data integrity and superseding surveys, laid the foundation for ground magnetic surveys in the Sterling Valley region.

In 1976 a small area was surveyed with ground magnetics to redefine a previously located RTAE anomaly (Simpson 1976). There is a positive correlation between the magnetic data collected over this grid and the data collected in the late 1950's. The best observable correlation is for lines 4160N to 4400N and 8N to 16N (1976 and 1950's grids respectively). Both indicate a large linear magnetic high along the base line and an isolated high further east. There is also an isolated high at 3800N, 5150E which possible correlates with a high on line CL and 4S. Finally there is a large high centred around 3320N which approximates the location of a similar, but more extensive high at 14S. This infers the integrity of the 1950's survey. Several other isolated anomalies were defined in the 1976 survey, of which at least one was targeted for drilling, as it was coincident with an IP anomaly.

Large scale ground magnetic data collection began in 1980, where the northern section of the Sterling Valley grid was surveyed (McDonald 1981). Only lines 3920 to 5000N were collected. In 1982 (Sainty 1982) the remainder of the Sterling Valley grid was surveyed with ground magnetics 3980N to 2360N (Fig. 13).

In 1984 between 9.6 and 10.7km of ground magnetics was collected over the South Stitt grid (Fitzgerald and McNaught 1985). This data was complimented by VLF EM and IP. Data is also available in Hall et al (1987). A strike extensive magnetic unit? has been identified to the west of and parallel to the HFZ. A combined magnetic/VLF EM target was drill tested by hole DDH SS2.

Ground magnetic surveys were absent until 1988 when 8 lines of ground magnetics was collected on the South Sterling Valley grid (Hall et al 1988). Data is in profile format (unreadable) and contours.

The last ground magnetic survey conducted on the tenement was in 1989 when the revamped Murchison grid (new AMG style Sterling Valley grid) was surveyed (Randell, 1989). The survey totalled 50 line km, with a 10m station spacing and 200m line spacing. The northern section of this survey overlies the Tullah EL. The interpretation (in plan format) appears to have been made from the contoured data and has missed some of the information evident in the profiles, like magnetic character.

6.2.3 Gravity

The first gravity survey conducted over the area was in 1959 to coincide with the EM survey (Boniwell 1959). Line profiles, residual profiles and a residual contour plot are all available. There are several gravity highs with the best located coincident with the EM response to the south. This was tested by hole STP101 without success. Future work has indicated that varying bedrock topography (including the effect of the glacial cover) may well contribute to the development of most anomalies.

A single line was also conducted over the Sterling Valley mine, with no related anomalism recorded (Boniwell 1959 & Barker 1974).

6.2.4 Electromagnetics

There have been only a limited number of Electromagnetic surveys over the current Sterling Valley EL, with the first survey conducted in 1959 on the old grid.

In 1959 a vertical loop EM survey was carried out on grid lines spaced 400 feet apart (Boniwell 1959). One major conductor was located to run parallel to the baseline (coincident with the Asarco baseline). This baseline is along a high tension power line, however, it was not erected at the time of the survey. Two minor conductors either side of the baseline were also detected. A plan map of anomalies is available only (Barker 1974).

Arsarco conducted a vertical loop EM survey along the Sterling Valley in 1974 (Barker 1974). The survey was carried out by McPhar using a SS15 unit. The survey did not cover the Sterling Valley Mine, however, three lines were carried out south of the Mining Leases. A plan map of anomalies is available. The survey reinforced the presence of the conductor observed in 1959, even though the power line was in place for the 1974 survey.

A single test line was conducted in 1976 on line 4400N using the vertical loop EM method. The noise from the power transmission line was considered too great and therefore the technique was considered ineffective. No data is available (Simpson 1976).

In late 1983, early 1984 reconnaissance VLF EM was carried out to delineate anomalies inferred in the DIGHEM III survey (Fitzgerald et al 1984). A total of 6.3km of VLF EM was collected over the Stitt grid in 1984 (Fitzgerald and McNaught 1985), with an additional 3.7km of VLF later in the year.

Fitzgerald and McNaught (1985) also indicated that 7.9km of GENIE EM was collected over the South Stitt area.

During 1985 and 1986 several regional size UTEM surveys were undertaken in Western Tasmania. It appears that data collected using loops 11, 12, 13 and 14 covered the area between Stitt and Mt Sale (Randell et al 1986). No major anomalous features appear to have been highlighted in the surveys.

The last EM survey to be conducted was in 1989, where a large fixed loop UTEM survey was conducted along a 200m line spaced AMG grid. Three loops covered the grid (the fourth loop, loop number 1 is over the current Tullah EL) with all data available in paper and digital format (Randell 1989). The loops are set to the east with lines covering the Murchison Volcanics. Any data over the Farrell sequence and at the contact of the Farrell fault is producing weak coupling only. Some minor late time anomalies were detected, one of which was drilled by Billiton (SVD89-3) with no success.

6.2.5 Self Potential/AFMAG/Airborne EM

A SP survey was conducted in 1957 and has since been related to the EM and gravity surveys conducted in 1959 (Boniwell 1959 and Barker 1963). Strong discontinuous anomalies are observed along the baseline coincident with the EM data. Two anomalies are also evident east of the baseline, one of which is coincident with a magnetic and gravity anomaly.

Two lines of AFMAG were trialed in 1959. One line confirmed the existence of an EM anomaly, the other did not return conclusive readings due to the weak activated field. No data is available for this survey (Simpson 1976).

A 1983 Dighem survey (Dvorak, 1984 and McDonald, 1985a) covered a large portion of the west side of the current Tullah tenement (Fitzgerald and McNaught, 1985).

Special note - MTB20 from 1/62 has the EM, mag, gravity and SP all on grids. TSV22 has SP related to 1959 EM, mag and gravity grid, and relates this grid approximately to Asarco 1974 grid.

6.3 North Lakeside Induced Polarisation Target

From the above Geophysical Review, Basford made a recommendation that on line 7000N Dutton's area on the northern shore of Lake Rosebery a previous IP anomaly was not fully tested by drill hole RED87-4. This hole intersected the Henty Fault Zone at about 200m depth, yet the geophysical target appears to be much shallower.

The drill hole intersected 2m @ 0.21 g/t Au and some Pb-Zn mineralisation. The geophysical surveys conducted in this area appeared to indicate that cross shears occur in this area and on the geology map (Figure 4) the Henty Fault Zone does a distinctive jog in this area which may have formed an extensional regime.

The memorandum is attached as Appendix 10 and follow-up is recommended.

7. PROSPECTIVITY REVIEW

7.1 Background

Pasminco Exploration undertook a prospectivity assessment of its ground holdings in Western Tasmania during the past 12 months (Murphy 1997). The review employed a GIS (MapInfo) analysis of exploration data which, for the Tullah EL, was sourced from open file data and an existing Pasminco database held in Access. Both data sets required substantial effort to validate and were then combined with the open file compilation. The integration of the various data sets formed the basis for largely geochemically-oriented metallogenic modelling and target area definition. Analysis was performed on Cu, Pb and Zn distributions as these elements provide the most coherent regional coverage. In essence, this identifies existing anomalies and significant gaps in coverage to date on the Tullah tenement. Layers incorporated in the GIS are:

- modified 1:25,000 geology and mineral occurrences (Fig. 14). The geology was coded according to lithotypes (Appendix 11) eg. DGE = Dundas Group Equivalent, CVC = Central Volcanic Sequence.
- Stream sediment sampling and drainage (Fig. 15)
- Extant grids and access (Fig. 16)
- Soil sampling and grids (Fig. 17)
- Rock chip sampling and drill collars (Fig. 18)

7.2 Point Data Analysis

- The stream sediment sample points invariably plot off stream lines (Fig. 15) so catchment analysis was not deemed appropriate. In any case, where there is a high sample density the points approximate to small catchment areas. The data points were standardised and leveled accordingly to the underlying 1:25,000 geology polygon that contains them. Analysis was then made of the lithotype populations (eg. all CVC hosted samples) with statistical analysis performed on the log distributions and z-scores (x-mean (x)/st dev (x)) calculated for each point. The data was subsequently imaged using a search radius of 500m and grid cell size of 50m.

- The soil samples were standardised and leveled according to soil profile (A, B, C and 'unknown') and to major lithotype code (Appendix 11) of the underlying geology polygon, using the same statistical manipulations as with the stream data. The data was then imaged using a search radius of 100m and a grid cell size of 50m.

- The rock chip data was gridded in the same way as the soil data.

- Each of the 'surface' data sets (stream, soil and rock ship) were imaged for each of the three elements and displayed as percentile RGB images. The images are 'hot to cold' colour coded according to the 99^{th}, 98^{th}, 95^{th}, 90^{th}, 80^{th}, 60^{th} and 40^{th} percentile of the z-score distribution.

- The high z-score values for each element were threshold as a composite RGB image to show levels of coincident anomalies. These are colour coded according to: Red=Pb, Green=Cu, Blue=Zn, Yellow=Pb+Cu, Cyan=Zn+Cu, Magenta=Pb+Zn, White=Cu+Pb+Zn.

7.3 Multi-element Distributions

Preliminary observations can only be made at this stage, ie. qualitative statements that require quantitative analysis of the nature and robustness of the anomalies. They provide pointers for future work programs. The following observations are drawn from the data:

Stream sediment images (Figs. 19, 20, 21, 22)

- there is incomplete coverage of sampling particularly in the northern parts of the tenement.
- areas of Zn anomalism occur in a number of small clusters. Notable amongst these is a NW trending linear array of four discrete anomalies in the Sterling Valley area.
- areas of Pb anomalism show only slight variations from the Zn distributions, with high responses in the SW towards the boundary with the Rosebery Mine Lease.
- Cu distribution is relatively "flat" but for some small anomalies that are in part coincident with those in Zn and/or Pb distributions.

- the levels of coincidence of Zn, Pb and Cu anomalism are shown in Fig. 22. Six areas (Tss1-6) are highlighted: Tss1, 2 and 3 all lie west of the Henty Fault, draining CVC host rocks. Tss4, 5 and 6, east of the Henty Fault, are peripheral to the Cambrian Murchison Granite outcrop.

Soil images (Fig. 23, 24, 25, 26)

- coverage is restricted to the central and southern parts of the Sterling River area, largely west of the Henty and Farrell Faults.
- Zn anomalism is strongest in the Sterling Valley, from Lakeside southwards to the Sterling Valley Mine.
- Pb anomalism is more discrete than the Zn distribution, with anomalies noted at 1) between the Murchison River and North Murchison prospects, 2) at the Woolvens prospect, 3) in the Sterling Valley west of Turleys and 4) at Lakeside.
- Cu anomalism is strongest in the Sterling Valley between Turleys and Albert Midsons prospects.
- Fig. 26 shows the levels of coincidence in the three elements. Five anomalous areas (Tsl1-5) are indicated: Tsl1 and 2 are strong coherent features; Tsl3 is associated with the Woolvens prospect; Tsl4 in the southern part of the Sterling Valley; and Tsl5 between the Murchison River and North Murchison prospects.

Rock Chip Images (Fig. 27, 28,29, 30)

- coverage is very piecemeal.
- Zn anomalism is associated with 1) Lakeside prospect and areas to the north, 2) the Farrell group of deposits, 3) south of the Sterling Valley Mine, 4) SW of Duttons prospect and 5) Lorrigan's Luck prospect.
- Pb anomalism largely mirrors that of Zn
- Cu anomalism correlates with Zn and Pb distributions.
- Fig. 30 shows the threshold levels of multielement coincidence.

7.4 Metallogenic Modelling

The geochemical data allows an evaluation of the near surface potential and areas of 'leakage' from deeper sources. Clearly there is inadequate coverage to date to allow a comprehensive analysis of the tenement.

The prospectivity analysis involved the development of a metallogenic model (Fig. 31) that utilises the geochemical anomalism (soils, stream, rock chips), the underlying 1:25,000 geology polygon of the CVC (in purple tones) and the interpreted structural (fault/shear) framework derived from geological and geophysical interpretations. The structures were buffered to 100m either side of the fault center lines which highlights areas of anomalism proximal the fault. Preliminary interpretation of this model identifies four areas of immediate interest (T-An1-4):

- T-An1 and 2: these lie in the Sterling Valley, west of the Henty Fault. Neither has been adequately tested with drilling to date.
- T-An 3 and 4: these are proximal to the Henty Fault in the south of the tenement, at or close to the intersections or nodes of cross cutting NW trending faults.

Work is in progress to test the veracity and tenor of the identified anomalies.

8. CONCLUSIONS AND RECOMMENDATIONS

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These Conclusions and Recommendations have been collated from a variety of sources and are mentioned at length because of the change of exploration emphasis within EL 22/90.

a) The focus on Pb-Zn mineralisation has concentrated on the highest soil/rock chip results which correlated with the major fault zones. The Henty Fault Zone and the eastern Farrell Fault have by their very nature been anomalous in remobilised Pb-Zn. It may be a prudent exercise to test second order anomalies associated with the Farrell Slates/Murchison Volcanics that may host significant stratiform mineralisation. This may highlight the prospects such as Central Macintosh, or Murchison Extended zones in the Farrell Slates and/or Donoghue's or Midson's Prospects in the Murchison Volcanics.

b) Drill hole STP 284, drilled east from the Lorrigan's Luck Prospect, did not intersect anything to explain the Dighem EM anomaly that it was targeted on. In addition, drill hole SVD 87-1, designed to test Au mineralisation on the Henty Fault ESE of drill hole STP 283, did not reach its target zone and the redrill SVD 87-1A finally tested this zone 100m deeper than the original target. A review of this data is recommended.

c) No comprehensive study has been carried out on the mineralogy of the gold along the Henty Fault Zone. It is assumed the gold in the sulphides is refractory yet free gold has been noted in several of the polished sections. Should further exploration be warranted in the Lakeside - Lorrigan's Luck areas (as well as other Henty Fault Zone gold targets), the free milling qualities of the lode zones need to be assessed.

d) In the Sterling Valley area (mainly at Lorrigan's Luck Prospect), much of the early drill core had been removed for metallurgical testing before it was assayed for gold. This material would almost certainly have been high sulphide ore most probably high in arsenopyrite which contains the highest gold grades. If this is correct then the inferred reserve at Lorrigan's Luck Prospect may be significantly understated in both tonnes and grade.

e) The Lakeside - Lorrigan's Luck Prospects were both discovered by geophysics but following up anomalous stream sediment tin anomalies. Early diamond drilling noted tin, fluorite and tourmaline mineralisation. Drilling by Pasminco in this area has not assayed for B, F and Sn and it is recommended that these elements are analysed when assessing this area.

f) Exploration by Pasminco at the Lakeside - Lorrigan's Luck Prospect has shown both prospects have highly correlatable arsenic to gold grades and both mineralised zones can be considered to be essentially the same. The low grade result in LSRC 3 may indicate at least two lodes are present. The presence of mineralisation on the footwall of the Henty Fault Zone at the Lakeside Prospect and on the hanging wall side at Lorrigan's Luck Prospect needs to be explored further. The location where this crosses the Henty Fault Zone maybe a zone of considerable remobilisation and enrichment. Of interest is the conclusion made in Ms S Dibben's study of the Lakeside mineralisation where it appears to be closer to the Henty Fault Zone with depth c.f. the Henty Gold Deposit where it is further away. It could be concluded from this information that the Lorrigan's Luck mineralisation plunges with depth under the Lakeside Prospect and the mineralisation in the untested portion of the Henty Fault Zone maybe considerably richer.

g) The Geophysical Review of the Tullah licence area resulted in the recommendation that the Henty Fault Zone be redrilled in the Dutton's area just south of the Tullah township. Drill hole RED87-4 intersected the geophysical target at depth and did not fully test the zone. With the indication of cross-faulting in the area and what appears to be a major jog in the Henty Fault Zone in this locality, further drilling in this area is recommended.

h) To the south in the Sterling Valley area, it is recommended that the IP traverses between the Sterling Valley magnetic low/alteration zone and drill holes SR 3 and SV 4 to the south are re-appraised. The large alteration zone to the north and the presence of weak but significant mineralisation in the these drill holes indicates the possibility of a mineralising system in this area.

i) The South Stitt area and a zone extending to the southern boundary of the Tullah licence area are generally unexplored, yet appear to contain many of the essential ingredients for Henty Gold Mine mineralisation. These include a coalescing of major faults, the presence of strong alteration associated with the Moxton Saddle and drill holes SS1 and SS2 to the north. The presence of pyrite alteration, quartz veining and traces of Au and base metal mineralisation all indicate this area to be a zone of major mineralisation.

It is recommended that geological traversing, rock chip sampling, rehabilitation of grid lines and dipole-dipole IP surveying is completed in this area. All geochemical/geophysical anomalies to be drill tested.

It is recognised that this area is remote and rugged with much of the basement geology covered by Owen conglomerate scree, but the presence of the above indicators makes this a priority target.

9. EXPENDITURE

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Total expenditure for all work undertaken by Pasminco Exploration within Tullah EL 22/90 for the twelve month period to the end of September 1997 was $198,039. A detailed expenditure statement is given below.

Personnel	32,522
Travel and Accommodation	313
Geological Consultants	
Geochemical Consultants & Assays	12,297
Geophysical Surveys & Consultants	
Other Consultants	620
Drilling	64,402
Stores & Supplies	1,290
Vehicles Plant & Equipment	21
Land	1,657
Computing	
Office	66,914
Administration Fee 10%	18,003
Total Tenement Expenditure	**$198,039**

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11. KEYWORDS AND LOCALITY

KEYWORDS

ZINC, LEAD, GOLD, SILVER, ARSENIC, TIN, VOLCANOGENIC, ALTERATION, STRUCTURE, DRILLING, GEOCHEMISTRY, GRANITE, GIS, METALLOGENESIS

LOCATION

BURNIE SK55-3 AND QUEENSTOWN SK55-5:
TULLAH, STERLING RIVER, MT MURCHISON

TABLE 1: Lakeside-Lorrigan's Luck Previous Drilling

Hole ID	Year	Drilling Objectives	Total Depth (m)
STP217	1980	To test coincident magnetic and IP anomaly	249.1
STP218	1980	To test ground magnetic, IP and geochemical anomalies	165.0
STP220	1980	To test coincident ground magnetic, IP and VLEM anomalies	268.8
STP221	1980	To test an IP and two magnetic anomalies	203.3
STP231	1981	To test a ground magnetic anomaly and the HFZ for Sn mineralisation	150.6
STP232A	1981	To intersect HFZ associated mineralisation and a ground magnetic anomaly	92.8
STP232A-1	1981	To intersect HFZ associated mineralisation and a ground magnetic anomaly	198.2
STP234	1981	To follow up massive sulphide in STP221 associated with a strong magnetic anomaly	342.5
STP283	1985	To test low resistivity zone under costean containing high Au-As in shear/breccia/veins	179.6
STP284	1985	To gest Dighem anomaly on strike of HFZ and across strike from known mineralisation	116.7
SVD87-1A	1987	To test for AU min on HFZ	298.5
SVD87-2	1987	To test HF where offset by cross-structure, and IP anomaly present in inferred HF position	142.5
SVD89-1	1989	To test HFZ for mineralisation, indicated by IP anomaly east of fault in black shale-volc sst	154.1
SVD89-2	1989	To test IP anomaly east of Henty Fault	129.5

277065

TABLE 2: Previous Drilling in Lorrigan's Luck Area and Sterling Valley

Hole ID	HFZ Intersection	Best Au Intersection	Total Depth (m)
STP217	178.1 - 183.5m	98.65 - 105.45m (6.8m @ 1.19 g/t)	249.1
STP218	west of HF	42 - 45m (3m @ 0.2 g/t)	165.0
STP220	east of HF	93.6 - 95.75m (2.25m @ 0.18 g/t)	268.8
STP221	107.5 - 114.5m	51.8 - 52.8m (1m @ 2.0 g/t)	203.3
STP231	127.8 - 133.8m	53.8 - 58.3m (5.5m @ 0.89 g/t)	150.6
STP232A	east of HF	66.7 - 68.1m (1.4m @ 1 g/t)	92.8
STP232A-1	64 - 68.3m	67 - 68m (1m @ 0.21 g/t)	198.2
STP234	265 - 268.8m	187.5 - 191.5m (4m @ 1.74 g/t)	342.5
STP283	west of HF	61.8 - 62.8m (0.85m @ 1.16 g/t)	179.6
STP284	east of HF	27.75 - 27.9m (0.15m @ 1.65 g/t)	116.7
SVD87-1A	211.25 - 212.3m	211 - 212m (1m @ 0.15 g/t)	298.5
SVD87-2	90-91.5m	97 - 98m (1m @ 0.74 g/t)	142.5
SVD89-1	72.2 - 74.4m	nil	154.1
SVD89-2	*19.1 - 27.8m	nil	129.5
SVD89-3	west of HF	100 - 102m (2m @ 0.28 g/t)	364.2

Drill Holes Targeted on Geophysical Anomalies

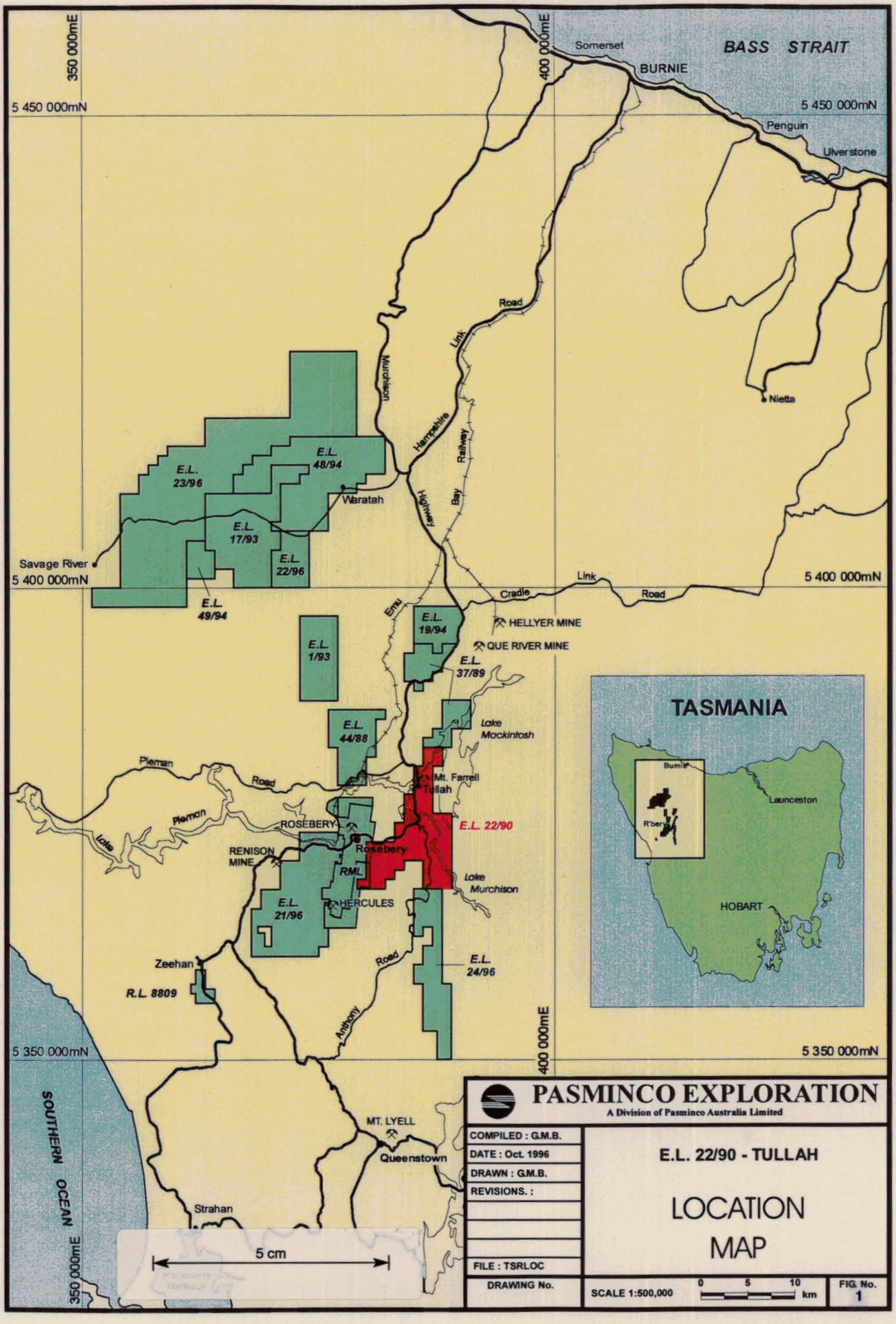
Table 3

Hole_id	Year	Target (Drilling Objectives)
MR1		EM Conductor
MR2		EM Conductor
MRP212	1979	EIP gradient array Chargeability anomaly and FS contact - Lakeside Resource
MRP226	1981	Ground Magnetic anomaly on line 384740mE, 5376300mN
MRP227	1981	Ground Magnetic anomaly
RED86-1	1986	Magnetic/EM anomaly - plus Au intersected in MR2 to the south
RED87-4	1987	IP anomaly east of HF (385140mE, 5377000mN)
RED88-4	1988	DHEM conductor below and north of RED88-2
STP98	1961	IP on line 20S
STP100	1961	IP on line 12S and coincident EM anomaly - Sterling Valley Mine north of STP96
STP101		Magnetic anomaly - too shallow?
STP105		Magnetic anomaly - too shallow?
STP217	1980	Coincident magnetic and IP anomaly - Lorrigans Luck Prospect (formerly Arsenic Resource)
STP218	1980	Ground magnetic, IP and geochemical anomaly
STP220	1980	Ground magnetic, IP and VHEM? anomaly
STP221	1980	IP and two magnetic features
STP231	1981	Ground magnetic anomaly - HFZ for Sn mineralisation
STP232	1981	Ground magnetic anomaly - HFZ for mineralisation
STP234	1981	Follow up massive sulphide in STP21 associated with strong magnetic anomaly
STP283		IP and Magnetic anomaly - Southern extension of Lorrigans Luck
STP284	1985	Dighem anomaly on strike of HF and across strike from known mineralisation
SV1		?
SV3		Magnetic anomaly - Aeromagnetic anomaly D - Billiton - hole too short?
SVD87-2	1987	HFZ offset by cross-structure and IP anomaly at inferred position of HF
SVD89-1	1989	IP anomaly east of HF in black shale-volc sst - Line 2500N - pyrite and pyrrhotite intersected.
SVD89-2	1989	IP anomaly east of HF - 1200N, missed magnetic target to east
SVD89-3	1989	Weak UTEM anomaly in Murchison Volcanics
TP133	1968	EM and SP anomaly
TP134	1968	EM and SP anomaly

Untested Geophysical Targets

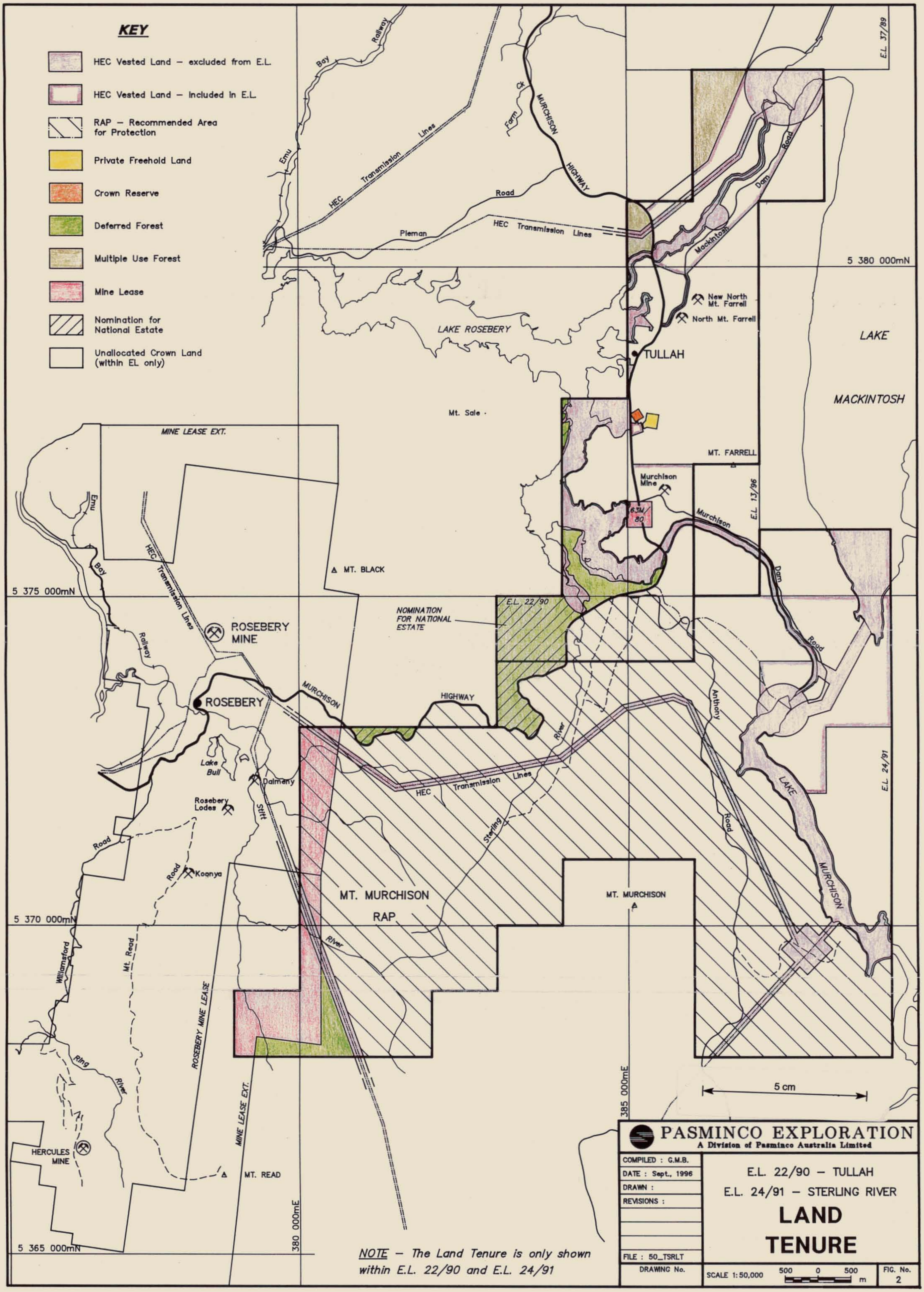
Table 4

	Anomalies Not Drilled
1	Anomaly B - Magnetic target and 1200N IP anomaly? TSV59
2	IP at 1600N - southern extension of Sterling Valley Mine - along HFZ. Res low in DIGHEM
3	Anomaly D magnetic target - under SV3 and STP105 (3560 to 3300N, 5000E)
4	UTEM response at 373400N, 384700E - shallow, coincident 1960 IP anomaly
5	IP at 1700N (4765E) - Fault contact
6	Magnetic anomaly at 3200N, 5000E - shallow
7	Magnetic anomaly at 2900N (5060-5100E)
8	Resistivity low - coincident with holes STP105 and STP101 thought to be due to culture as the power lines run up St valley, however, anomaly is discontinuous - thus not culture Centred on 384200E, 5373000N and 384300E, 5373200N
9	IP anomaly offsets along HFZ



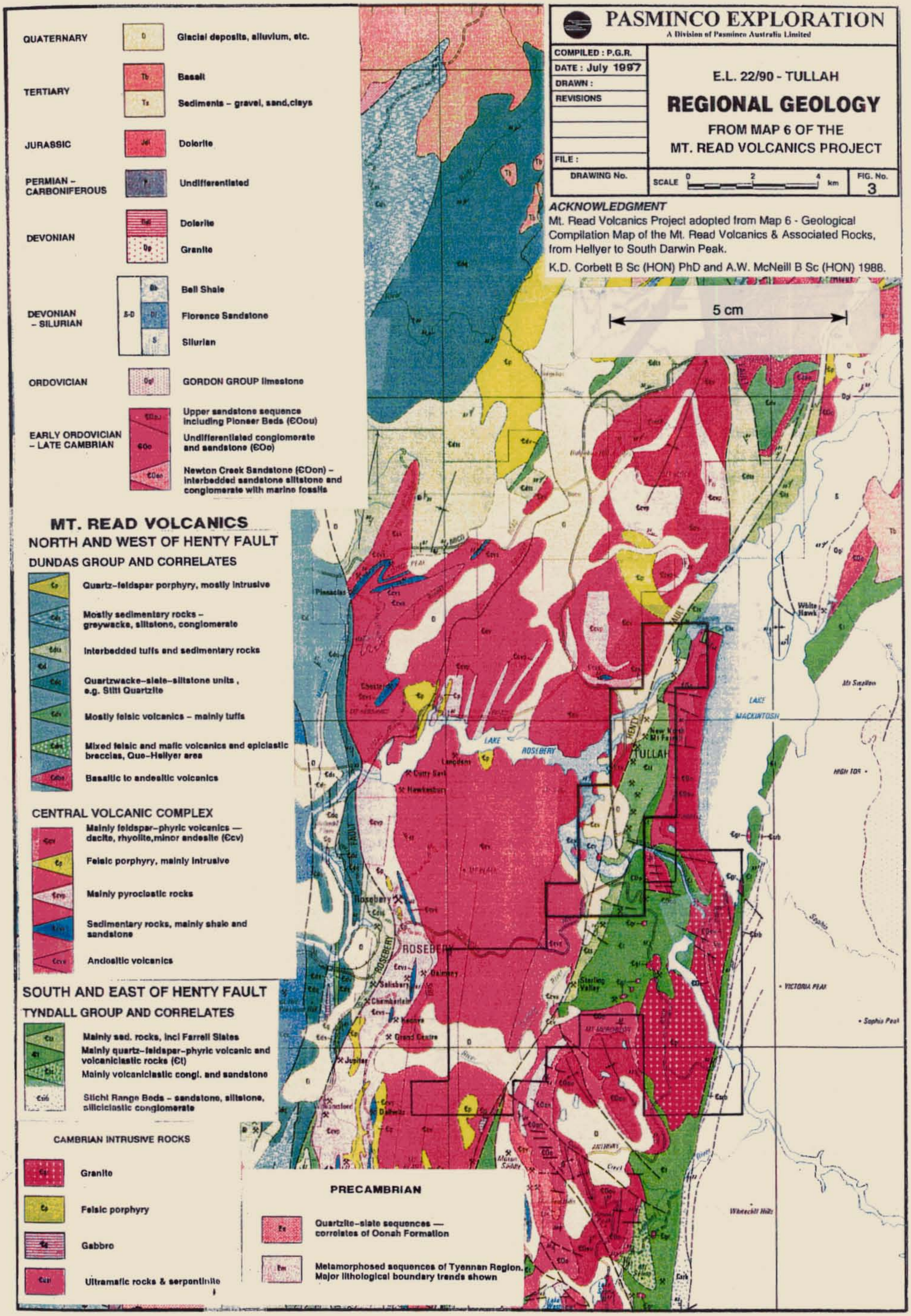
BASS STRAIT
Somerset
BURNIE
Penguin
Ulverstone
Nietta
350 000mE
400 000mE
5 450 000mN
5 400 000mN
5 350 000mN
Road
Link
Murchison
Hampshire
Highway
Railway
Bay
Emu
Cradle
Link
Road
E.L. 23/96
E.L. 48/94
Waratah
E.L. 17/93
E.L. 22/96
Savage River
E.L. 49/94
E.L. 1/93
E.L. 19/94
HELLYER MINE
QUE RIVER MINE
E.L. 37/89
E.L. 44/88
Lake Mackintosh
Pieman
Road
Lake
Pieman
Mt. Farrell
Tullah
ROSEBERY
Rosebery
E.L. 22/90
RENISON MINE
RML
HERCULES
Lake Murchison
E.L. 21/96
Zeehan
R.L. 8809
Road
Anthony
E.L. 24/96
TASMANIA
Burnie
R'bery
Launceston
HOBART
SOUTHERN OCEAN
MT. LYELL
Queenstown
Strahan
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : G.M.B.
DATE : Oct. 1996
DRAWN : G.M.B.
REVISIONS. :
FILE : TSRLOC
DRAWING No.
E.L. 22/90 - TULLAH
LOCATION MAP
SCALE 1:500,000
0 5 10 km
FIG. No. 1

277068


KEY
HEC Vested Land – excluded from E.L.
HEC Vested Land – included in E.L.
RAP – Recommended Area for Protection
Private Freehold Land
Crown Reserve
Deferred Forest
Multiple Use Forest
Mine Lease
Nomination for National Estate
Unallocated Crown Land (within EL only)
E.L. 37/89
Bay
Railway
Emu
HEC Transmission Lines
Farm Ck
MURCHISON HIGHWAY
Road
Pieman
Dam Road
Mackintosh
5 380 000mN
New North Mt. Farrell
North Mt. Farrell
LAKE ROSEBERY
TULLAH
LAKE MACKINTOSH
Mt. Sale
MINE LEASE EXT.
MT. FARRELL
Murchison Mine
63M/80
Murchison
E.L. 13/96
Dam
MT. BLACK
5 375 000mN
E.L. 22/90
NOMINATION FOR NATIONAL ESTATE
ROSEBERY MINE
Road
ROSEBERY
MURCHISON HIGHWAY
Anthony
River
Lake Bull
Dalmeny
Rosebery Lodes
Stitt
HEC Transmission Lines
Sterling
Road
E.L. 24/91
LAKE MURCHISON
Koonya
MT. MURCHISON RAP
MT. MURCHISON
5 370 000mN
Williamsford
Mt. Read
River
Ring
ROSEBERY MINE LEASE
MINE LEASE EXT.
385 000mE
5 cm
HERCULES MINE
MT. READ
380 000mE
5 365 000mN
NOTE – The Land Tenure is only shown within E.L. 22/90 and E.L. 24/91
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : G.M.B.
DATE : Sept., 1996
DRAWN :
REVISIONS :
FILE : 50_TSRLT
DRAWING No.
E.L. 22/90 – TULLAH
E.L. 24/91 – STERLING RIVER
LAND TENURE
SCALE 1:50,000
500 0 500 m
FIG. No. 2

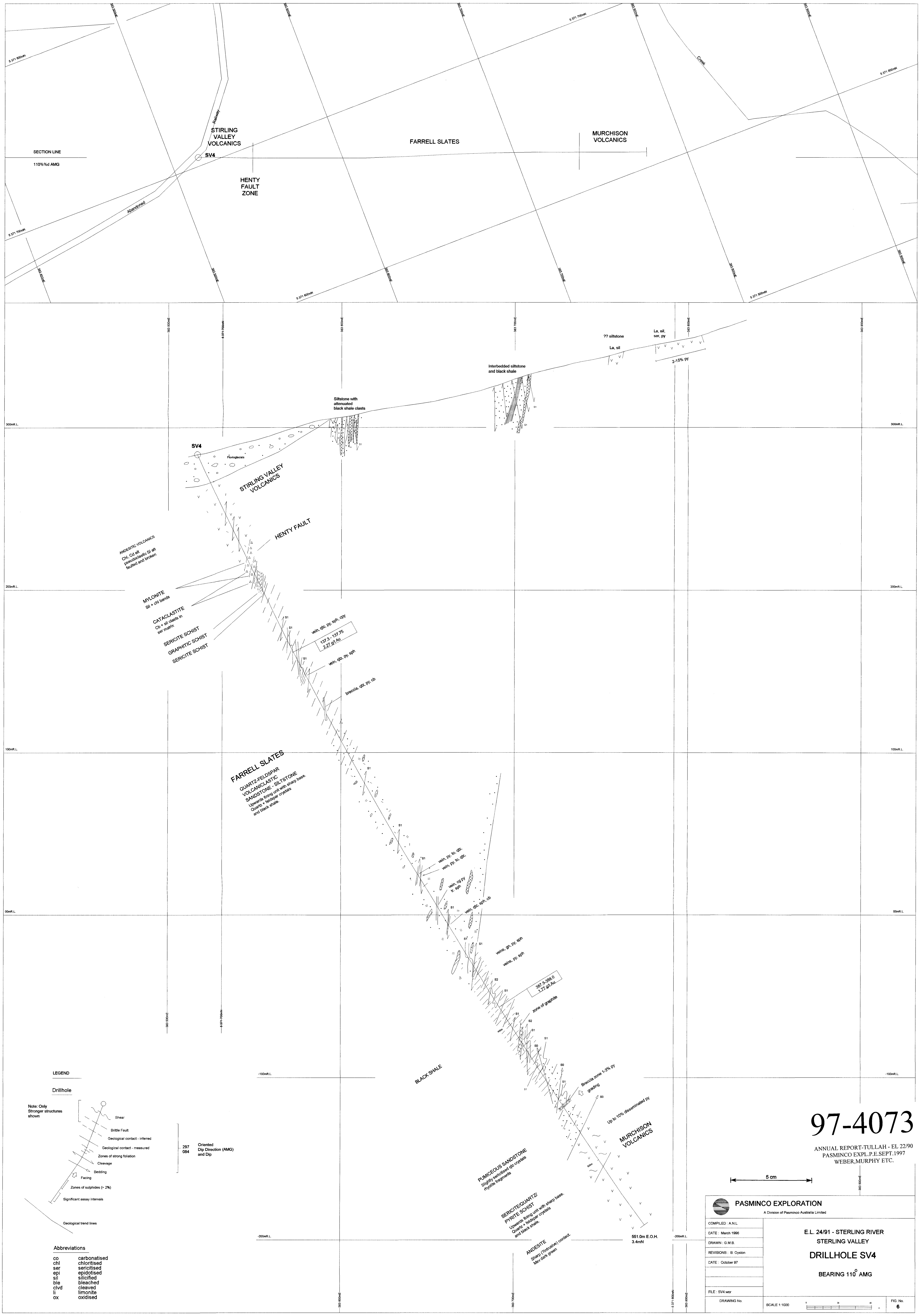
277069

277070



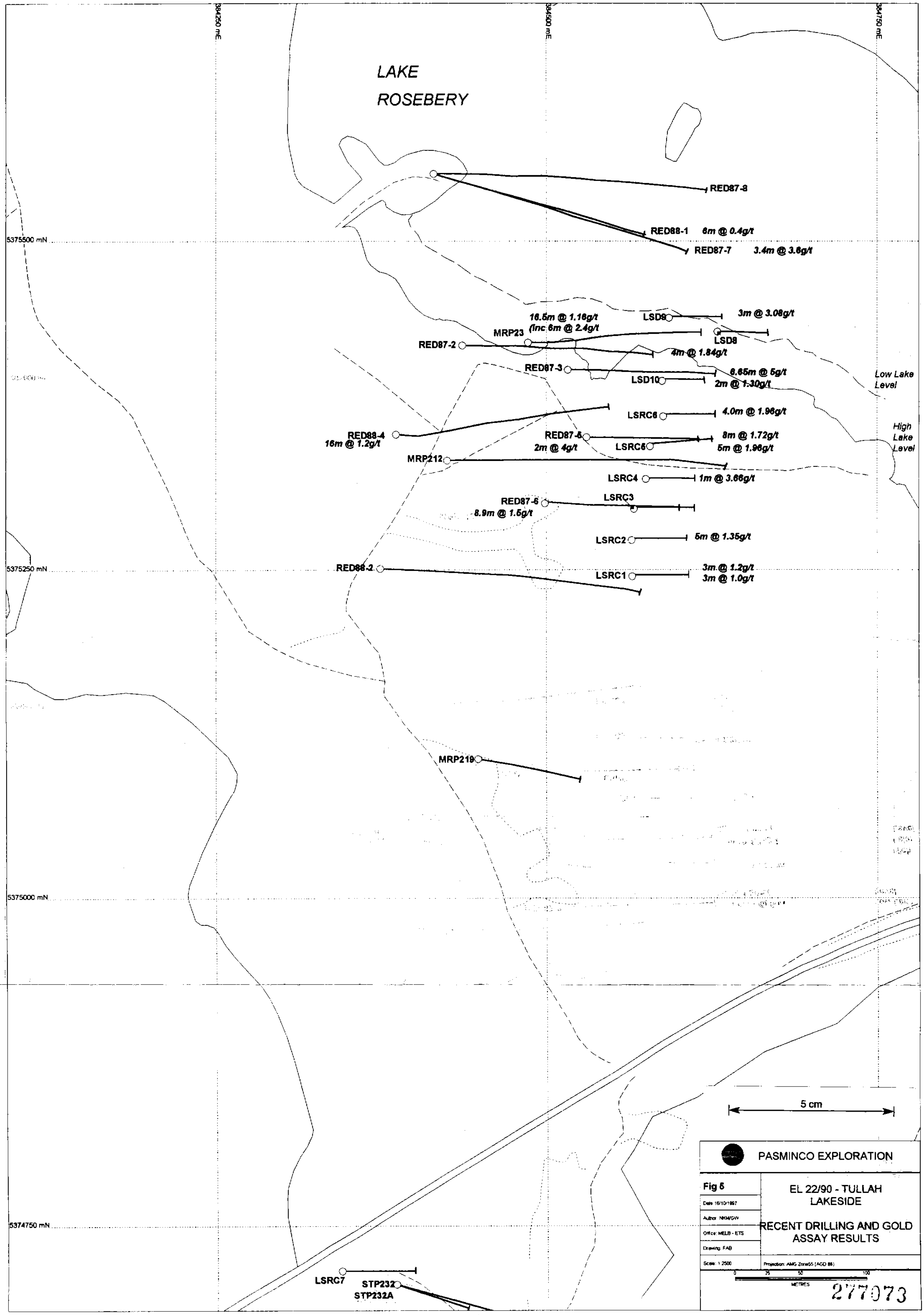
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : P.G.R.
DATE : July 1997
DRAWN :
REVISIONS
FILE :
DRAWING No.
E.L. 22/90 - TULLAH
REGIONAL GEOLOGY
FROM MAP 6 OF THE
MT. READ VOLCANICS PROJECT
SCALE 0 2 4 km
FIG. No. 3
ACKNOWLEDGMENT
Mt. Read Volcanics Project adopted from Map 6 - Geological Compilation Map of the Mt. Read Volcanics & Associated Rocks, from Hellyer to South Darwin Peak.
K.D. Corbett B Sc (HON) PhD and A.W. McNeill B Sc (HON) 1988.
5 cm
QUATERNARY
Glacial deposits, alluvium, etc.
TERTIARY
Basalt
Sediments - gravel, sand,clays
JURASSIC
Dolerite
PERMIAN - CARBONIFEROUS
Undifferentiated
DEVONIAN
Dolerite
Granite
DEVONIAN - SILURIAN
Bell Shale
Florence Sandstone
Silurian
ORDOVICIAN
GORDON GROUP limestone
EARLY ORDOVICIAN - LATE CAMBRIAN
Upper sandstone sequence including Pioneer Beds (€Oou)
Undifferentiated conglomerate and sandstone (€Oo)
Newton Creek Sandstone (€Oon) - interbedded sandstone siltstone and conglomerate with marine fossils
MT. READ VOLCANICS
NORTH AND WEST OF HENTY FAULT
DUNDAS GROUP AND CORRELATES
Quartz-feldspar porphyry, mostly intrusive
Mostly sedimentary rocks - greywacke, siltstone, conglomerate
Interbedded tuffs and sedimentary rocks
Quartzwacke-slate-siltstone units, e.g. Stitt Quartzite
Mostly felsic volcanics - mainly tuffs
Mixed felsic and mafic volcanics and epiclastic breccias, Que-Hellyer area
Basaltic to andesitic volcanics
CENTRAL VOLCANIC COMPLEX
Mainly feldspar-phyric volcanics — dacite, rhyolite,minor andesite (€cv)
Felsic porphyry, mainly intrusive
Mainly pyroclastic rocks
Sedimentary rocks, mainly shale and sandstone
Andesitic volcanics
SOUTH AND EAST OF HENTY FAULT
TYNDALL GROUP AND CORRELATES
Mainly sed. rocks, incl Farrell Slates
Mainly quartz-feldspar-phyric volcanic and volcaniclastic rocks (€t)
Mainly volcaniclastic congl. and sandstone
Sticht Range Beds - sandstone, siltstone, siliciclastic conglomerate
CAMBRIAN INTRUSIVE ROCKS
Granite
Felsic porphyry
Gabbro
Ultramafic rocks & serpentinite
PRECAMBRIAN
Quartzite-slate sequences — correlates of Oonah Formation
Metamorphosed sequences of Tyennan Region. Major lithological boundary trends shown
LAKE ROSEBERY
TULLAH
HENTY FAULT
ROSEBERY
LAKE MACKINTOSH
White Hawk
HIGH TOR
VICTORIA PEAK
Sophia Peak
Whitecliff Hills
Pinnacles
Chester
Cutty Sark
Hawkesbury
Salisbury
Chamberlain
Grand Centre
Jupiter
Dalmeny
Sterling Valley
New Mt Farrell
Mt Selten
Sophia

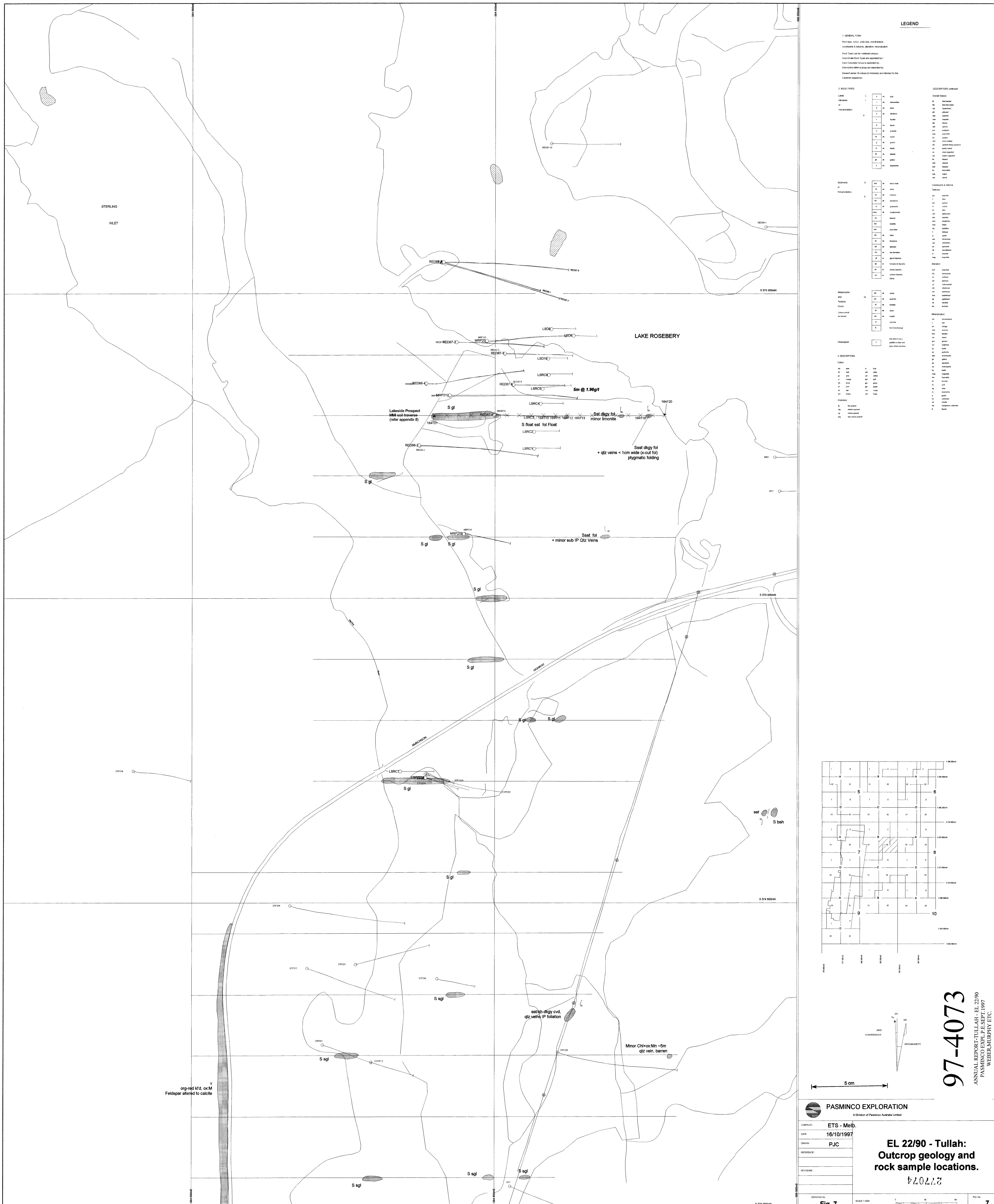

Massive Sulphide Boudins
EL22
MACKINTOSH DAM
METROPOLITAN MINES
FARRELL BLOCKS
Farrell Deposits
CHESTER (KERSHAWS IRON BLOW)
CUTTY SARK CONSOLS
HOME RULE
SECTION 1726
NORTH MACKINTOSH
MACKINTOSH MINE
NEW NORTH MT FARRELL
SOUTH MACKINTOSH MINE
FARRELL MACKINTOSH
CENTRAL MACKINTOSH
NORTH MT FARRELL
SECTION 3845
UNNAMED
SECTION 2524
LANGDON'S MINE
EMU BAY RAILWAY BRIDGE
CUTTY SARK
SECTION 1876-93M
BASTYAN DAM PLINTH
LAKE ROSEBERY
MACE'S NO 2 LODE
SECTION 1841
HAWKESBURY MINE
MT FARRELL MINE (NORTH)
SOUTH MT FARRELL
DUTTONS WORKINGS
CENTRAL FARRELL
Dutton's Target Zone
NORTH MURCHISON (EXTENDED)
Alteration Potential Cu-Au Mineralisation
SOUTH MURCHISON MINE
MURCHISON RIVER
QUARRY BAY
SECTION 2030M,2911M
SOUTH MURCHISON
Lakeside
GREEN & KING'S WORKINGS
LAKESIDE; MURCHISON RIVER GOLD
COLLINS SECTION
THOMAS'S SECTION
OSBORNE COPPER
THOMAS BLOCKS
FINN'S PR (FINDLAY & DONOGHUE)
THOMAS BLOCKS WESTERN LODE
DONOGHUE'S SECTION
TULLAH SILVER LEAD
MURCHISON GORGE ALTERATION ZONE
MADDENS SECTION
UNNAMED
SCOTTS APPLN
ROSEBERY
Lorrigan's Luck
LORRIGAN'S LUCK "ARSENIC RESOURCE"
Sterling Valley Magnetic Low
MIDSONS
MACE'S MINE
BLACKS P.A.
J.FULFORDS SECTION(TURLEY'S)
CLIFF'S PROSPECT
MT BLACK PTY
GREAT SOUTH ROSEBERY
ROSEBERY HOTEL SECTION 220-93M
MT BLACK EXTENDED
SECTION 220-93M
Magnetic Anomaly 'C'
WOOLVEN'S SECTION
SECTION 2185-93M
UNNAMED
FOY'S LODE (KITSONS SECTION)
BLACKS NO.1 SHAFT
ALBERT MIDSON'S
Sterling Valley Mine
DALMENY MINE
ROSEBERY LODES
SECTION 3340-95M
STERLING VALLEY MINE
KITSON'S WKGS (KITTSON'S)
SALISBURY
BERRY CONSOLS
BYRON
SYMMONS & RICE CU
BARYTES LODE
SYMMONS & RICE SECTION
BARYTES LODE
T.O.THOMAS SECTION
KOONYA
GRAND CENTRE ADIT
ROBERTS & CONROYS SECTION
South Stitt Valley Target Zone
ANTHONY/HEC TUNNEL
EL24
UNNAMED
HENTY FAULT ZONE CU
RED HILLS ROAD - COPPER
RED HILLS COPPER
378000 mE
380000 mE
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
Geology
SD
Bell shale
QU
Glacial Deposits, alluvium etc
DGESM
Dominantly shale, siltstone and mudstone
Eb
Brewery junction formation
EGR
Granitic rocks
PM
Quartzite with phengite, almandine and chlorite
CVC
undifferentiated Central Volcanic Sequence
EOo
Dominantly siliciclastic conglomerate
EG
Gabbro, norite and dolerite
EP
Feldspar-quartz-hornblende porphyry
pyr/qtz
Pyrite and Quartz
ESRB
Siliciclastic grey conglomerate and sandstone
OI
Quartz porphyry with COou at Return Ridge
DGE
Cambrian unassigned
DGEVC
Volcaniclastic conglomerate (minor sandstone and siltstone)
PU
Bouldery mudstone, sandstone, siltstone
97-4073
ANNUAL REPORT-TULLAH - EL 22/90
PASMINCO EXPL.P.E.SEPT.1997
WEBER,MURPHY ETC.
5 cm
PASMINCO EXPLORATION
Fig. 4
Date:17/10/1997
Author: FCM
Office: Melb
Drawing: FAB
Scale: 1:25,000
Tullah EL 22/90
1:25,000 Geology &
Mineral Occurrences
277071
Projection: AMG Zone 55 (AGD 66)
0
500
1000
1500
METRES

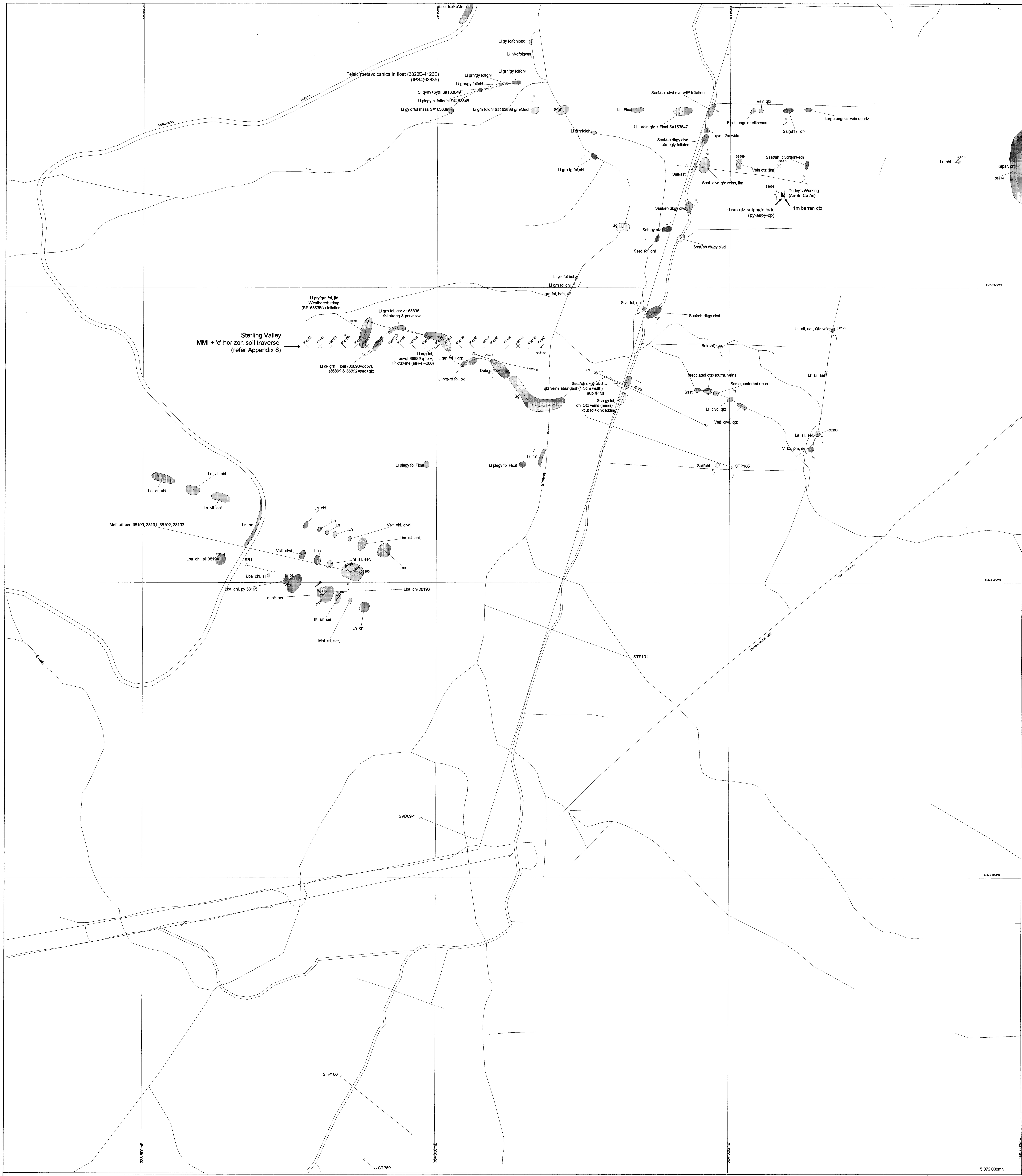


STIRLING VALLEY VOLCANICS
FARRELL SLATES
MURCHISON VOLCANICS
SECTION LINE
SV4
HENTY FAULT ZONE
Abandoned
Creek
Siltstone with attenuated black shale clasts
Interbedded siltstone and black shale
?? siltstone
La, sil
La, sil, ser, py
2-15% py
HENTY FAULT
ANDESITIC VOLCANICS
MYLONITE
Sil + chl bands
CATACLASTITE
SERICITE SCHIST
GRAPHITIC SCHIST
SERICITE SCHIST
vein, qtz, py, sph, cpy
137.3 - 137.75
2.27 g/t Au
vein, qtz, py, sph
breccia, qtz, py, cb
FARRELL SLATES
QUARTZ-FELDSPAR VOLCANICLASTIC SANDSTONE - SILTSTONE
vein, qtz, sph, cb
veins, gn, py, sph
veins, py, sph
367.5-368.0
1.77 g/t Au
zone of graphite
BLACK SHALE
Breccia zone 1-3% py
grading
Up to 10% disseminated py
MURCHISON VOLCANICS
PUMICEOUS SANDSTONE
SERICITE/QUARTZ/PYRITE SCHIST
ANDESITE
551.0m E.O.H.
300mR.L.
200mR.L.
100mR.L.
00mR.L.
-100mR.L.
-200mR.L.
383 500mE
383 800mE
LEGEND
Drillhole
Note: Only Stronger structures shown
Shear
Brittle Fault
Geological contact - inferred
Geological contact - measured
Zones of strong foliation
Cleavage
Bedding
Facing
Zones of sulphides (> 2%)
Significant assay intervals
Geological trend lines
297
084
Oriented Dip Direction (AMG) and Dip
Abbreviations
co carbonatised
chl chloritised
ser sericitised
epi epidotised
sil silicified
ble bleached
clvd cleaved
li limonite
ox oxidised
97-4073
ANNUAL REPORT-TULLAH - EL 22/90
PASMINCO EXPL.P.E.SEPT.1997
WEBER,MURPHY ETC.
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : A.N.L.
DATE : March 1996
DRAWN : G.M.B.
REVISIONS : B. Oyston
DATE : October 97
FILE : SV4.wor
DRAWING No.
E.L. 24/91 - STERLING RIVER
STERLING VALLEY
DRILLHOLE SV4
BEARING 110° AMG
SCALE 1:1000
FIG. No.
6

277072


384250 mE
384500 mE
384750 mE
5375500 mN
5375250 mN
5375000 mN
5374750 mN
LAKE
ROSEBERY
RED87-8
RED88-1 6m @ 0.4g/t
RED87-7 3.4m @ 3.8g/t
LSD9 3m @ 3.08g/t
16.5m @ 1.16g/t
(Inc 6m @ 2.4g/t
MRP23
LSD8
RED87-2
4m @ 1.84g/t
RED87-3
8.65m @ 5g/t
LSD10
2m @ 1.30g/t
Low Lake
Level
LSRC6 4.0m @ 1.96g/t
High
Lake
Level
RED88-4
16m @ 1.2g/t
RED87-5
8m @ 1.72g/t
2m @ 4g/t
LSRC5
5m @ 1.96g/t
MRP212
LSRC4 1m @ 3.66g/t
RED87-6
8.9m @ 1.5g/t
LSRC3
LSRC2 5m @ 1.35g/t
RED88-2
LSRC1
3m @ 1.2g/t
3m @ 1.0g/t
MRP219
5 cm
LSRC7
STP232
STP232A
PASMINCO EXPLORATION
Fig 5
EL 22/90 - TULLAH
LAKESIDE
RECENT DRILLING AND GOLD
ASSAY RESULTS
Scale: 1:2500
METRES
277073


LEGEND
STERLING
INLET
LAKE ROSEBERY
Lakeside Prospect
MMI soil traverse
(refer appendix 8)
5m @ 1.96g/t
S float sst fol Float
Sst dkgy fol
minor limonite
Ssst dkgy fol
+ qtz veins < 1cm wide (x-cut fol)
ptygmatic folding
Ssst fol
+ minor sub IP Qtz Veins
S gl
S sgl
S bsh
sst/sh dkgy cvd,
qtz veins IP foliation
Minor Chl+ox:Mn ~5m
qtz vein, barren
org-red kl'd, ox:M
Feldspar altered to calcite
MURCHISON
HIGHWAY
5 cm
GRID
CONVERGENCE
GRID/MAGNETIC
97-4073
ANNUAL REPORT-TULLAH - EL 22/90
PASMINCO EXPL.P.E.SEPT.1997
WEBER,MURPHY ETC.
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : ETS - Melb.
DATE : 16/10/1997
DRAWN : PJC
REFERENCE :
REVISIONS :
EL 22/90 - Tullah:
Outcrop geology and
rock sample locations.
277074
DRAWING No. Fig. 7
SCALE 1:2500
FIG. No. 7



97-4073

ANNUAL REPORT-TULLAH - EL 22/90
PASMINCO EXPL P/L SEPT 1997
WEBER,MURPHY ETC.

PASMINCO EXPLORATION

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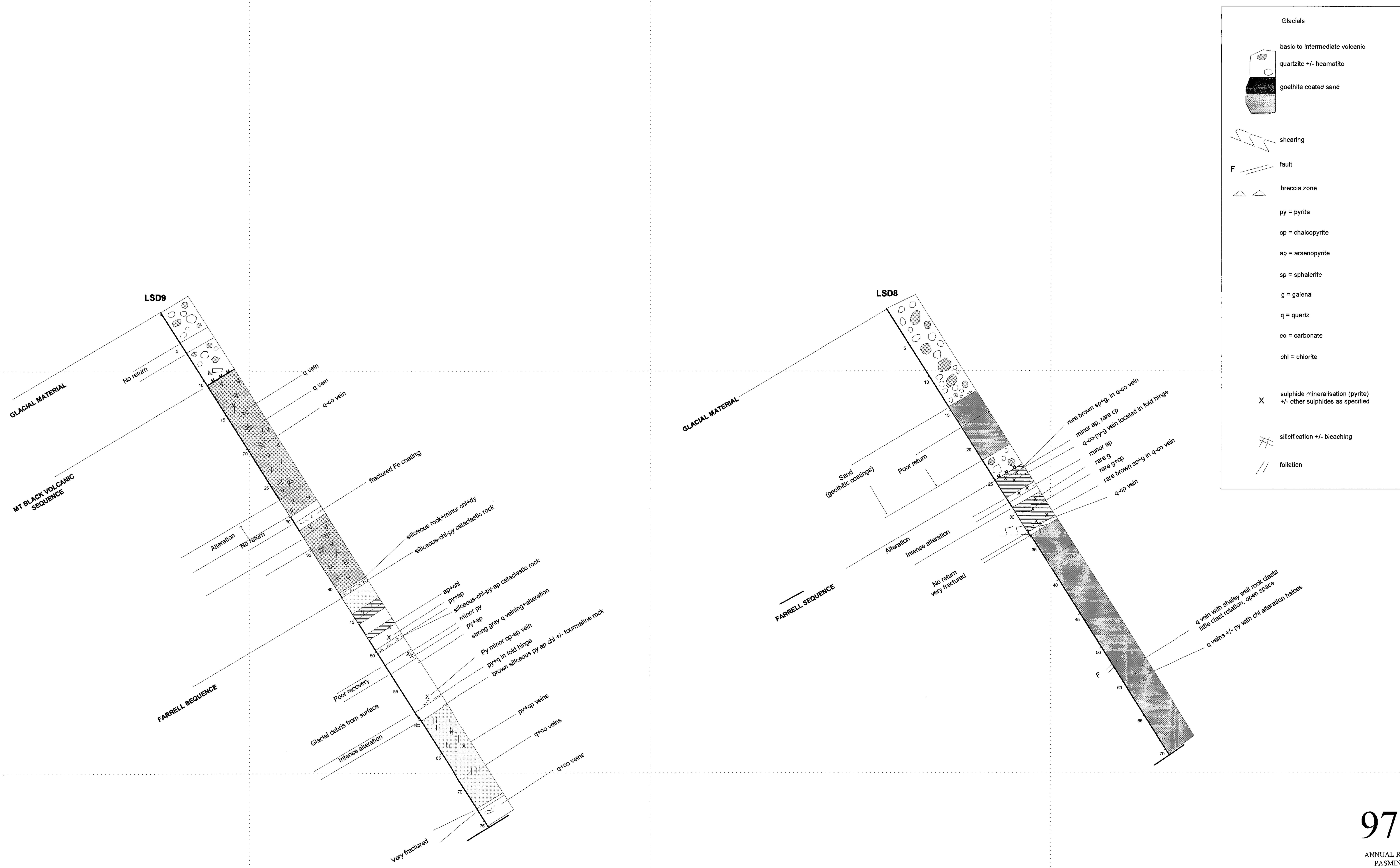
COMPILED	ETS - Melb
DATE	16/10/1997
DRAWN	PJC
REFERENCE	
REVISIONS	

EL 24/91 - Sterling River: Outcrop geology and rock sample locations.

27072

SCALE 1:2500

FIG. No. 8



97-4073

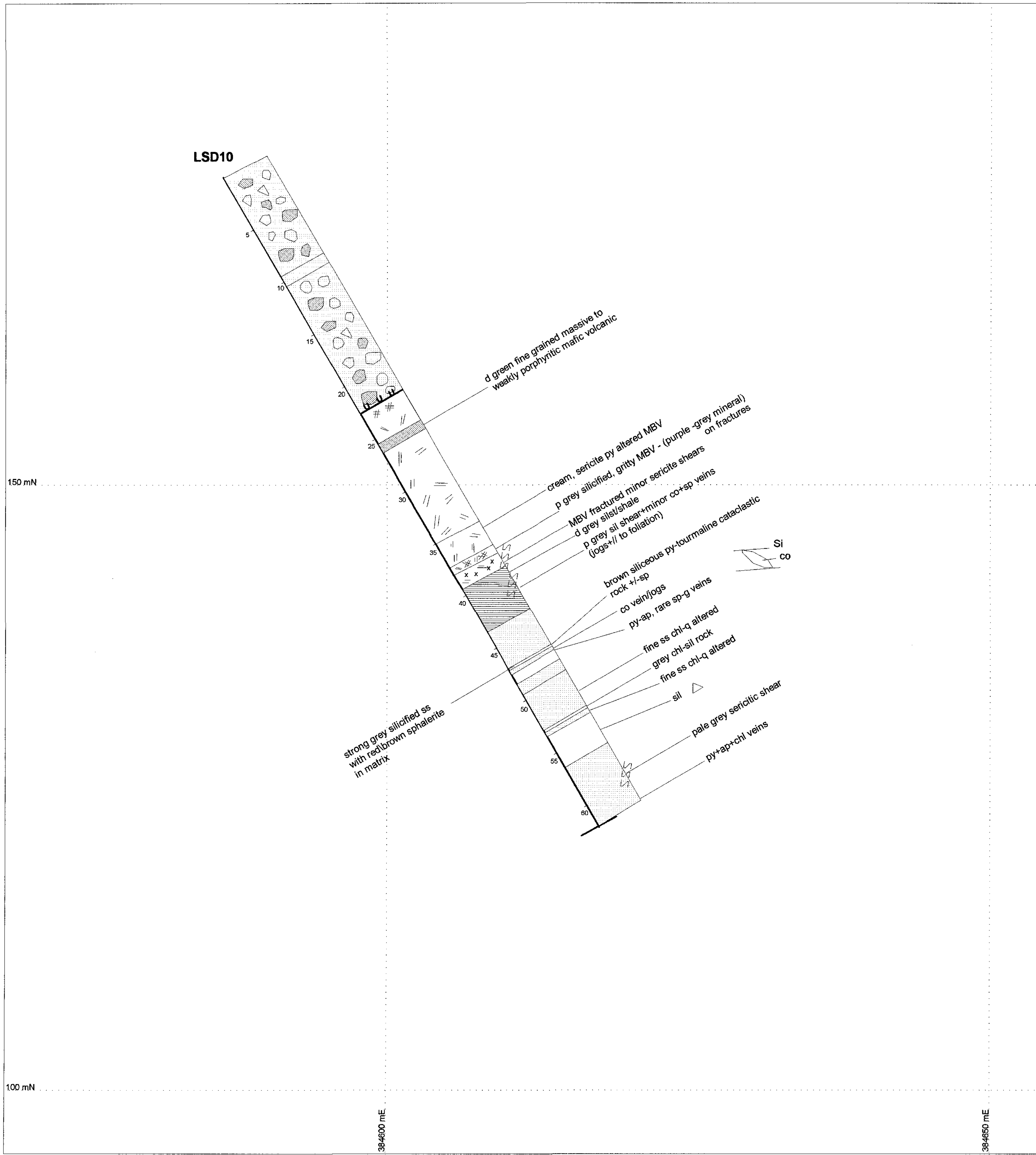
ANNUAL REPORT-TULLAH - EL 22/90
PASMINCO EXPL.P.E.SEPT.1997
WEBER,MURPHY ETC.

PASMINCO EXPLORATION

Fig. 9	TASMANIA Cross Sections LSD8 & LSD9 Geology, Structure and Mineralisation
Date:16/10/1997	
Author: L. Tuckwell	
Office: MELB - ETS	
Drawing: B. Oyston	
Scale: 1:250	Projection:

0 5 10
METRES

277076



Glacials

basic to intermediate volcanic

quartzite +/- heamatite

goethite coated sand

shearing

py = pyrite

cp = chalcopyrite

ap = arsenopyrite

sp = sphalerite

g = galena

q = quartz

co = carbonate

chl = chlorite

X sulphide mineralisation (pyrite) +/- other sulphides as specified

silicification +/- bleaching

foliation

97-4073

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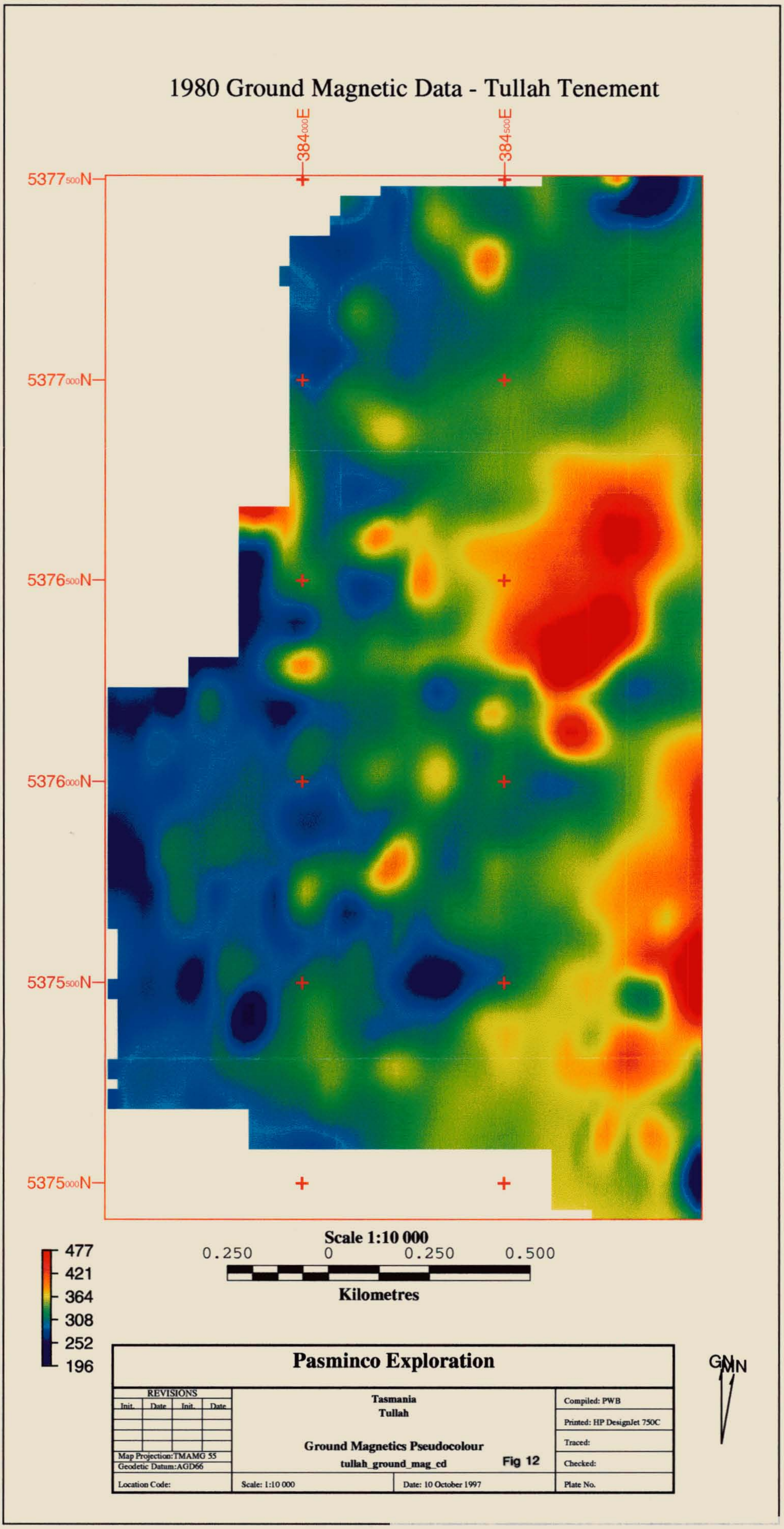
PASMINCO EXPL.P.E.SEPT.1997
WEBER,MURPHY ETC.

277077

5 cm

PASMINCO EXPLORATION	
FIG. 10	TASMANIA Cross Section LSD 10
Date: 16/10/1997 Author: L. Tuckwell Office: MELB - ETS Drawing: B. Oyston	Geology Structure and Mineralisation
Scale: 1:250	Projection:

0 5 10
metres

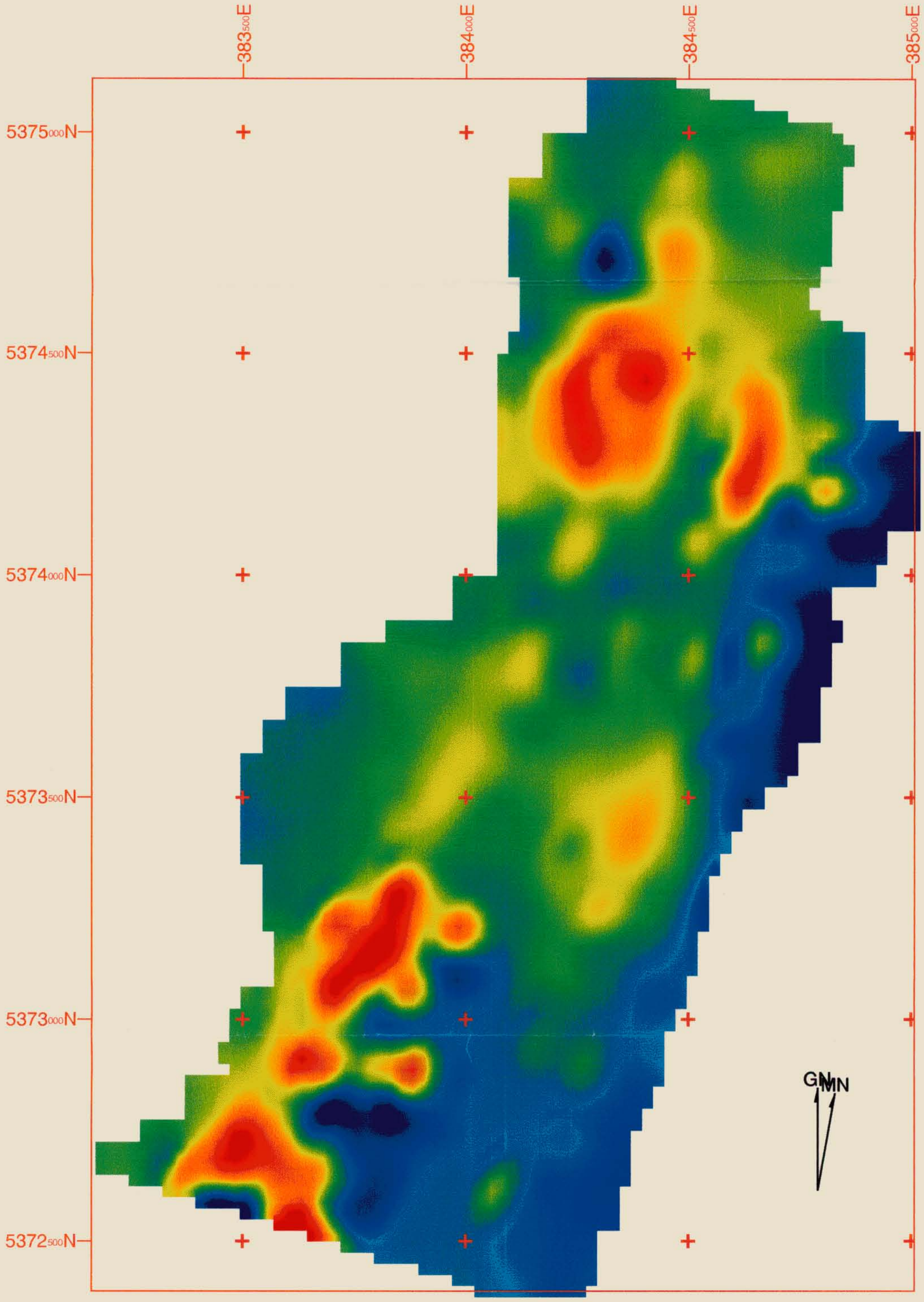


97-4073

277078

ANNUAL REPORT-TULLAH - EL 22/90
PASMINCO EXPL.P.E.SEPT.1997
WEBER,MURPHY ETC.

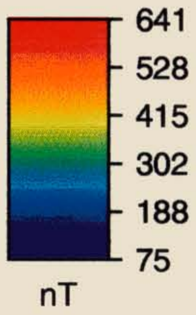
1980 Ground Magnetic Data - Sterling River Tenement



Scale 1:10 000

0.300 0 0.300 0.600

Kilometres



Pasminco Exploration

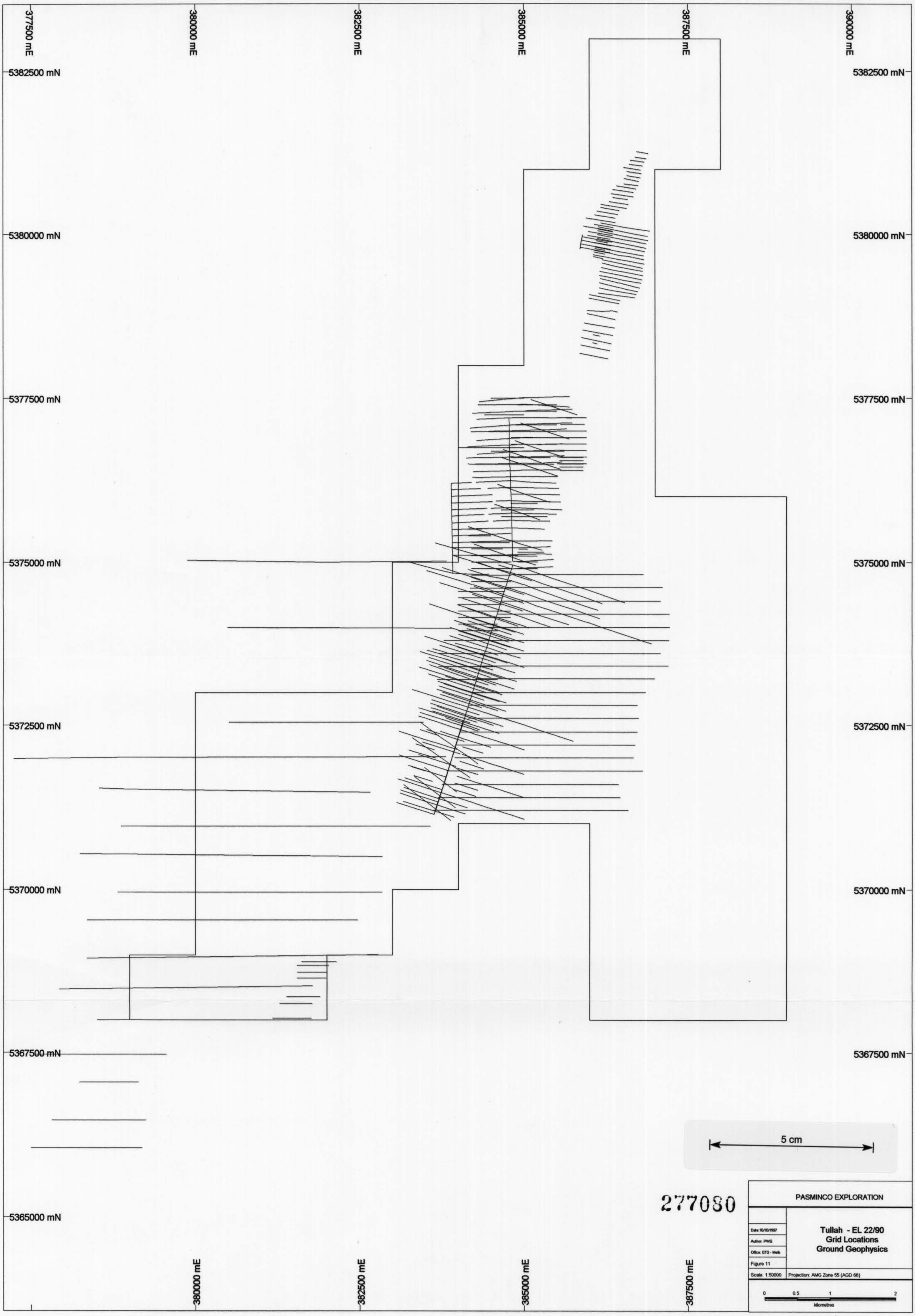
REVISIONS				Tasmania Sterling River Ground Magnetics CD sterling_river_ground_mag_pseudo Fig 13	Compiled: PWB
Init.	Date	Init.	Date		Printed: printer
					Traced:
Map Projection: TMAMG 55 Geodetic Datum: AGD66					Checked:
Location Code:				Scale: 1:10 000 / Date: 10 October 1997	Plate No.

5 cm

97-4073

ANNUAL REPORT-TULLAH - EL 22/90
PASMINCO EXPL.P.E.SEPT.1997
WEBER,MURPHY ETC.

277079

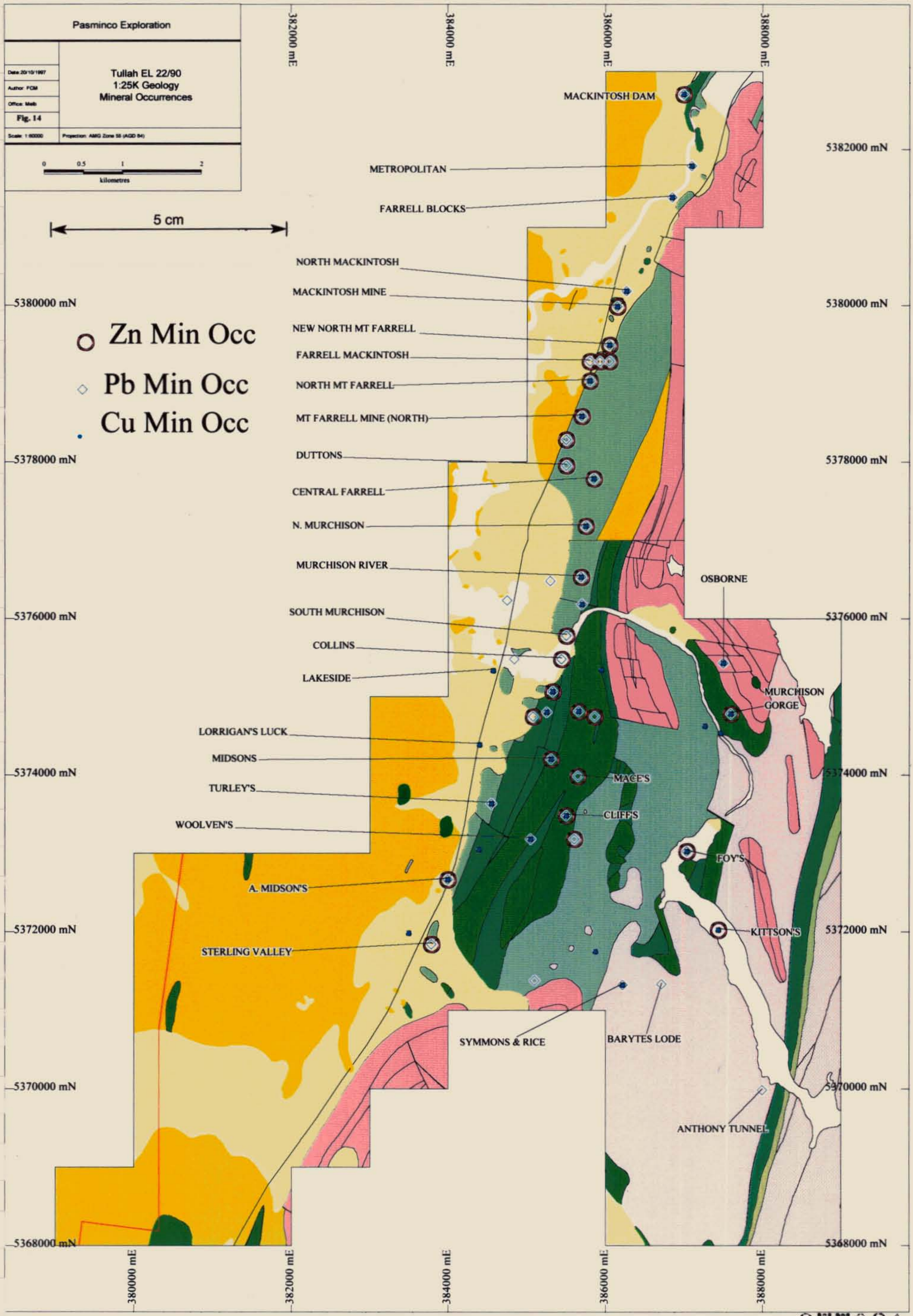


PASMINCO EXPLORATION

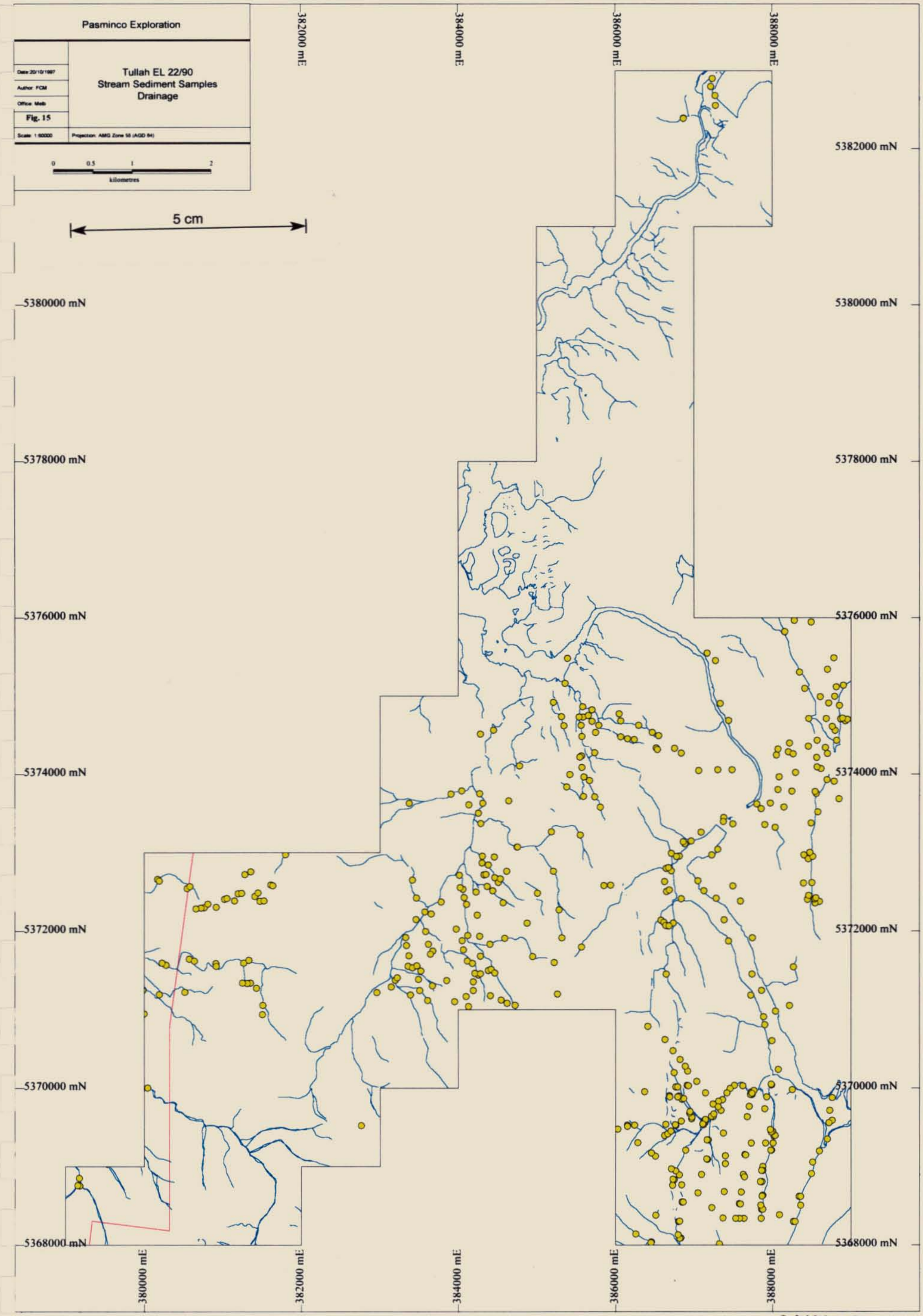
Date:10/10/1997
Author: PWB
Office: ETS - Melb
Figure 11

Tullah - EL 22/90
Grid Locations
Ground Geophysics

Scale: 1:50000
Projection: AMG Zone 55 (AGD 66)

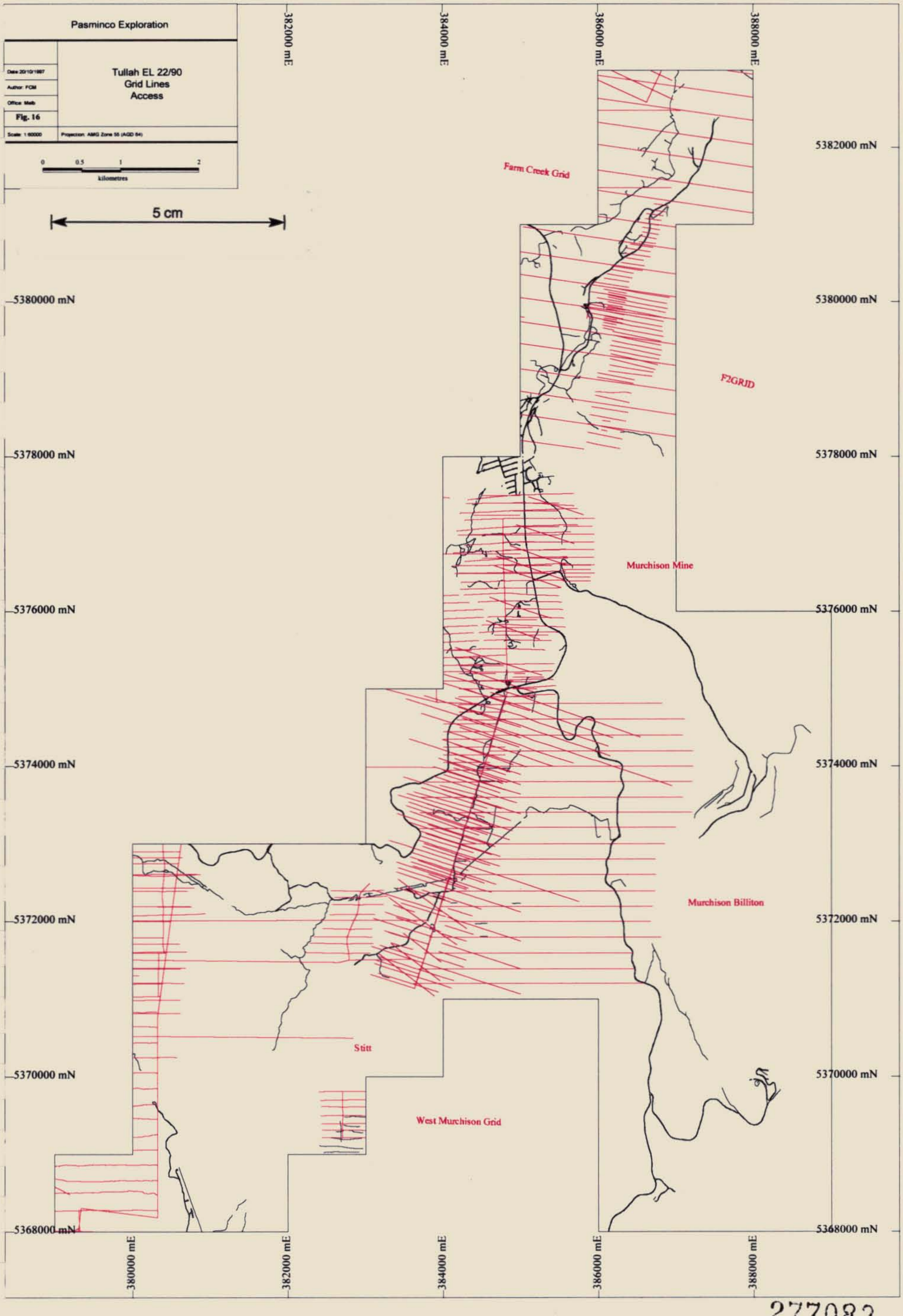

Pasminco Exploration
Date 20/10/1997
Author: FCM
Office: Melb
Fig. 14
Scale: 1:60000
Tullah EL 22/90
1:25K Geology
Mineral Occurrences
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
Zn Min Occ
Pb Min Occ
Cu Min Occ
382000 mE
384000 mE
386000 mE
388000 mE
380000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
MACKINTOSH DAM
METROPOLITAN
FARRELL BLOCKS
NORTH MACKINTOSH
MACKINTOSH MINE
NEW NORTH MT FARRELL
FARRELL MACKINTOSH
NORTH MT FARRELL
MT FARRELL MINE (NORTH)
DUTTONS
CENTRAL FARRELL
N. MURCHISON
MURCHISON RIVER
OSBORNE
SOUTH MURCHISON
COLLINS
LAKESIDE
MURCHISON GORGE
LORRIGAN'S LUCK
MIDSONS
MACE'S
TURLEY'S
CLIFF'S
WOOLVEN'S
FOY'S
A. MIDSON'S
KITTSON'S
STERLING VALLEY
SYMMONS & RICE
BARYTES LODE
ANTHONY TUNNEL

277081

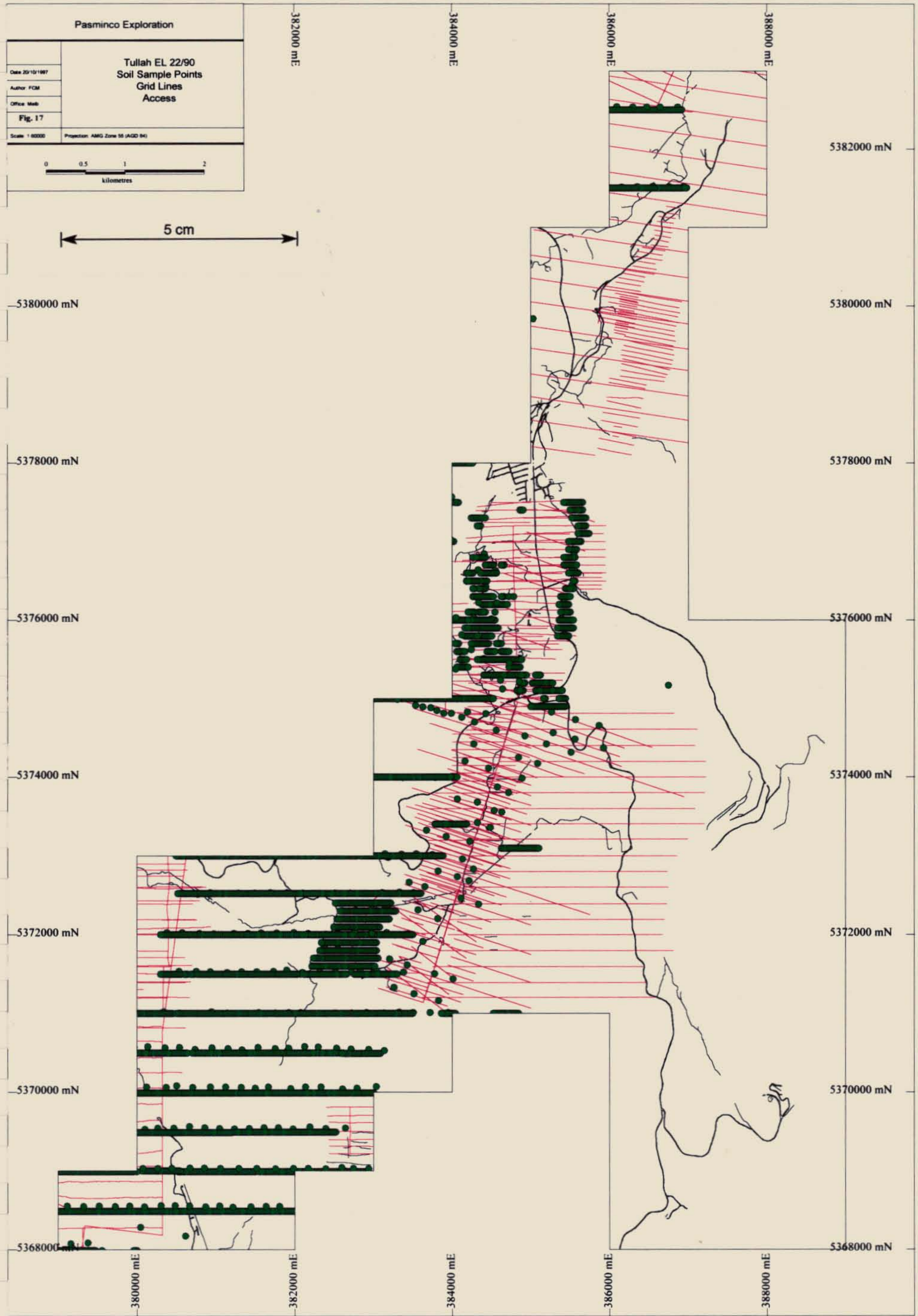


Pasminco Exploration
Date:20/10/1997
Author: FCM
Office: Melb
Fig. 15
Tullah EL 22/90
Stream Sediment Samples
Drainage
Scale: 1:60000
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
380000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN

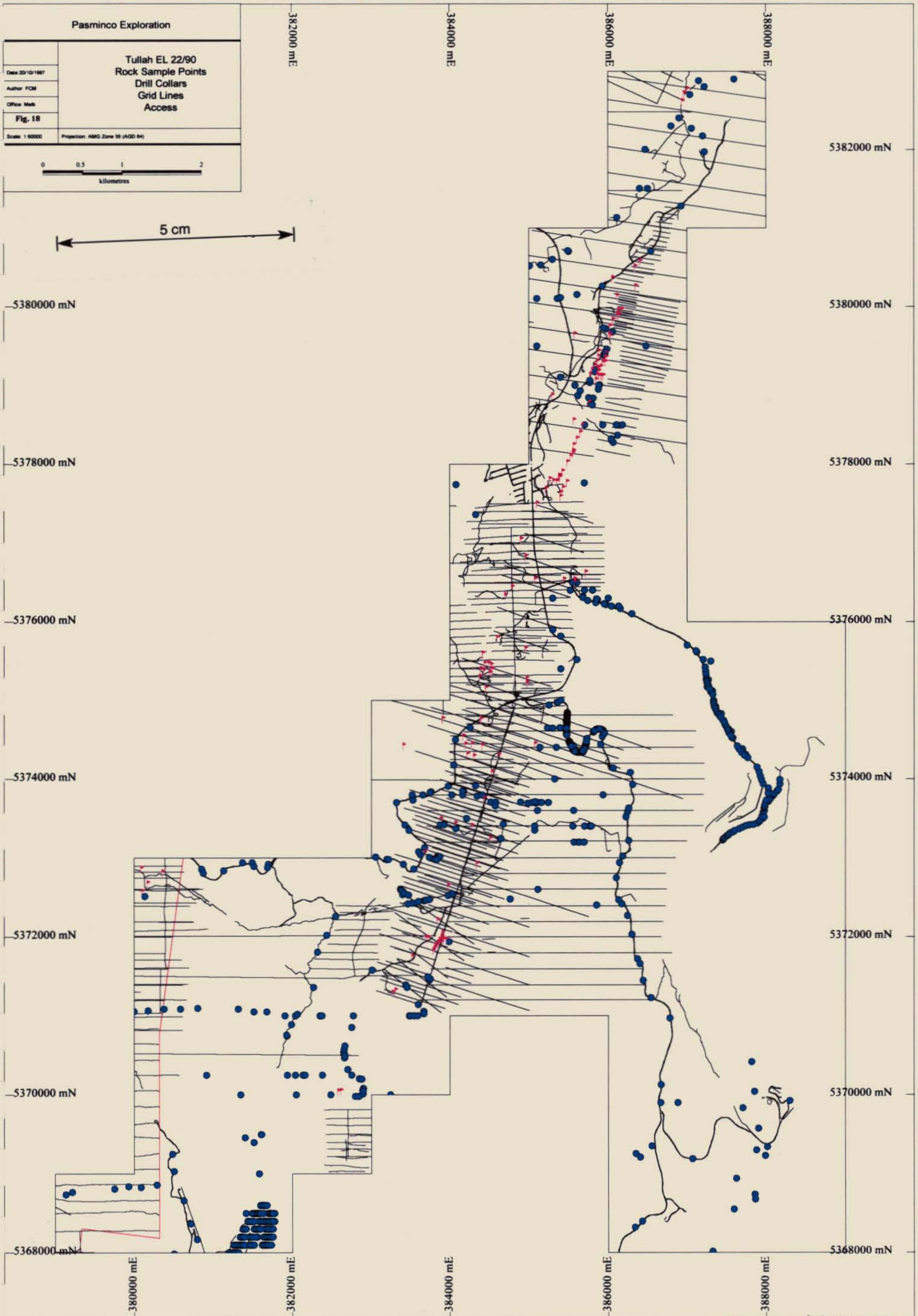
277082


Pasminco Exploration
Date: 20/10/1997
Author: FCM
Office: Melb
Fig. 16
Tullah EL 22/90
Grid Lines
Access
Scale: 1:60000
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
380000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
Farm Creek Grid
F2GRID
Murchison Mine
Murchison Billiton
Stitt
West Murchison Grid

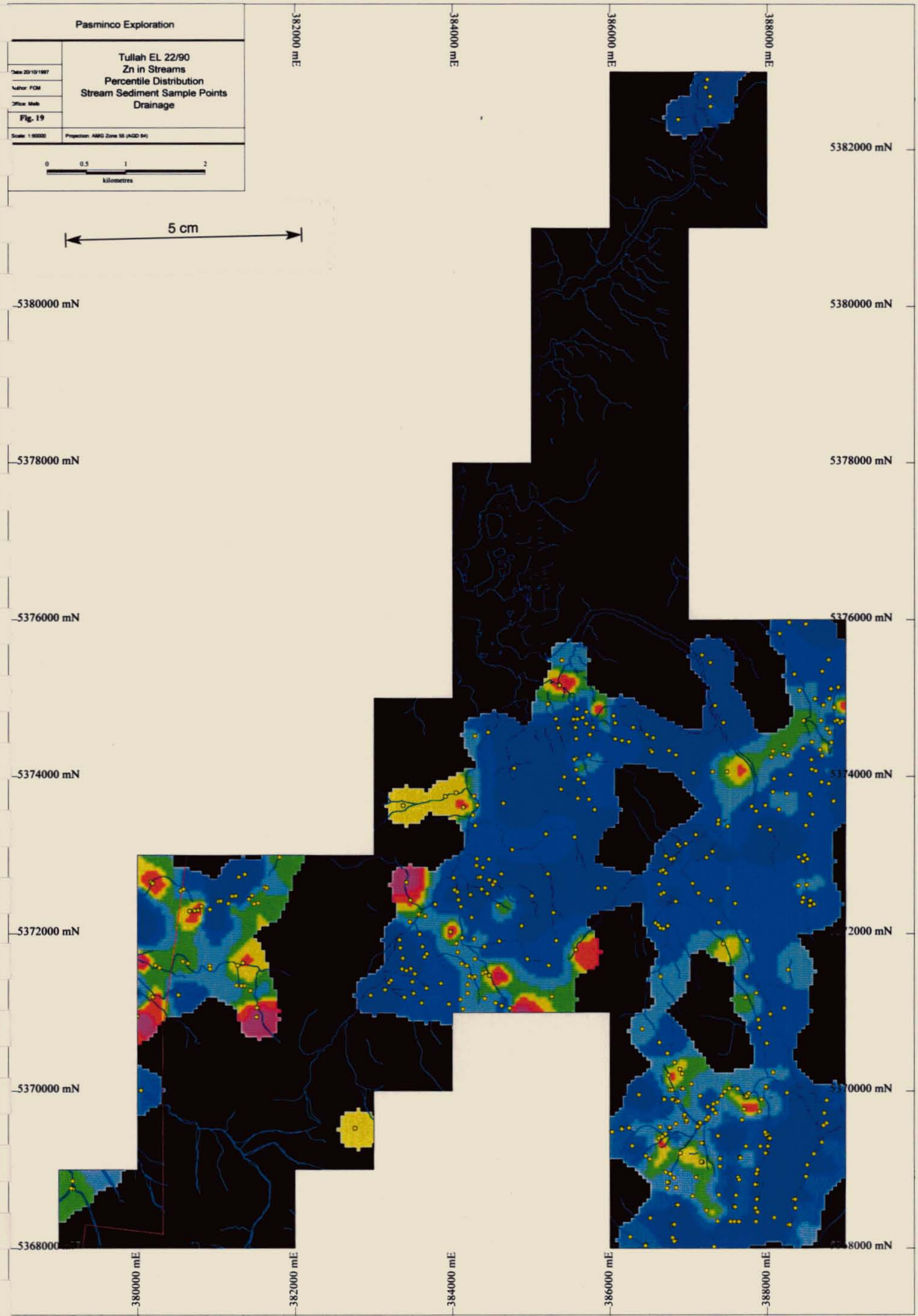
277083


Pasminco Exploration
Tullah EL 22/90
Soil Sample Points
Grid Lines
Access
Date 20/10/1997
Author FCM
Office Melb
Fig. 17
Scale 1:60000
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

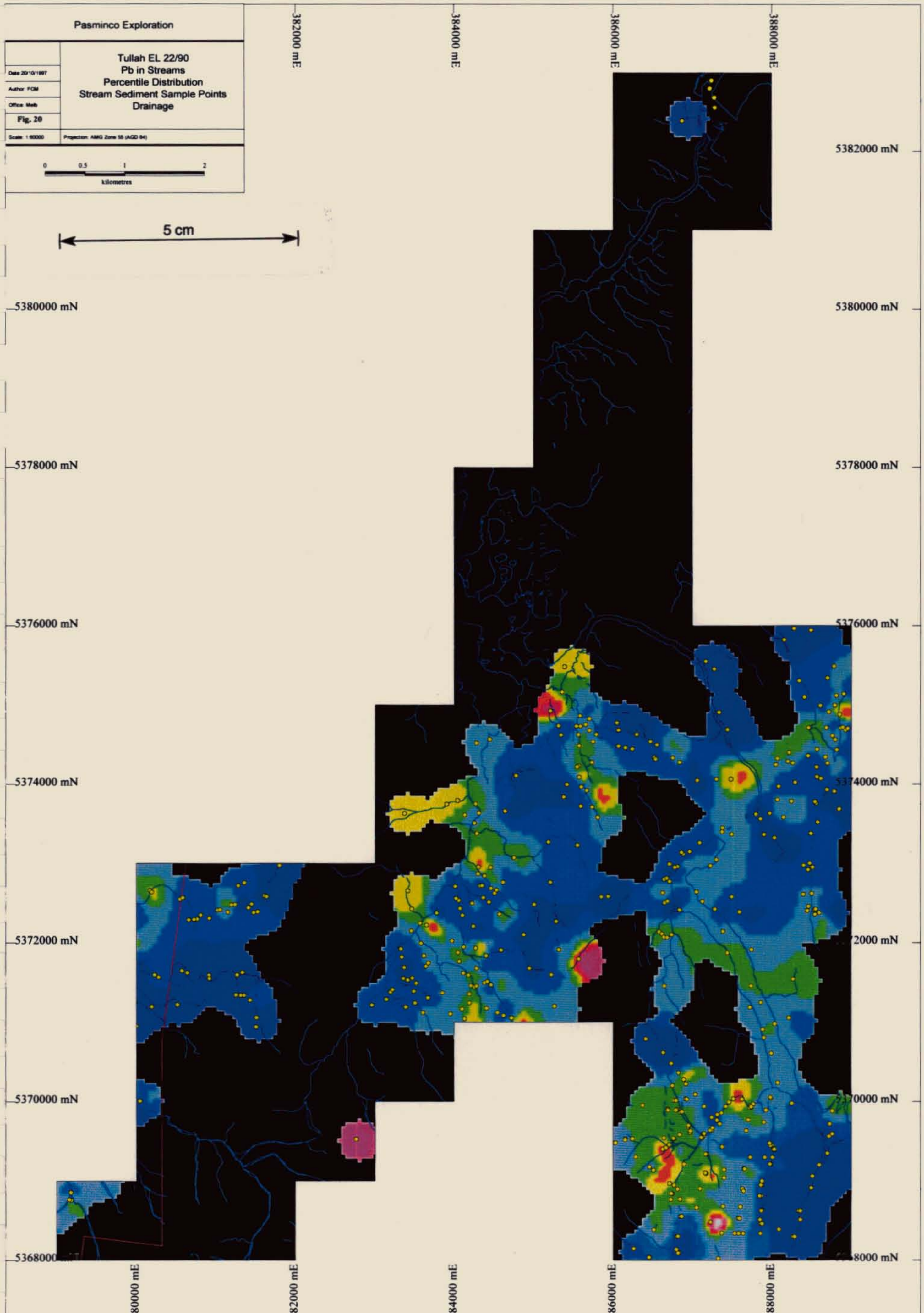
277084


Pasminco Exploration
Tullah EL 22/90
Rock Sample Points
Drill Collars
Grid Lines
Access
Date 20/10/1997
Author FCM
Office Melb
Fig. 18
Scale 1:50000
Projection AMG Zone 55 (AGD 84)
0 0.5 1 2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
380000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN

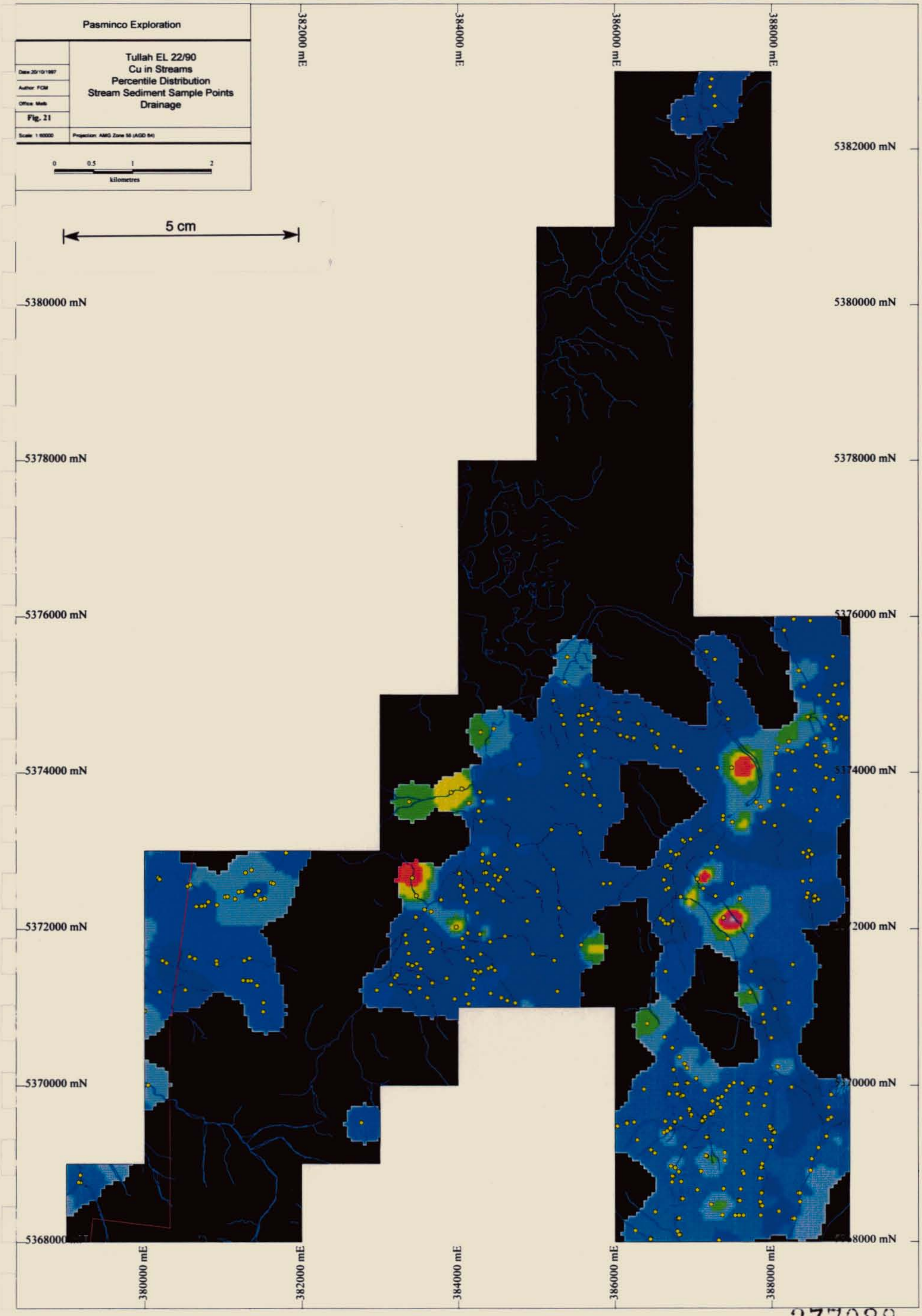
277085


Pasminco Exploration
Tullah EL 22/90
Zn in Streams
Percentile Distribution
Stream Sediment Sample Points
Drainage
Date: 20/10/1997
Author: FCM
Office: Melb
Fig. 19
Scale: 1:60000
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE
382000 mE
384000 mE
386000 mE
388000 mE

277086

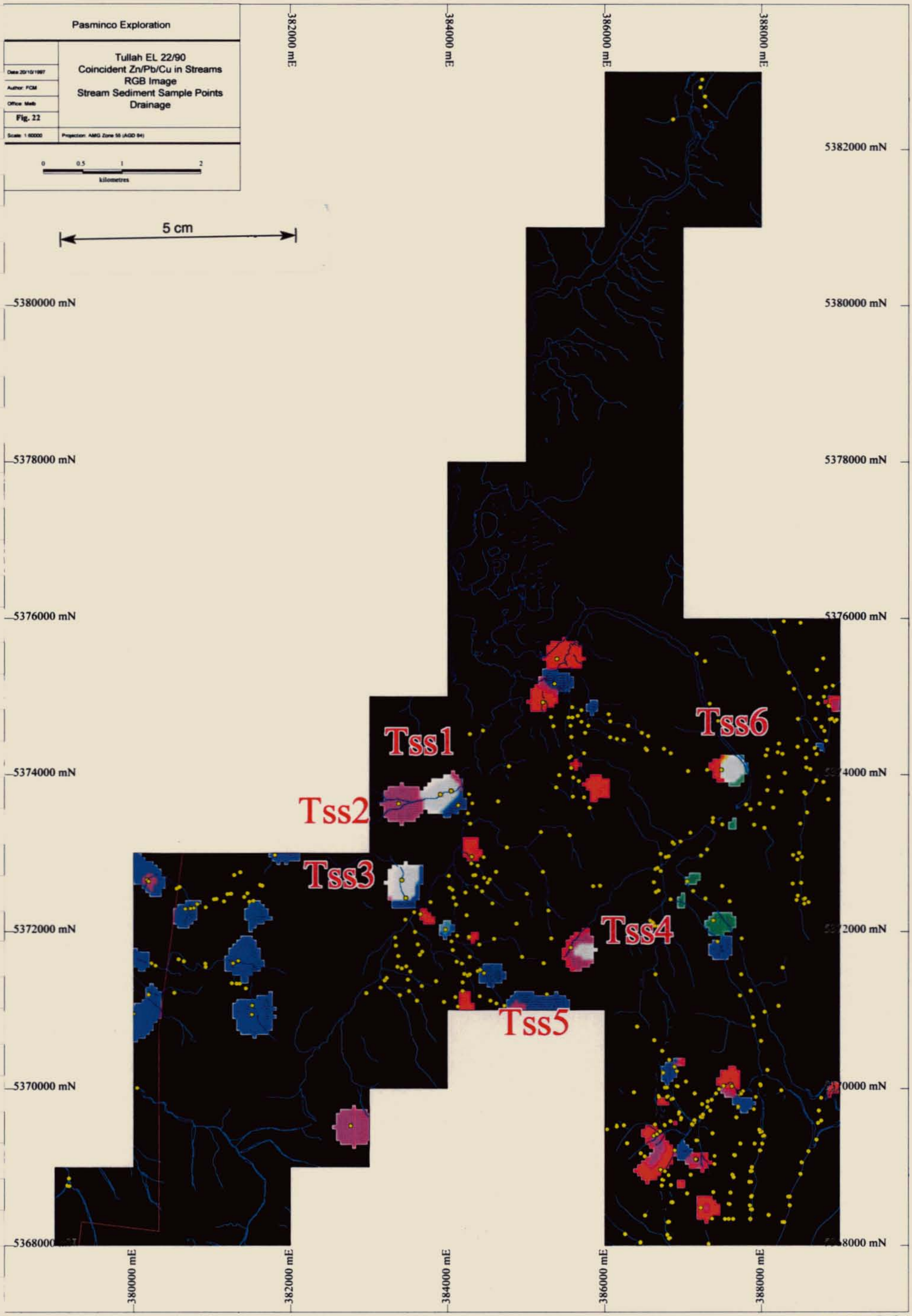

Pasminco Exploration
Tullah EL 22/90
Pb in Streams
Percentile Distribution
Stream Sediment Sample Points
Drainage
Date 20/10/1997
Author FCM
Office Melb
Fig. 20
Scale 1:60000
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

277087



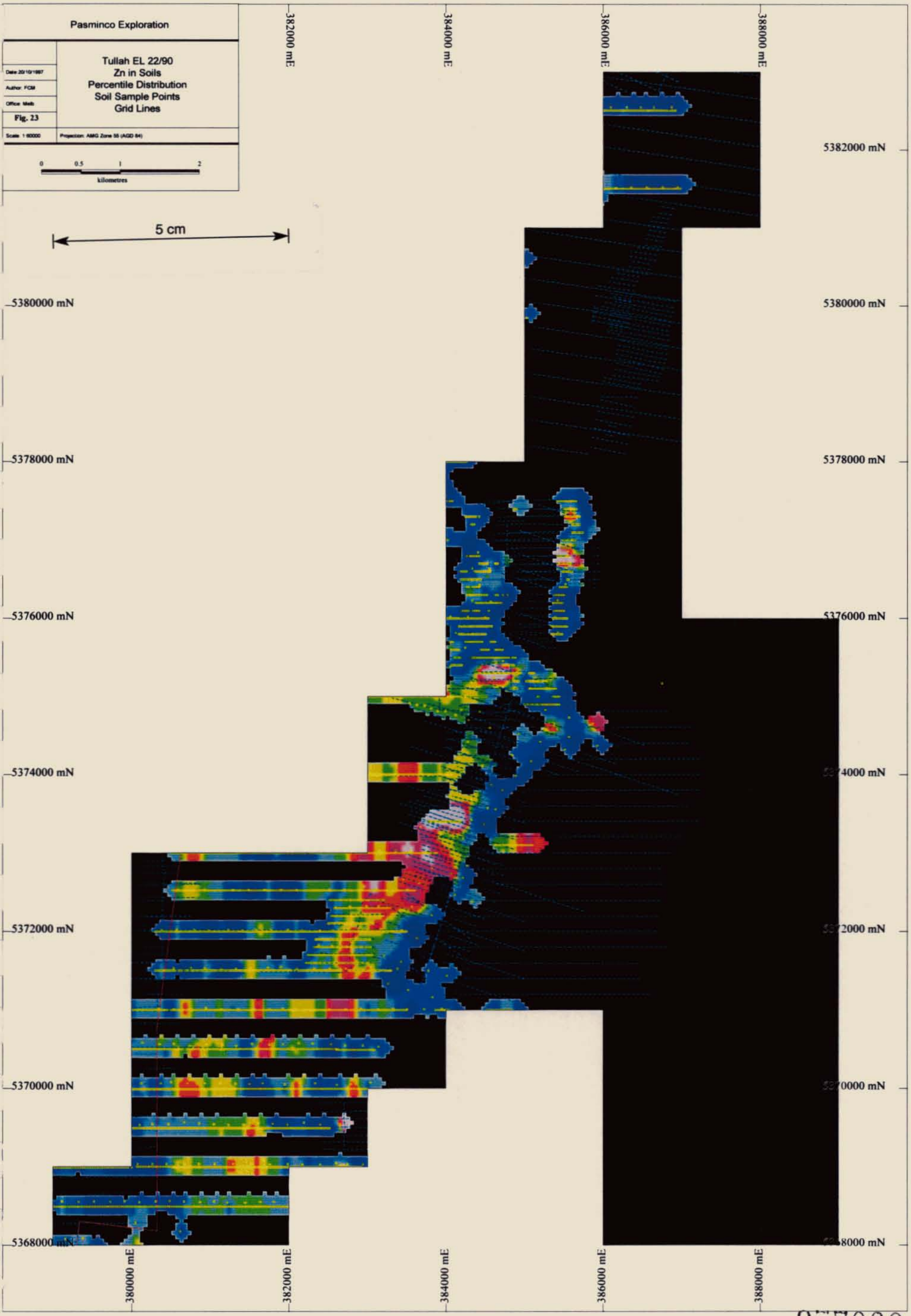
Pasminco Exploration
Tullah EL 22/90
Cu in Streams
Percentile Distribution
Stream Sediment Sample Points
Drainage
Date 20/10/1997
Author FCM
Office Melb
Fig. 21
Scale 1:60000
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

277088

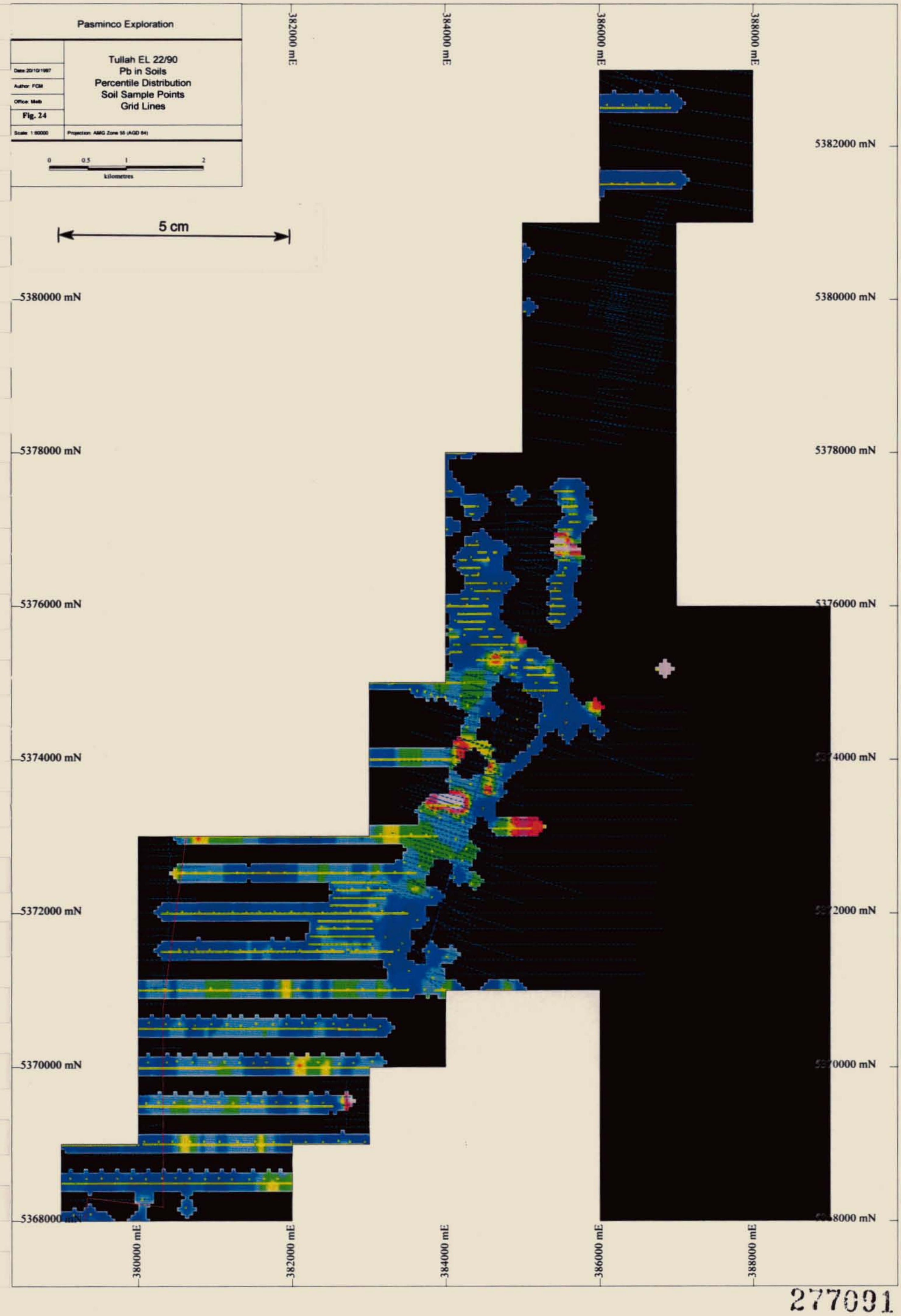


Pasminco Exploration
Tullah EL 22/90
Coincident Zn/Pb/Cu in Streams
RGB Image
Stream Sediment Sample Points
Drainage
Fig. 22
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
380000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
Tss1
Tss2
Tss3
Tss4
Tss5
Tss6

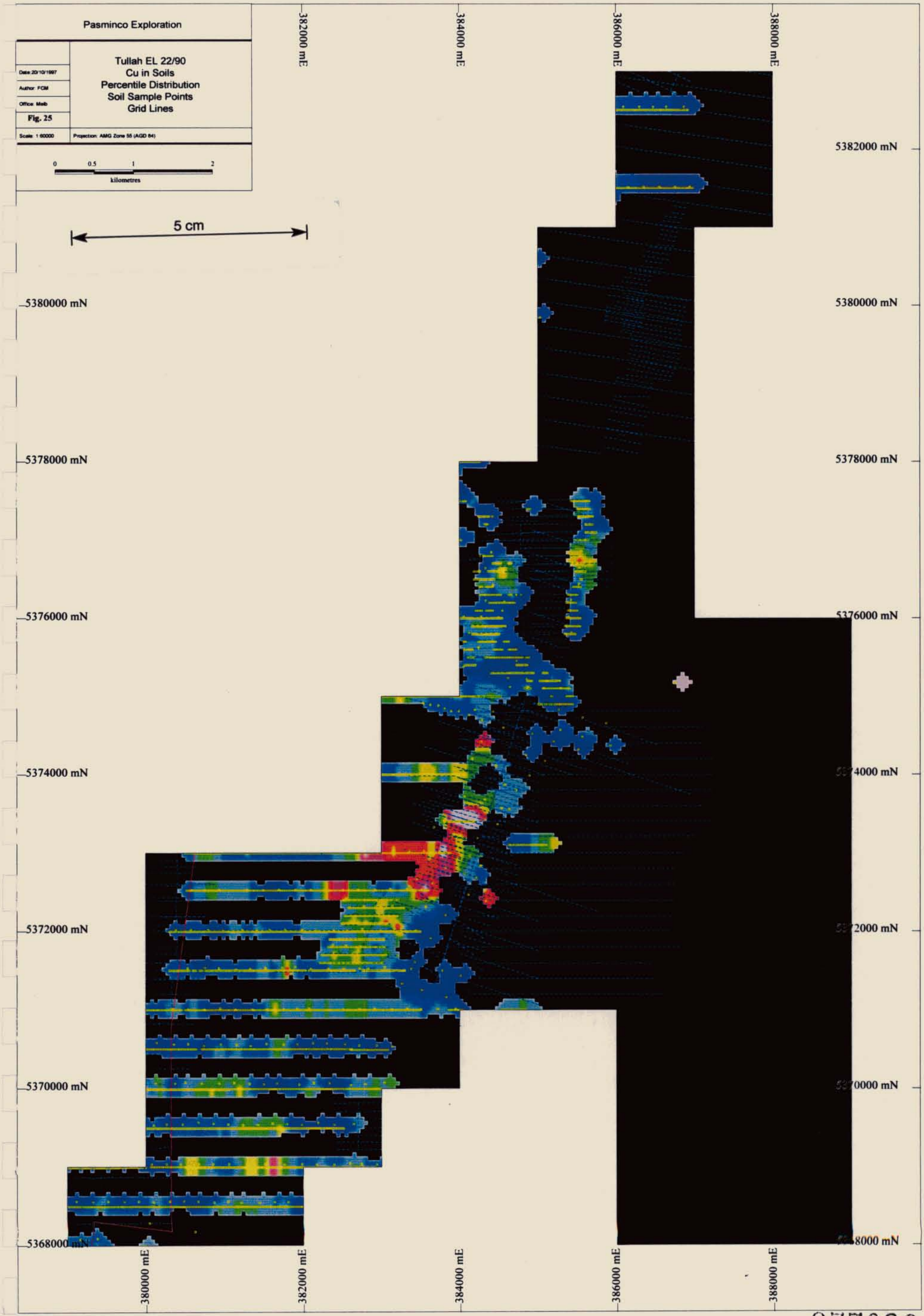
277039


Pasminco Exploration
Tullah EL 22/90
Zn in Soils
Percentile Distribution
Soil Sample Points
Grid Lines
Date 20/10/1997
Author FCM
Office Melb
Fig. 23
Scale 1:60000
Projection AMG Zone 55 (AGD 84)
0 0.5 1 2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

277090

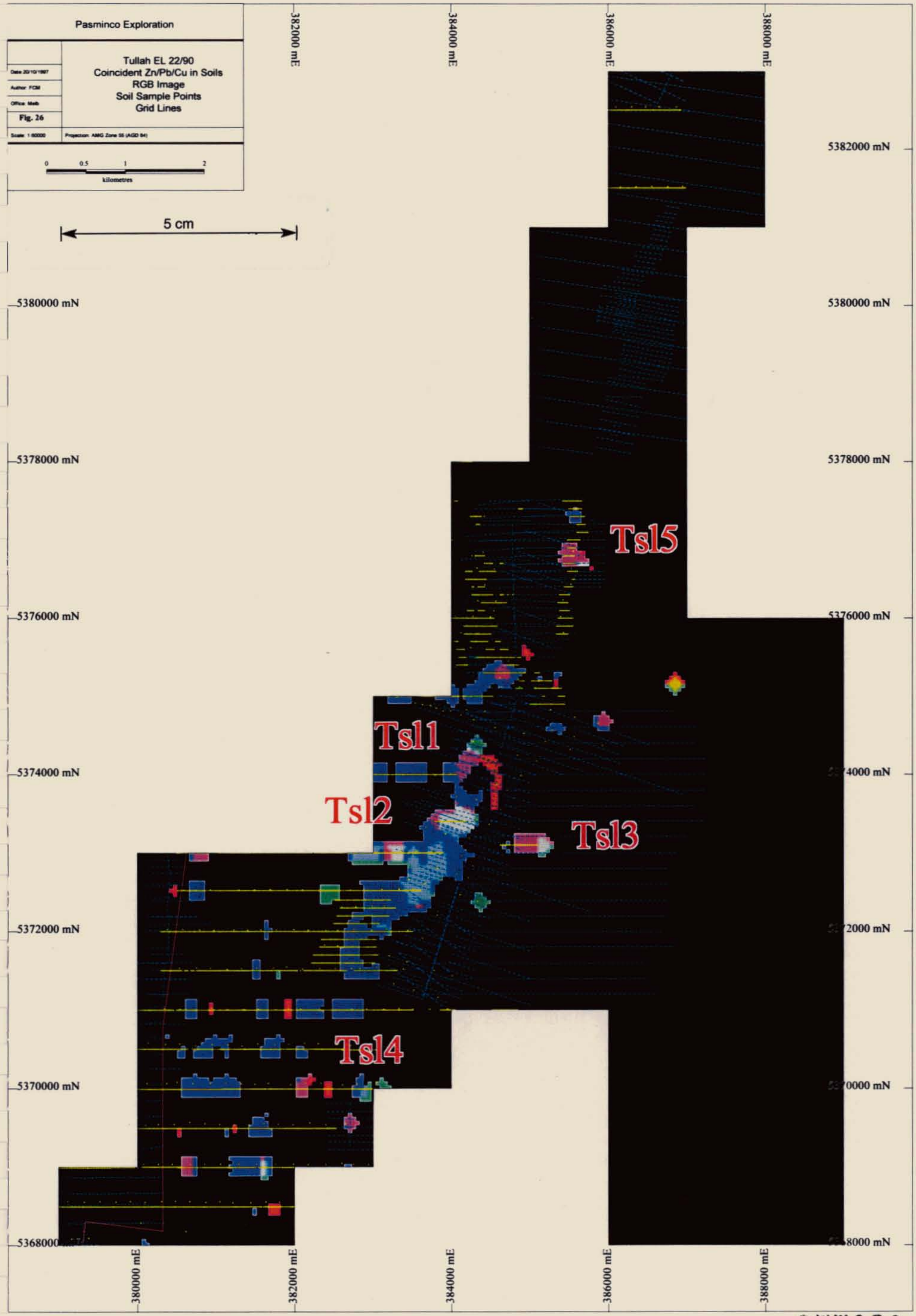

Pasminco Exploration
Tullah EL 22/90
Pb in Soils
Percentile Distribution
Soil Sample Points
Grid Lines
Date 20/10/1997
Author FCM
Office Melb
Fig. 24
Scale 1:60000
Projection AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

277091

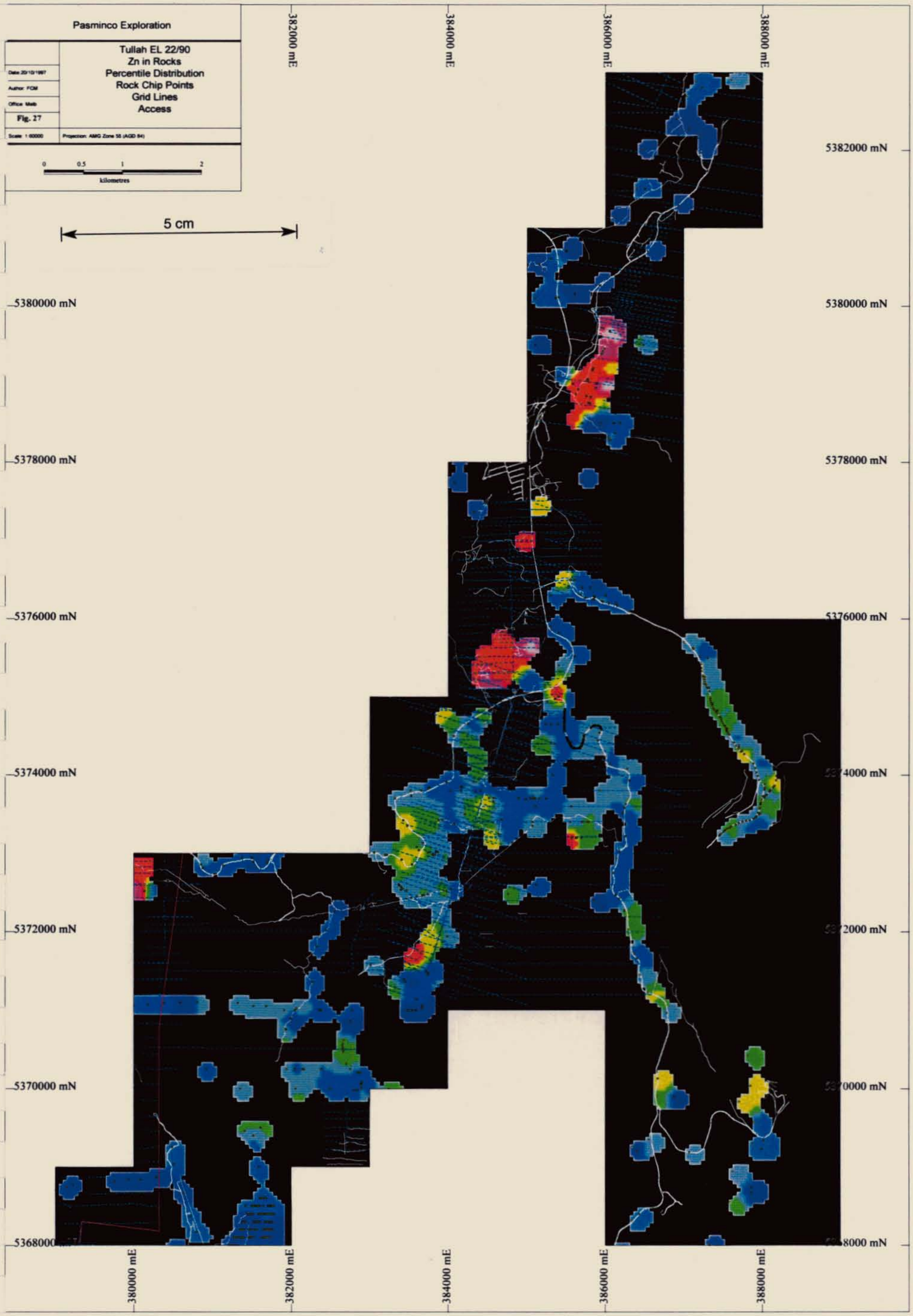


Pasminco Exploration
Tullah EL 22/90
Cu in Soils
Percentile Distribution
Soil Sample Points
Grid Lines
Date:20/10/1997
Author: FCM
Office: Melb
Fig. 25
Scale: 1:60000
Projection: AMG Zone 55 (AGD 84)
0 0.5 1 2
kilometres
5 cm
380000 mE
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN

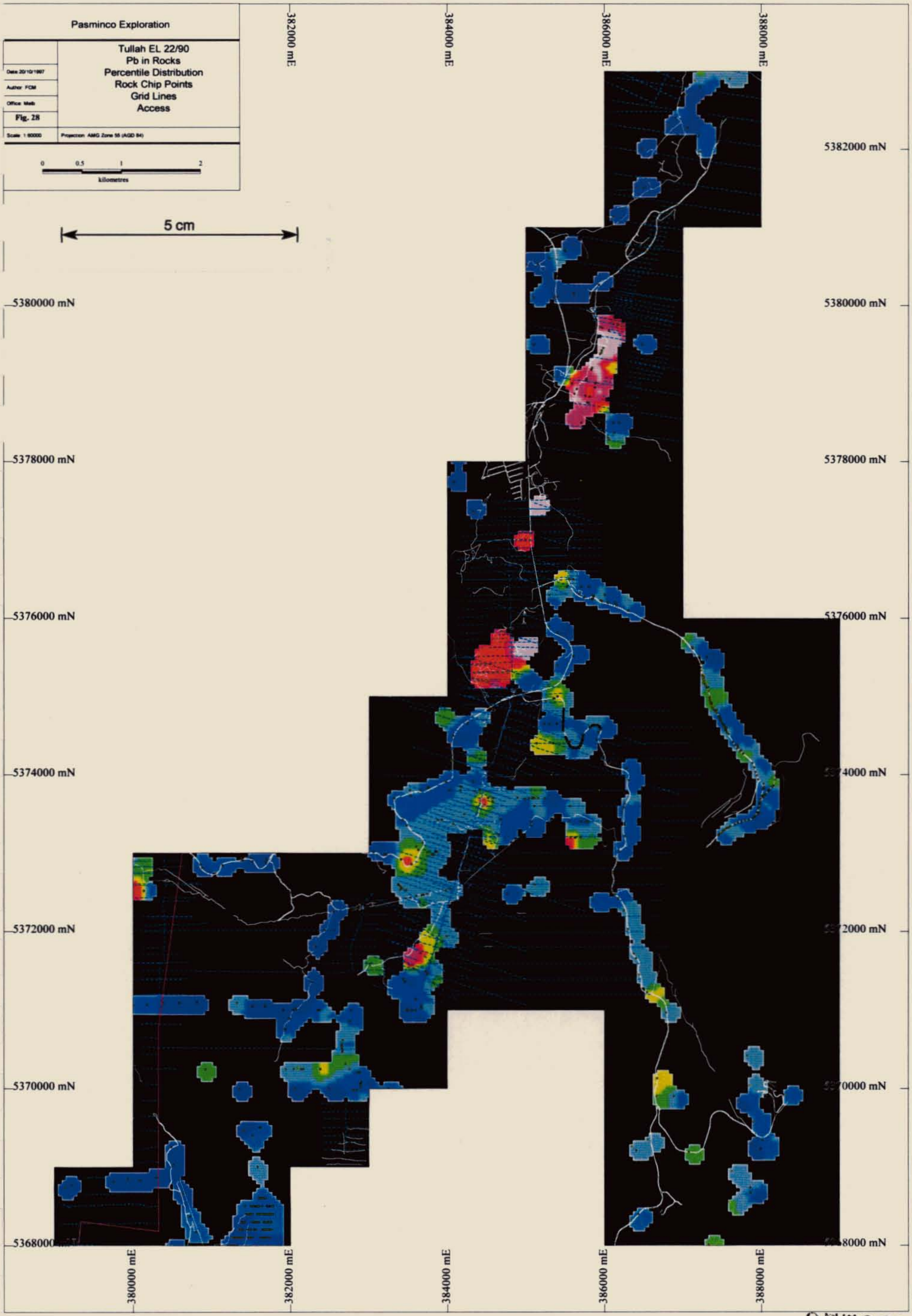
277092


Pasminco Exploration
Tullah EL 22/90
Coincident Zn/Pb/Cu in Soils
RGB Image
Soil Sample Points
Grid Lines
Fig. 26
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE
Tsl1
Tsl2
Tsl3
Tsl4
Tsl5

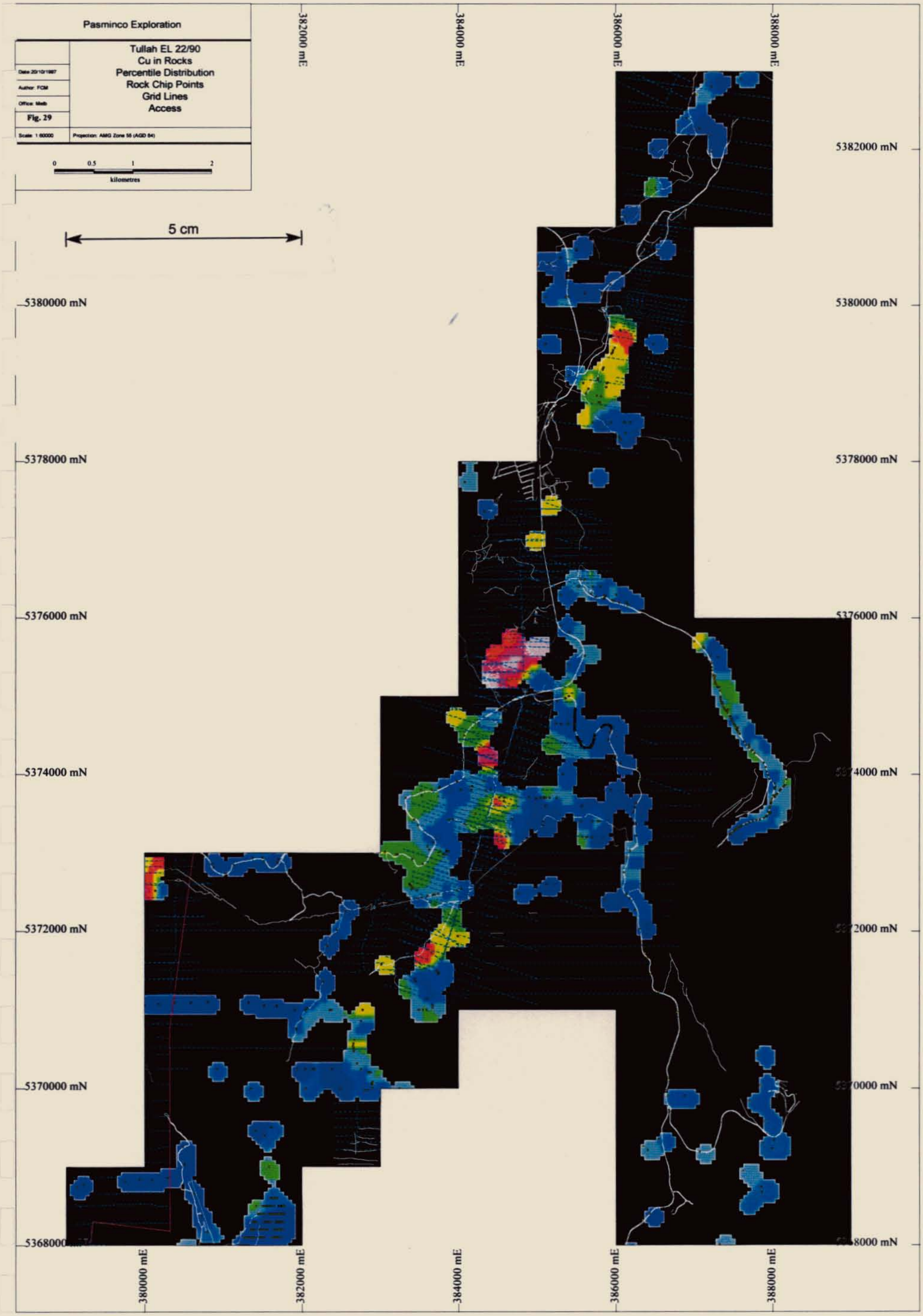
277093


Pasminco Exploration
Tullah EL 22/90
Zn in Rocks
Percentile Distribution
Rock Chip Points
Grid Lines
Access
Fig. 27
Scale 1:60000
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

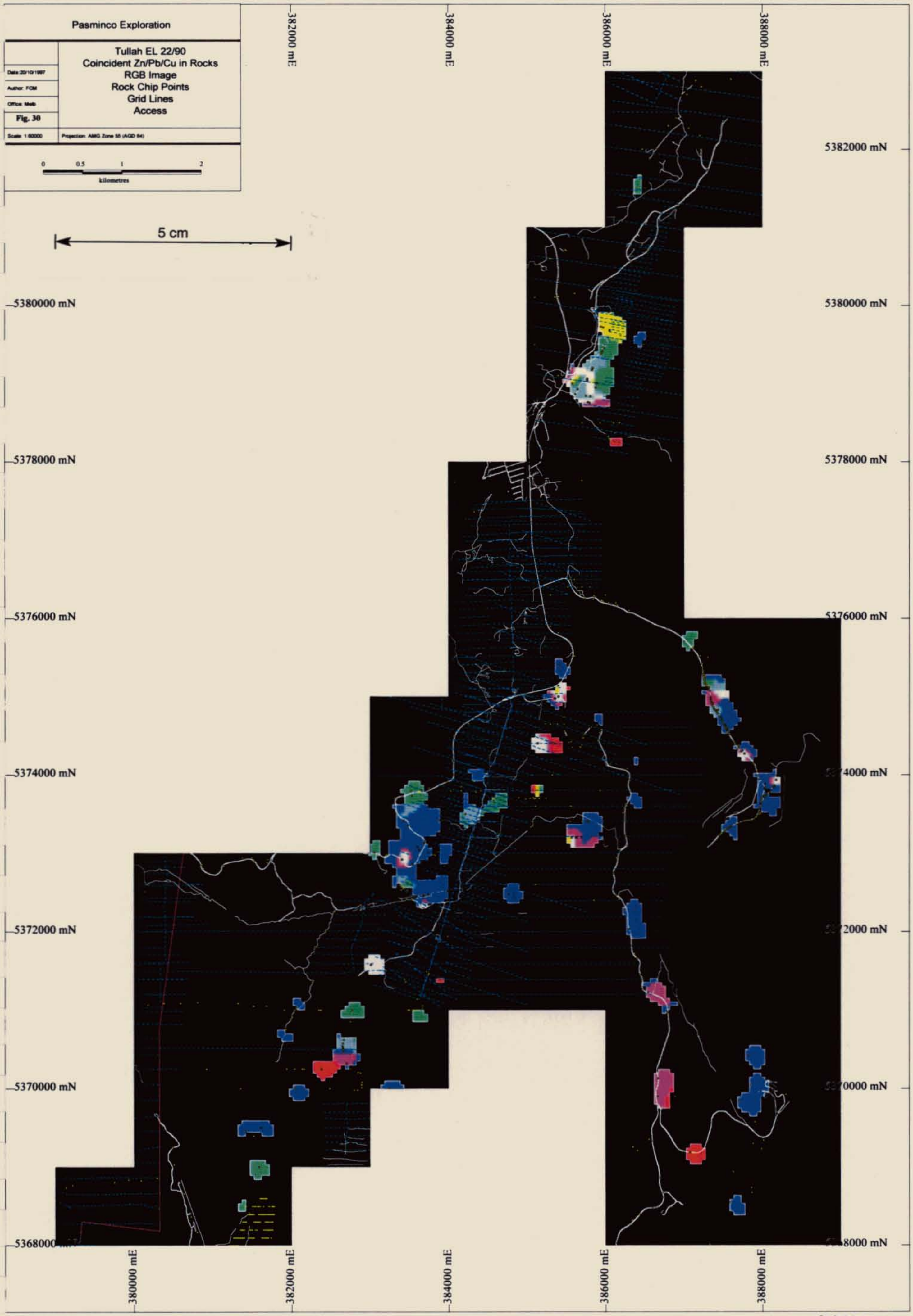
277094


Pasminco Exploration
Tullah EL 22/90
Pb in Rocks
Percentile Distribution
Rock Chip Points
Grid Lines
Access
Date 20/10/1997
Author FCM
Office Melb
Fig. 28
Scale 1:60000
Projection: AMG Zone 55 (AGD 84)
0 0.5 1 2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

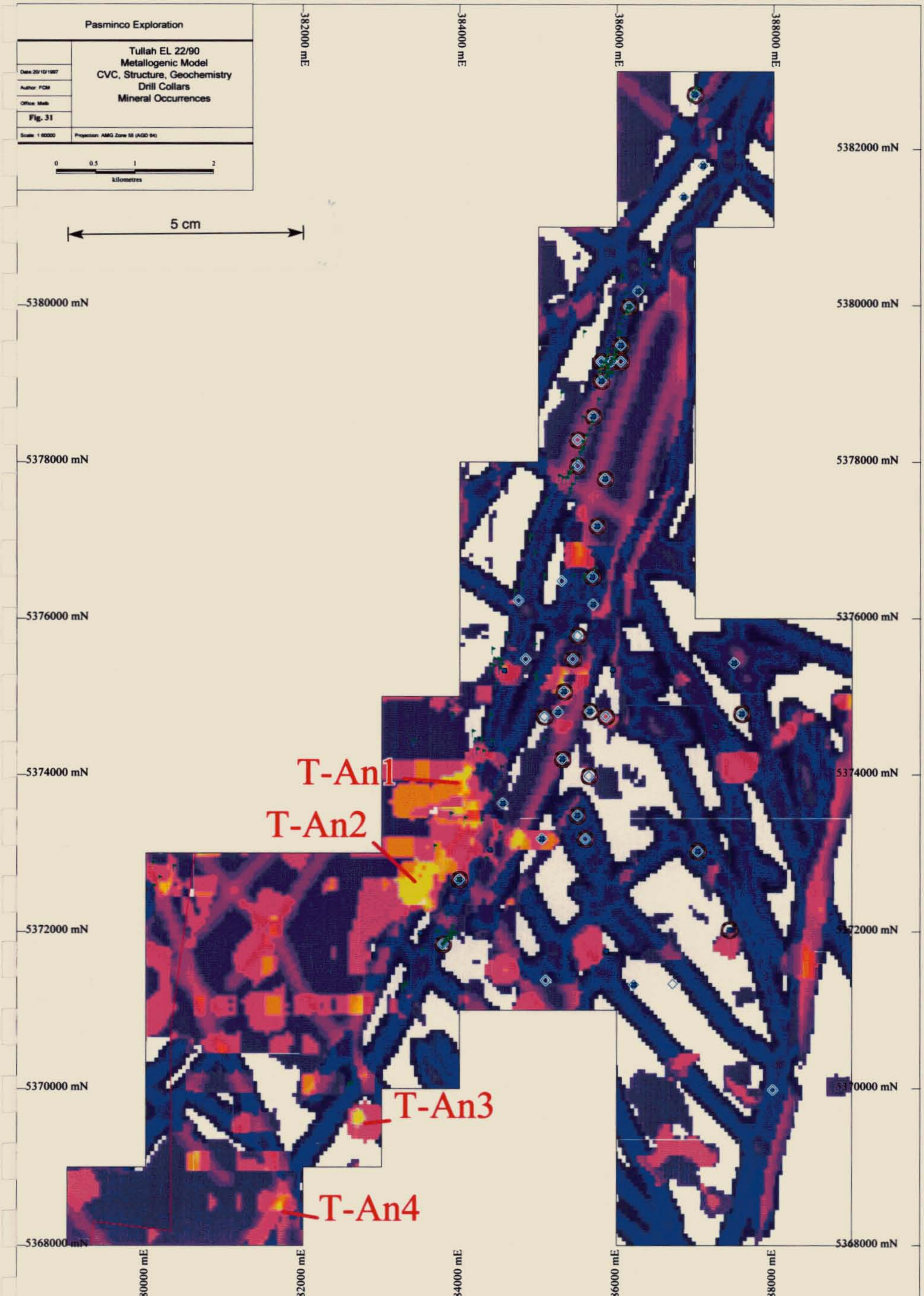
277005


Pasminco Exploration
Tullah EL 22/90
Cu in Rocks
Percentile Distribution
Rock Chip Points
Grid Lines
Access
Date 20/10/1997
Author FCM
Office Melb
Fig. 29
Scale 1:60000
Projection AMG Zone 55 (AGD 84)
0 0.5 1 2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

277096


Pasminco Exploration
Tullah EL 22/90
Coincident Zn/Pb/Cu in Rocks
RGB Image
Rock Chip Points
Grid Lines
Access
Date 20/10/1997
Author: FCM
Office: Melb
Fig. 30
Scale 1:60000
Projection: AMG Zone 55 (AGD 84)
0
0.5
1
2
kilometres
5 cm
382000 mE
384000 mE
386000 mE
388000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN
380000 mE

277097



Pasminco Exploration
Tullah EL 22/90
Metallogenic Model
CVC, Structure, Geochemistry
Drill Collars
Mineral Occurrences
Fig. 31
5 cm
T-An1
T-An2
T-An3
T-An4
382000 mE
384000 mE
386000 mE
388000 mE
380000 mE
5382000 mN
5380000 mN
5378000 mN
5376000 mN
5374000 mN
5372000 mN
5370000 mN
5368000 mN

277098

277099

APPENDIX 1

DDH SV 4 - Drill Log and Assay Results

HOLE No. SV 4

PASMINCO EXPLORATION
DIAMOND DRILL CORE RECORD

Page of

LOCATION	Sterling River E.L
PROJECT	Sterling Valley
PROSPECT	
DESIGNED BY	A.N.L
LOGGED BY	A.N.L.
RELOGGED	
COMMENCED	19/1/96
COMPLETED	20/2/96
DRILLED BY	Diamond Drilling Tasmania
DRILL RIG	LY 38

OBJECTIVE

To test the Murchison Volcanics / Farrell Slate contact for Base Metal mineralisation

RESULT

The Murchison Volcanics are altered to sericite/silica/pyrite schist adjacent to the contact. No base metal min. is present. Veins of Pb/Zn/Au/As min. were intersected in the Farrell Slates.

LOCATION/SURVEY DATA (AMG)

Grid	AMG	RL Collar m	283.40
Northing m	5371705.2	Bearing Collar	111.0
Easting m	383516.7	Dip Collar	-65
DH Survey Type	Ausmine Camera	Length Hole m	550

Depth m	Bearing	Dip	Depth m	Bearing	Dip
0.0	111.0	-65			
50.0	112.0	-64.00			
100.0	111.0	-63.50			
151.0	111.0	-62.00			
200.0	111.0	-61.00			
251.0	109.0	-60.00			
301.0	108.0	-58.50			
352.0	109.0	-58.00			
403.0	110.0	-57.25			
451.0	111.0	-56.75			
501.0	111.0	-56.00			
550.0	110.0	-54.00			

SIGNIFICANT INTERSECTIONS

From m	To m	Interval m					Comments

SIGNIFICANT CORE LOSS

From m	To m	% Lost

POOR GROUND CONDITION ZONES

From m	To m	Condition

HOLE SIZE

Size	Depth m
H.Q.	101.4
N.Q.	551.0

HOLE CONDITIONS AFTER COMPLETION

Collar	
Steel Casing	
PVC Casing	
Ground Water	
Wedge	
Drill Pad	

277100

277101

Project: Sterling River
Logged by: A.N.L.
Date: March 1996

PASMINCO EXPLORATION
DIAMOND DRILL LOG

HOLE No. SV4

Page of

m	VEINING and ALTERATION (1 = weak, 4 = intense)	STRUCTURE (b = bedding, c = cleavage, f = fault, Angles to LCA)	GRAPHIC LOG (clay, mud, 0.5, 2, 4, 32, max, min)	LITHOLOGY	MINERALISATION
0–18				Boulders, glacially deposited overburden. 18.0	
18, 20	Cavernous veins after Carbonate.	18-84m Very broken ground >100 breaks/m		DK. green, magnetic, fd-phyric, Cb-altered, Chloritic mafic-intermediate volcanic.	
38.4, 40		Chlorite-rich mylonite bands 30°		As above, with strong mylonitic fabric. 38.4 – 41.7	
	carbonate veins, parallel to foliation (280)	28° S1		Siliceous, mostly pink "clasts" in a dark gy-gn chloritic/carbonate matrix. Some clast have diffuse boundaries appears to be alteration of Mafic Volcanic. 55.6	Tr. hm @ 46.7.
55.6	Cb-qz vng. 1 th fol'n.	25° S1		DK. gy-gn, strongly fol. Mafic Volcanic Intense Chlor. Alt. 59.6	Tr hm
59.6, 60, 61.5, 62.2	q/cb vns x-cut fol'n.	35° 40° S1 S2 q vn.		Henty Fault Zone qz/chl/ Fault bx sid. clasts in ser. Cb schist matrix! Fault pug, with bands qz/chl/cb. Some of these are folded.	
69.8, 72.2, 73.6				Fault bx. distorted sil. bands in ser/chlor/graph. matrix. Fault pug. ser/graph. mud. 73.6	Tr py.
73.6–80		60 45 80 F1 F2		Pale green. silica/sericite schist.	Tr. py.
80		F1 20 20		Very strong foliation, folded to "chevron" folds 83.5	
83.5		m'ills 45 25°		Black graphitic schist. with puggy zones, patches of silica + qz vng. 91.5	Tr py
91.5		30°		Buff sericite schist. with some sil. zones. 94.5	
94.5, 100	↑				Tr py

277102

Project: Sterling River
Logged by: A.N.L.
Date: March '96

PASMINCO EXPLORATION DIAMOND DRILL LOG

HOLE No. SV4

Page of

m	VEINING and ALTERATION (1 = weak, 4 = intense)	STRUCTURE b = bedding c = cleavage f = fault Angles to LCA	GRAPHIC LOG	LITHOLOGY	MINERALISATION
	cb + qtz Stringers cross-cutting F_1 5-10/m. — 110m			104.4 – HQ → NQ. Upward fining Conglomerate – Siltstone.	Tr. py. diss.
120		S_1 30°; S_1 20°; S_1 30°		Contains black shale and rare siltstone and rhyolite clasts at base. These are contained in a quartz and feldspar crystal matrix. Shale clasts are stretched out parallel to cleavage. No bedding observed.	
140	137.3 – 137.5 py, cpy, sil bx in vein.	F1 Vein 25°; 22°; S_1 20°; S_1 20°; 10°			137.3 – 137.5 py, cpy; 137.9 stringers sp ?gn.
	150.3 – 150.6 q vng. c̄ bxn. of seds.	S_1 S_1 vein; S_1 70°; S_1; S_1; S_1 20°		Clasts diminish in number + size up-hole, so do quartz crystals.	150.3 – 150.6 py + sph assoc. c̄ bx. vn.
160		S_1 30°		Fines up to a weakly sericitic siltstone probably derived from volcanic material.	
180	176.3 – 176.7 qtz, py, cb vng. bxn. of seds.	38° S_1 S_1 20°			176.3 – 176.7 py in bx + veins.
	193.0	35° S_1; 25° S_1		193.0 sericitic patches	
200	197.0			197.0 c̄ qtz ?phenocrysts ?after vitric volc. fragments.	

277103

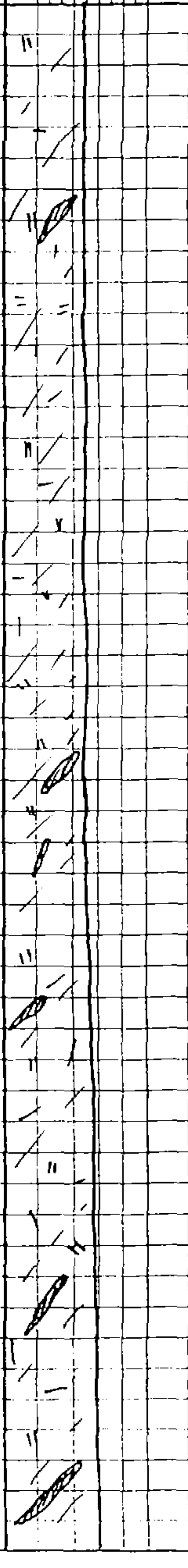
Project : Sterling River
Logged by: A.N.L.
Date : March '96

PASMINCO EXPLORATION
DIAMOND DRILL LOG

HOLE No. SV4

Page of

m	VEINING and ALTERATION (1 = weak, 4 = intense)	STRUCTURE b = bedding c = cleavage f = fault Angles to LCA	GRAPHIC LOG	LITHOLOGY	MINERALISATION
		S1 34°			
220		S1 32°			
	239.8	vn S1			
240	Zone of qtz stringers	32° 42° S1 qtz vn 38° qtz vn S1 S1 10° 20°			
	252.7				
260					
280		S1			
	282.0 qtz vn. c̄ haem.	35°			
	289.3 4cm. 291.6 2cm 294.6 4cm } To/qtz/cb veins	vn vn S1 vn 45° 40° 40° 40°			
300					



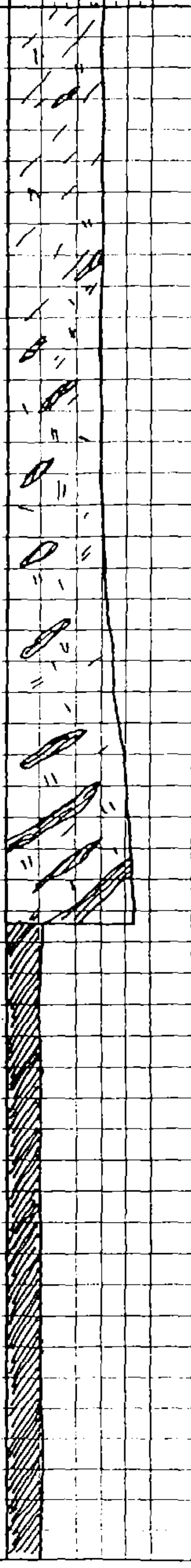
277104

Project : Sterling River
Logged by: A.N.L.
Date : March '96

PASMINCO EXPLORATION
DIAMOND DRILL LOG

HOLE No. SV 4

Page of

m	VEINING and ALTERATION (1 = weak, 4 = intense)	STRUCTURE (b = bedding, c = cleavage, f = fault, Angles to LCA)	GRAPHIC LOG	LITHOLOGY	MINERALISATION
	313.5 discont. 314.5 stringers min.	S_1 25 min			313.5 c.g py min. c tr. sp.
320					
	328.5 qz/cb vein	43° 35° S_1 m.			328.5 sp in vein
	330.7 Strongly developed cleavage, Strongly sericitic.	330.7			
340	Sericite on cleavage planes.	Broken ground 100 bits/m.			
	348.1	348.1 S_1 38°			
358.9		70° S_1 contact 50 18° 40°		358.9	
360	360.3 Br. zone, 362.3 stockwk. vng. stylolites				360.3 gn+py+aspy ± sp. in vns 362.3
	364.7 graphitic pug.	S_1 vein S_1 45		Strongly graphitic, Carbonate-bearing, Black Shale.	
	370.3 qz/Cb 371.8 vein stockwk.	S_1 35 S_1 40 S_1 38		Bedding not observed except at contact.	370.3 py>as> 371.8 sp in vns.
380					
	386.2 qz/cb vng 388.5 +py+as			386.2 Breccia/stockwork zone 388.5 Top is cb/qz/chlor veins c minor pyg. Bottom is ang. slate frags. in qz/py/as matrix.	386.2 py+as in vns. 388.5
		S_1 38°			
400					

277105

Project: Sterling River
Logged by: A.N.L.
Date: March '96

PASMINCO EXPLORATION
DIAMOND DRILL LOG

HOLE No. SV4

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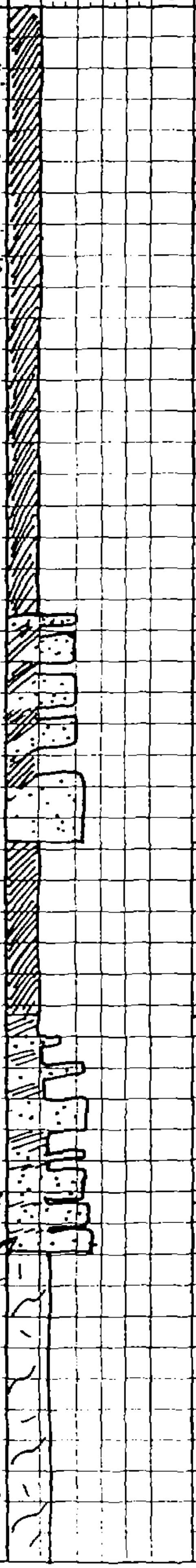
m	VEINING and ALTERATION (1 = weak, 4 = intense)	STRUCTURE b = bedding c = cleavage f = fault Angles to LCA	GRAPHIC LOG	LITHOLOGY	MINERALISATION
	401 qtz/cb vng. 404·2	Most vng parallel to clv. S_1 28 Bkn Grd.			
	407·7 Msv white qtz 409·7 vng.	408 S_1 50 45 S_1 Bkn Grd. ms.			
	410·7 Graphite 412·2	45 S_1 48 90 15 48 35		410·7 Dk. brown/black 412·2 graphite zone.	
420		50			
	436·2 437·1 Zone of vng + pug.	435 Broken Ground 80bks/m S_1			
439·7		S_0		439·7	
440		442 20		Interbedded Black Shale + Sandstone.	
	448·7 white 451·5 q. vng.	S_1 30 40 35		Sandstone predom. volcaniclastic with some qtz grains	
453·6		S_0 40 35		453·6	
		458·5 bx zone 458·6 microflts + stylolites		Black Shale	1-3% py in bx zone.
460					
464·5		80 S_1		464·5	
	Sericite alt'n of sandstone frags.	60 S_0		Interbedded Black Shale and quartz-volcaniclastic Sandstone	
		58		476·3↑ lode cast facing	
479·7		contact 60		479·7	
480		Strong Cleavage + boudinaging of Sst. beds on contact.		Pale green. Sericite/Silica/pyrite Schist.	10% py, m.g. cubic, post cleavage and f.g. in clots, strung out along cleav. Tr. cpy.
		55 S_1		Prob. after fel-phyric volcanics. Feldspars preserved in sericitic zones	
		50 S_1			
500					

277106

Project : Sterling River
Logged by: A. N. L.
Date : March '96.

PASMINCO EXPLORATION
DIAMOND DRILL LOG

HOLE No. SV 4

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m	VEINING and ALTERATION (1 = weak, 4 = intense)	STRUCTURE b = bedding c = cleavage f = fault Angles to LCA	GRAPHIC LOG	LITHOLOGY	MINERALISATION
	-500·9 White -501·1 qz vein c̄ sericitic shrg on both margins.	contact 58°			from 483-490.
505·65				Sharp contact 505·65 Abrupt change in alteration + prob. rock type. Dk. green. Chlor/cb altered Andesite. ? intrusive 518·9	
	-510·7 qz/cb vn c̄ py Pervasive Chlor-cb alt'n.	S_1 -515·3 48° Bkn. Shear -518·9 Zone qz/chlor/ser pug.			-510·7 c.g. py in vein
518·9					
520	qz c̄ cb vein 515·3-515·5m.			Massive, dk. green f. grained, featureless volcanic. Chlorite ?after ferro-mag. minerals. Andesite ?intrusive	
	Chlorite alt'n				
540	?after ferro-mag minerals				
551·0				551·0 End of Hole.	

DDH SV4 - Assay data

Hole_Id	Samp_No	epth_Fro	Depth_To	Ag_ppm	As_ppm	Au_ppm	Ba_ppm	Cu_ppm	Mn_ppm	Pb_ppm	Sn_ppm	W_ppm	Zn_ppm
SV4	75739	46.60	48.10	-1	10	-0.008	221	18	2009	-3	-3	-10	199
SV4	75740	70.10	71.60	1	156	0.018	170	54	4405	424	10	-10	884
SV4	75741	73.10	74.10	2	522	0.024	186	25	8100	782	8	-10	1408
SV4	75742	74.10	75.10	2	102	-0.008	212	61	4589	448	4	-10	745
SV4	75743	75.10	76.10	1	182	0.009	218	13	8200	651	16	-10	999
SV4	75744	137.30	137.75	29	49600	2.27	346	1194	4553	3862	51	-10	2536
SV4	75920	149.00	151.50	1	256	0.015	576	17	11100	433			662
SV4	75921	176.30	176.70	5	707	0.085	347	46	39400	111			236
SV4	75922	239.70	240.70	-1	50	-0.008	733	13	3886	73			117
SV4	75923	240.70	241.70	-1	45	-0.008	771	15	2453	94			857
SV4	75924	241.70	242.70	-1	29	-0.008	741	8	2457	93			274
SV4	75925	242.70	243.70	-1	15	-0.008	705	3	1361	30			84
SV4	75926	243.70	244.70	-1	10	-0.008	813	-2	725	26			63
SV4	75927	244.70	245.70	-1	30	-0.008	930	7	6300	93			955
SV4	75928	245.70	246.70	-1	30	-0.008	891	8	2760	226			534
SV4	75929	246.70	247.70	-1	27	-0.008	755	7	2931	172			327
SV4	75930	247.70	248.70	-1	28	-0.008	1040	32	5800	354			2265
SV4	75931	248.70	249.70	1	50	0.008	1085	41	18400	705			3840
SV4	75932	249.70	250.70	-1	20	-0.008	805	4	1790	160			311
SV4	75933	250.70	251.70	-1	600	0.021	761	51	7700	176			690

DDH SV4 - Assay data

Hole_Id	Samp_No	epth_Fro	Depth_To	Ag_ppm	As_ppm	Au_ppm	Ba_ppm	Cu_ppm	Mn_ppm	Pb_ppm	Sn_ppm	W_ppm	Zn_ppm
SV4	75934	251.70	252.70	-1	31	-0.008	820	14	7500	54			143
SV4	75935	289.30	289.60	-1	17	0.015	617	3	4123	5			30
SV4	75936	291.50	291.80	33	2737	0.054	707	33	17700	144			102
SV4	75937	294.40	294.70	5	50	-0.008	498	23	16300	222			23
SV4	75938	312.20	313.20	-1	127	-0.008	666	40	3529	17			37
SV4	75939	328.40	328.70	-1	16	-0.008	872	10	4251	318			518
SV4	75940	360.00	360.80	8	164	0.013	191	285	12600	1383			956
SV4	75941	360.80	361.60	1	162	0.024	43	46	22300	132			78
SV4	75942	361.60	362.60	20	270	0.027	164	547	9700	22000			4446
SV4	75943	362.60	363.60	2	135	0.021	302	346	6800	498			3875
SV4	75944	363.60	364.70	3	89	0.017	328	146	7300	1403			2757
SV4	75945	364.70	365.20	2	65	0.018	225	86	3795	1491			1660
SV4	75946	365.20	366.30	-1	373	0.03	253	134	2538	103			89
SV4	75947	367.10	367.70	1	114	-0.008	269	168	6300	149			133
SV4	75948	369.90	370.20	-1	5800	0.032	186	76	3802	90			80
SV4	75949	370.20	370.80	-1	280	0.019	301	62	4333	56			130
SV4	75950	370.80	371.80	-1	399	0.05	198	101	3416	82			1219
SV4	75951	374.00	375.70	4	678	0.008	330	89	3752	895			1423
SV4	75952	375.70	376.25	3	849	0.017	285	278	5800	185			97
SV4	75953	377.00	378.00	2	53	-0.008	290	76	2222	325			689

277108

Hole_Id	Samp_No	epth_Fro	Depth_To	Ag_ppm	As_ppm	Au_ppm	Ba_ppm	Cu_ppm	Mn_ppm	Pb_ppm	Sn_ppm	W_ppm	Zn_ppm
SV4	75954	378.00	379.00	3	50	-0.008	301	151	1401	1767			103
SV4	75955	379.00	380.00	1	50	-0.008	243	58	8200	113			249
SV4	75956	380.00	381.00	-1	63	-0.008	299	46	1294	48			173
SV4	75957	381.00	382.00	1	96	-0.008	308	67	2963	190			1525
SV4	75958	382.00	383.00	-1	79	-0.008	333	25	2697	35			158
SV4	75959	383.00	384.00	3	71	-0.008	342	114	3161	1069			914
SV4	75960	386.20	386.80	2	271	0.067	283	35	13600	242			151
SV4	75961	386.80	387.50	1	50	-0.008	192	53	8200	192			115
SV4	75962	387.50	388.00	4	94800	1.77	75	221	3646	109			297
SV4	75963	388.00	388.80	1	35200	0.581	115	144	4233	43			142
SV4	75964	404.10	405.00	-1	169	0.01	220	68	7400	62			140
SV4	75965	406.50	407.50	-1	50	-0.008	183	60	18100	37			184
SV4	75966	407.50	408.50	-1	52	-0.008	205	37	6500	31			88
SV4	75967	408.50	409.60	-1	50	-0.008	249	17	1934	10			62
SV4	75968	410.70	412.30	5	1152	-0.008	12	408	8000	284			125
SV4	77201	436.20	437.20	3	100	0.042		96		205			193
SV4	77202	448.70	449.20	2	83	-0.008		15		14			75
SV4	77203	479.00	481.00	1	57	0.009		165		17			96
SV4	77204	481.00	483.00	1	-50	0.017		657		19			60
SV4	77205	483.00	485.00	-1	-50	0.015		290		14			54

277109

DDH SV4 - Assay data

Hole_Id	Samp_No	epth_Fro	Depth_To	Ag_ppm	As_ppm	Au_ppm	Ba_ppm	Cu_ppm	Mn_ppm	Pb_ppm	Sn_ppm	W_ppm	Zn_ppm
SV4	77206	485.00	487.00	-1	100	0.117		485		43			69
SV4	77207	487.00	489.00	-1	69	0.096		153		23			41
SV4	77208	489.00	491.00	-1	50	0.013		85		12			28
SV4	77209	491.00	493.00	-1	-50	-0.008		38		6			35
SV4	77210	493.00	495.00	-1	-50	0.011		464		17			44
SV4	77212	497.00	499.00	-1	-50	0.012		469		11			33
SV4	77213	499.00	500.90	-1	-50	0.02		1287		14			34
SV4	77214	500.90	502.00	-1	-50	0.023		260		31			35
SV4	77215	502.00	504.00	-1	-50	-0.008		109		11			19
SV4	77216	504.00	505.70	-1	-50	0.011		95		7			23
SV4	77211	495.50	497.00	-1	-50	0.014		795		6			34

PASMINCO EXPLORATION
DIAMOND DRILL CORE ASSAY DATA

HOLE NO. SV4

sample	from	to	Au	Cu	Pb	Zn	Ag	As	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5	SO3	Na2O
77201	436.2	437.2	0.042	96	205	193	3	100	11.6	57.1	0.64	10.85	0.41	3.72	2.78	2.3	0.138	1.65	0.05
77202	448.7	449.2	<0.008	15	14	75	2	83	7.76	61.3	0.32	5.67	0.24	6.68	1.44	5.31	0.103	0.84	<0.05
77203	479	481	0.009	165	17	96	1	57	13.7	66.2	0.38	5.13	0.13	2.46	4.02	1.66	0.055	0.98	0.2
77204	481	483	0.017	657	19	60	1	<50	13.8	69.2	0.28	4.7	0.09	0.96	4.47	0.84	0.035	1.74	<0.05
77205	483	485	0.015	290	14	54	<1	<50	13.4	72.1	0.28	3.25	0.1	1	4.31	0.87	0.05	2.2	<0.05
77206	485	487	0.117	485	43	69	<1	100	12.5	69.3	0.19	7.03	0.05	0.47	4.03	0.77	0.026	2.69	0.12
77207	487	489	0.096	153	23	41	<1	69	13.5	69.3	0.21	5.2	0.05	0.73	4.42	0.93	0.024	2.09	<0.05
77208	489	491	0.013	85	12	28	<1	50	12.4	72.3	0.17	3.95	0.09	1.39	4.03	0.92	0.022	1.54	<0.05
77209	491	493	<0.008	38	6	35	<1	<50	11.1	74.6	0.16	2.97	0.1	1.96	3.64	0.73	0.019	2.21	<0.05
77210	493	495	0.011	464	17	44	<1	<50	11.3	74.8	0.17	3.13	0.11	1.26	3.77	0.87	0.018	1.64	<0.05
77211	4955	497	0.014	795	6	34	<1	<50	11.1	72.7	0.16	5.1	0.08	0.9	3.58	0.88	0.016	1.58	<0.05
77212	497	499	0.012	469	11	33	<1	<50	10.5	76.2	0.15	5	0.04	0.36	3.39	0.64	0.015	0.89	<0.05
77213	499	500.9	0.02	1287	14	34	<1	<50	10.6	73.6	0.15	6.4	0.03	0.26	3.47	0.65	0.014	1.91	<0.05
77214	500.9	502	0.023	260	31	35	<1	<50	12.6	72	0.18	5.66	<0.01	0.09	4.15	0.57	0.016	0.68	<0.05
77215	502	504	<0.008	109	11	19	<1	<50	11.3	75.2	0.16	4.63	0.03	0.3	3.66	0.63	0.018	1.58	<0.05
77216	504	505.7	0.011	95	7	23	<1	<50	11.8	76.4	0.15	3.09	0.04	0.69	3.83	0.81	0.016	1.06	0.09

277112

APPENDIX 2

Rock Sample Results
from Mapping in the Sterling Valley area.

Students Rock Sample Information

Sample No.	Au ppm PM219	Au PM219 ppm CHECKS	Cu ppm IC581	Pb ppm IC581	Zn ppm IC581	Ag ppm IC581	As ppm IC581	Fe % IC581	Bi ppm IC581	Sb ppm IC581
36889	0.004		34	1090	103	-1	121	1.19	-5	-5
36891	0.009		24	6	14	-1	265	1.76	-5	-5
36892	0.01		58	56	113	-1	900	12.45	-5	-5
36893	-0.001	0.001	8	64	112	-1	81	7.61	-5	-5
163835	-0.001		17	-5	293	-1	17	9.09	-5	-5
163847	0.002		5	-5	19	-1	40	4.33	-5	-5

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APPENDIX 3

Lakeside Prospect Drill Targets

Memorandum by Ms N McGunnigle - 26 August 1996

and by Ms S Dibben - 20 September 1996

277115 P2

Memorandum

To: Dave Gardner
cc: Sally Dibben

From: Nicola McGunnigle

Date: 26 August 1996

Subject: Lakeside Prospect Drill Targets

Summary

Over the past few weeks, previous exploration of the Lakeside Prospect, Tullah EL 22/90, has been briefly reviewed and a comprehensive database including all drill logs and assay results added to Pasminco's GIS. The area has been assessed with recommendations for a shallow drilling programme to be undertaken in the immediate future.

Previous works

Exploration in the Lakeside area commenced in the late 1970's, targeting Sn mineralisation in the Henty Fault zone. The fault is at the contact of the Mount Black Volcanics which lie to the west, and Farrell Sequence sediments to the east. Glacial scree, up to 40m depth, covers the fault zone in the Prospect area.

Several geophysical surveys were conducted before DDH MRP212 was drilled in 1979 to test an E.I.P gradient array chargeability anomaly under the glacial cover. An intersection of Sn mineralisation was followed up by DDH's MRP219 and MRP233, and magnetic anomalies tested by MRP226 and MRP227 before the area was considered unprospective for Sn. It wasn't until the mid-1980's when the holes were assayed (and reassayed by FA) for Au that further drilling commenced. Thirteen diamond drill holes have so far been drilled in the Lakeside area since 1979.

Work completed

Previous work conducted in the Lakeside area has been collected and added to Pasminco's GIS where appropriate. All core has been examined, and logs compiled into a Lakeside Prospect folder, with summary logs added to datcol and techbase. Previous assay results are listed with logs in the Lakeside folder, and these have been added to techbase. Additional split core samples have also been taken for analyses. Petrological reports included in past reports accompany logs in the Lakeside folder. Thin and polished sections which exist for the RED holes will be re-examined and added to Pasminco's thin section catalogue.

A review of geophysics in the Lakeside area was completed by Paul Basford (1996) and included recommendations for drilling.

Alteration and mineralisation

Diamond drill core and thin sections of mineralisation and alteration at Lakeside were examined in an attempt to determine style and paragenesis. Generally, the Mount Black Volcanics are comprised of andesitic to dacitic lavas and volcaniclastics which are moderately to strongly chloritic and variably silicified. Quartz-carbonate veining is increasingly common towards the Henty Fault Zone, ± disseminated pyrite. The main zone of mineralisation commences in, or immediately footwall to the Henty Fault, which is characterised by a sheared and brecciated, usually puggy or rubbly zone at the contact of the volcanics with sediments of the Farrell Sequence. Brecciation of early veining can be seen in places, and the zone is commonly silicified after chlorite, sericite ± graphite (in the shale and slates). Silicification extends into the footwall, with quartz-carbonate ± chlorite-tourmaline veins and mineralisation. The mineralised zones are dominated by pyrite and arsenopyrite, with lesser chalcopyrite, and localised sphalerite and galena. The Farrell Sequence is composed of interbedded sandstone, siltstone and shale which is multiply deformed and cleaved.

Polished thin sections were examined from mineralised zones FW of the Henty Fault in RED87-7 (247.0m) and RED87-3 (112.7m). The samples both show massive and cubic pyrite and arsenopyrite, with lesser chalcopyrite in a quartz-chlorite-tourmaline gangue. Massive and cubic pyrite is corroded along some margins by later arsenopyrite. Chalcopyrite is observed along the grain boundaries of pyrite and arsenopyrite, and appears to replace an unidentified grey mineral (magnetite/Cu mineral?). Traces of pyrrhotite are also seen along grain boundaries. Late carbonate infills vugs with quartz and minor tourmaline. Traces of gold were identified in both sections, occurring with pyrite or arsenopyrite. The original host lithologies are highly chloritic and cleaved sediments.

Drill targets

Cross sections and a long section of Lakeside drilling showing lithologies and assay results (Au, As, Cu) were produced in techbase to assess the current available data and to help determine shallow Au drilling targets. The best Au intersections occur immediately footwall to the Henty Fault, commonly (but not always) with high As and/or Cu. Best intersections include:

4m @ 1.4 g/t - RED87-2
6.65m @ 5 g/t - RED87-3
2m @ 4g/t - RED87-5
8.9m @ 1.5 g/t - RED87-6
3.5m @ 3.6 g/t - RED87-7
2m @ 3.4g/t - RED88-2
6m @ 1.2 g/t - RED88-4

This mineralised zone appears to be plunging to the north, possibly in a rod-like body, and is controlled by the position of the Henty Fault. It is recommended that further drilling in the Lakeside area should initially be shallow targets, following up potential continuation of mineralisation along strike and up-dip intercepts in holes RED87-3,

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and searching for higher grade 'shoots' within the mineralising structure

RED87-5 and RED87-6. The following Lakeside holes proposed are not necessarily in drilling order, as follow up will depend on results obtained. There is also potential to test deeper mineralised zones, such as continuation of mineralisation intersected in RED87-7 (at 226m) and RED88-4 (at 242m), and to continue shallow testing in untested ground both to the north and south of the prospect.

Recommended drilling

LS1	collar: 5375375mN 384530mE EOH: 140m target depth: 80-100m	Az: 090° dip: 50°E	LSRC1
LS2	collar: 5375375mN 384570mE EOH: 100m target depth: 50-80m	Az: 090° dip: 50°	LSRC2
LS3	collar: 5375275mN 384550mE EOH: 100m target depth: 60-80m	Az: 090° dip: 50°	LSRC3
LS4	collar: 5375325mN 384570mE EOH: 100m target depth: 50-80m	Az: 090° dip: 50°	LSRC4
LS5	collar: 5375410mN 384570mE EOH: 100m target depth: 50-80m	Az: 090° dip: 50°	LSRC5

See other sheets

file: Tullah EL22/90, 308

LAKESIDE PROSPECT - Proposed RC Drilling

To: Dave Gardner, Nic McGunnigle cc. Bob Haydon
From: Sally Dibben
Date: 20/09/96

The previous proposed drill collars for the Lakeside area (Nic's memo 26/08/96) have been changed because the RC rig would not be able to successfully drill holes inclined at -50 degrees. Drilling is set to commence on Friday, Sept 27 and the holes proposed are as follows :-

LSRC1
Collar: 5 375 250mN
384 570mE
Inclination: -60 degrees
Azim: 090 AMG
EOH: 90m/100m
Target Depth: 45-65m

LSRC2
Collar: 5 375 275mN
384 570mE
Inclination: -60 degrees
Azim: 090 AMG
EOH: 90m
Target Depth: 50-70m

LSRC3
Collar: 5 375 300mN
384 570mE
Inclination: -60 degrees
Azim: 090 AMG
EOH: 90m
Target Depth: 50-70m

LSRC4
Collar: 5 375 325mN
384 580mE
Inclination: -60 degrees
Azim: 090 AMG
EOH: 90m
Target Depth: 40-60m

LSRC5 Collar: 5 375 350mN
384 580mE
Inclination: –60 degrees
Azim: 090 AMG
EOH: 90m
Target Depth: 50–70m

Dependent on lake water level–

LSRC6 Collar: 5 375 375mN
384 592mE
Inclination: –60 degrees
Azim: 090 AMG
EOH: 90m
Target Depth: 45–65m

LSRC7 Collar: 5 375 375mN
384 552mE
Inclination: –60 degrees
Azim: 090 AMG
EOH: 120m
Target Depth: 75–95m

LSRC8? Collar: 5 375 400mN
384 592mE
Inclination: –60 degrees
Azim: 090 AMG
EOH: 90m
Target Depth: 45–65m

PROPOSED BUDGET – LAKESIDE RC DRILL PROGRAMME

Escavator	20hrs @ $80/hr	$1 600
RC Drilling	max 760metres @ $40/m *(min 480m = $19 200)*	$30 400
	possible ODEC drilling cost	$3 000
Mobilisation	8hrs @ $190/hr	$1 520
Sampling/Assays	500 samples @ $18/sample	$9 000
	75 reassays @ $18/sample	$1 350
Supplies	bags, pegs etc	$1 000
Geological Contractor	6 days @ $250/day	$1 500
	TOTAL	**$49 370**

Note: excludes staff salaries and overheads.

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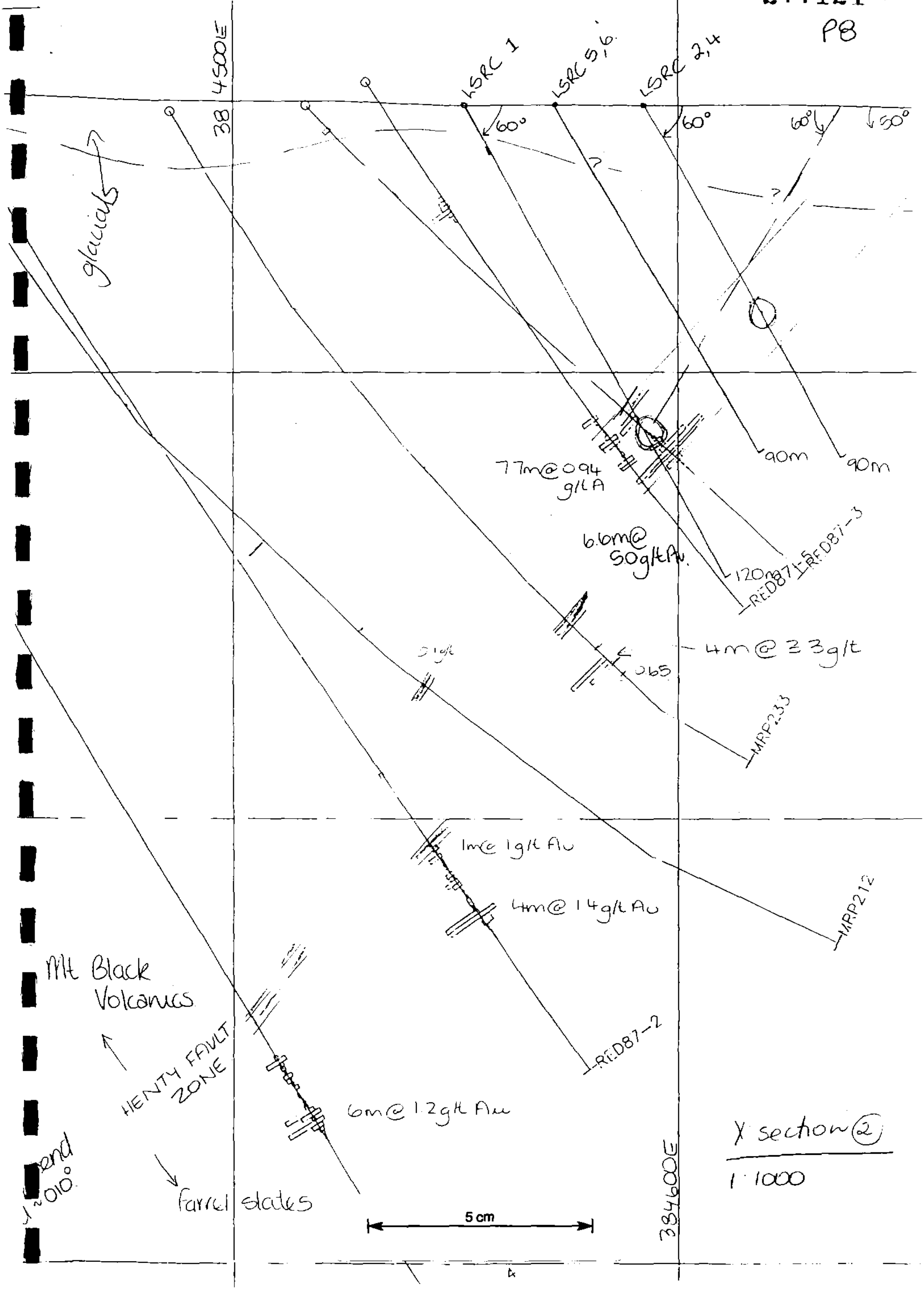
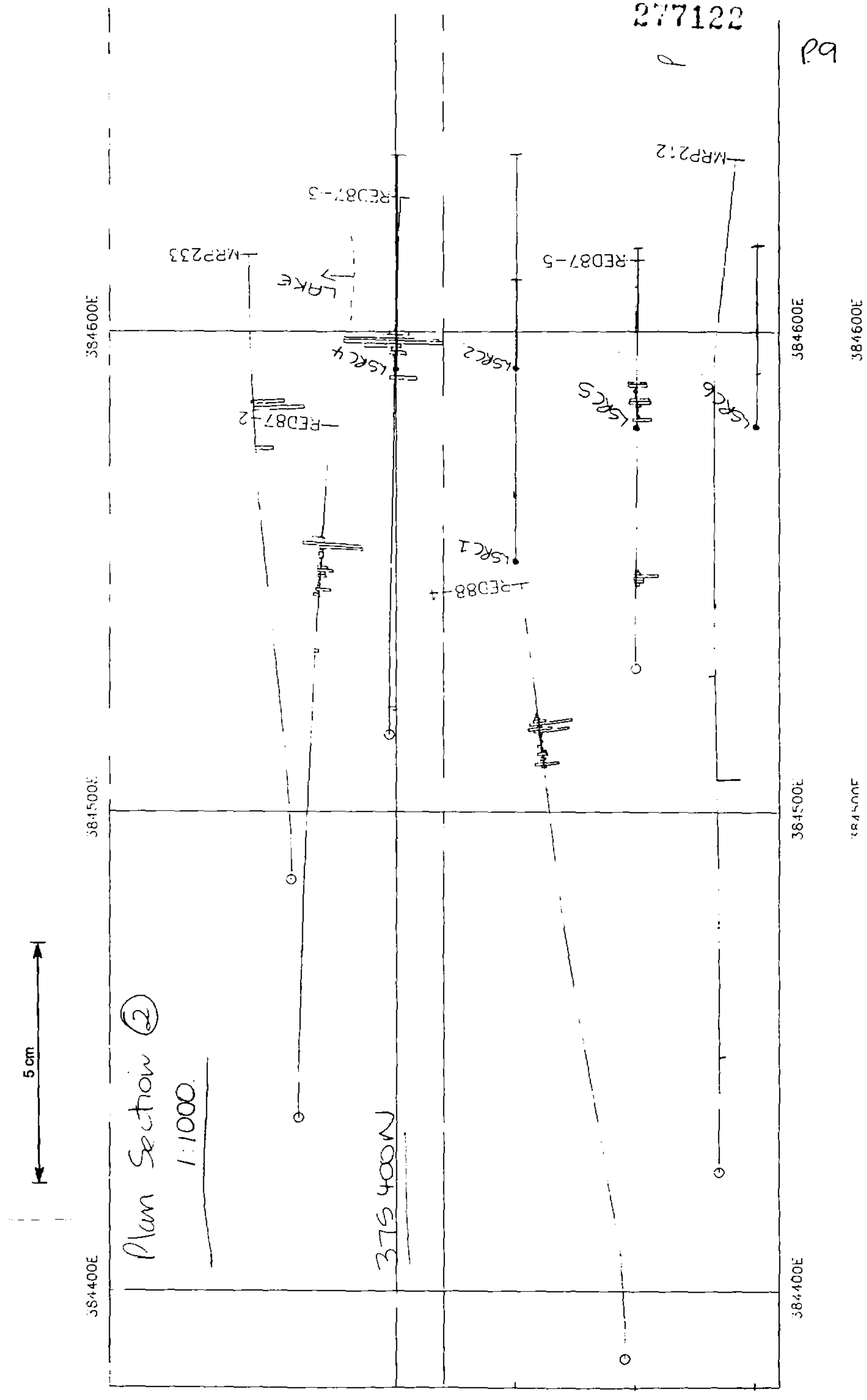
P8


38 4500E
LSRC 1
LSRC 5,6
LSRC 2,4
60°
60°
60°
50°
glacials
77m@0.94 g/t A
6.6m@ 50g/t Au
90m
90m
120m
RED87-1
RED87-5
RED87-3
4m@3.3g/t
0.65
MRP233
1m@ 1g/t Au
4m@ 14g/t Au
MRP212
Mt Black Volcanics
HENTY FAULT ZONE
RED87-2
6m@ 1.2g/t Au
Farrell slates
384600E
5 cm
X section (2)
1:1000

277122

P9


Plan Section ②
1:1000
5 cm
375400N
384600E
384500E
384400E
LAKE
RED87-3
MRP233
RED87-2
LSRC4
LSRC2
LSRC1
RED88-4
RED87-5
LSRC5
MRP2:12
LSRC6

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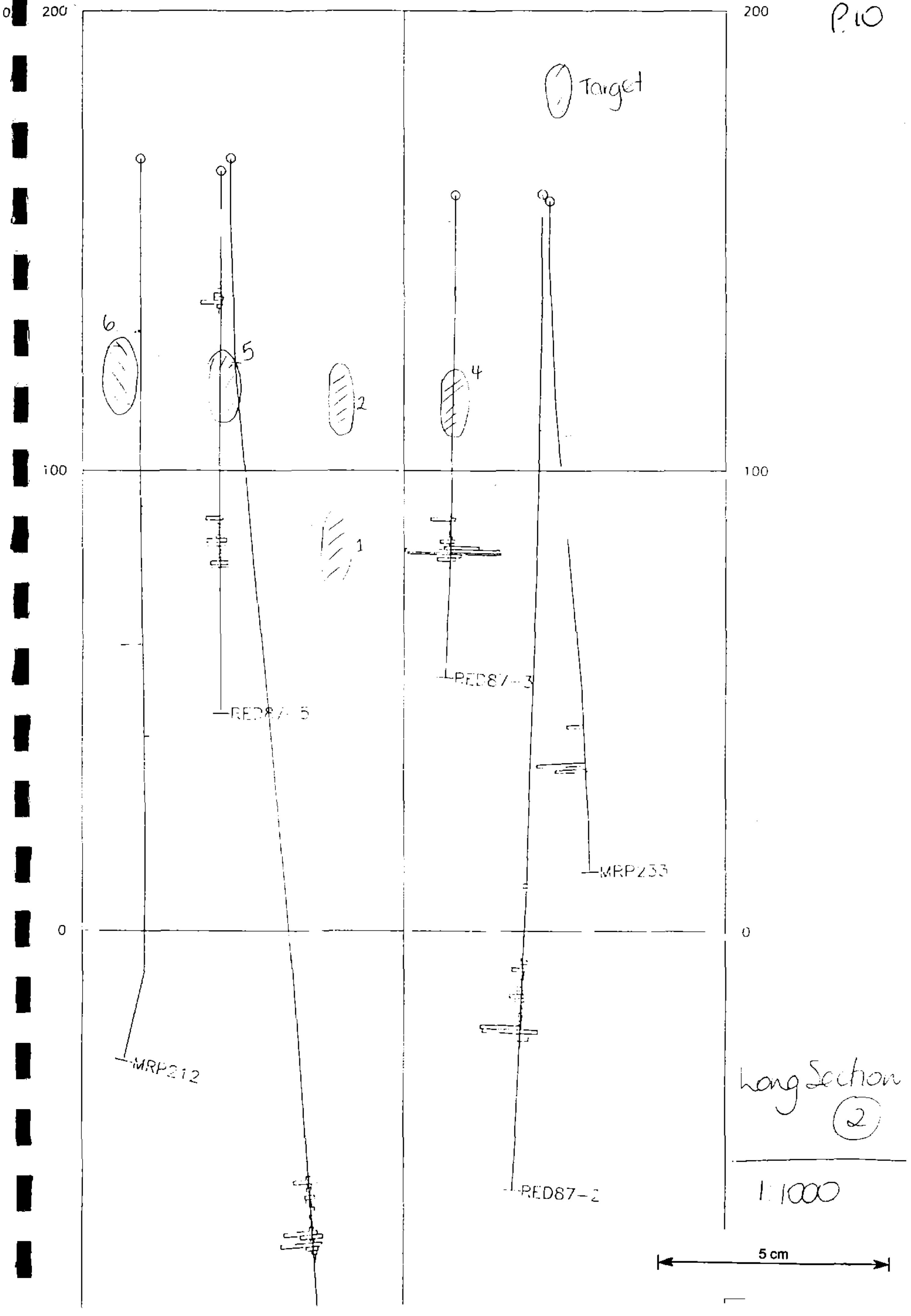
P.10


200
200
Target
6
5
4
2
1
100
100
RED87-3
RED87-5
MRP233
0
0
MRP212
RED87-2
Long Section
(2)
1:1000
5 cm

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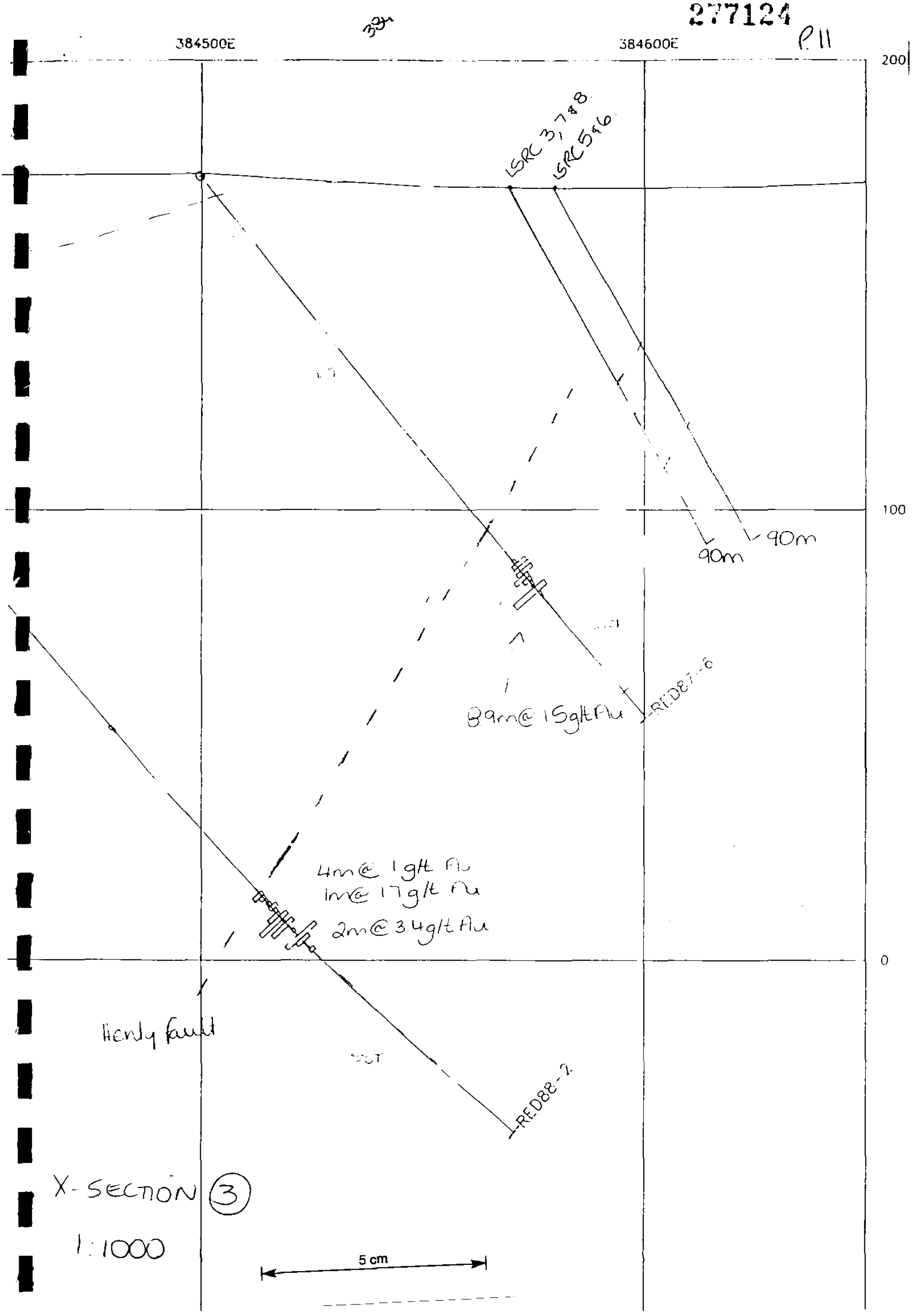

384500E
384600E
200
100
0
LSRC 3, 7 & 8
LSRC 5 & 6
90m
90m
8.9m@1.5g/t Au
RED87-6
4m@1g/t Au
1m@17g/t Au
2m@3.4g/t Au
Henty fault
RED88-2
X-SECTION 3
1:1000
5 cm

277125

APPENDIX 4

RC Drill Hole Logs and Assay Results

Project Tullah EL
Prospect Lakeside
Hole LSRC1
Date commenced 4/10/96 384565mE
Date completed 7/10/96 5375245mN
Logged D. Gardner, S. Dibben

Sample No.	From	To	Description	Au ppm
	0	3	gl: no samples	
79581	3	4	brn clayey mud & gl gravels	-0.001
79582	4	5	as above	0.001
79583	5	6	as above; sample ends in dk grn weathered rock	-0.001
79584	6	7	ser grn gy int volc; chl, hb?, ser f, some wispy text?. Grn-brn saprolite + q v	-0.001
79585	7	8	as above; ox ple brn saprolite + 10% v q	-0.001
79586	8	9	as above + 20% v q	-0.001
79587	9	10	as above + mnr v q	0.002
79588	10	11	ox grn-gy i volc: f (ser), mafic xls (chl) & brn grn saprolite. 40% v q	-0.001
79589	11	12	as above: some very xl rich chips with abundant fsxls ? xl tuff?	-0.001
79590	12	13	brn saprolite + ox chips	-0.001
79591	13	14	as above + some xl rich ox chips & v q chips	-0.001
79592	14	15	as above	-0.001
79593	15	16	as above, brn-gy	-0.001
79594	16	17	dk grn-gy saprolite + dk grn chips; i xl rich (f & mafic) ser ,chl volc - xl tuff or lava	-0.001
79595	17	18	or-brn saprolitic clay	-0.001
79596	18	19	as above + ox chips + ple grn-gy fg ser volc, f, < xl	0.004
79597	19	20	dk grn-gy saprolite + xl rich xl lithic tuff chips (as for 16-17m)	-0.001
79598	20	21	dk brn saprolite + ox xl rich ser, chl int tuff (?lithic frags) + v q +/- cb	-0.001
79599	21	22	brn saprolite + ox chips. 50% v q	-0.001
79600	22	23	as above + mnr v q	-0.001
79601	23	24	as above + mnr v q	-0.001
79602	24	25	dk grn/ox xl rich volc, f (ser)	-0.001
79603	25	26	grn-brn saprolite as above + xl rich chips	-0.001
79604	26	27	grn-brn saprolite + dk grn-brn i volc, f	-0.001

79605	27	28	brn (gy-grn) saprolite; no chips	-0.001
79606	28	29	as above	-0.001
79607	29	30	dk gy-grn saprolite + dk grn chl fg volc, f, (Li?)	-0.001
79608	30	31	as above + dk gy-grn chl volc, f	-0.001
79609	31	32	wet pug zone? Bl-gy clay	-0.001
79610	32	33	bl-gy saprolite + chips, ser, f, i volc (Li?)	-0.001
79611	33	34	as above + 30% py	0.124
79612	34	35	as above + 5% py + v q	
79613	35	36	dk bl-gy fg bxd volc, ser, f?, Li? + 20-30% py	0.031
79614	36	37	as above, f < 5mm, 10% py	0.046
79615	37	38	dk bl-gy i volc (?Li), ser, sil, 5-10% py + mnr v q	0.037
79616	38	39	as above; becoming more intensely sil-ser-py altered downhole (to 43m)	0.018
79617	39	40	as above	0.156
79618	40	41	as above	0.198
79619	41	42	as above	0.195
79620	42	43	as above	0.46
79621	43	44	intense q v, ser, mod fol, 5% py	0.801
79622	44	45	dk gy chl-ser-q sht, 1% q, mnr py	0.302
79623	45	46	mod fol, rare shears, 1% q, mnr py	0.279
79624	46	47	mild fol, 1% q, mnr sil, mnr py	0.482
79325	47	48	v mild fol, mnr q, mnr py	0.262
79626	48	49	5% v q + chl, mnr py	1.15
79627	49	50	tr q, 1% py	1.37
79628	50	51	fine py + brn sil alt	1.06
79629	51	52	mnr py, mnr sil v, mild fol	0.274
79630	52	53	fine py + sil , mnr py	0.129
79631	53	54	mnr sil v, mnr py	0.986
79632	54	55	gy sil,tr py	1.03
79633	55	56	gy sil, 1% py	1.06
79634	56	57	dk gy, mild fol	0.265
79635	57	58	dk gy, mod fol (ser), tr q	0.121
79636	58	59	dk gy, mild fol, mnr sil + chl, tr q	0.298
79637	59	60	dk gy, mod fol, 1% q (open space), tr py	0.109

79638	60	61	, mild fol, tr q, mnr py, tr po	0.046
79639	61	62	dk gy, mod fol, mnr gy sil, 1% q, mnr py	0.651
79640	62	63	as above, mild fol	0.051
79641	63	64	dk gy slate, strong fol, tr q, tr py, tr gn	0.038
79642	64	65	dk gy slate, mnr q-py-chl v	0.046
79643	65	66	gy slate, chl, shd, v // to S, tr py	0.076
79644	66	67	blk-gy slate, mnr chl, ser, 1% py, tr q, v strong fabric	0.062
79645	67	68	vfg blk-gy slate, tr q, tr py	0.039
79646	68	69	gy slate, mod fol	0.087
79647	69	70	as above, tr py	0.008
79648	70	71	as above	0.004
79649	71	72	grn-gy slate, chl, 20% q, chl v, tr py	0.015
79650	72	73	as above, tr py + cb	0.009
79651	73	74	as above	0.027
79652	74	75	as above	0.011
79653	75	76	as above, 1% v q	0.006
79654	76	77	as above + f blk slate, mnr q v + tr py	0.004
79655	77	78	grn-gy gritty slate, 5% q v, ser, chl, tr py	0.011
79656	78	79	gy slate, mod-strong fol, tr q v + py, tr py	0.008
79657	79	80	ple gy slt-slate, mnr q v	0.004
79658	80	81	as above, strong fol, 2% q v	0.001
79659	81	82	as above, 1% q v	0.002
79660	82	83	as above, tr q	0.004
79661	83	84	ple gy slt-cht, tr q, tr py	0.017
79662	84	85	gy slt	0.006
79663	85	86	as above	0.001
			EOH	

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Sample	Cu ppm	Pb ppm	Zn ppm	As ppm	Fe %	Bi ppm	Sb ppm
79581	30	22	275	18	3.58	-5	-5
79582	24	32	376	14	2.62	-5	-5
79583	28	18	281	18	3.07	-5	-5
79584	12	41	176	10	3	-5	-5
79585	9	17	135	12	2.62	-5	-5
79586	8	17	124	18	3.32	-5	-5
79587	49	196	270	22	4.94	-5	-5
79588	8	62	159	9	3.23	-5	-5
79589	8	12	108	8	3.1	-5	-5
79590	7	9	132	7	4.31	-5	-5
79591	6	12	143	15	4.24	-5	-5
79592	6	18	100	12	2.88	-5	-5
79593	6	10	144	10	4.8	-5	-5
79594	6	5	124	9	4.19	-5	-5
79595	7	37	214	24	5.09	-5	-5
79596	6	42	267	28	5.96	-5	-5
79597	6	-5	151	12	5.32	-5	-5
79598	6	-5	163	22	4.86	-5	-5
79599	6	-5	108	18	3.58	-5	-5
79600	5	-5	134	37	3.74	-5	-5
79601	8	60	260	69	5.95	-5	-5
79602	5	12	242	67	5.53	-5	-5
79603	5	-5	181	40	4.64	-5	-5
79604	5	-5	170	30	4.26	-5	-5

79605	5	-5	175	45	5.02	-5	-5
79606	5	-5	184	34	4.15	-5	-5
79607	6	-5	203	53	6.71	-5	-5
79608	20	203	426	98	10.55	-5	-5
79609	6	28	166	36	4.39	-5	-5
79610	6	72	259	27	5.72	-5	-5
79611	114	11900	12900	1940	11.65	-5	-5
79612							
79613	83	3430	7230	423	6.12	-5	-5
79614	67	1120	1590	443	7.61	-5	-5
79615	69	1270	1760	424	6.76	-5	-5
79616	93	4130	5320	149	5.51	-5	-5
79617	155	2110	2440	7875	8.1	10	-5
79618	442	1570	1330	17900	9.55	40	-5
79619	321	1370	2790	3455	7.1	15	-5
79620	459	730	730	11900	8.29	20	-5
79621	861	1020	4010	18950	8.53	50	-5
79622	429	245	3280	2410	8.06	35	-5
79623	646	146	149	1210	9.96	25	-5
79624	347	126	97	705	8.58	25	-5
79325	537	107	118	1370	10.16	10	-5
79626	635	229	151	5930	11.32	15	-5
79627	691	450	626	23550	13.27	35	60
79628	1140	1560	700	27600	9.08	85	85
79629	253	139	90	10180	6.89	20	30
79630	129	59	64	1610	7.39	5	20
79631	513	32	75	5585	9.58	-5	30
79632	610	117	102	8465	11.47	25	50
79633	593	174	91	5840	10.92	45	15
79634	147	34	88	611	6.17	5	25
79635	91	46	137	519	5.84	-5	30
79636	192	164	215	5670	9.14	10	25
79637	68	715	870	1730	6.97	5	15

79638	82	169	197	395	6.76	-5	10
79639	179	275	195	15950	10.66	35	20
79640	77	362	1050	573	5.21	-5	10
79641	94	694	1700	337	5.69	-5	20
79642	90	790	1550	612	5.52	-5	15
79643	51	495	901	408	6.14	-5	10
79644	428	420	727	192	6.56	-5	15
79645	107	1160	1320	290	4.51	-5	10
79646	48	164	450	1200	6.1	-5	5
79647	21	31	76	125	4.92	-5	-5
79648	23	122	278	81	5.4	-5	5
79649	43	153	274	315	5.78	-5	5
79650	27	188	326	84	3.58	-5	10
79651	41	37	93	376	6.35	-5	5
79652	23	56	101	88	3.06	-5	5
79653	17	27	57	68	3.07	-5	-5
79654	22	41	101	51	3.48	-5	5
79655	29	325	522	175	4.21	-5	5
79656	118	323	1040	137	9.29	-5	5
79657	22	38	175	34	2.54	-5	5
79658	20	33	54	23	2.52	-5	-5
79659	12	47	90	24	2.76	-5	5
79660	20	90	150	57	2.41	-5	5
79661	17	482	658	241	2.5	-5	-5
79662	13	100	139	40	2.08	-5	5
79663	13	43	69	15	1.66	-5	5

Project	Tullah EL
Prospect	Lakeside
Hole	LSRC2
Date commenced	8/10/96
Date completed	8/10/96
Logged	N. McGunnigle

384564.6mE
5375272.7mN

Sample No.	From	To	Description	Au ppm
79664	0	1	gl, 50% q, 50% dk gy-grn mafic-int rocks	0.007
79665	1	2	gl, as above, pebble size with occ. boulders	0.007
79666	2	3	gl, as above, pebbles	0.004
79667	3	4	MT BLACK VOLCANICS dk gy (chl) + ple grn-gy sil volc; 20% gl	0.008
79668	4	5	grn-gy i volc, chl, sil, some ox chips; 10% gl contamination	0.019
79669	5	6	gy-grn i volc, chl, sil, 30% gl + q	0.002
79670	6	7	dk grn + sil ple grn i volc + ox cg chips (3-4mm) & yel clay	-0.001
79671	7	8	ple gy-grn > dk grn (5%) i volc, f, hb + ox chips, mnr q	-0.001
79672	8	9	ple grn-crm i volc, sil, hb, < ox, 2% q	0.001
79673	9	10	as above	-0.001
79674	10	11	slightly ox, dk grn-dy i volc, 5% q	0.001
79675	11	12	grn-gy i volc, clvd, 20% q, tr py	0.001
79676	12	13	dk grn por i volc, chl, ple ox phenoxl	0.002
79677	13	14	as above	-0.001
79678	14	15	dk grn clvd por volc, 5% q v	0.006
79679	15	16	grn-gy por volc, slighlty ox, mnr q	-0.001
79680	16	17	grn-gy + ox i volc, clvd	-0.001
79681	17	18	bl-grn i volc, mnr q v	-0.001
79682	18	19	as above	0.006
79683	19	20	as above, tr fg diss py	0.008
79684	20	21	bl-grn i volc, mnr chl, mnr sil, mnr q	0.005
79685	21	22	as above	0.002
79686	22	23	as above, mnr q, mnr diss fg py	-0.001
79687	23	24	as above	0.001
79688	24	25	as above, mnr q, tr diss py	0.001

79689	25	26	as above, 10% q	-0.001
79690	26	27	bl-gy i volc, chl, 10% q	-0.001
79691	27	28	ple bl-gy (+ ox) por i volc, 10% q	0.001
79692	28	29	bl-gy por, clvd i volc, mnr q	-0.001
79693	29	30	bl-gy por i volc	0.002
79694	30	31	bl-gy i volc, mnr chl, mnr sil, 1% q, tr fg diss py	0.004
79695	31	32	as above	0.005
79696	32	33	as above, 3% q, mnr py	0.001
79697	33	34	as above, mnr q, mnr py	0.004
79698	34	35	as above, mnr q, tr py	0.001
79699	35	36	as above, > sil, 2% q, tr py	-0.001
79700	36	37	bl-gy and or (ox) i volc, sl clvd, ?fz, mnr q	-0.001
79701	37	38	bl-gy & or (ox) i volc, sl clvd, mixed sequence; 25% q, mnr py, tr gn	-0.001
79702	38	39	bl-gy sst-slt Farrell Sequence; mnr q, mnr cb, 1-2% cubic & dis py	0.002
79703	39	40	as above, sl clvd, mnr chl, mnr q + cb, 1-2% py + apy	0.007
79704	40	41	as above, sl sil, mnr q, mnr py	0.044
79705	41	42	bl-gy clvd slt, inc sil, 8% q, 1% dis py	0.064
79706	42	43	as above, sl fol, 10% milky q, 2% dis + cubic py	0.009
79707	43	44	as above, mild fol, 2-3% q, 3-5% py fg dis & str	0.058
79708	44	45	bl-gy clvd slt, 3-4% py fg dis	0.004
79709	45	46	bl-gy slt, var fol, 4-5% milky q, 3-4% py dis + str	0.24
79710	46	47	as above	1.89
79711	47	48	bl-gy sil slt, 2% q, 2-3% py	0.003
79712	48	49	as above	0.009
79713	49	50	bl-gy fol slt-slate, sil, 2%q, 2% dis py	0.105
79714	50	51	dk gy slt, fol, sl sil, mnr q, 3% py dis + str	0.369
79715	51	52	dk gy slt, fol, 2% q, 2% dis py	0.543
79716	52	53	dk gy slt, mnr q, 2% dis + cub py	1.17
79717	53	54	as above	1.17
79718	54	55	as above, < py (1-2%)	1.37
79719	55	56	dk gy slt-sh, chl, graphitic, py>apy (1%)	1.78
79720	56	57	gy slt, graph, mnr ser, fol, 1-2% dis py	0.854
79721	57	58	as above, <1% py	0.295

79722	58	59 as above	0.347
79723	59	60 as above	0.293
79724	60	61 as above, 1% q v, 1% dis py	0.29
79725	61	62 as above	0.166
79726	62	63 as above, 2% q	0.178
79727	63	64 as above, 1% q, 2% py	0.96
79728	64	65 as above, 2% q, <1% py	0.53
79729	65	66 as above, 3% q, <1% fg dis py	0.248
79730	66	67 as above, 2% q, <1% py	0.069
79731	67	68 as above, 2% q, 2% py	0.026
79732	68	69 as above, 1% q, 1-2% py	0.024
79733	69	70 as above, 2% q, 1% py	0.087
79734	70	71 dk gy slt, graph, clvd, mnr q, <1%py	0.015
79735	71	72 as above, q v 2-3%, 1-2% dis py	0.012
79736	72	73 as above, q v 2%, 1-2% py, mnr fg apy	0.07
79737	73	74 as above, 1-2% q, 1-2% py, dis, str, mnr dis apy	0.816
79738	74	75 as above, mnr q, 1% py, tr apy	0.066
79739	75	76 as above, 1-2% q, 2-3% dis + msv py, tr apy, tr cp?	0.03
79740	76	77 as above, 1-2% q, 1-2% py	0.029
79741	77	78 as above, 1% q, 1% py, mnr apy	0.041
79742	78	79 as above, 2-3% q, <1% py	0.044
79743	79	80 gy slt-slate, graph, strong fol, mnr q v, mnr fg dis py	0.014
79744	80	81 as above, mnr q, tr dis fg py	-0.001

Sample	Cu ppm	Pb ppm	Zn ppm	As ppm	Fe %	Bi ppm	Sb ppm
79664	35	9	206	6	2.84	-5	-5
79665	36	6	165	2	2.93	-5	5
79666	32	5	38	-2	3.18	-5	5
79667	8	23	104	58	4.28	-5	5
79668	-5	33	126	101	5.3	-5	-5
79669	12	17	90	23	3.78	-5	-5
79670	-5	9	176	8	3.77	-5	-5
79671	-5	11	148	12	4.46	-5	-5
79672	-5	7	98	5	2.12	-5	-5
79673	-5	5	97	5	2.56	-5	-5
79674	-5	15	168	10	4.09	-5	-5
79675	-5	173	284	7	6.96	-5	-5
79676	11	305	272	2	9.49	-5	-5
79677	-5	13	167	2	6.83	-5	-5
79678	-5	-5	141	-2	4.8	-5	-5
79679	-5	16	156	13	4.22	-5	-5
79680	-5	101	197	12	7.81	-5	-5
79681	5	125	251	3	5.77	-5	-5
79682	-5	10	105	45	12.24	-5	-5
79683	-5	5	133	49	12.08	-5	-5
79684	-5	21	146	5	11.78	-5	-5
79685	-5	22	114	7	10.39	-5	-5
79686	-5	128	195	5	5.12	-5	-5
79687	6	85	206	8	8.23	-5	-5
79688	-5	41	171	16	7.51	-5	-5

79689	-5	128	167	8	6.19	-5	-5
79690	-5	111	210	22	6.88	-5	-5
79691	-5	75	106	8	3.65	-5	-5
79692	-5	36	162	14	6.14	-5	5
79693	-5	20	169	27	9.72	-5	-5
79694	-5	25	162	42	6.93	-5	-5
79695	-5	288	484	123	7.13	-5	-5
79696	-5	-5	156	34	6.16	-5	-5
79697	7	64	261	106	13	-5	-5
79698	10	46	218	33	17.25	-5	-5
79699	-5	78	292	32	6.61	-5	-5
79700	-5	12	221	36	5.04	-5	-5
79701	-5	10	187	41	5.78	-5	-5
79702	-5	401	576	35	5.25	-5	-5
79703	25	194	442	171	11.54	-5	-5
79704	-5	10	93	1540	13.99	-5	-5
79705	28	13	92	1420	11.73	-5	-5
79706	15	41	63	119	6.04	-5	-5
79707	66	550	135	2220	6.8	-5	-5
79708	120	78	61	3645	6.91	-5	-5
79709	205	297	676	6885	7.49	-5	-5
79710	717	1490	538	32700	11.74	30	15
79711	188	1030	1740	705	7.03	-5	-5
79712	44	121	170	225	8.42	-5	-5
79713	56	85	344	804	8.64	-5	-5
79714	109	14	60	1250	10.63	-5	-5
79715	92	40	75	2650	9.67	-5	-5
79716	136	119	112	1940	12.04	-5	-5
79717	257	257	295	16100	11.7	5	30
79718	615	880	201	47850	13	30	65
79719	3390	3260	1480	38000	14.5	115	230
79720	1850	323	190	3630	7.19	70	60
79721	453	126	122	4455	6.86	5	40

79722	508	132	133	5235	6	5	25
79723	133	58	86	2630	6.29	-5	10
79724	286	76	93	4250	6.33	-5	10
79725	215	64	118	2835	6.35	-5	15
79726	79	28	85	1970	7.14	-5	30
79727	294	135	234	39600	12.45	10	95
79728	198	84	183	18750	9.34	-5	70
79729	178	64	138	9685	8.36	-5	45
79730	114	40	137	1180	10.53	-5	10
79731	124	50	108	540	10.08	-5	-5
79732	102	41	296	462	7.7	-5	-5
79733	106	46	106	3240	6.88	-5	-5
79734	54	10	89	407	7.39	-5	-5
79735	34	6	91	369	8.81	-5	10
79736	167	45	89	1930	8.64	-5	15
79737	43	41	80	45050	10.03	-5	60
79738	142	49	94	1720	8.85	-5	10
79739	164	29	69	895	7.17	-5	-5
79740	221	25	85	665	8.7	-5	-5
79741	147	26	77	737	8.07	10	-5
79742	92	19	68	519	7.79	-5	-5
79743	28	11	56	134	4.11	-5	-5
79744	17	33	89	51	1.9	-5	-5

Project Tullah EL
Prospect Lakeside
Hole name **LSRC3**
Total depth 86m
Date commenced 9/10/96 384566.3mE
Date completed 11/10/96 5375296.4mN
Logged N. McGunnigle

Sample No.	From	To	Description	Au ppm
79745	0	1	Glacials: dk brn mud & gl pebbles	-0.001
79746	1	2	gl, clayey pebbles, incl mica sht; 2% q	-0.001
79747	2	3	gl, as above, 1-2% q	-0.001
79748	3	4	gl, as above,	-0.001
79749	4	5	gl, as above	-0.001
79750	5	6	gl, pebbles, boulders & clay, mnr hm-q, 8% q	-0.001
79751	6	7	gl, hm pebbles, 10% q	-0.001
79752	7	8	gl, 1% hm pebbles, 10% q	-0.001
79753	8	9	gl as above	-0.001
79754	9	10	gl as above, 15% q	-0.001
79755	10	11	gl, as above, 20% q	-0.001
79756	11	12	gl, as above	-0.001
79757	12	13	gl, as above + mnr (?1%) gy-grn volc - contact? 15% q	0.067
79758	13	14	mixed sequence, mostly gk gy, fg mafic volc, 1-2% q, + gl chips	0.074
79759	14	15	MOUNT BLACK VOLCANICS grn-gy fg por i (?L), 1% q, tr diss py	0.041
79760	15	16	as above, 1% q + cb v, tr diss py	0.035
79761	16	17	grn-gy por Li, chl, mnr sil, 3-4% q + cb v, tr diss py	0.014
79762	17	18	ple grn-gy por Li, chl, mod sil, 10% q +/- cb v, tr dis py	0.001
79763	18	19	ple grn-gy por Li, mod sil, chl, 20% q, mnr dis py	0.001
79764	19	20	as above, 25-30% q, mnr dis py	0.009
79765	20	21	as above + 2-3% ox chips, 20% q, tr py, apy	0.008
79766	21	22	as above, 10% ox chips, mild fol, 5-10% q	0.008
79767	22	23	as above, 15% q	0.056
79768	23	24	ple gy-grn i volc, mafic xl (chl), sl sil, chl, ser, 3-4% q	-0.001

79769	24	25	as above, 2% q v	0.081
79770	25	26	as above	-0.001
79771	26	27	gy-grn por i volc, mafic xl (chl), sil, chl, ser, 2% q v	-0.001
79772	27	28	as above, 3-4% q	-0.001
79773	28	29	as above	-0.001
79774	29	30	ple gy-grn i volc, mafic xl (chl), 5% ox chips, >40% q +/- cb v	0.016
79775	30	31	as above, 1-2% ox, 30% q +/- cb	0.035
79776	31	32	gy-grn por i volc, mafic xl (chl), 1% v q	0.014
79777	32	33	as above, tr dis py	0.22
79778	33	34	as above, 2% tr py	-0.001
79779	34	35	as above	-0.001
79780	35	36	as above, 2-3% q, tr py, tr sp?	0.004
79781	36	37	gy-grn por i volc, mafic xl (chl), mod sil, chl, ser, 3-4% q, mnr py	-0.001
79782	37	38	as above	0.026
79783	38	39	as above	0.011
79784	39	40	as above, 5% q, mnr py	0.012
79785	40	41	as above, tr fg dis py	0.02
79786	41	42	ple gy-grn bch por i volc, strong sil, mod chl-ser, 20% q, mnr py	0.054
79787	42	43	dk gy-grn por i volc, mild fol, chl, sl sil, 2% q, 1% py	0.021
79788	43	44	ple gy-grn por i volc + bch volc, sil-chl, 2-3% q, 1% py	-0.001
79789	44	45	as above, 10% q, 1% py	0.002
79790	45	46	as above	-0.001
79791	46	47	as above, mild fol, 2-3% q, 1% py	-0.001
79792	47	48	as above, + puggy	0.002
79793	48	49	gy-grn por i volc, mild fol, sil, ser, chl, 3% q, mnr py	0.004
79794	49	50	grn-gy & bch por i volc, strong sil, 20% q, 1% py	0.002
79795	50	51	as above +/- ser & mild fol, ?V/mixed sequence, strong sil, ser, 3-4% q, 2% py	0.003
79796	51	52	FARRELL SEQUENCE gy Vsst, mild fol, strong ser, mod sil, chl, mnr q, 2-3% py	0.09
79797	52	53	dk gy sst-slt, mild fol, ser-chl, mnr sil, 3-5% py (dis, msv) + apy, mnr q	0.061
79798	53	54	dk gy slt-sst, mild fol, chl, ser, 2% py + tr apy	0.04
79799	54	55	as above, 2-3% py + mnr apy	0.134
79801	55	56	as above, 2% py	0.209
79802	56	57	as above, 1-2% py	0.385

79803	57	58	gy (?V)sst (mafic xl), mild fol, ser, chl, 2-3% py, apy	0.29
79804	58	59	as above, 2% q v, 2% py, apy	0.086
79085	59	60	as above, 1% q v, 2-3% py + apy	0.082
79806	60	61	dk gy slt, mild fol, chl, ser, graph, 1% q + cb, 2-3% py (cubic + dis)	0.201
79807	61	62	as above, 1-2% py, apy	0.002
79808	62	63	as above, mod fol, 1% q, 1% py, apy	0.001
79809	63	64	as above, 1-2% q, 1% py, apy	0.004
79810	64	65	gy slt-slate, mod-str fol, ser, chl, mnr q, < 1% py	0.008
79811	65	66	as above, ser, chl, mnr q+chl, mnr fg dis py	0.027
79812	66	67	dk gy-grn slt-slate, mod-str fol, ser, chl, mnr q, 1% fg py	0.002
79813	67	68	as above, 1% q v, 2% py + apy	0.084
79814	68	69	as above, 1% v q + q-chl-to?-py, 1-2% py	0.027
79815	69	70	dk gy slt, mild fol, chl> ser, q-chl+/-cb v, mnr fg dis py	0.121
79816	70	71	as above, chl> ser, 2% q, q-chl+/-cb-?to, 1-2% py, mnr po-py-apy	0.14
79817	71	72	dk gy slt, mild fol, chl> ser, mnr q + q-chl-py, 2% py + apy, tr cp? po?	0.102
79818	72	73	as above, 1% q-chl+/-py, 1% py>apy	0.14
79819	73	74	dk gy slt-slate, mod fol, chl, 1% q+/-chl, 1% py>apy	0.018
79820	74	75	as above, 1% q-chl-py, 1% py>apy	0.184
79821	75	76	dk gy slt, mild fol, chl, mnr q-cb v +/-chl+/-py, 1% py>apy	0.101
79822	76	77	as above, 1% q-chl+/-py v, 1% fg dis py	0.004
79823	77	78	as above, 2% q-chl+/-py v, 1% fg py	0.008
79824	78	79	as above, 1% q-chl, mnr fg dis py	-0.001
79825	79	80	dk gy slt-slate, mod fol, chl, 1-2% q-chl, mnr dis py	0.001
79826	80	81	dk gy slt-slate, mod fol, chl, mnr q+/-chl, 1% py, tr apy	0.008
79827	81	82	dk gy-blk slate, strong fol, chl, 1% q+/-chl, mnr py	0.006
79828	82	83	dk gy slate, strong fol, mnr q-chl, mnr py	0.009
79829	83	84	as above, 1% q+/-chl, mnr py	0.004
79830	84	85	as above, mnr py	0.004
79831	85	86	dk gy-blk slate, strong fol, chl, mnr q+/-chl+/-py, mnr dis py	0.01
			EOH	

277140

Sample	Cu ppm	Pb ppm	Zn ppm	As ppm	Fe %	Bi ppm	Sb ppm
79745	9	11	40	17	0.79	-5	-5
79746	62	30	3230	12	1.43	-5	-5
79747	33	9	87	19	1.73	-5	-5
79748	32	11	43	17	1.66	-5	-5
79749	31	7	42	12	1.43	-5	-5
79750	23	8	26	11	1.34	-5	-5
79751	25	8	29	12	1.2	-5	-5
79752	13	8	48	6	1.21	-5	-5
79753	11	9	29	6	1.33	-5	-5
79754	14	9	32	8	1.58	-5	-5
79755	12	8	21	7	1.39	-5	-5
79756	11	8	23	6	1.44	-5	-5
79757	13	9	29	8	1.61	-5	-5
79758	-5	-5	167	21	6.11	-5	-5
79759	-5	-5	86	16	3.19	-5	-5
79760	-5	-5	91	18	3.81	-5	-5
79761	-5	-5	64	12	2.53	-5	-5
79762	-5	5	61	19	2.55	-5	-5
79763	40	31	121	51	5.51	-5	-5
79764	18	10	80	31	5.73	-5	-5
79765	10	438	165	41	5.01	-5	-5
79766	-5	365	227	38	3.63	-5	-5
79767	-5	73	186	32	3.18	-5	-5
79768	-5	26	101	14	2.41	-5	-5

79769	-5	18	169	23	3.4	-5	-5
79770	-5	9	121	21	2.83	-5	-5
79771	-5	-5	88	16	2.6	-5	-5
79772	-5	-5	96	19	2.66	-5	-5
79773	-5	-5	91	16	3.05	-5	-5
79774	-5	28	65	18	1.69	-5	-5
79775	-5	-5	56	14	1.93	-5	-5
79776	-5	-5	90	14	3.01	-5	-5
79777	-5	-5	77	15	2.54	-5	-5
79778	-5	-5	75	15	2.91	-5	-5
79779	-5	-5	50	12	2.2	-5	-5
79780	-5	37	146	20	2.81	-5	-5
79781	-5	29	99	13	2.3	-5	-5
79782	-5	58	184	18	3.62	-5	-5
79783	-5	58	151	15	2.8	-5	-5
79784	7	65	133	14	3.46	-5	-5
79785	-5	62	205	20	3.79	-5	-5
79786	-5	44	100	25	3.14	-5	-5
79787	-5	192	425	30	5.33	-5	-5
79788	-5	19	109	25	3.56	-5	-5
79789	-5	5	52	20	3.04	-5	-5
79790	-5	34	130	25	3.79	-5	-5
79791	-5	11	123	26	4.86	-5	-5
79792	-5	77	186	27	3.38	-5	-5
79793	19	322	527	63	7.87	-5	-5
79794	18	1370	2150	47	3.53	-5	-5
79795	20	980	1960	46	6.23	-5	-5
79796	248	119	74	13300	8.52	-5	80
79797	237	98	34	1790	7.67	-5	20
79798	72	710	1050	457	7.96	-5	20
79799	136	293	200	2100	8.23	-5	20
79801	212	208	174	1640	6.05	15	35
79802	541	399	330	7440	8.82	20	55

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79803	340	167	124	4740	4.94	5	35
79804	59	40	212	1260	6.86	-5	45
79085	89	18	41	868	7.22	-5	30
79806	140	15	44	1580	10.12	-5	35
79807	21	8	42	312	7.81	-5	20
79808	25	12	42	136	6.73	-5	10
79809	47	13	73	512	8.81	-5	20
79810	17	55	109	81	3.23	-5	-5
79811	18	31	71	279	3.86	-5	-5
79812	22	48	109	154	3.82	-5	-5
79813	57	29	99	496	6.17	-5	-5
79814	67	30	86	154	6.04	-5	-5
79815	90	19	76	432	8.71	-5	-5
79816	106	27	74	586	8.74	-5	-5
79817	145	40	121	358	7.9	-5	-5
79818	122	43	110	1570	8.17	-5	-5
79819	46	6	69	108	8.11	-5	-5
79820	113	25	73	1390	8.58	-5	-5
79821	21	38	108	98	5.41	-5	-5
79822	11	35	59	78	2.99	-5	-5
79823	9	20	48	70	3.1	-5	-5
79824	15	23	58	75	3.1	-5	-5
79825	31	11	54	94	3.68	-5	-5
79826	22	47	125	100	6.08	-5	-5
79827	40	86	188	122	5.16	-5	-5
79828	28	28	67	92	3.44	-5	-5
79829	31	28	72	88	4	-5	-5
79830	19	10	41	55	3.05	-5	-5
79831	28	45	168	74	3.72	-5	-5

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Project Tullah EL
Prospect Lakeside
Hole name **LSRC4**
Total depth 73m
Date commenced 14/10/96 384575.4mE
Date completed 15/10/96 5375319.4mN
Logged N. McGunnigle

Sample No.	From	To	Description	Au
79832	0	1	Glacials; brn mud, gl & alv gravels	0.001
79833	1	2	gl, pebbles & brn mud (q-py-hm pebble)	0.045
79834	2	3	as above, 5% q + hm	0.013
79835	3	4	as above,	0.118
79836	4	5	gl pebbles + or-brn mud, 10% q, tr hm	0.042
79837	5	6	as above, 10-15% q, tr hm	-0.001
79838	6	7	as above, 10-15% q, mnr hm	0.034
79839	7	8	as above, mnr hm	0.061
79840	8	9	as above, 1-2% hm	0.009
79841	9	10	as above	0.012
79842	10	11	as above, 20-30% q, 1-2% hm	0.991
79843	11	12	as above	0.248
79844	12	13	as above, 20% q, tr hm	0.154
79845	13	14	mixed sequence = ? bedrock contact, mostly gl + chips dk gy, chl, sil mafic volc?,	0.028
79846	14	15	?contaminated/mixed sequence? gl + dk gy-grn, por, sil, chl, ?mafic volc	0.076
79847	15	16	*?contaminated? gl + dk grn-gy mafic volcs, por* (dk, chl xl), sil, chl	0.168
79848	16	17	as above, tr py??	0.006
79849	17	18	as above, 2-3% gy-grn volc chips, 50% q	0.074
79850	18	19	as above	-0.001
79851	19	20	poor recovery: abundant orange loamy clay	0.004
79852	20	21	poor recovery: ple brn mud & clay, mnr chips: q, gl, volc	-0.001
79853	21	22	as above	-0.001
79854	22	23	as above	-0.001
79855	23	24	as above	-0.001

79856	24	25	as above	-0.001
79857	25	26	as above	0.008
79858	26	27	as above	-0.001
79859	27	28	as above	0.003
79860	28	29	dk gy-grn i volc, f, chl, mnr sil, mnr q + q-cb-py v, 1% py	0.026
79861	29	30	dk gy-grn i volc, f, chl, 1% q + q-cb+/-chl+/-py v, mnr py	0.006
79862	30	31	as above, 1-2% q, q-cb+/-chl+/-to+/-py v, mnr py	0.008
79863	31	32	dk gy-grn i volc, f, hb (chl), chl, patchy sil, 1-2% q + q-chl v	0.018
79864	32	33	as above, tr py	0.012
79865	33	34	as above	0.043
79866	34	35	grn-gy por i volc, hb (chl), chl, mod sil, 2-3% q + q-chl+/-to v	
79867	35	36	as above	0.008
79868	36	37	dk gy-grn por i volc, hb (chl), chl, sil, 1-2% q + q-chl v, tr py	0.008
79869	37	38	as above	0.006
79870	38	39	as above	-0.001
79871	39	40	as above	-0.001
79872	40	41	gy-grn i volc, chl, mod sil (inc), 2-3% q + q-chl v, 1% py>apy, dis + msv	0.011
79823	41	42	as above, 5% q + q-chl+/-to v, 1% py>apy	-0.001
79874	42	43	as above	0.014
79875	43	44	gy-grn Vsst(?), chl, sil, ser, 2-3% q+/-chl v, 2% msv + dis py-apy	0.134
79876	44	45	gy Vsst, chl, sil, 1-2% q-chl, 7-8% py-apy	0.138
79877	45	46	as above, 10% py>apy	0.458
79878	46	47	gy sst-slt, chl, sil, 2% q + q-chl, 3-4% py>apy	0.201
79879	47	48	gy slt, chl, sil, mild fol, 1-2% q, 3-4% py>apy	0.408
79880	48	49	dk gy slt, mild fol, mnr q, 2% py>apy	0.136
79881	49	50	dk gy slt, chl, mnr sil, mild fol, mnr q, 2% py>apy	0.164
79882	50	51	as above	0.633
79883	51	52	as above	1.1
79884	52	53	dk gy slt, chl, graph, mild fol, mnr q, 3-4% py>apy	0.242
79885	53	54	as above, 1% q, 2-3% py>apy	0.288
79886	54	55	dk gy slt, chl, graph, mild fol, mnr q, 3-4% py>apy	0.213
79887	55	56	as above, 1% q, 2% py	0.33
79888	56	57	as above	0.27

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79889	57	58	dk gy slt-slate, mod fol, chl, graph, 10% py-apy msv & dis, mnr cp	3.29
79890	58	59	as above, mod-strong fol, 1% q, 1-2% py-apy	0.122
79891	59	60	as above, 1% q-cb+/-chl, 1-2% py-apy	0.176
79892	60	61	dk gy slt-slate, fol, chl-gra, 1% q+/-chl+/-py v, 1% py, mnr py-apy-sp (q v) tr gn?	0.27
79893	61	62	as above, 1% q+/-chl v, mnr py, tr gn	0.064
79894	62	63	as above, mnr py, tr apy	0.032
79895	63	64	dk gy slt-slate, mod-strong fol, 1% q+/-chl+/-py, mnr py>apy	0.021
79896	64	65	as above, mnr py	0.008
79897	65	66	as above, mod fol, 1% q+/-chl v, 1% py, tr apy, tr cp	0.024
79898	66	67	as above	0.008
79899	67	68	dk gy-blk slate, mod-strong fol, mnr q+/-chl v, mnr dis py	0.012
79900	68	69	as above	0.008
79901	69	70	as above, tr py	0.008
79902	70	71	as above	0.006
79903	71	72	as above	0.008
79904	72	73	as above	0.006
			EOH	

Sample	Cu	Pb	Zn	As	Fe%	Bi	Sb
79832	17	10	27	12	1.52	-5	-5
79833	25	9	114	16	1.45	-5	-5
79834	32	7	48	12	1.7	-5	-5
79835	24	8	35	11	1.55	-5	-5
79836	21	9	36	17	1.82	-5	-5
79837	20	8	37	14	2.17	-5	-5
79838	28	11	55	16	2.3	-5	-5
79839	23	8	67	12	1.97	-5	-5
79840	17	7	57	11	1.81	-5	-5
79841	24	8	49	13	2.23	-5	-5
79842	22	28	47	16	1.55	-5	-5
79843	17	17	29	11	1.84	-5	-5
79844	19	18	34	14	1.72	-5	-5
79845	17	7	33	8	1.57	-5	-5
79846	15	11	28	10	1.52	-5	-5
79847	14	5	28	8	1.33	-5	-5
79848	18	6	66	10	1.43	-5	-5
79849	19	11	32	11	1.69	-5	-5
79850	11	6	21	6	1.36	-5	-5
79851	17	28	55	12	1.5	-5	-5
79852	12	18	44	6	1.01	-5	-5
79853	14	27	48	8	1.25	-5	-5
79854	15	30	54	10	1.39	-5	-5
79855	20	30	44	11	1.08	-5	-5

79856	13	28	41	10	1.04	-5	-5
79857	14	28	49	9	1.19	-5	-5
79858	17	36	73	31	1.64	-5	-5
79859	14	32	63	57	1.6	-5	-5
79860	48	121	158	630	4.04	-5	-5
79861	23	89	183	108	9.84	-5	-5
79862	11	37	102	127	2.71	-5	-5
79863	28	52	136	167	2.69	-5	-5
79864	20	43	117	134	2.63	-5	-5
79865	19	56	157	119	3.66	-5	-5
79866							
79867	9	32	81	61	2.51	-5	-5
79868	11	46	141	109	7.21	-5	-5
79869	8	36	169	96	12.05	-5	-5
79870	-5	35	153	35	5.05	-5	-5
79871	6	44	157	47	5.09	-5	-5
79872	13	35	135	69	4.7	-5	-5
79823	-5	52	224	38	6.85	-5	-5
79874	-5	29	193	36	6.6	-5	-5
79875	183	182	303	820	8.83	10	-5
79876	80	76	49	2170	9.49	-5	-5
79877	48	66	46	16350	13.49	15	15
79878	116	97	62	2420	6	-5	-5
79879	183	146	66	5920	8.04	-5	10
79880	185	35	54	1460	6.24	-5	35
79881	509	71	82	823	10.39	-5	45
79882	1590	980	1150	3030	8.89	40	40
79883	1350	2040	1950	22050	13.85	55	75
79884	263	246	321	2010	10.6	-5	35
79885	524	153	183	1300	10.78	20	50
79886	403	146	327	1210	10.27	15	30
79887	274	129	152	2140	9.92	15	35
79888	322	98	114	2770	9.67	-5	55

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79889	2910	430	572	68200	19.43	70	125
79890	132	236	360	1850	8.2	-5	30
79891	348	425	559	4585	10.27	10	25
79892	322	1340	1330	4235	7.36	20	20
79893	31	287	239	409	4.6	-5	-5
79894	29	146	160	439	4.03	-5	-5
79895	29	87	145	246	4.96	-5	-5
79896	30	32	61	122	3.44	-5	-5
79897	51	38	88	209	5.2	-5	-5
79898	20	27	93	115	5.94	-5	-5
79899	34	36	67	78	3.74	-5	-5
79900	44	24	55	54	4.19	-5	-5
79901	30	36	90	97	4.2	-5	-5
79902	24	40	81	72	3.58	-5	-5
79903	21	92	153	113	5.65	-5	-5
79904	20	36	91	104	6.01	-5	-5

Project Tullah EL
Prospect Lakeside
Hole name **LSRC5**
Total depth 90m
Date commenced 16/10/96 384578.6mE
Date completed 17/10/96 5375344.4mN
Logged N. McGunnigle

Sample No.	From	To	Description	Au ppm
79905	0	1	reworked alv + gl gravels on drill pad	0.012
79906	1	2	gl + alv gravels & pebbles, brn mud, 4-5% q	-0.001
79907	2	3	as above	-0.001
79908	3	4	as above	0.001
79909	4	5	as above	0.002
79910	5	6	as above	0.046
79911	6	7	as above	-0.001
79912	7	8	as above, poor recovery	
79913	8	9	gl gravel + 15% q chips, mnr (2-3%0 volc component (dk grn, por, chl)	-0.001
79914	9	10	as above	0.004
79915	10	11	as above, > 50% q, abundant silty brn mud	0.002
79916	11	12	brn mud & silt	0.001
79917	12	13	as above	0.014
79918	13	14	as above, mnr rock chips (60% q)	0.004
79919	14	15	brn mud & silt	-0.001
79920	15	16	as above	1.13
79921	16	17	as above	0.008
79922	17	18	as above	0.026
79923	18	19	as above	-0.001
79924	19	20	as above	0.001
79925	20	21	as above	0.001
79926	21	22	as above	0.003
79927	22	23	as above	0.002
79928	23	24	as above	-0.001

79929	24	25 as above	0.001
79930	25	26 ple grn por volc, hb (chl), sil, chl, sl ox, 1% q v	0.006
79931	26	27 as above	0.006
79932	27	28 as above, 2-3% q+/-chl v	-0.001
79933	28	29 grn gy i volc, fg, chl>sil, 2% q+/-chl (+/-to?) v, tr fg dis py	0.002
79934	29	30 as above	-0.001
79935	30	31 grn-gy por i volc, f, mafic xl (?hb=chl) + leuc, chl, sil, 1-2% q v, tr fg py	0.014
79936	31	32 as above, 2-3% q-chl v, tr py	0.008
79937	32	33 as above	0.007
79938	33	34 as above	0.004
79939	34	35 ple grn-gy por volc, hb(chl) +leu, chl, strg sil, 5-6% q-chl+/-to, mnr py, tr sp (in q v)	0.004
79940	35	36 as above, 4-5% q-chl+/-to v, mnr py	0.009
79941	36	37 as above	0.006
79942	37	38 as above, mnr dis py	0.004
79943	38	39 ple grn-gy & bch volc, chl, hi sil, ple gy-grn pug & clay, mnr py	0.006
79944	39	40 ple grn-bch por volc, sil, chl, 2-3% q +/-cb v, mnr py	0.004
79945	40	41 as above	0.01
79946	41	42 grn-gy Vsst(?), chl > sil, 1% q-cb v, 2-3% py-apy (msv & dis), tr sp, tr gn (in q-cb v)	0.188
79947	42	43 gy sst, strong sil, ser, mnr q-cb v, 5% apy-py (msv & dis), mnr cp	0.525
79948	43	44 as above, 4-5% apy-py, tr cp	0.431
79949	44	45 as above, tr q-cb v, 4-5% apy-py, tr cp	0.332
79950	45	46 gy sst-slt, sil, sl ser, mnr q-chl v, 15-20% apy-py (msv), mnr cp	3.34
79951	46	47 as above, 15-20% apy, py (msv), mnr cp	1.26
79952	47	48 as above, 10-15% apy-py, mnr cp	1.14
79953	48	49 dk gy slt, graphitic, ser, mild fol, 1-2% q-chl v, 5% apy-py (msv & str)	0.541
79954	49	50 as above, mnr q-chl v, 4-5% apy-py	2.3
79955	50	51 as above, 1-2% py-apy	0.874
79956	51	52 as above, 5% apy-py	2.4
79957	52	53 as above, 4-5% apy-py	1.9
79958	53	54 dk gy-blk slt, mild fol, chl, graph, ser, 2% py-apy	-0.001
79959	54	55 dk gy slt, ser, graph, chl, mnr q-chl v, 2% py-apy	0.338
79960	55	56 gy slt, chl, sl sil, 1% q+/-chl v, 2% py>apy	1.29
79961	56	57 as above, mnr q-chl v, 3-4% py>apy	3.2

79962	57	58 gy slt, ser, chl, 2-3% q+/-chl v, 2-3% py>apy, tr cp	2.26
79963	58	59 dk gy slt, chl, ser, mild fol, mnr q v, 2-3% py>apy, tr cp	0.511
79964	59	60 as above, 2-3% py, apy, tr cp	2.53
79965	60	61 as above, 2% py, tr apy	0.461
79966	61	62 as above, 1% q v, 2% py + tr apy	0.221
79967	62	63 dk gy slt, chl, ser, mod fol, 1% q-chl v, 1-2% py, tr apy	0.376
79968	63	64 dk gy slt-slate, strong fol, 1% q-chl (+/- to?) v, 1% py	0.121
79969	64	65 as above, mnr q+/- cb v, mnr py	0.102
79970	65	66 as above, v mnr q+/-chl v, 1% py, tr apy	0.43
79971	66	67 as above	0.222
79972	67	68 blk slate, strong fol, mnr q-chl+/-py v, 1% py	0.794
79973	68	69 dk gy slt-slate, mod fol, mnr q-chl v, 1% py + ,mr apy	0.408
79974	69	70 dk gy slt, mild fol, v mnr q-chl v, mnr py	0.026
79975	70	71 as above, v mnr q-chl v + v mnr cb v, mnr py	0.074
79976	71	72 dk gy slt, mild fol, mnr q-chl v, mnr po, mnr py, tr apy	0.078
79977	72	73 as above, mnr py, po	0.03
79978	73	74 dk gy slt, mod fol, 1% q-cb +/- chl v, 1% py, tr apy	0.041
79979	74	75 as above, mnr q-cb+/-chl v, 1% py, tr apy	0.052
79980	75	76 dk gy slt, chl, mild fol, v mnr q-cb-chl v, mnr dis py	0.022
79981	76	77 as above, 1% q-cb-chl v, mnr dis py, tr apy	0.033
79982	77	78 as above, v mnr v, mnr py	0.036
79983	78	79 as above	0.052
79984	79	80 as above, mnr dis py, tr apy?	0.029
79985	80	81 dk gy slt, chl, mild fol, mnr q-chl v, mnr py, tr apy?	0.088
79986	81	82 as above, mnr py	0.084
79987	82	83 as above, tr py	0.037
79988	83	84 as above, mnr py	0.026
79989	84	85 dk gy slt-slate, mod fol, 1% q-cb+/-chl+/-py, mnr dis py	0.017
79990	85	86 as above + blk slate, mnr py	0.027
79991	86	87 as above	0.063
79992	87	88 as above, 1% py + tr cp, tr apy	0.112
79993	88	89 dk gy slt-slate, mod-strong fol, mnr q-cb-chl v, 1% dis py, tr apy?	0.024
79994	89	90 dk gy slt, chl, mild fol, 1% q-chl v, mnr py	0.085

Sample	Cu ppm	Pb ppm	Zn ppm	As ppm	Fe %	Bi ppm	Sb ppm
79905	11	-5	181	18	1.03	-5	-5
79906	11	5	36	9	1.24	-5	-5
79907	6	6	21	10	1.03	-5	-5
79908	12	7	19	15	0.87	-5	-5
79909	7	-5	29	7	0.6	-5	-5
79910	6	5	16	11	0.95	-5	-5
79911	13	-5	94	7	1.01	-5	-5
79912							
79913	8	-5	17	7	1.07	-5	-5
79914	6	7	26	15	1.18	-5	-5
79915	15	24	64	19	1.46	-5	-5
79916	12	27	42	11	1	-5	-5
79917	9	29	32	9	0.89	-5	-5
79918	14	39	55	12	1.2	-5	-5
79919	13	38	52	6	0.91	-5	-5
79920	13	37	41	7	0.94	-5	-5
79921	14	29	41	7	0.81	-5	-5
79922	15	28	41	10	0.92	-5	-5
79923	12	33	39	10	1.04	-5	-5
79924	14	27	48	14	1.19	-5	-5
79925	13	26	43	12	1.03	-5	-5
79926	11	25	36	9	0.99	-5	-5
79927	14	28	42	13	1.14	-5	-5
79928	13	26	44	11	1.13	-5	-5

79929	14	28	51	13	1.27	-5	-5
79930	12	37	67	64	1.84	-5	-5
79931	6	16	57	23	1.96	-5	-5
79932	-5	6	48	12	1.88	-5	-5
79933	6	29	145	195	6.67	-5	-5
79934	-5	33	124	198	7.28	-5	-5
79935	8	54	159	262	6.54	-5	-5
79936	-5	18	79	19	2.17	-5	-5
79937	10	82	216	120	3.25	-5	-5
79938	-5	124	271	20	2.64	-5	-5
79939	-5	46	98	27	1.9	-5	-5
79940	-5	33	74	14	1.67	-5	-5
79941	-5	15	50	14	1.51	-5	-5
79942	-5	13	49	15	1.28	-5	-5
79943	-5	21	72	35	1.86	-5	-5
79944	-5	19	54	32	1.13	-5	-5
79945	6	84	134	114	2.3	-5	-5
79946	87	369	677	6375	5.99	-5	-5
79947	480	123	172	16100	6.11	25	10
79948	1470	75	67	17700	6	30	15
79949	1280	62	52	16450	6.32	25	15
79950	860	294	26	124200	22.04	85	140
79951	1060	149	41	51350	12.11	55	50
79952	1500	180	75	26400	10.12	55	30
79953	592	46	52	6750	8.68	15	10
79954	382	47	65	999	10.73	30	35
79955	462	69	50	1410	7.79	15	20
79956	867	160	137	42500	15.95	40	135
79957	455	276	174	60850	13.22	40	95
79958	547	59	78	4990	9.7	5	25
79959	450	40	65	1780	8.7	5	35
79960	707	38	93	2720	8.9	5	20
79961	616	50	111	13000	14.18	10	40

79962	606	105	200	14350	11.28	30	60
79963	642	102	82	3640	8.53	25	65
79964	310	11	50	11550	9.4	5	25
79965	164	60	83	567	9.31	10	30
79966	95	103	143	9240	9.3	-5	40
79967	59	26	81	3080	8.56	-5	-5
79968	76	39	97	443	9.48	-5	-5
79969	36	97	177	341	8.27	-5	-5
79970	65	45	133	1190	10.46	-5	-5
79971	36	12	73	366	9.12	-5	-5
79972	46	25	86	1290	10.81	-5	-5
79973	58	33	79	2100	10.01	-5	-5
79974	24	11	66	225	8.41	-5	-5
79975	36	46	108	397	7.66	-5	-5
79976	56	17	70	415	8.46	10	-5
79977	32	11	74	451	7.91	-5	-5
79978	57	48	158	222	9.67	-5	-5
79979	55	15	75	355	8.64	-5	-5
79980	37	12	143	130	6.4	-5	-5
79981	39	48	254	216	6.11	-5	-5
79982	-5	6	-5	2	-0.01	-5	-5
79983	45	18	84	540	7.51	-5	-5
79984	15	6	78	356	8.02	-5	-5
79985	8	-5	61	224	7.62	-5	-5
79986	44	8	73	488	9.43	-5	-5
79987	42	-5	58	448	6.72	-5	-5
79988	102	9	57	441	6.61	-5	-5
79989	34	50	86	320	5.9	-5	-5
79990	42	17	70	207	6.05	-5	-5
79991	15	5	58	135	5.44	-5	-5
79992	133	23	64	507	8.35	-5	-5
79993	46	238	423	417	7.45	-5	-5
79994	18	16	45	2400	5.36	-5	-5

Project Tullah EL
Prospect Lakeside
Hole name **LSRC6**
Total depth 80m
Date commenced 21/10/96 384588.5mE
Date completed 22/10/96 5375367.1mN
Logged N. McGunnigle

Sample No.	From	To	Description	Au
79995	0	1	alv + gl gravels & pebbles, brn mud	-0.001
79996	1	2	gl gravels & pebbles + brn mud	-0.001
79997	2	3	as above	-0.001
79998	3	4	gl pebbles & boulders + brn mud	-0.001
79999	4	5	as above	-0.001
800000	5	6	as above	-0.001
163001	6	7	as above	-0.001
163002	7	8	gl pebbles, brn mud, 1-2% q chips	-0.001
163003	8	9	as above, 5% q	0.001
163004	9	10	as above	-0.001
163005	10	11	gl, incl 10% dk grn volc + ple brn mud, 8-10% q	-0.001
163006	11	12	gl pebbles, ple brn mud	-0.001
163007	12	13	as above, 5-10% q	-0.001
163008	13	14	as above	-0.001
163009	14	15	gl + 1-2% dk grn volc, ple brn mud	-0.001
163010	15	16	gl (10% q) + mud	0.002
163011	16	17	abundant ple brn mud + gl (?contamination)	-0.001
163012	17	18	as above (poor chip recovery)	-0.001
163013	18	19	as above	-0.001
163014	19	20	ple brn mud, chips: 50% q, 10% dk grn volc	-0.001
163015	20	21	ple brn mud, chips: 20% q, 20% dk grn volc + gl gravels	0.001
163016	21	22	as above	-0.001
163017	22	23	ple brn mud, poor recovery of rock chips (as above)	-0.001
163018	23	24	as above	-0.001

163019	24	25	as above	-0.001
163020	25	26	as above	0.001
163021	26	27	dk grn chl volc (Li?), 10% q chips + q-hm chips (contam?)	-0.001
163022	27	28	dk grn i volc, f, 5% q	-0.001
163023	28	29	ple gy-grn i volc, chl, ser, + f +/- hb por red-gy sil (?alb) rock (V/I?), 5% q	0.001
163024	29	30	ple gy-grn i volc, f, chl, sil, 5-6% q	0.001
163025	30	31	ple gy-grn i volc, mafic xl (chl), chl, sil, 5-6% q	-0.001
163026	31	32	gy-grn por i volc, chl, sil, 3-4% q v, tr py	-0.001
163027	32	33	ple gy-grn i volc, chl, sil, 5% v q, tr py	-0.001
163028	33	34	gy grn i volc, chl>sil, 2-3% q v, mnr py, dis + cubic	0.04
163029	34	35	dk grn-gy fg volc, chl, mnr sil, 1-2% q, 1% py	0.069
163030	35	36	gy Vsst (?), chl, ser, mnr q-chl v	1.89
163031	36	37	gy sst, ser, mnr chl, mnr q, 1-2% py-apy	0.35
163032	37	38	as above, 1-2% py>apy	0.39
163033	38	39	as above	0.048
163034	39	40	gy sst + dk gy slt, ser, chl, 2-3% ser-q-chl v, 2-3% py>apy	0.57
163035	40	41	gy slt, ser, chl, mild fol, 1% q-chl v, 2-3% py-apy, tr cp	0.059
163036	41	42	gy sst-slt, as above, 2-3% py-apy, tr cp	0.061
163037	42	43	as above, 3-4% py-apy, tr cp	0.072
163038	43	44	gy slt, ser, shl, 1-2% q-chl v, 10% msv & dis py-apy, tr cp	1.85
163039	44	45	as above, 4-5% py-apy, tr cp	0.94
163040	45	46	dk gy slt, ser, mnr q-chl, 4-5% msv + dis py>apy	1.05
163041	46	47	as above, 7-8% py-apy (>?)	3.98
163042	47	48	dk slt, ser, mild fol, mnr q-chl, 4-5% py-apy, tr cp	0.52
163043	48	49	as above, 1% q-chl, 3-4% py-apy, tr cp	0.35
163044	49	50	dk gy slt, mild fol, 1-2% q-chl, 3-5% py-apy	0.78
163045	50	51	dk gy-blk slt-slate, chl, graphitic, mod fol, 1% q-chl v, 3-4% py>apy	0.495
163046	51	52	gy slt, mod fol, graph, chl, 2-3% q-chl+/- py, 2-3% py>>apy	0.46
163047	52	53	gy slt, mild fol, graph, chl, 1-2% q-chl+/-to+/-py, 2-3% py, mnr apy	0.198
163048	53	54	gy slt, mild fol, graph, chl, 1% q-chl-cb, 2% py	0.032
163049	54	55	dk gy slt-slate, mod-strong fol, graph, chl, 3-4% q-cb-chl v, mnr dis py	0.01
163050	55	56	gy-blk slt-slate, mild fol, 1% q-cb+/-chl v, tr py, fg dis	0.003
163051	56	57	as above, 2% q-cb-chl v, mnr py	0.001

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163052	57	58 dk gy slt-slate, 3-4% q-cb-chl+/-py, mnr (<1%) dis py	0.002
163053	58	59 gy slt, ser, graph, mild fol, 2% q-cb+/-py, mnr py, tr apy	0.002
163054	59	60 dk gy-blk slate, mod-strong fol, 2-3% q-cb-chl v, mnr py-apy (in q-chl v), tr sp	0.014
163055	60	61 dk gy-blk slt-slate, mod-strong fol, 1% q-cb, tr fg dis py	0.002
163056	61	62 blk slate, strong fol, 1-2% q-cb-chl+/-py, mnr fg dis py	0.033
163067	62	63 as above	0.001
163058	63	64 dk gy slt, mild fol, 1% q-cb-chl v, mnr py, tr gn	0.015
163059	64	65 as above, v mnr fg dis py, tr gn, sp	-0.001
163060	65	66 dk gy slt, mild fol, 1% q-chl v with mnr py, gn, sp	0.003
163061	66	67 as above + mnr fol slate	0.002
163062	67	68 as above, 1% q-chl v, mnr dis py	0.002
163063	68	69 dk gy slt, mild fol, 1-2% q-chl v, mnr dis py	0.081
163064	69	70 as above, 1% q-chl+/-cb v, 1% dis py + tr sp, apy	0.198
163065	70	71 as above, v mnr dis py +/- tr cp	0.003
163066	71	72 dk gy slt-slate, mod fol, 1% milky q-cb-chl v, mnr dis py	0.002
163067	72	73 as above, 2% q-cb-chl v, mnr py	0.006
163068	73	74 as above, 1% q-cb-chl v, v mnr py	0.013
163069	74	75 dk gy slt-slate, mod fol, 1% q-chl v, mnr py + tr sp, gn	0.001
163070	75	76 as above, 1% q-chl v, 1-2% py (fg dis + str), tr sp>gn, ?cp	0.006
163071	76	77 dk gy slt-slate, mild-mod fol, 1-2% q-chl v, <1% py, tr sp + gn (in q v)	0.019
163072	77	78 as above, 1% q-chl v, mnr fg py, tr sp, tr gn	0.043
163073	78	79 as above, mnr py, tr sp, tr apy	0.011
163074	79	80 as above, <1% py, tr apy	0.131
		EOH	

Sample	Cu	Pb	Zn	As	Fe%	Bi	Sb
79995	11	-5	20	11	1.34	-5	-1
79996	17	5	82	9	1.23	-5	-1
79997	20	6	91	10	1.43	-5	-1
79998	23	8	59	8	0.87	-5	-1
79999	26	-5	32	10	1.63	-5	-1
800000	25	7	77	8	1.18	-5	-1
163001	12	12	38	6	0.79	-5	-1
163002	20	5	55	7	1.08	-5	-1
163003	18	6	63	9	1.39	-5	-1
163004	19	-5	104	11	1.38	-5	-1
163005	17	6	51	11	1.58	-5	-1
163006	15	6	50	12	2.09	-5	-1
163007	20	6	54	13	2.19	-5	-1
163008	19	13	61	9	1.95	-5	-1
163009	24	29	96	13	2.92	-5	-1
163010	20	39	69	8	1.93	-5	-1
163011	12	42	44	7	1.06	-5	-1
163012	14	31	34	16	0.87	-5	-1
163013	13	33	42	7	0.97	-5	-1
163014	17	42	57	9	1.45	-5	-1
163015	15	36	53	50	1.2	-5	-1
163016	13	33	44	8	1.06	-5	-1
163017	11	27	39	7	0.95	-5	-1
163018	12	29	41	7	1.05	-5	-1

163019	13	31	48	11	1.11	-5	-1
163020	15	35	71	14	1.39	-5	-1
163021	12	49	77	31	1.62	-5	-1
163022	17	56	108	31	1.62	-5	-1
163023	10	209	260	38	1.52	-5	-1
163024	8	76	153	32	1.39	-5	-1
163025	9	57	91	19	1.52	-5	-1
163026	6	42	103	17	2.24	-5	-1
163027	-5	111	186	15	2.08	-5	-1
163028	71	219	1200	1130	6.24	-5	-1
163029	35	82	119	2835	7.71	-5	-1
163030	258	120	67	66650	12.44	55	60
163031	226	108	57	12800	6.7	10	15
163032	84	77	61	6915	6.2	10	5
163033	178	39	47	1570	4.85	5	-1
163034	112	88	37	27000	9.17	25	25
163035	355	77	50	1780	5.61	10	-1
163036	190	173	125	1740	6.85	25	-1
163037	197	132	69	1660	5.19	10	-1
163038	5800	190	164	53200	14.99	20	95
163039	1310	173	171	33950	10.1	40	55
163040	1610	262	203	19950	9.98	40	65
163041	4800	790	535	80800	22.59	125	205
163042	913	61	65	4975	6.41	20	50
163043	500	45	78	2190	7.11	15	25
163044	255	30	87	825	7.74	5	20
163045	287	67	77	3210	8.68	15	55
163046	149	156	360	1570	8.51	5	45
163047	168	55	107	583	8.31	-5	50
163048	30	19	91	329	6.47	-5	25
163049	31	198	194	232	6.36	-5	15
163050	21	323	578	134	4.05	-5	10
163051	30	217	312	118	3.98	-5	5

163052	33	236	492	107	4.24	-5	15
163053	7	69	146	120	2.96	-5	-1
163054	26	314	431	323	4.55	-5	-1
163055	18	42	93	129	2.7	-5	-1
163056	61	4190	8550	204	5.54	-5	-1
163067	23	1750	236	113	3.52	-5	-1
163058	74	2820	3590	80	4.58	-5	-1
163059	34	78	162	69	2.78	-5	-1
163060	26	425	2700	94	3.52	-5	-1
163061	14	301	899	70	2.81	-5	-1
163062	27	930	1440	96	3.97	-5	-1
163063	55	3630	1480	436	6.28	-5	-1
163064	61	810	1180	1850	6.36	-5	-1
163065	6	292	253	78	2.73	-5	-1
163066	24	169	532	84	3.36	-5	-1
163067	32	890	758	85	4.68	-5	-1
163068	21	820	1470	150	6.26	-5	-1
163069	23	174	142	76	3.37	-5	-1
163070	27	810	1750	105	5.02	-5	-1
163071	24	2460	3810	134	6.67	-5	-1
163072	19	116	305	268	4.51	-5	-1
163073	15	78	164	252	3.06	-5	-1
163074	75	70	70	843	5.93	10	-1

Project	Sterling Valley
Prospect	Lakeside
Hole name	**LSRC7**
Total depth	73m
Date commenced	23/10/96 384344.1mE
Date completed	25/10/96 5374716.0mN
Logged	N. McGunnigle

Sample No.	From	To	Description	Au
163975	0	1	glacials - no rock chip recovery	
163976	1	2	as above	
163977	2	3	as above	
163978	3	4	as above	
163979	4	5	as above	
163980	5	6	as above	
163981	6	7	as above	
163982	7	8	as above	
163983	8	9	as above	
163984	9	10	as above	
163985	10	11	as above	
163986	11	12	as above	
163987	12	13	as above	
163988	13	14	gl pebbles + gravels, 10% q	-0.001
163989	14	15	as above, 15% q	-0.001
163990	15	16	as above, ple brn mud/clay, 10-15% q	-0.001
163991	16	17	as above	-0.001
163992	17	18	as above, ple brn mud/clay, mnr q	-0.001
163993	18	19	as above, 1-2% q	0.002
163994	19	20	as above	-0.001
163995	20	21	as above, 2-3% q (incl q-hm)	-0.001
163996	21	22	as above, ox, clay, incl 1-2% dk grn (?V) chips	-0.001
163997	22	23	as above	-0.001
163998	23	24	as above	-0.001

163999	24	25	as above	-0.001
164000	25	26	ple brn mud-clay, poor rock chip recovery (gl)	-0.001
164001	26	27	as above	-0.001
165002	27	28	ple brn mud-clay, very poor rock chip recovery (cg gl)	-0.001
164003	28	29	as above	0.002
164004	29	30	as above	-0.001
164005	30	31	as above	-0.001
164006	31	32	ple brn clay-mud, no rock chip recovery	-0.001
164007	32	33	as above	-0.001
164008	33	34	as above	-0.001
164009	34	35	as above	-0.001
164010	35	36	as above	-0.001
164011	36	37	as above	0.001
164012	37	38	as above	-0.001
164013	38	39	as above	-0.001
164014	39	40	as above	-0.001
164015	40	41	as above	-0.001
164016	41	42	brn, sl gy clay-mud	-0.001
164017	42	43	gy clay with ple brn blotches	-0.001
164018	43	44	gy clay	0.002
164019	44	45	as above	-0.001
164020	45	46	as above	0.001
164021	46	47	as above	-0.001
164022	47	48	bl-gy clay	-0.001
164023	48	49	as above	0.001
164024	49	50	as above	0.001
164025	50	51	khk-grn, bl-gy clay	0.002
164026	51	52	dk grn gy clay	0.001
164027	52	53	dk grn por (f?) volc (?), chl, pink-red alt phen, poor recovery	0.002
164028	53	54	mixed-contam sequence, dk gy + grn gy i volc, f, chl, ser, mild fol; mnr gl; 5% q, tr py	0.001
164029	54	55	grn-gy i volc, f, var chl (some dk grn volc), mild fol, 1% q v, tr py	0.001
164030	55	56	grn-gy i volc, mild fol, f +/- hb, chl, 2% q v, ab. grn-gy clay-pug	-0.001
164031	56	57	as above, mnr q-cb v, grn-gy clay	0.001

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164032	57	58	grn-gy volc, mild fol, chl, 2% q v	-0.001
164033	58	59	grn-gy volc, f, chl, mild fol, 2-3% q v	*0.001*
164034	59	60	as above + mnr sil	-0.001
164035	60	61	plr grn-gy i volc, f, mild fol, chl, 5% q +/- chl v	-0.001
164036	61	62	as above, 10% q-chl v	0.001
164037	62	63	as above, 3-4% q-chl+/-to?	0.001
164038	63	64	grn-gy i volc, f, chl, 2-3% q-chl+/-to?	-0.001
164039	64	65	grn-gy i volc, chl, sil, >50% q-chl v	-0.001
164040	65	66	as above, 15% q-chl v	-0.001
164041	66	67	grn-gy volc, f, chl, sl sil, 2-3% q-chl v	-0.001
164042	67	68	as above	-0.001
164043	68	69	as above, sl darker, > chl, Mn, mild fol, 2% q-chl	-0.001
164044	69	70	dk gy-grn i volc, chl, Mn, 2% q-chl	-0.001
164045	70	71	grn-gy por i volc, chl, sl sil, 1% q v	-0.001
164046	71	72	as above, 3-4% q v	-0.001
164047	72	72.5	as above, 5% q-chl+/-cb v	-0.001
		72.5	EOH - water forcing back up hole	

Sample	Cu	Pb	Zn	As	Fe%	Bi	Sb
163975							
163976							
163977							
163978							
163979							
163980							
163981							
163982							
163983							
163984							
163985							
163986							
163987							
163988	5	8	36	8	0.97	-5	-1
163989	-5	8	32	5	0.77	-5	-1
163990	6	11	49	5	0.95	-5	-1
163991	6	16	51	8	0.95	-5	-1
163992	6	9	40	5	0.94	-5	-1
163993	-5	8	30	9	0.75	-5	-1
163994	5	20	45	9	0.77	-5	-1
163995	6	7	48	18	2.15	-5	-1
163996	6	6	31	4	0.84	-5	-1
163997	7	11	59	24	2.77	-5	-1
163998	10	14	63	14	1.9	-5	-1

163999	10	15	63	15	1.89	-5	-1
164000	11	28	196	11	1.2	-5	-1
164001	9	19	101	8	1.21	-5	-1
165002	9	22	143	8	1.14	-5	-1
164003	12	22	100	10	1.3	-5	-1
164004	9	17	69	7	1.3	-5	-1
164005	14	20	76	9	1.46	-5	-1
164006	9	13	57	7	1.1	-5	-1
164007	9	15	50	6	1.05	-5	-1
164008	8	16	48	6	0.99	-5	-1
164009	9	15	49	7	1.05	-5	-1
164010	10	19	58	7	1.11	-5	-1
164011	12	29	72	8	1.34	-5	-1
164012	11	25	65	7	1.08	-5	-1
164013	13	27	69	5	1.09	-5	-1
164014	11	30	74	7	1.19	-5	-1
164015	12	31	74	7	1.16	-5	-1
164016	11	29	67	6	1	-5	-1
164017	15	40	87	7	1.06	-5	-1
164018	13	35	89	6	1.12	-5	-1
164019	13	32	81	7	1.11	-5	-1
164020	14	37	84	7	1.2	-5	-1
164021	17	43	98	7	1.33	-5	-1
164022	17	46	105	7	1.36	-5	-1
164023	22	61	138	8	1.74	-5	-1
164024	28	70	172	11	2.3	-5	-1
164025	32	84	181	11	2.62	-5	-1
164026	32	84	167	11	2.62	-5	-1
164027	33	87	187	15	2.67	-5	-1
164028	22	109	250	40	2.68	-5	-1
164029	6	27	135	25	3.81	-5	-1
164030	7	12	150	9	4.82	-5	-1
164031	9	20	145	12	4.36	-5	-1

164032	9	8	130	8	4.26	-5	-1
164033	-5	-5	154	7	5.49	-5	-1
164034	-5	-5	140	7	5.08	-5	-1
164035	-5	41	179	11	3.88	-5	-1
164036	16	70	166	12	2.96	-5	-1
164037	12	19	334	8	3.3	-5	-1
164038	9	5	163	5	2.5	-5	-1
164039	-5	-5	79	3	1.11	-5	-1
164040	-5	-5	137	7	2.75	-5	-1
164041	-5	-5	127	6	3.12	-5	-1
164042	-5	-5	98	6	2.56	-5	-1
164043	-5	-5	121	8	3.47	-5	-1
164044	5	-5	113	8	3.06	-5	-1
164045	-5	-5	121	10	2.93	-5	-1
164046	-5	-5	114	11	2.67	-5	-1
164047	-5	-5	76	12	2.5	-5	-1

277168

APPENDIX 5

Memorandum on the Results of the RC Drilling at the Lakeside Prospect and Recommendations for Diamond Drilling

277169

PASMINCO EXPLORATION

Memorandum

To: Barry Murphy
cc: Sally Dibben

From: Nicola McGunnigle

Date: 31 December 1996

Subject: **Lakeside - Tullah RC Drilling Results**

Summary

Six RC drill holes were completed at the Lakeside Prospect, Tullah EL 22/90, totaling 497m. Drilling of LSRC7 located by Sterling River, next to the Murchison Highway was stopped prematurely at 72.5m due to water forcing back up the hole. Best intersections from Lakeside drilling include:

LSRC1		3m @ 1.2 g/t Au	(48-51m)
		3m @ 1.0 g/t Au	(53-56m)
LSRC2		5m @ 1.35 g/t Au	(52-75m)
LSRC4		1m @ 1.12 g/t Au	(51-52m)
		1m @ 3.66 g/t Au	(57-58m)
LSRC5		15m @ 1.78 g/t Au	(45-60m)
	incl.	8m @ 2.26 g/t Au	(45-53m)
		5m @ 1.6 g/t Au	(55-60m)
LSRC6		4m @ 1.95g/t Au	(43-47m)

Introduction

A shallow RC drilling program was planned at the Lakeside Prospect to follow up Au intersections reported in previous drilling. The target zone was designed to follow up best Au intersections which occur immediately footwall of the Henty Fault, commonly (but not always) with high As ± Cu. Drilling commenced on 4 October 1996 and was completed on 25 October. LSRC1 - LSRC7 are located on Figure 1.

Work Completed

Six RC holes were drilled in the Lakeside Prospect, targeting Au mineralisation footwall of the Henty Fault Zone. The holes were all drilled with a dip of 60°, at 078° (AMG E) and were spaced at 25m intervals south of Lake Rosebery. The target depth to hit the Henty Fault was 40-50m, anticipating mineralisation 10-20m footwall of the fault.

A Division of Pasminco Australia Limited
ACN 004 074 962

Old Burnie Railway Station, Burnie TAS 7320
GPO Box 836 Burnie TAS 7320

Telephone (004) 31? ???
Facsimile (004) 3?8 ?45

LSRC7 was designed to test the Henty Fault zone between known mineralisation at Lakeside 600m to the north, and Lorrigan's Luck 300m to the south. It was also targeting an IP anomaly, about coincident with the fault zone, which was not successfully tested by DDH STP232A and STP232A-1. Drilling difficulties were encountered with LSRC7 and it was stopped at 72.5m due to water forcing back up the hole. The Henty Fault had not at this stage been intersected.

The holes were logged and sampled by Nicola McGunnigle, Sally Dibben and contract geologist Dave Gardner. Logs and assay results are presented in Appendix 1. Magnetic susceptibility readings were also taken on the chips to investigate if any magnetic properties existed within either lithologies, mineralisation or the fault zone.

Results

The Lakeside and Tullah holes all drilled through varying thickness of glacial cover, with the exception of LSRC2. Holes LSRC4 - 7 also encountered several metres of fine mud. Depth to fresh bedrock varied. The Mt Black Volcanics show textures typical of those observed in existing drill core, ranging from pale to dark green-grey, sometimes porphyritic containing feldspar, hornblende (commonly replaced by chlorite) and leucoxene, and variable chlorite and silica alteration. Quartz-chlorite ± tourmaline veining was observed, with traces of fine grained and disseminated pyrite increasing down hole, towards the Henty Fault zone. The Henty fault zone is characterised by increased bleaching of the volcanics, sericite alteration and a mild foliation in volcaniclastics and sandstone ± increased abundance of pyrite.

Alteration and mineralisation increased within 10-20m footwall of the fault zone, in dark grey, moderately foliated, sericitic-chloritic sandstone-siltstones of the Farrell Sequence. Pyrite was the most abundant sulphide intersected in all the holes ± arsenopyrite and traces of chalcopyrite, galena, sphalerite and pyrrhotite. Mineralisation commonly occurred with quartz-chlorite ± carbonate ± tourmaline veins. The best Au mineralisation intersected was in the zones of high pyrite - arsenopyrite ± chalcopyrite, 10-20m footwall of the Henty Fault. Best intercepts include:

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LSRC4		1m @ 1.12 g/t Au	(51-52m)
		1m @ 3.66 g/t Au	(57-58m)
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LSRC6		4m @ 1.95g/t Au	(43-47m)

The association of metals can be seen in the assay results (Appendix 1). Anomalous As, Fe, Cu and Ag all occur with higher Au values, confirming visible observations of arsenopyrite, pyrite and chalcopyrite. Pb and Zn are commonly, but not always, elevated with high Au, and Sb and Bi also show elevated values coincident with the highest Au-Ag-As. No Au was reported above detection limit in LSRC7 and no other significant assays were attained.

Traces of pyrrhotite were observed in LSRC1, 3 and 5, 20-30m footwall of the fault. A magnetic susceptibility meter was run over the RC chip trays to investigate whether any magnetic properties existed to characterise the lithologies or alteration. Magnetic response was overall very low. The Mt Black Volcanics varied in a low range from 0.05 - 0.2 S.I./1000. The Henty Fault Zone (identified by geology) recorded 0.05 S.I./1000 in all holes except LSRC6 which produced readings of 0.15 S.I./1000. The Farrell Sequence was also magnetically low, with minor increase up to 0.4 S.I./1000 in sheared ± pyritic zones, and generally decreasing below detectibility with depth. The zones containing pyrrhotite observed in LSRC 1, 3 and 5 responded up to 0.4 SI /1000.

Conclusions and Recommendations

The Lakeside drilling programme has confirmed shallow Au mineralisation footwall of the Henty Fault and highlights the prospect as an easily accessible and definable drill target. Best Au mineralisation occurs with pyrite, arsenopyrite ± chalcopyrite, and commences within 10-20m of the Henty Fault zone.

From assessment of previous and recent drilling it appears that the shallow drill holes intersect mineralisation closer to the fault zone, and the Henty Fault appears to be the major structural control for mineralisation. Best Au in the area was intersected in holes RED87-3, MRP233 and LSRC5, located on the southern side of Lake Rosebery, and it is possible that additional factors, such as more favourable host rocks, offsets or jogs of the Henty Fault may have created a 'ponding' effect for mineralisation.

Further work is recommended at Lakeside, targeting the Henty Fault zone. The position of the Henty Fault may be projected to surface from drilling intersections, and may be interpreted at depth also from drill intercepts. Glacial cover over the fault zone at surface has restricted absolute definition of the zone on surface, and better control of the position of the fault zone would assist in defining shallow targets to test by drilling. From magnetic susceptibility readings of drill chips, the fault does not appear to have any characteristic magnetic signature, and other geophysical techniques may have to be investigated to identify any response. It is recommended that MMI sampling should be conducted as an orientation survey over the Lakeside grid to test for any signature on surface which may correlate to the surface position of the Henty Fault. Grid line line 54 375 300N is parallel on surface to LSRC3 where the position of the Henty Fault has been projected to surface from drilling intersections.

It is recommended that further drilling in the Lakeside area should initially be shallow targets, following up potential continuation of mineralisation along strike from recent intercepts, in untested ground both to the north and south of the prospect. There is untested ground between the Lakeside holes and LSCR7/STP232A, and the Lorrigan's Luck Prospect 1km to the south. There is also potential to test deeper mineralised zones, such as continuation of mineralisation intersected in RED87-7 (at 226m) and RED88-4 (at 242m), and to continue shallow testing

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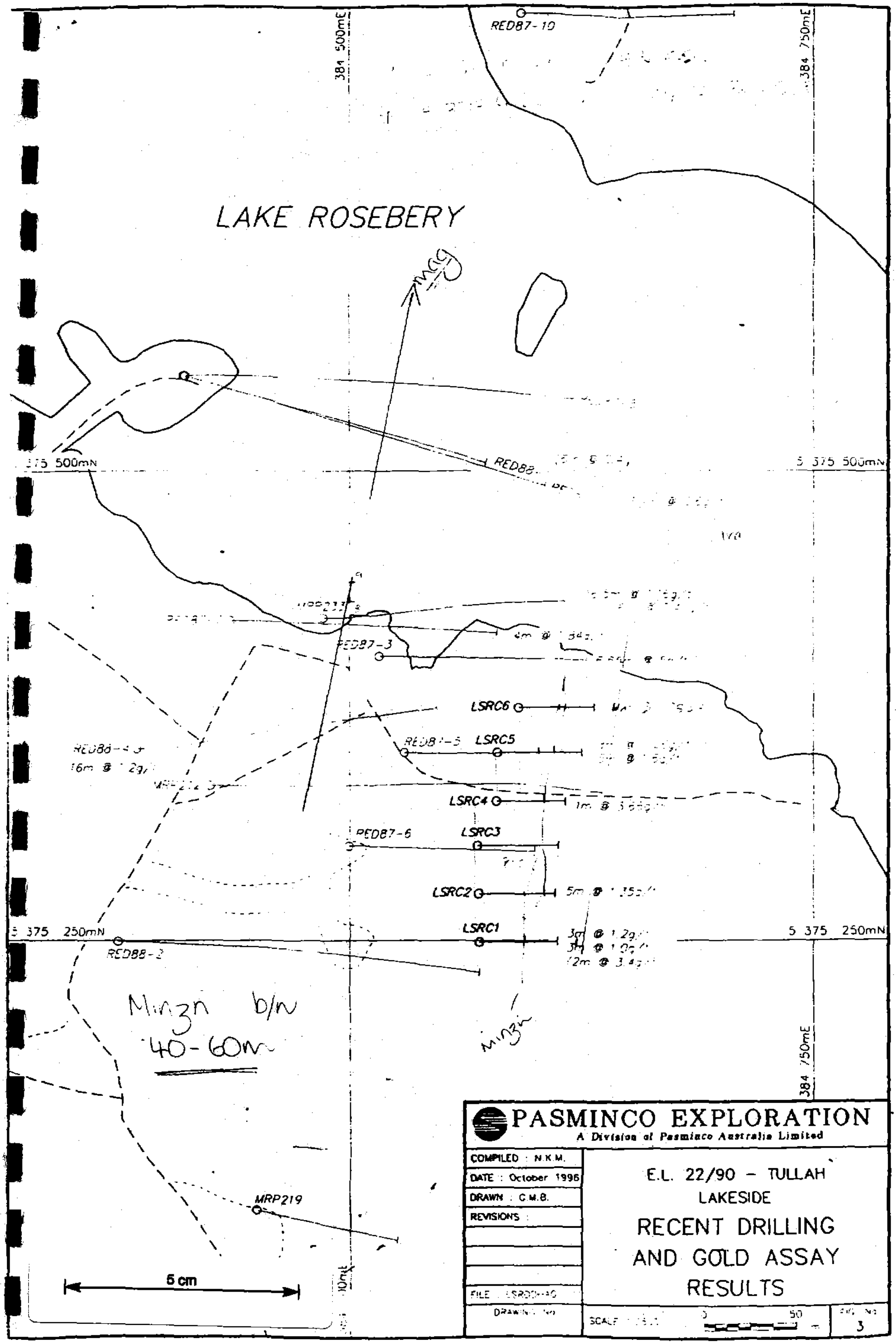
LAKE ROSEBERY
384 500mE
384 750mE
RED87-10
mag
5 375 500mN
RED88-
RED87-3
4m @ 1.34g/t
LSRC6
RED87-5
LSRC5
LSRC4
1m @ 3.6g/t
RED88-4
16m @ 1.2g/t
RED87-6
LSRC3
LSRC2
5m @ 1.35g/t
LSRC1
3m @ 1.2g/t
3m @ 1.0g/t
12m @ 3.4g/t
5 375 250mN
RED88-2
Minzn b/n 40-60m
Minzn
MRP219
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : N.K.M.
DATE : October 1996
DRAWN : C.M.B.
REVISIONS :
FILE :
DRAWING No
E.L. 22/90 - TULLAH
LAKESIDE
RECENT DRILLING AND GOLD ASSAY RESULTS
SCALE
0
50
m
FIG. No
3

277174

Memorandum

To: Barry Murphy
cc: Sally Dibben

From: Nicola McGunnigle

Date: 31 December 1996

Subject: **Lakeside - Tullah RC Drilling Results**

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277177

APPENDIX 6

Tullah EL 22/90 Lakeside Diamond Drilling (Feb 1997)

Memorandum by Ms S Dibben

Structural Orientations from Holes LSD 8, 9 and 10

Memorandum by Ms S Dibben

277178

MEMORANDUM

TO : B MURPHY
FROM : S.DIBBEN
DATE : 14 APRIL 1997

RE : **LAKESIDE DRILLING**

TULLAH EL 22/90 - LAKESIDE DIAMOND DRILLING (FEB 1997)

INTRODUCTION

A three hole diamond drilling programme totalling 204m was conducted in February 1997 at the Lakeside Prospect. The aim of this programme was to follow-up encouraging results from the 6 hole RC programme (refer to N McGunnigle's Memo 31/12/96) conducted in the same area. The holes were designed to test for mineralisation at shallow depths, between hole LSRC6 to the south and holes RED87-7 (8.9m @ 0.78g/t Au) and RED88-1 (6m @ 0.4g/t Au) which were drilled off an island and tested the zone of mineralisation to the north. Access was only possible due to the low level of Lake Rosebery.

DRILL HOLE STATISTICS

Hole	**North AMG**	**East AMG**	**Inclination**	**Direction**	**Depth**
LSD8	5 375 431.2	384 629.5	- 60 degrees	090 AMG	66m
LSD9	5 375 441.8	384 593.0	- 60 degrees	090 AMG	76.9m
LSD10	5 375 393.8	384 587.7	- 60 degrees	090 AMG	62m

DISCUSSION AND RESULTS

In general the assay results were not as good as expected. LSD8 contained some Au anomalism immediately below the glacial cover however the hole missed the main zone of mineralisation.

Best results from the programme are outlined below

Hole	Interval		Grade
LSD8	1m @ 0.44g/t Au		(56-57m)
LSD9	15m @ 0.98g/t Au		(48-63m)
	incl	3m @ 1.10g/t Au	(51-54m)
		3m @ 3.08g/t Au	(59-62m)
LSD10	15m @ 0.35g/t Au		(43-59m; 1m lost core)

The mineralised zone is located 10-15m below the contact between the grey-green, sometimes porphyritic, Mt Black Volcanics and the dark grey fine sandstone and siltstone of the Farrel Sequence. This contact is interpreted as the Henty Fault which is characterised by bleaching of the volcanics, an increase in foliation and shearing in the Farrel Sequence and by cavities. Drilling in the area shows the fault to dip at between 50-60 degrees to the west and have a northeast trend. The enveloping surface of mineralisation parallels this trend.

The mineralisation in the diamond holes is associated with silica-pyrite-arsenopyrite-pyrrhotite-tourmaline alteration and generally moderate to strong fabric development. From assessment of the structural data collected from the holes mineralisation may relate to a slight shallowing of the fabric. This slight change in orientation may have been enough to cause a zone of lower pressure to enable fluid migration and metal deposition.

SM Dibben

277130

MEMORANDUM

To: FC Murphy
Tullah Drilling File
From: SM Dibben
Date: March 11, 1997
Re: Lakeside Diamond Holes LSD8,9,10 Structural Orientations

STRUCTURAL ORIETATIONS FROM HOLES LSD8,9 and 10

Introduction

Whilst drilling LSD8, 9 and 10 orientation of the core, using a spear, was attempted on every run ie approximately every 3m. However only a small portion of these attempts were successful, hence conclusions made in this report are drawn from a limited number of readings (attached). Most of the resultant orientated core is deeper in the hole in the Farrel Sequence which has a higher RQD. There was however some orientation in the mineralised zone particularly in LSD10.

The AMG structural readings have been grouped into the following categories:-

1. Foliation readings - this refers to a poor to moderately developed, generally spaced cleavage. In some areas particularly near mineralisation and shale units the foliation was strongly developed and penetrative. On rare occasions a second spaced cleavage was present however I was not able to determine the orientation.

2. Alteration zones - these are zones of poor to strong fabric development with associated silica-pyrite-arsenopyrite +/- pyrrhotite +/- chlorite +/- a brownish siliceous alteration (quartz-tourmaline) +/- chalcopyrite.

3. Veining - predominantly quartz or quartz-carbonate veins +/- chlorite, pyrite, and minor sphalerite and galena.

The mineralisation at Lakeside is strongly related to the position of the Henty Fault Zone. Gold mineralisation is generally located about 10-15m into the footwall below the fault at approximately 70-80m vertical depth and appears to be located closer to the fault with increase in depth. Drilling in the area shows the Henty Fault Zone to dip between 50-60 degrees to the west and to have an enveloping NE trend, which is paralleled by the zone of mineralisation.

Conclusions

Foliation Readings

Foliation planes for each hole have been plotted separately on Figures 1-3 and a combination of all foliation readings is shown in Figure 4.

The enveloping surface of the foliation readings when compared to that of the mineralisation, has more a N-S trend with a steeper dip of generally 70-85 degrees to the west. It therefore appears that the foliation is unrelated to the Henty Fault. One might suspect that movement along the fault may cause slipping along an older fabric which is subparalell and some additional fabric development.

The fact that two of the foliation readings trend NE (in two different holes) may suggest that the foliation predominantly trends N-S and that it is offset occasionally by NE trending deflections or jogs. In this case the enveloping surface of the foliation reading would parallel the Henty Fault and mineralisation. However, the apparent discrepancy in dip suggests that the Henty Fault and the predominant foliation are unrelated. Possibly, mineralisation is restricted to zones where the foliation is at a slightly shallower dip? This would either occur in the NE jog zones or in places where the foliation has been slightly rotated parallel to the Henty Fault.

Foliations in LSD8 vary by about 10 degrees but are generally N-S trending with a steep dip to the west. One foliation reading however, taken from 52.3m trends NE with a steep dip to the NW. This may represent a NE deflection zone mentioned above or the foliation may have been influenced by a small NW trending fault? (152/73 SW) at 53.3m inferring possible sinistral movement.

Ignoring two suspect readings, the foliation evident in LSD9 is trending slightly to the west of north and has a steep dip to the west.

Foliation readings in LSD10 tend to swing from NNW to the NE going down the hole (to the east) ie from 32.8m to 58m. Mineralisation in this hole is located from 45-60m. The change in orientation may have played an important role in localising the mineralisation in this hole.

Alteration Zones

Alteration zone readings are shown on Figure 5. Only 7 readings of alteration were taken - one from LSD9 and six from LSD10, two of which were taken using the 56.0m orientation mark which is suspect.

Readings of foliations were collected from within alteration zones. The actual contact of the alteration zone with the host rock are usually diffuse or very silicic with no fabric development and I was unable to take any readings of the contact. However in these peripheral zones fine bands of grey silicification can be seen in the host sediments. It appears as though the silica has preferentially altered certain layers reflecting either bedding and/or the main foliation.

The alteration readings trend between 350 degrees and N-S, with dips of between 62-77 degrees. Overall alteration strikes roughly parallel to foliation (although there are no NE trending readings at all), however the alteration dip appears to be a little shallower. The limited number of alteration readings does not support the hypothesis of mineralisation resulting from low pressure sucking of fluids into NE trending jogs. However it does not rule out the possibility of mineralising fluids being focussed where the foliation becomes shallower ie suggesting low pressure areas due to more dip slip rather than strike slip movement.

Veining

The veining category ended up being more or less a junk bag of what I interpreted to be the less important veins in the core as far as mineralisation was concerned. This is probably evident by the plot of veining planes from all the holes (Figure 10). One could assume numerous phases of veins (? LSD9 plot) or one or more phases under limited stress. Most of the veins are open space brittle features indicative of fairly shallow depths.

Veins which contain rare sphalerite or galena away from the main zone of Au mineralisation are generally hosted in fine grained, slightly deformed host rocks. The veins are either subparallel or cut the main fabric (or as at 35.6m in LSD8 the veining is localised in a >F1 fold hinge zone) and hence post-date the main foliation development.

What looked to be late yellow-green (chlorite-sericite?) veins shown in Figure 9 have an E-W trend.

SM Dibben

277183

LAKESIDE PROSPECT - LSD8,9 and 10 STRUCTURAL READINGS

Type	Drill Hole	Depth	Reading	Suspect Reading
foliation	LSD8	43.0m	178/84 W	
foliation	LSD8	44.1m	176/70 W	
foliation	LSD8	44.8m	184/70 W	
foliation	LSD8	45.1m	172/76 W	
foliation	LSD8	46.8m	182/77 W	
foliation	LSD8	48.5m	174/70 W	
foliation	LSD8	49.7m	186/78 W	
foliation	LSD8	52.3m	206/80 W	
foliation	LSD8	60.4m	179/75 W	
foliation	LSD8	63.0m	184/68 W	
foliation	LSD8	66.0m	177/67 W	
foliation	LSD9	74.1m	164/86 W	
foliation	LSD9	62.2m	169/65 W	
foliation	LSD9	62.0m	165/70 W	
foliation	LSD9	61.3m	178/74 W	
foliation	LSD9	28.3m	108/60 W	
foliation	LSD9	28.0m	82/52 SE	
foliation	LSD10	58.2m	204/76 W	
foliation	LSD10	33.7m	178/74 W	
foliation	LSD10	33.9m	187/72 W	
foliation	LSD10	32.8m	166/80 W	
fault?	LSD8	53.3m	152/73 SW	
alteration	LSD9	61.5m	180/77 W	
alteration	LSD10	56.0m	97/74 S	*
alteration	LSD10	56.0m	82/66 S	*
alteration	LSD10	49.6m	172/62 W	
alteration	LSD10	49.7m	177/70 W	
alteration	LSD10	49.9m	169/72 W	
alteration	LSD10	50.1m	172/74 W	
veins	LSD8	44.1m	174/40 W	
veins	LSD8	44.8m	356/50 E	
veins	LSD8	44.8m	2/52 E	
veins	LSD8	45.1m	226/62 NE	
veins	LSD8	49.7m	12/85 E	
veins	LSD8	53.0m	134/75 SW	
veins	LSD8	60.4m	296/76 NE	
veins	LSD9	62.0m	337/55 NE	
veins	LSD9	28.5m	102/70 S	*
veins	LSD9	28.5m	32/74 SE	*
veins	LSD9	28.3m	42/85 SE	*
veins	LSD9	28.3m	112/45 SW	*
veins	LSD10	50.2m	160/70 SW	
veins	LSD10	41.3m	198/80 SW	
veins	LSD10	33.9m	246/72 NW	
veins	LSD10	32.8m	318/70 NE	
veins	LSD10	28.8m	144/60 SW	
late veins	LSD9	61.5m	282/75 N	
late veins	LSD9	61.6m	250/80 NW	

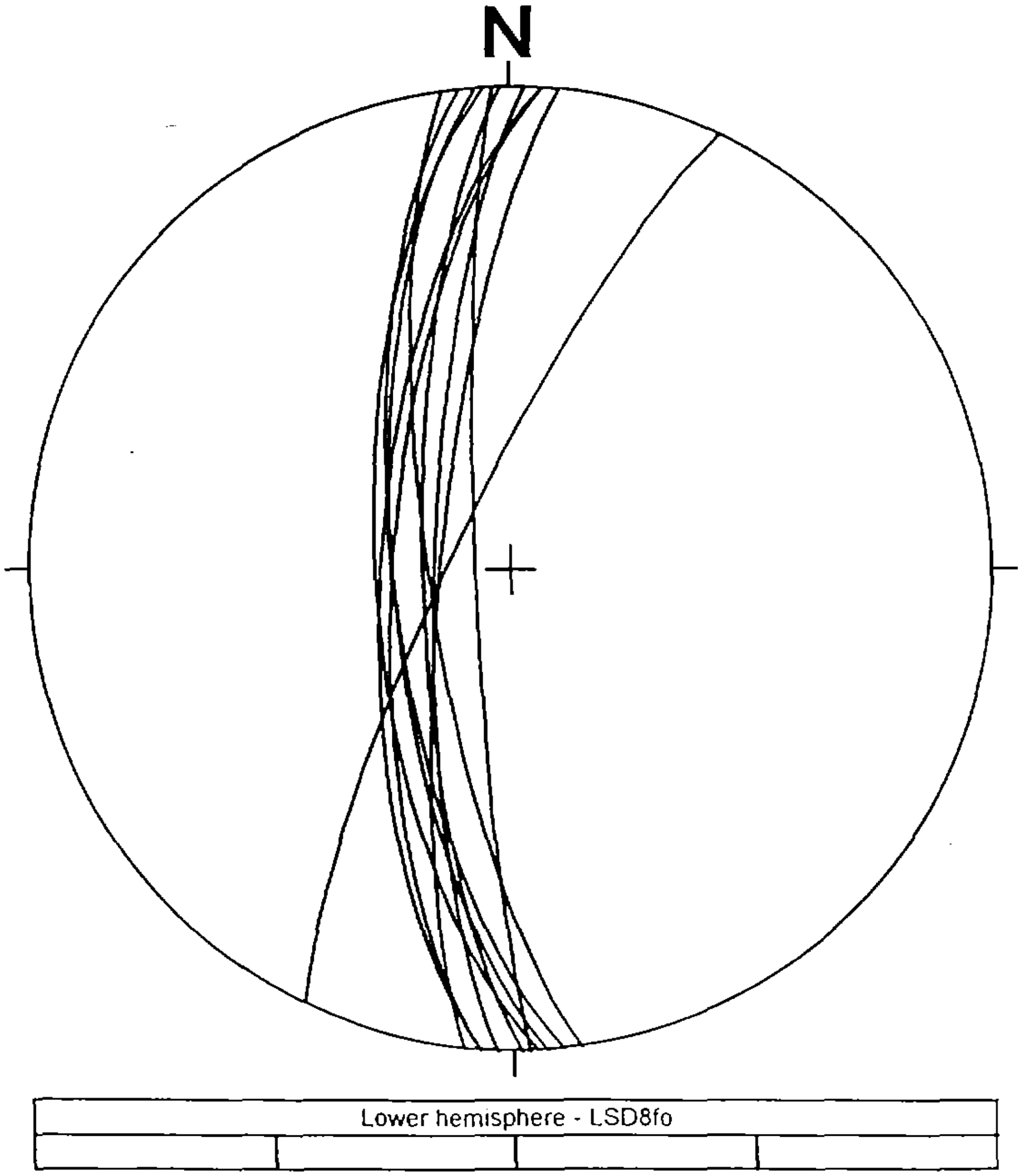


Figure 1 LSD8 FOLIATIONS (n = 11)

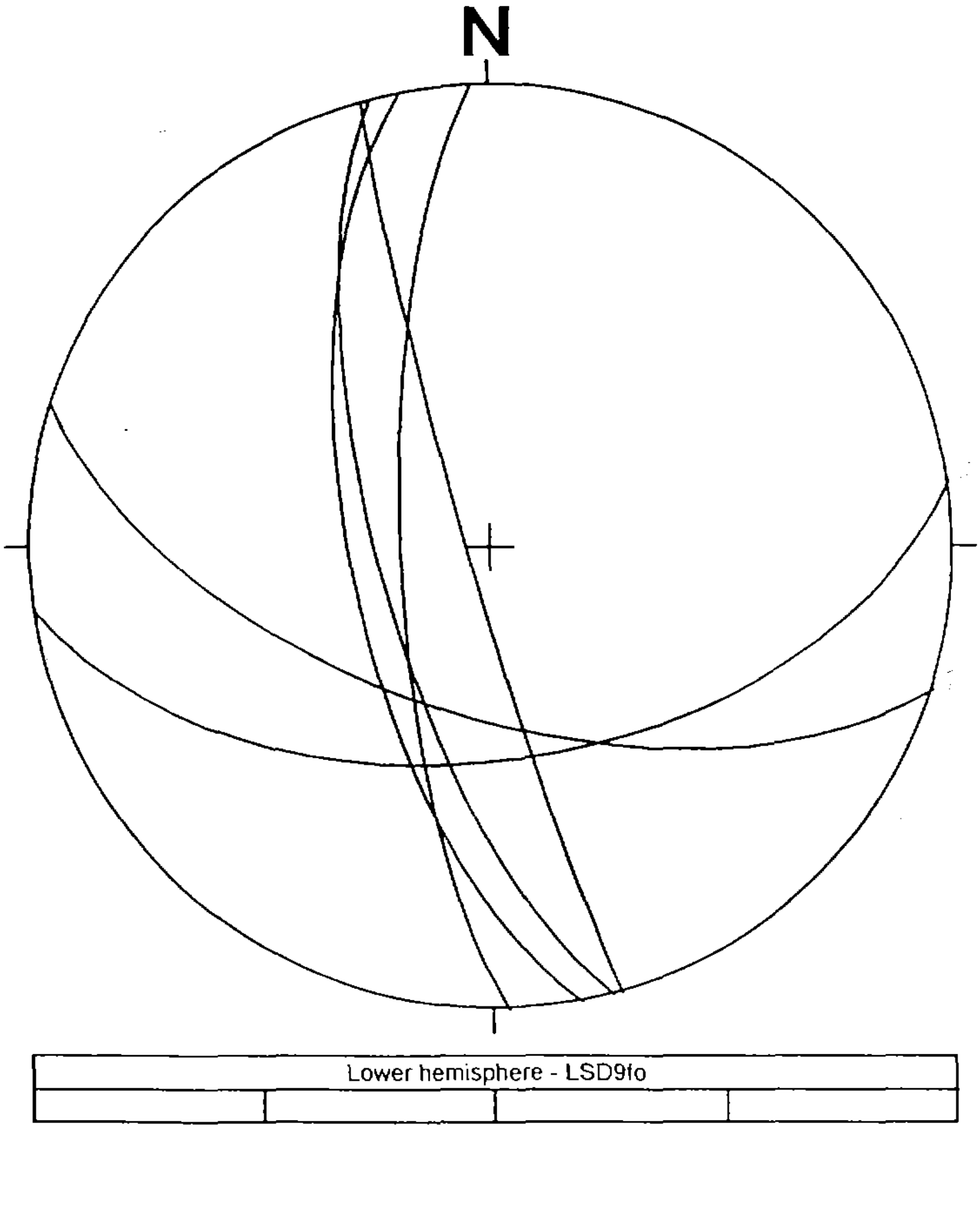


Figure 2 LSD9 FOLIATIONS (n = 6)

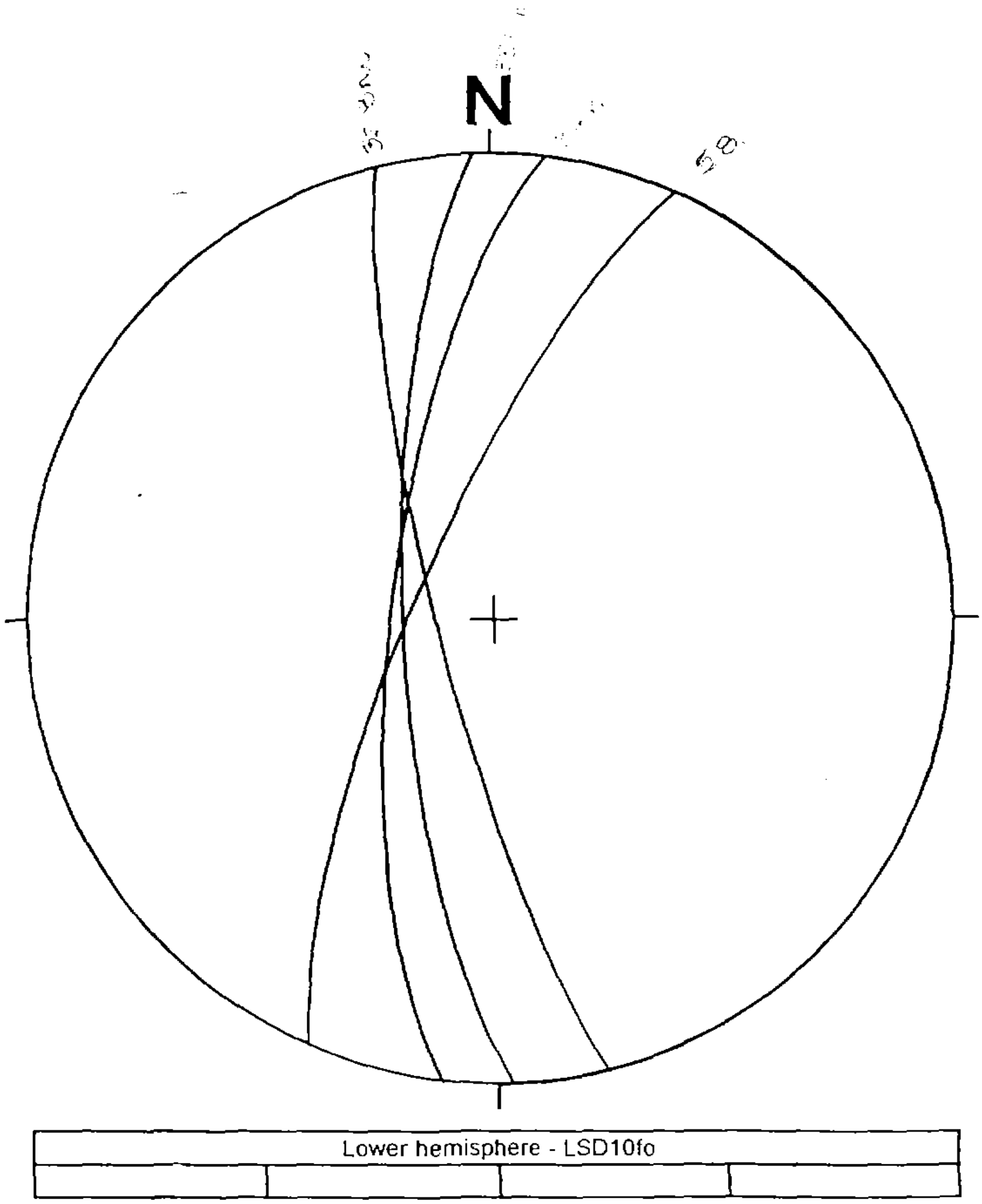


Figure 3 LSD10 FOLIATIONS (n = 4)

277187

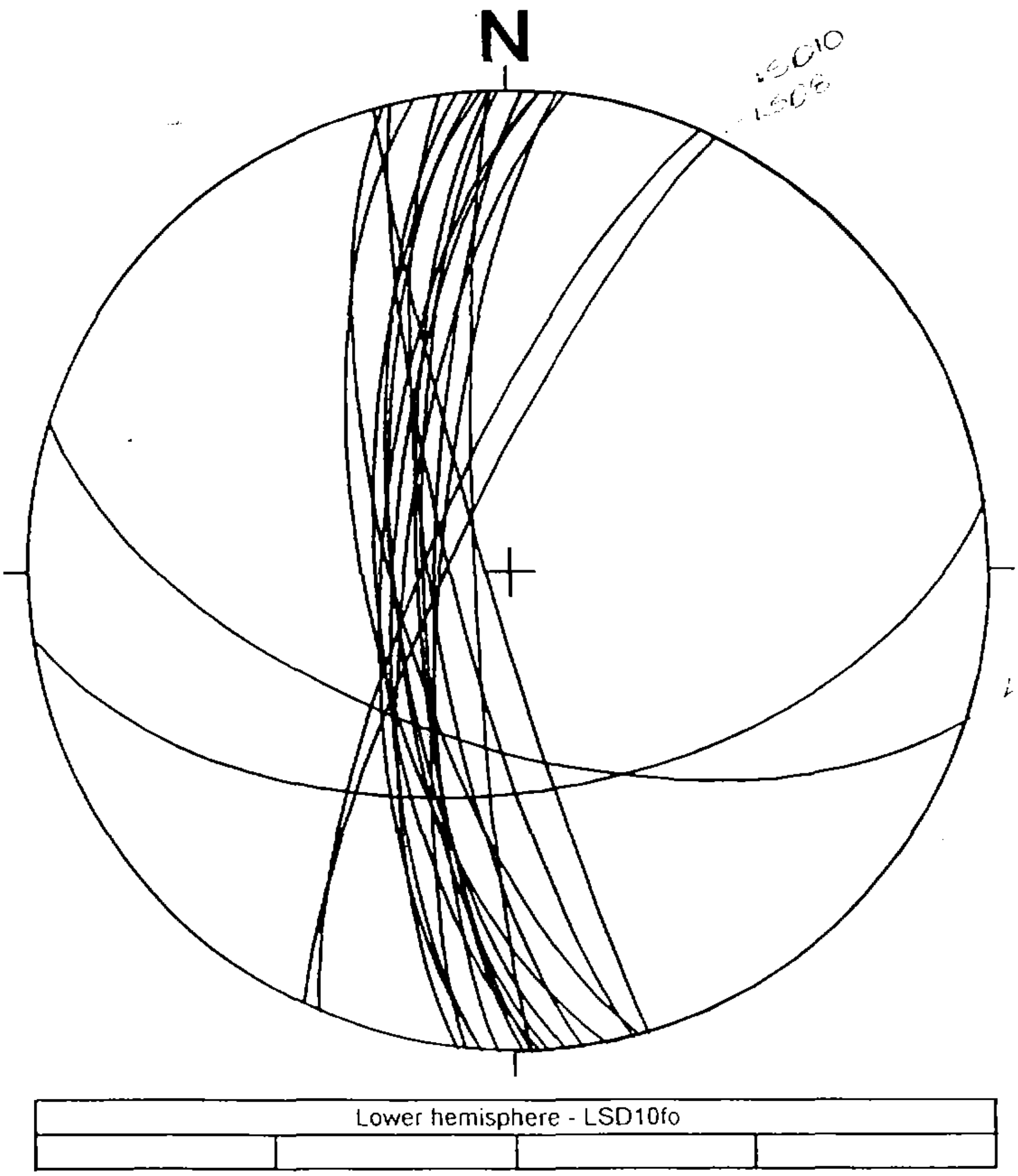
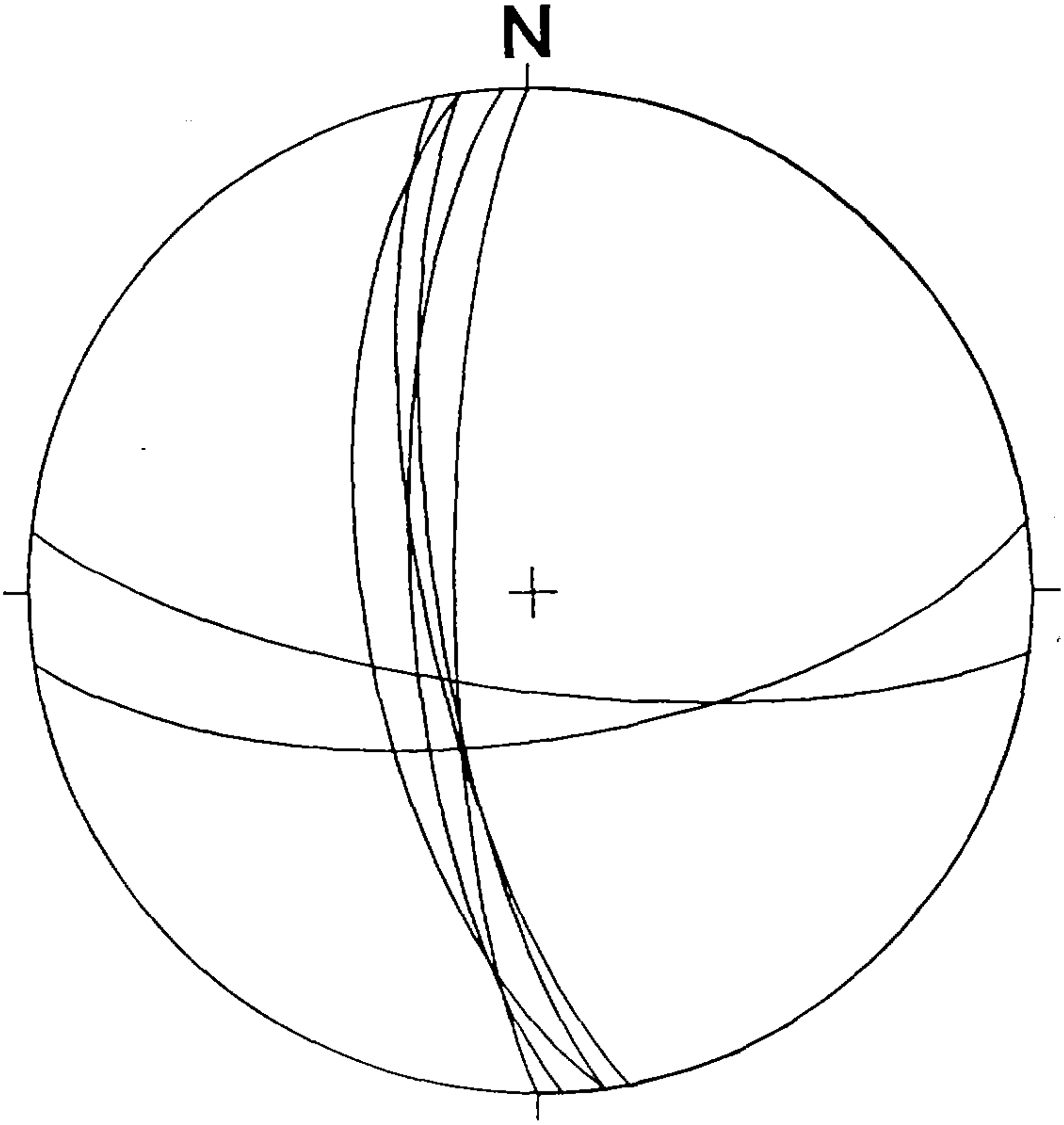


Figure 4 LSD8,9 and 10 FOLIATIONS (n = 21)

277188



Lower hemisphere - LSD10alt			

Figure 5 LSD9 AND 10 ALTERATION (n = 7)

277189

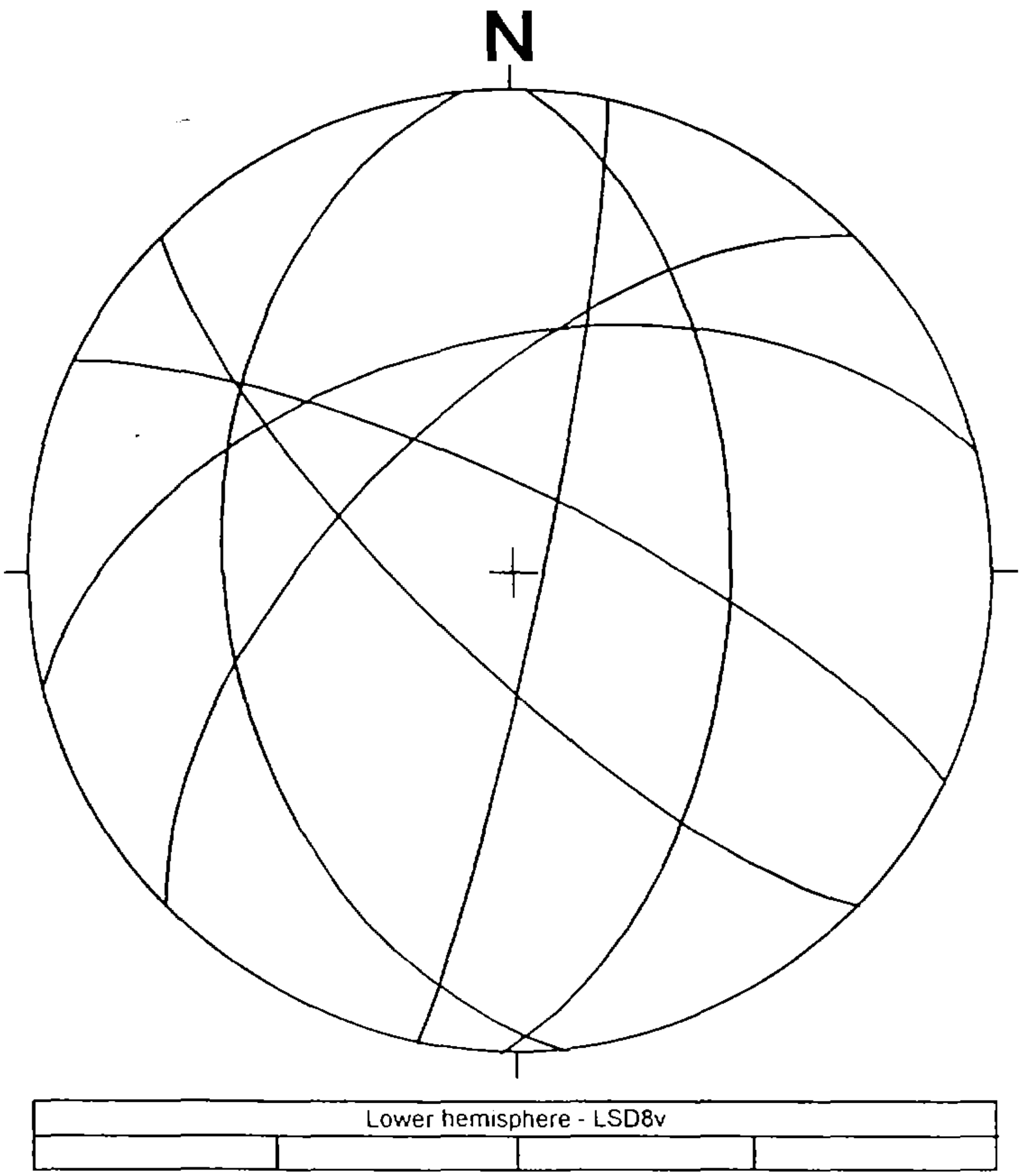


Figure 6 LSD8 VIENS (n = 7)

277190

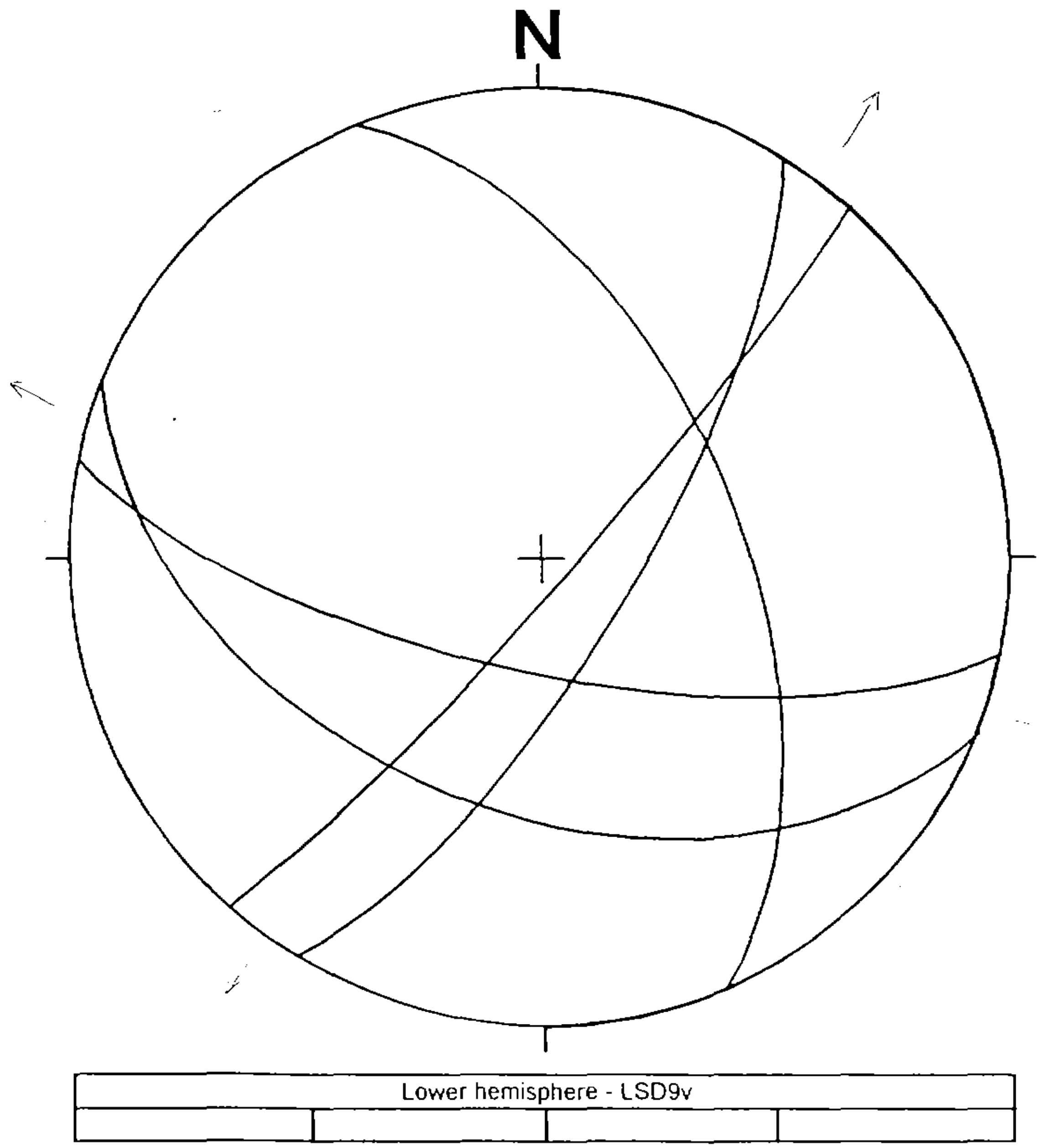
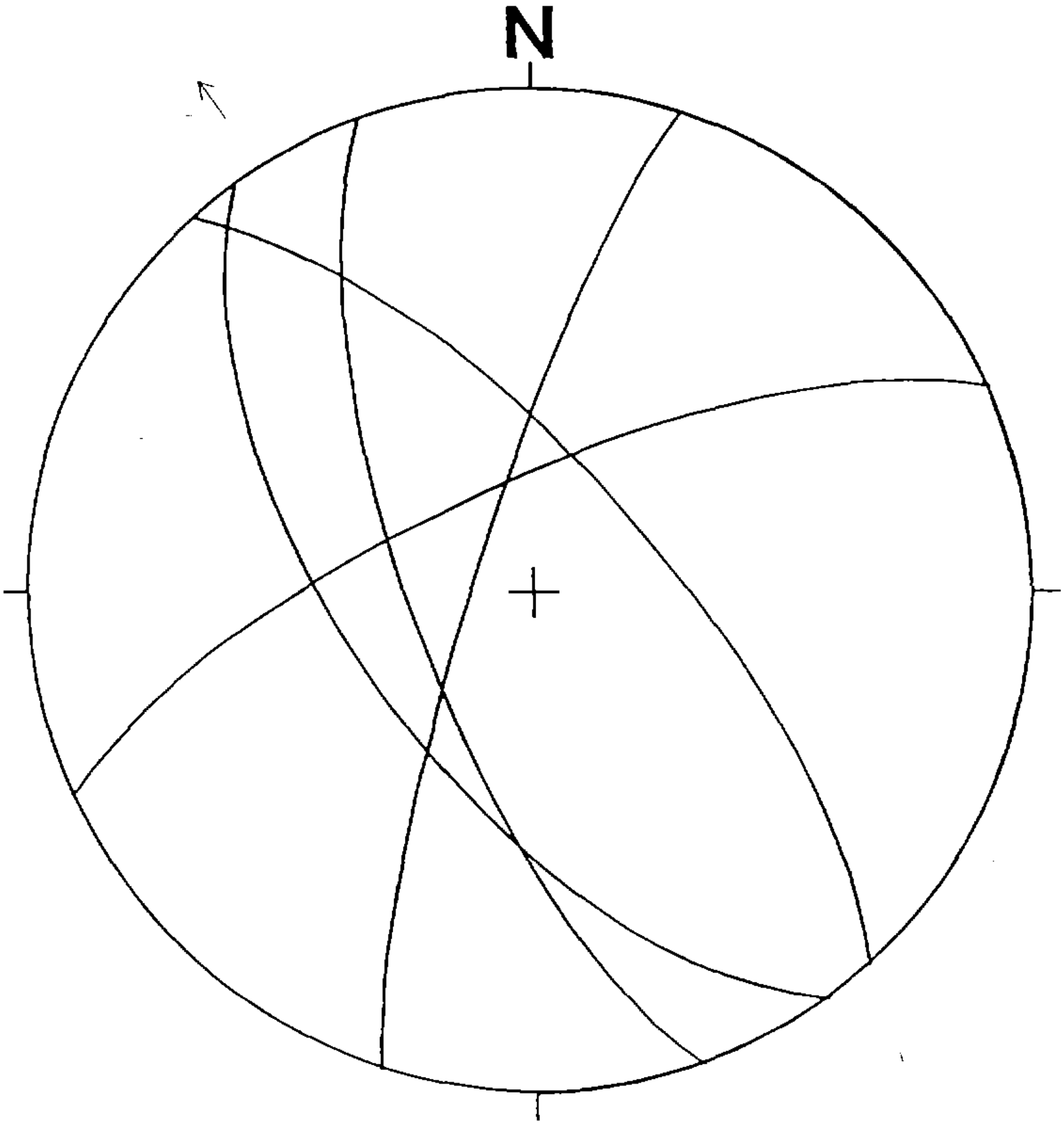


Figure 7 LSD9 VIENS (n = 5)



Lower hemisphere - LSD10v			

Figure 8 LSD10 VIENS (n = 5)

277192

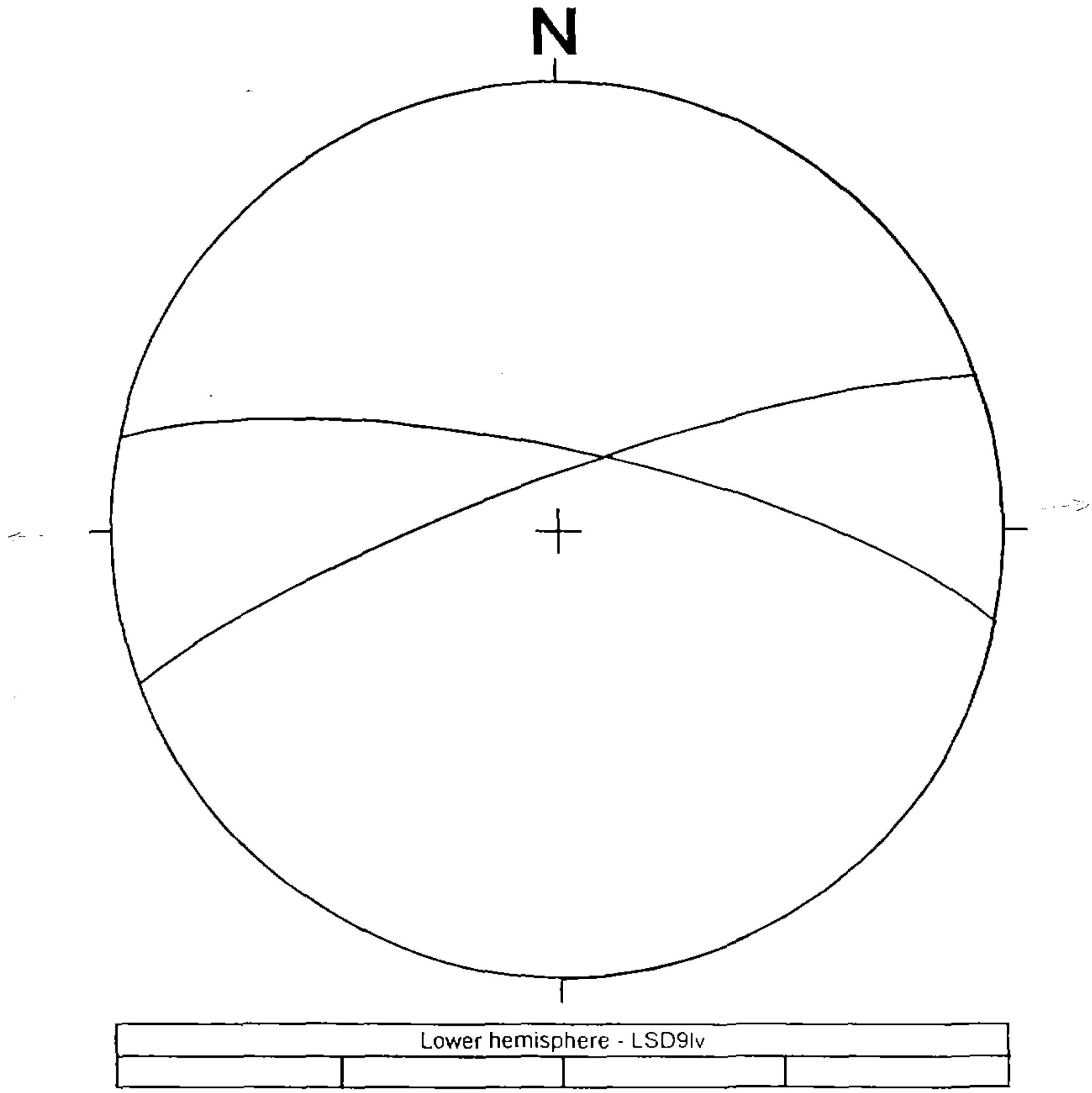


Figure 9 LSD9 LATE VIENS (n = 2)

277193

APPENDIX 7

Assay Results for Diamond Drill Holes LSD 8, LSD 9 and LSD 10

Diamond Drill Hole - LSD8

Sample No.	M From	M To	Au ppm PM219	Au PM219 ppm CHECKS	Cu ppm IC580	Pb ppm IC580	Zn ppm IC580	As ppm IC580	Ag ppm IC580	Mo ppm IC580	Bi ppm IC580	Fe % IC580	Sb ppm IC581	As ppm G003
164167	25.3	26	0.078		31	389	428	1020	1	4	-5	6.44		
164168	26	27	0.057		270	195	181	83	2	3	5	8.3		
164169	27	28	0.005		11	146	128	75	-1	3	-5	6.92		
164170	28	29	0.041		182	73	90	244	1	4	5	9.18		
164171	29	30	0.018		33	109	122	97	1	3	-5	10.27		
164173	30	31	0.002		23	403	376	99	1		-5	7.61	13	
164174	31	32	0.197		137	65	130	180	2		10	8.57	6	
164175	32	33	0.084		204	74	240	189	2		-5	8.74	13	
164176	33	34	0.002		15	60	87	90	-1		-5	4.88	11	
164177	34	35	0.011		104	217	207	94	1		-5	6.03	19	
164178	35	36	0.006		21	1190	2430	97	3		-5	5.6	-5	
164179	36	38	0.005		114	528	395	92	1		-5	4.46	7	
164180	38	40	0.002		12	40	84	50	-1		-5	3.59	-5	
164181	40	42	0.01		12	52	124	533	-1		-5	4.26	-5	
164182	42	44	0.002		7	27	60	39	-1		-5	2.95	-5	
164183	44	46	-0.001		10	14	52	27	-1		-5	2.82	-5	
164184	46	48	-0.001		10	12	55	24	-1		-5	2.87	-5	
164185	48	50	-0.001		10	13	41	26	-1		-5	2.94	-5	
164186	50	52	-0.001		10	18	300	32	-1		-5	2.84	-5	
164187	51	54	0.001		17	39	44	33	-1		-5	3.15	-5	
164188	54	55	-0.001		24	33	62	45	-1		-5	3.81	-5	
164189	55	56	-0.001		13	11	40	30	-1		-5	2.95	-5	
164172	56	57	0.446		61	94	120	330	1	4	5	7.67		
164190	57	58	0.014		11	40	62	110	-1		-5	5.35	-5	
164191	58	59	-0.001		7	21	43	60	-1		-5	2.84	-5	
164192	59	60	-0.001		9	8	38	28	-1		-5	2.57	-5	
164193	60	62	-0.001	-0.001	9	9	47	35	-1		-5	2.84	-5	
164194	62	64	-0.001	-0.001	11	7	46	32	-1		-5	2.63	-5	
164195	64	66	-0.001	-0.001	18	14	55	29	-1		-5	2.95	-5	

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Diamond Drill Hole - LSD9

Sample No.	M From	M To	Au ppm PM219	Au PM219 ppm CHECKS	Cu ppm IC580	Pb ppm IC580	Zn ppm IC580	As ppm IC580	Ag ppm IC580	Mo ppm IC580	Bi ppm IC580	Fe % IC580	Sb ppm IC58	As ppm G003
164313	10.7	12	-0.001		-5	11	85	3	-1		-5	3.57	-5	
164314	12	14	-0.001	-0.001	-5	21	126	-2	-1		-5	4.2	-5	
164315	14	16	-0.001		-5	9	75	-2	-1		-5	3.2	-5	
164316	16	18	0.009		15	60	127	57	-1		-5	6.11	-5	
164317	18	20	-0.001	-0.001	-5	23	99	2	-1		-5	4.49	-5	
164318	20	22	-0.001		-5	26	96	7	-1		-5	3.93	-5	
164319	22	24	0.002		-5	29	119	8	-1		-5	5.18	-5	
164320	24	26	0.002		-5	15	116	35	-1		6	5.84	-5	
164321	26	28	-0.001		-5	24	196	19	-1		7	8.2	-5	
164322	28	30	-0.001		-5	49	100	82	-1		-5	4.24	-5	
164323	31	32	-0.001		-5	9	57	4	-1		-5	2.54	-5	
164324	32	33	0.01		-5	48	87	701	-1		12	14.39	-5	
164325	33	34	-0.001		-5	433	780	23	-1		-5	5.91	-5	
164326	34	35	-0.001		-5	75	145	29	-1		-5	2.04	-5	
164327	35	36	-0.001		-5	76	168	18	-1		-5	2.4	-5	
164328	36	37	-0.001		-5	21	54	6	-1		-5	1.9	-5	
164329	37	38	-0.001		-5	18	78	8	-1		-5	2.59	-5	
164330	38	39	-0.001		-5	15	36	7	-1		-5	1.27	-5	
164331	39	41.5	-0.001		-5	24	89	5	-1		-5	1.48	-5	
164332	41.5	44.5	0.011		25	1440	1300	178	1		8	6.47	-5	
164333	44.5	45.7	0.004		33	705	1360	116	-1		6	4.97	-5	
164334	45.7	47	0.142	0.142	115	609	363	9320	3		16	7.87	10	9840
164335	47	48	0.031	0.033	93	6760	6180	383	8		12	7.66	12	
164336	48	49	0.168	0.168	134	174	146	17600	2		24	9.04	12	17600
164301	49	50	0.191		240	187	68	5780	6	5	27	6.43		
164302	50	51	0.203		646	578	66	4210	7	3	14	6.96		
164303	51	52	1.9	1.77	1260	1610	158	47800	33	3	194	9.16		
164304	52	53.3	0.796	0.804	2190	587	413	21600	15	3	32	6.99		
164305	53.3	54	0.618	0.672	881	208	73	12000	10	3	30	7.77		
164306	54	55	0.291		357	149	260	5210	5	4	16	8.07		
164307	55	56	0.11		176	41	68	479	1	5	8	8.64		
164308	56	56.7	0.118		143	52	65	1290	2	5	-5	8.34		
164309	56.7	58	0.904	0.892	720	70	56	852	4	6	20	7.83		
164310	58	59	0.102		498	54	64	490	3	4	15	7.1		
164311	59	60	4.84	4.84	459	510	163	72000	4	11	40	16.09		

277195

Diamond Drill Hole - LSD9

Sample No.	M From	M To	Au ppm PM219	Au PM219 ppm CHECKS	Cu ppm IC580	Pb ppm IC580	Zn ppm IC580	As ppm IC580	Ag ppm IC580	Mo ppm IC580	Bi ppm IC580	Fe % IC580	Sb ppm IC58	As ppm G003
164312	60	61	3.67	3.67	782	348	106	40500	11	6	60	10.46		
164337	61	62	0.817	0.655	3110	80	74	1280	5		46	9.79	60	
164338	62	63	0.14		106	67	57	409	-1		12	12.01	37	
164339	63	64	0.061		36	73	91	604	-1		7	6.23	8	
164340	64	66	0.06		797	37	40	238	-1		6	3.67	-5	
164341	66	68	-0.001		11	29	55	50	-1		-5	3.84	-5	
164342	68	70	-0.001		6	28	77	40	-1		-5	3.19	-5	
164343	70	72	-0.001		8	38	101	69	-1		-5	3.77	-5	
164344	72	73	-0.001		10	112	175	73	-1		7	7.44	10	
164345	73	74	0.106	0.106	249	31	75	1460	-1		15	10.07	5	
164346	74	75	0.004		34	83	82	56	-1		10	8.56	-5	
164347	75	76	-0.001		15	20	41	57	-1		-5	3.48	22	
164348	76	76.9	0.002		12	19	37	48	-1		-5	3.01	18	

Diamond Drill Hole - LSD10

Sample No.	M From	M To	Au ppm PM219	Au PM219 ppm CHECKS	Cu ppm IC581	Pb ppm IC581	Zn ppm IC581	As ppm IC581	Ag ppm IC581	Mo	Bi ppm IC581	Fe % IC581	Sb ppm IC581	As ppm G003
164350	22.6	23	-0.001		-5	10	47	-2	-1		-5	2.44	-5	
164351	23	25	-0.001		-5	45	96	3	-1		-5	2.23	-5	
164352	25	26	-0.001		-5	88	122	3	-1		6	8.26	-5	
164353	26	28	-0.001		-5	21	54	-2	-1		-5	1.9	-5	
164354	28	30	-0.001		-5	282	433	10	-1		-5	2.1	-5	
164355	30	32	-0.001		-5	10	36	-2	-1		-5	1.54	-5	
164356	32	34	-0.001		-5	41	94	5	-1		-5	1.51	-5	
164357	34	35	-0.001		-5	87	220	13	-1		-5	2.05	-5	
164358	35	36	-0.001		-5	211	214	4	-1		-5	1.01	-5	
164359	36	37	-0.001		-5	93	142	16	-1		-5	1.62	-5	
164360	37	38	0.006		-5	804	1180	27	-1		-5	2.9	-5	
164361	38	39.3	0.011		9	37	99	120	-1		-5	8.7	-5	
164362	39.3	40.8	0.018	0.019	44	936	1130	458	2		6	5.2	-5	
164363	40.8	41.3	-0.001		8	1740	2160	35	3		-5	4.75	-5	
164364	41.3	42.3	0.004		10	91	1700	11	-1		-5	1.99	-5	
164365	42.3	43	0.002		28	1500	2100	49	2		-5	4.13	-5	
164366	43	44	0.288	0.29	56	203	327	22200	2		11	9.34	13	21500
164367	44	45	0.117		95	272	722	4730	5		16	9.72	7	5260
164368	45	46	0.129		163	834	1100	4470	6		16	9.83	-5	4800
164369	46	47	0.144		127	92	286	788	-1		-5	9.92	-5	
164370	47	48	0.101		183	1250	4630	1180	2		6	8.45	-5	
164371	48	49	0.086		150	187	4590	269	1		5	8.32	6	
164372	49	50	0.304	0.321	379	130	79	1840	3		39	8.24	21	
164373	50	51	0.297	0.38	163	38	63	501	-1		11	7.07	14	
164374	51	52	0.307	0.41	145	34	74	776	1		14	7.94	6	
164375	52	53	0.177		152	23	44	323	-1		11	7.3	10	
164376	53	54	2.08	1.85	1990	355	316	58700	14		71	12.27	123	56800
164377	54	54	54	0.6	1130	145	92	9590	8		41	7.45	24	9180
164378	56	57	0.111		318	25	67	308	1		13	8.38	15	
164379	57	58	0.074		217	11	68	707	-1		7	8.33	6	
164380	58	59	0.602	0.51	167	21	57	665	1		15	8.68	18	
164381	59	60	0.116		67	10	59	2100	-1		8	7.68	9	
164382	60	61	0.05	0.05	49	7	53	1730	-1		-5	5.69	-5	
164383	61	62	0.127		99	20	80	3510	-1		10	9.72	-5	3800

277198

APPENDIX 8

Soil Orientation Surveys - Lakeside and Sterling Valley

by Ms N McGunnigle

277199

PASMINCO EXPLORATION

Memorandum

To: Barry Murphy

From: Nicola McGunnigle

Date: 20 January 1997

Subject: **Soil Orientation Surveys - Lakeside and Sterling Valley**

Introduction

Two small scale MMI and C horizon soil orientation survey were undertaken at Lakeside and Sterling Valley. The aim of the surveys was to test areas of known Au mineralisation and to investigate the potential of soil geochemistry to determine the location of the Henty Fault, which is covered by glacial sediments. The Lakeside line was repeated in drier conditions to compare the MMI response.

Survey Procedure

It was an exceptionally wet season at the time of the surveys, and sampling was delayed until after three consecutive days of no rainfall. 20 MMI samples were collected in the Lakeside area along grid line 54 375 300N, from 384400E to 384780E. Topography and vegetation along the line varies from grass and scrub from 384400E to 384530E into button grass flats to the east. The two vegetation types are separated by a change in slope of 5m downhill to the east. Samples were extracted from about 10cm depth to avoid bulk root vegetation.

20 MMI and C horizon soil samples were collected along grid line 54 373 400N in Sterling Valley, from 383780E to 384180E. Vegetation is predominantly forested, over variable topography. Sampling procedure was the same for MMI samples, and C horizon soils were sampled by hand auger from immediately above the bedrock.

MMI sampling was repeated over the Lakeside grid line in January, in dry conditions. There had been one day of significant rainfall in the three weeks prior to the survey.

Results

Lakeside

The MMI samples collected in the Lakeside area along grid line 54 375 300N are parallel on surface to LSRC3 and DDH RED87-6. No Au was detected, but elevated Ag is present over a mineralised zone at depth in RED87-6, and approximately around the surface location of the Henty Fault zone, as projected from drill hole intersections. Elevated Ag + Ni at 384500E is thought to be due to contamination about the drill collar of DDH RED87-6. Low detection levels in the limited data set makes the method a dubious mapping technique for locating the Henty Fault. Assay results are attached.

MMI sampling repeated over grid line 54 375 300N in January shows a different MMI response than the earlier survey. Two samples detected Au, with a greater detection also of Ag and Ni. Elevated Ag is present with Au at 384400E and 384420E. The best Ag + Ni response (up to 2.58ppb Ag) coincides with the best response from the earlier survey, thought to be in an area contaminated by the drill collar site of DDH RED87-6. Projection of the Henty Fault Zone to 384620E (sample 164212) shows elevated Ag, but does not show any geochemical characteristics associated with the fault. The fault zone intersected in RED87-6 lies vertically below 384560E, which does not show any high geochemical response either.

Sterling Valley

Anomalous Au was detected in both MMI and C horizon surveys along grid line 54 373 400N in the Sterling Valley. High Ag and Ni values also occur with the anomalous Au in the MMI samples, and the sample sites coincide with elevated Au and high As, Fe $\pm$ Zn and Pb results in the C horizon soil data. This orientation line was selected to test an area proven anomalous from previous surveys (Sainty, 1982), and the most anomalous zone, at 383920E & 383900E, coincides with an area where rock chip samples have returned anomalous Au, As & Sb.

Conclusions and Recommendations

MMI sampling over the Lakeside grid line shows a greater Au, Ag and Ni response in drier sampling conditions. The sampling method has shown that elevated metal values can be detected in an area of known mineralisation covered by glacial and alluvial sediments, and should be considered for future geochemical sampling in areas of similar cover. The method has not however assisted with characterising any geochemical associations of the fault at surface with known mineralisation at depth.

MMI and C horizon surveys conducted in the Sterling Valley clearly repeat elevated and anomalous geochemistry observed in previous surveys, confirming the existence of high Au, As, Fe $\pm$ Zn and Pb values in the area. Similar geochemical response of the two methods also raises the potential of using MMI sampling in future surveys, as the method has shown at Lakeside to respond in areas of glacial cover, and it is an easy and efficient sampling method to employ.

References

Sainty, R.A., 1982 Exploration Licence 4/73 Sterling Valley, Progress Report on Exploration Activity, 25^{th} August 1982 to 20^{th} November 1982. EZ Co. of Aust. Ltd. (PasEx TSV42).

277201

Our reference : PE021524
Your reference : 2319
Project code :
Report date : 19/12/96
Report Number : 00000047
Report status : Final
Page : 1 of 2

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ANALYTICAL DATA

Sample	Pb	Zn	Cd	Au	Ag	Ni
164101	20	120	4	<0.25	<0.25	<5
164102	20	60	2	<0.25	<0.25	5
164103	60	240	12	<0.25	<0.25	<5
164104	60	260	18	<0.25	<0.25	<5
164105	80	1420	26	<0.25	<0.25	<5
164106	40	700	10	<0.25	1.01	25
164107	80	920	12	<0.25	0.51	<5
164108	<20	100	6	<0.25	<0.25	<5
164109	40	340	16	<0.25	<0.25	<5
164110	60	460	12	<0.25	<0.25	<5
164111	40	300	8	<0.25	<0.25	<5
164112	40	680	10	<0.25	0.38	5
164113	100	500	14	<0.25	1.42	5
164114	60	480	12	<0.25	<0.25	<5
164115	40	160	8	<0.25	<0.25	<5
164116	40	180	12	<0.25	<0.25	<5
164117	60	840	20	<0.25	<0.25	<5
164118	100	1420	34	<0.25	0.28	5
164119	120	1120	14	<0.25	0.83	5
164120	80	1160	28	<0.25	0.31	<5
164121	220	700	18	<0.25	0.36	10
164122	200	600	12	<0.25	3.65	30
164123	180	800	10	<0.25	1.67	60
164124	260	600	6	<0.25	2.90	45
164125	200	1240	22	<0.25	1.48	30
164126	300	3900	90	<0.25	2.34	40
164127	300	2460	36	0.28	5.46	15
164128	260	2020	26	<0.25	0.33	<5
164129	180	1200	16	<0.25	0.65	10
164130	220	740	24	<0.25	3.64	20
164131	420	560	8	<0.25	1.00	25
164132	420	1120	8	<0.25	0.84	15
164133	280	560	10	<0.25	1.93	60
164134	200	1500	12	<0.25	0.62	30
164135	380	900	12	0.52	4.75	65
164136	100	920	6	<0.25	0.34	<5
164137	360	900	16	<0.25	1.72	35
164138	380	460	8	<0.25	4.13	35
164139	380	1280	30	<0.25	0.57	15
164140	220	2020	14	<0.25	0.86	20
164141	100	2020	20	<0.25	<0.25	<5

Method	MS800	MS800	MS800	MS801	MS801	MS801
Units	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit	20	40	2	0.25	0.25	5

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

277202

Our reference : PE021524
Your reference : 2319
Project code :
Report date : 19/12/96
Report Number : 00000047
Report status : Final
Page : 2 of 2

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ANALYTICAL DATA

Sample	Co	Pd	Cu
164101	<1	<0.25	<20
164102	2	<0.25	<20
164103	1	<0.25	<20
164104	<1	<0.25	<20
164105	<1	<0.25	<20
164106	3	<0.25	<20
164107	<1	<0.25	<20
164108	<1	0.37	<20
164109	<1	<0.25	<20
164110	<1	<0.25	<20
164111	<1	<0.25	<20
164112	2	<0.25	<20
164113	1	<0.25	<20
164114	<1	<0.25	<20
164115	<1	<0.25	<20
164116	<1	<0.25	<20
164117	<1	<0.25	<20
164118	2	<0.25	<20
164119	2	<0.25	<20
164120	<1	<0.25	<20
164121	2	<0.25	20
164122	5	<0.25	100
164123	13	<0.25	80
164124	10	<0.25	60
164125	14	<0.25	80
164126	6	<0.25	80
164127	2	<0.25	80
164128	1	<0.25	20
164129	3	<0.25	40
164130	3	<0.25	140
164131	7	<0.25	80
164132	11	<0.25	140
164133	69	<0.25	140
164134	37	<0.25	80
164135	34	<0.25	180
164136	1	<0.25	20
164137	12	<0.25	100
164138	11	<0.25	100
164139	6	<0.25	80
164140	6	<0.25	60
164141	1	<0.25	20

Method	MS801	MS801	MS800
Units	ppb	ppb	ppb
Detection Limit	1	0.25	20

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

277203

Our reference : PE022727
Your reference : 1514
Project code :
Report date : 31/01/97
Report Number : 00001340
Report status : Final
Page : 1 of 2

Analabs Pty. Ltd.
ACN 004 591 664
50 Murray Road, Welshpool
Western Australia 6106
Telephone : (61 9) 458 7999
Facsimile : (61 9) 458 2922

ANALYTICAL DATA

Sample	Cu	Pb	Zn	Cd	Au	Ag
384400 164201	<20	<20	220	8	0.63	2.04
420 164202	<20	<20	<40	2	0.37	1.95
440 164203	<20	140	300	14	<0.25	1.32
460 164204	<20	100	360	28	<0.25	1.08
480 164205	<20	<20	340	16	<0.25	1.37
500 164206	<20	80	1440	12	<0.25	2.03
520 164207	<20	60	140	4	<0.25	2.58
540 164208	<20	80	140	12	<0.25	0.60
560 164209	20	<20	60	2	<0.25	0.56
580 164210	20	100	100	10	<0.25	<0.25
600 164211	<20	140	380	20	I.S.	I.S.
620 164212	<20	60	420	10	<0.25	0.74
640 164213	<20	160	1120	20	<0.25	0.60
660 164214	<20	40	140	8	<0.25	<0.25
680 164215	<20	60	460	12	<0.25	<0.25
700 164216	<20	60	1760	22	<0.25	<0.25
720 164217	20	<20	240	8	<0.25	0.57
740 164218	<20	140	1880	38	<0.25	0.80
760 164219	<20	200	1220	24	<0.25	0.51
780 164220	<20	80	820	16	<0.25	0.71

	Cu	Pb	Zn	Cd	Au	Ag
Method	MS800	MS800	MS800	MS800	MS801	MS801
Units	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit	20	20	40	2	0.25	0.25

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

277204

Our reference : PE022727
Your reference : 1514
Project code :
Report date : 31/01/97
Report Number : 00001340
Report status : Final
Page : 2 of 2

Analabs Pty. Ltd.
ACN 004 591 664
50 Murray Road, Welshpool
Western Australia 6106
Telephone : (61 9) 458 7999
Facsimile : (61 9) 458 2922

ANALYTICAL DATA

Sample	Ni	Co	Pd
164201	15	1	0.56
164202	30	<1	0.37
164203	20	<1	0.26
164204	20	<1	<0.25
164205	60	<1	<0.25
164206	120	2	<0.25
164207	140	6	<0.25
164208	115	<1	<0.25
164209	80	<1	<0.25
164210	70	<1	<0.25
164211	I.S.	I.S.	I.S.
164212	100	1	<0.25
164213	95	<1	<0.25
164214	105	<1	<0.25
164215	105	<1	<0.25
164216	95	<1	<0.25
164217	90	<1	<0.25
164218	75	<1	<0.25
164219	105	1	<0.25
164220	120	<1	<0.25

Method	MS801	MS801	MS801
Units	ppb	ppb	ppb
Detection Limit	5	1	0.25

Notes: N.A. = not analysed, – = element not determined, I.S = insufficient sample, L.N.R. = listed not received

277205

A N A L A B S

Our reference : PE021524
Your reference : 2319
Project code :
Report date : 19/12/96
Report Number : 00000047
Report status : Final
Page : 1 of 2

Analabs Pty. Ltd.
ACN 004 591 664
50 Murray Road, Welshpool
Western Australia 6106
Telephone : (61 9) 458 7999
Facsimile : (61 9) 458 2922

ANALYTICAL DATA

Sample	Pb	Zn	Cd	Au	Ag	Ni
164101	20	120	4	<0.25	<0.25	<5
164102	20	60	2	<0.25	<0.25	5
164103	60	240	12	<0.25	<0.25	<5
164104	60	260	18	<0.25	<0.25	<5
164105	80	1420	26	<0.25	<0.25	<5
164106	40	700	10	<0.25	1.01	25
164107	80	920	12	<0.25	0.51	<5
164108	<20	100	6	<0.25	<0.25	<5
164109	40	340	16	<0.25	<0.25	<5
164110	60	460	12	<0.25	<0.25	<5
164111	40	300	8	<0.25	<0.25	<5
164112	40	680	10	<0.25	0.38	5
164113	100	500	14	<0.25	1.42	5
164114	60	480	12	<0.25	<0.25	<5
164115	40	160	8	<0.25	<0.25	<5
164116	40	180	12	<0.25	<0.25	<5
164117	60	840	20	<0.25	<0.25	<5
164118	100	1420	34	<0.25	0.28	5
164119	120	1120	14	<0.25	0.83	5
164120	80	1160	28	<0.25	0.31	<5
164121	220	700	18	<0.25	0.36	10
164122	200	600	12	<0.25	3.65	30
164123	180	800	10	<0.25	1.67	60
164124	260	600	6	<0.25	2.90	45
164125	200	1240	22	<0.25	1.48	30
164126	300	3900	90	<0.25	2.14	40
164127	300	2460	36	0.28	5.46	15
164128	260	2020	26	<0.25	0.33	<5
164129	180	1200	16	<0.25	0.65	10
164130	220	740	24	<0.25	3.64	20
164131	420	560	8	<0.25	1.00	25
164132	420	1120	8	<0.25	0.84	15
164133	280	560	10	<0.25	1.93	60
164134	200	1500	12	<0.25	0.62	30
164135	380	900	12	0.52	4.75	65
164136	100	920	6	<0.25	0.34	<5
164137	360	900	16	<0.25	1.72	35
164138	380	460	8	<0.25	4.13	35
164139	380	1280	30	<0.25	0.57	15
164140	220	2020	14	<0.25	0.86	20
164141	100	2020	20	<0.25	<0.25	<5

Method / Units / Detection Limit	Pb	Zn	Cd	Au	Ag	Ni
Method	MS800	MS800	MS800	MS801	MS801	MS801
Units	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit	20	40	2	0.25	0.25	5

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

277206

A N A L A B S

Our reference : PE021524
Your reference : 2319
Project code :
Report date : 19/12/96
Report Number : 00000047
Report status : Final

Analabs Pty. Ltd.
ACN 004 591 664
50 Murray Road, Welshpool
Western Australia 6106
Telephone : (61 9) 458 7999
Facsimile : (61 9) 458 2922

ANALYTICAL DATA

Sample	Co	Pd	Cu
164101	<1	<0.25	<20
164102	2	<0.25	<20
164103	1	<0.25	<20
164104	<1	<0.25	<20
164105	<1	<0.25	<20
164106	3	<0.25	<20
164107	<1	<0.25	<20
164108	<1	0.37	<20
164109	<1	<0.25	<20
164110	<1	<0.25	<20
164111	<1	<0.25	<20
164112	2	<0.25	<20
164113	1	<0.25	<20
164114	<1	<0.25	<20
164115	<1	<0.25	<20
164116	<1	<0.25	<20
164117	<1	<0.25	<20
164118	2	<0.25	<20
164119	2	<0.25	<20
164120	<1	<0.25	<20
164121	2	<0.25	20
164122	5	<0.25	100
164123	13	<0.25	80
164124	10	<0.25	60
164125	14	<0.25	80
164126	6	<0.25	80
164127	2	<0.25	80
164128	1	<0.25	20
164129	3	<0.25	40
164130	3	<0.25	140
164131	7	<0.25	80
164132	11	<0.25	140
164133	69	<0.25	140
164134	37	<0.25	80
164135	34	<0.25	180
164136	1	<0.25	20
164137	12	<0.25	100
164138	11	<0.25	100
164139	6	<0.25	80
164140	6	<0.25	60
164141	1	<0.25	20

Method	MS801	MS801	MS800
Units	ppb	ppb	ppb
Detection Limit	1	0.25	20

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

277207

Sample / Ticket Number Sheet

SOS 2319

Date 18-11-96 Name

MMI soils, Lakorico, 3008
Sterling Valley 3012

Ticket Number	Easting	Northing	Sample Type	Depth	Project Code
16401	384400	5375300	MMI	10cm	3008
02	4420	5300			
03	4440	↓			
04	4460				
05	4480				
06	4500				
07	4520				
08	4540				
09	4560				
10	4580				
11	4600				
12	4620				
13	4640				
14	4660				
15	4680				
16	4700				
18	4720				
18	4740				
19	4760				
20	4780				
21	3780	5373400	MMI	10cm	3012
22	3800				
23	3820				
24	3840				
25	3860				
26	3880				
27	3900				
28	3920				
29	3940				
30	3960				
31	3980				
32	4000				
33	4020				
34	4040				
35	4060				
36	4080				
37	4100				
38	4120				
39	4140				
40	4160				

RC = ROCK CHIP, SS = STREAM SEDIMENT (DENOTE FRACTION SIZE), MMI = MOBILE METAL ION,
GVP GAS VAPOUR, AS = AUGER SAMPLE (DENOTE "A" "B" OR "C" HORIZON).

ALS

277208

PASMINCO EXPLORATION

STAFFORD

Page-no: 1

Attention: MS N MCGUNNIGLE
YourOrder: 2320
SampleType: SOIL
Project:

Batch-no: 17023
Sub-batch: 0
No-samples: 22
Received: 25/11/96
Checked: 13/12/96

Element	Au	Au PM219	Cu	Pb	Zn	As	Ag	Fe
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Method	PM219	CHECKS	IC581	IC581	IC581	IC581	IC581	IC581
164142	<0.001		4	25	17	5	<1	1.69
164143	<0.001		13	35	50	23	<1	2.57
164144	<0.001		23	44	88	52	<1	5.06
164145	<0.001		30	51	112	67	<1	6.45
164146	<0.001		23	39	65	55	<1	5.49
164147	<0.001		29	32	95	51	<1	6.11
164148	0.006		56	93	171	195	<1	8.97
164149	<0.001		87	82	82	56	<1	7.18
164150	<0.001		24	8	65	34	<1	7.57
164151	<0.001		10	5	18	67	<1	4.25
164152	<0.001		33	29	50	211	<1	6.53
164153	0.004		69	69	78	965	<1	12.03
164154	0.003		39	65	73	265	<1	10.62
164155	0.006	0.008	20	381	64	722	<1	5.53
164156	0.030		87	136	149	5410	<1	16.95
164157	0.004		37	115	367	202	<1	6.85
164158	<0.001	<0.001	14	22	61	44	<1	5.28
164159	0.004		10	26	63	35	<1	6.25
164160	<0.001		23	15	43	35	<1	6.83
164161	0.030		4	5	18	16	<1	2.91
164162	<0.001	<0.001	5	5	20	25	<1	3.98
164152A	0.342	0.295	27	33	8	152	<1	1.56
Limit of Detection	0.001	0.001	2	5	2	2	1	0.01

Method IC581 used because Sb not available by IC580.

ALS

277209

PASMINCO EXPLORATION

STAFFORD

Attention: MS N MCGUNNIGLE
YourOrder: 2320
SampleType:SOIL
Project:

Page-no: 2

Batch-no: 17023.
Sub-batch:0
No-samples:22
Received: 25/11/96
Checked: 13/12/96

Element	Bi	Sb	S.D.S	As
Unit	ppm	ppm		ppm
Method	IC581	IC581	ALS	G003
164142	<5	<1	2320	
164143	<5	<1	2320	
164144	<5	<1	2320	
164145	<5	<1	2320	
164146	<5	<1	2320	
164147	<5	<1	2320	
164148	<5	<1	2320	
164149	<5	<1	2320	
164150	<5	<1	2320	
164151	<5	<1	2320	
164152	<5	<1	2320	
164153	<5	<1	2320	
164154	<5	<1	2320	
164155	<5	<1	2320	
164156	30	20	2320	5320
164157	<5	<1	2320	
164158	<5	<1	2320	
164159	<5	<1	2320	
164160	<5	<1	2320	
164161	<5	<1	2320	
164162	<5	<1	2320	
164162A	<5	<1	2320	
Limit of Detection	5	1	1	1

Sample / Ticket Number Sheet

3012

Date ______ Name Sterling Valley

SOS 2320 'C' Horizon soils

Ticket Number	Easting	Northing	Sample Type	Depth	Project Code
164142	384180	5473400N			3012
43	4160	3400			
44	4140				
45	4120				
46	4100				
47	4080				
48	4060				
49	4040				
50	4020				
51	4000				
52	3980				
53	3960				
54	3940				
55	3920				
164156	3900				
57	3880				
58	3860				
59	3840				
60	3820				
61	3800				
62	3780				
62A	standard		STANDARD		

RC = ROCK CHIP, SS = STREAM SEDIMENT (DENOTE FRACTION SIZE), MMI = MOBILE METAL ION, GVP GAS VAPOUR , AS = AUGER SAMPLE (DENOTE "A" "B" OR "C" HORIZON).

277211

APPENDIX 9

South Stitt Prospect, Sterling River EL 24/91

by Ms N McGunnigle

277212

PASMINCO EXPLORATION

Memorandum

To: Barry Murphy

From: Nicola McGunnigle

Date: 24 January 1997

Subject: **South Stitt Prospect, Sterling River EL 24/91**

Introduction

The South Stitt area is located in the southern sector of Sterling River EL 24/91. Prospectivity of the area favours Henty-style structurally-controlled Au mineralisation, with several key indicators for this style of mineralisation evident from previous works. RGC's Henty Gold Mine is located 4km south of the area, directly against the Henty Fault Zone. Observations on the geology and mineralisation of the Henty Gold Mine are reported in Tomkinson (1995) and some characteristics which are important indicators for potential Henty-style mineralisation at South Stitt are included below.

Exploration in the South Stitt area has been hindered by poor access and extensive cover of glacials and Owen Conglomerate scree. Previous work has been conducted by EZ (1987-1980), Getty Oil (in JV with EZ) (1983-1985) and Billiton (1986-1987), and is summarised below.

Previous Work

1978 - 1980 *EZ*:	500m spaced grid
	geological mapping, soil geochemistry
	ground surveys: dipole-dipole IP & pole-dipole IP
	VLF EM
1983 - 1985 *Getty Oil - EZ*:	airbourne DIGHEM
(FitzGerald et al., 1984)	gridding, geological mapping(4.5km)
(FitzGerald, 1984)	soil orientation survey line, trial pit
(Bishop, 1884)	VFL EM and ground magnetic surveys
(FitzGerald & McNaught, 1985) Purvis, 1985	GENIE-EM Survey (Mitre Geophysics, 1985)
	DDH SS1 & SS2
1986 - 1988 *Billiton*:	geological mapping (1: 5000)
(Randell et al., 1986)	bulk cyanide leach survey
(Randell & Purvis, 1987)	rock chip sampling, soil sampling
1994 *Pasminco*:	Review of previous exploration

(Purvis, 1994) Rock chip sampling

Geology

The South Stitt area is covered by extensive glacial moraine and Owen Conglomerate scree which has hindered surface bedrock exposure. Geological mapping has been completed by EZ, Getty Oil and Billiton, and the most recent interpretation at 1: 5000 scale is presented in Figure 34 (Randell et al., 1986). Geology is reported in detail in Randell et al., 1986.

The area straddles the Henty Fault zone, separating a western sequence of felsic lavas, mass flow deposits and basic volcanics from an eastern sequence of volcaniclastic sediments which are described as facies equivalents of the Farrell Sequence to the north. The eastern sequence are only seen in the southern part of the grid and in DDH SS1, occurring as carbonaceous Farrell Slates intercalated with quartz phyric rhyolite lava, siliceous fine volcaniclastic sediments and cherts. The rocks appear to be *moderately hydrothermally altered and weakly pyritic.*

The Henty Fault zone is cut by several NW trending cross faults, which may have influence on mineralisation adjacent to the fault. DDH SS2 encountered a zone of 95% core loss, between 28.4 - 72.5m, through which the Henty fault zone is interpreted to have drilled. This would place the fault about 200m further east than its inferred position from geological mapping on the grid (Purvis, 1985).

Geochemistry

Soil sample traverses were conducted by Getty-EZ (FitzGerald & McNaught, 1985) initially as orientation over a significant VLF EM anomaly, and then on 2 lines over the expected position of the Henty Fault on grid lines 5369250mN and 5370250mN. A wide Fe-rich zone is apparent over a local magnetic anomaly on line 5370250mN, along strike from a sharp anomaly on line 5370000mN. The area contains no outcrop however. Soil geochemistry indicates little overall basemetal enrichment, while rock geochemical analysis indicates mild base metal enrichment over the grid. Reconnaissance sampling located one anomalous Au value of 0.21g/t in the north Stitt area (FitzGerald et al., 1984).

Billiton conducted a reconnaissance Bulk Cyanide Leach survey in 1986, which included one sample site draining into the South Stitt area (Randell et al., 1986). The strongest Au anomaly of 5.3ppb occurs in the South Stitt area on the Henty Fault Zone. A follow-up survey of selected sample sites provided poor repeatability of the results, which is thought to be best explained by seasonal differences between the two surveys.

Geochemical implications for exploration of Henty-style Au deposits discussed by Tomkinson (1995) suggests that red coloured K alteration may be a particularly important guide to ore in similar systems, while red Na dominated alteration may be a regional indicator of ore bearing hydrothermal systems.

277214

Drilling

DDH's SS1 and SS2 both targeted geophysical anomalies adjacent to the Henty Fault zone. SS1 was drilled eastwards at an IP anomaly centred below 382650mE, 53700000mN and intersected carbonaceous shales containing 1-5% pyrite, believed sufficient to explain the anomaly. No significant mineralisation was intersected. Elevated Pb and Zn values appear to be related to faulted zones in pyritic black shale, and both hematite and magnetite were intersected in the hole. Rocks intersected include pink and grey siliceous quartz-phyric volcanics (lava and volcaniclastics) for which the original textures are indistinct due to alteration and deformation. Fine fracturing and brecciation, multiple fluid (vein) events, pink hydrothermal (hematite-albite or potassic?) alteration, and disseminated pyrite in the eastern sequence are encouraging indicators for potential Au mineralisation.

SS2 drilled westwards from the same collar as SS1, targeting a magnetic anomaly centred 100m below 382420mE on grid line 5370000mN. The hole was terminated 50m short of the target. The hole is interpreted to have drilled through the Henty fault zone within a zone of 95% core loss, between 28.4 - 72.5m, which would place the fault about 200m further east than its inferred position from geological mapping on the grid (Purvis, 1985).

Henty Gold Mine - implications for mineralisation from observations

RGC's Henty Gold Mine is located 4km south of the South Stitt area. Mineralisation at the Mine lies within a few metres (or directly against) the Henty Fault Zone, and was discovered as a result of exploration along the line of the fault. The North and South Henty Faults lie within a few metres of each other in this area, and a number of other faults including the Great Lyell Fault trend sub parallel to the Henty Fault Zone. Observations on the geology and mineralisation of the Henty Gold Mine reported by Tomkinson (1995) are discussed below with implications for Henty-style mineralisation in the South Stitt area.

The host rocks to mineralisation at Henty comprise a complex sequence of highly altered and brecciated volcaniclastic sediments and rhyolite lava. Pink to white albite + quartz alteration is interpreted to be related to hydrothermal activity, and red coloured Na dominated alteration may be a regional indicator of ore bearing hydrothermal systems.

The mineralisation sits in a structural trap and is surrounded by potassic (red) alteration consisting of an outer envelope of pyrite alteration. Au mineralisation is associated with late stage veinlets of quartz, localised in areas of greatest silicification (chalcopyrite and galena were also observed in the late veins). Minor enrichments of Cu, Bi, Te and F occur in the higher grade parts of the orebody, and the latter suggests involvement of granitic fluids.

The following criteria appear to be associated with Henty-style Gold mineralisation:

- coalescence of the North and South Henty Faults +/- intersection of many cross-structures including the Great Lyell fault
- "red rock" alteration
- history of silicification, brecciation and quartz veining
- multi-stage, zoned mineralisation
- late stage Au associated with brittle structures
- probable association with granitic fluids

Conclusions and Recommendations

Previous exploration in the South Stitt area shows indicators for Henty-style Au mineralisation. These include:

- the proximity of the Henty Fault Zone and intersection of the North and South Henty Faults and fault to the south east
- pink and siliceous, brecciated and deformed volcanics east of the fault
- pyrite alteration with silica-pink alteration
- quartz veining, and traces of Au and base metals
- evidence in drill core for multiple fluid events
- untested anomalous IP responses

It is recommended that follow up work in the South Stitt area should test for the prospectivity of Henty-style Au targets. Recommendations for exploration in the area additional to that outlined by Basford (1997) includes:

- Re-establishment of the South Stitt grid at 200m line spacing (as proposed in August 1996, for soil sampling and ground magnetics survey) (see Figure 1). Access to the grid from the Mt Black road was cleared by excavator in August, and approval was granted by TDR for re-pegging of the northern part of the grid. The southern part of the grid requires re-furbishing, and approval was still being sought from TDR at the time of termination of the work programme.
- MMI orientation survey conducted over part of the grid (minimum 20m spaced sample intervals) to test for anomalous geochemistry. Sampling is also recommended over the inferred position of the Henty Fault to test the method for indicators of the Henty Fault location to aid with mapping of the fault. More detailed sampling should be continued over 100m (or closer) spaced grid (at 10-20m spaced intervals) in anomalous areas.
- The mineralogy of the pink alteration observed in DDH SS1 should be determined by petrology, to investigate the significance of regional (Na dominated alteration) or near-ore (K-bearing red phases) indicators for Henty-type systems as suggested by Tomkinson (1995). Core from SS1 and SS2 is stored at the Rosebery Mine Core Compound.
- Ground IP should be repeated over the 200m spaced grid, primarily over the interpreted position of the Henty Fault. Areas showing good response to the method should be followed up with a closer spaced survey eg.100m grid.

- Considering the enormous scope untested by SS1 and SS2, further drilling in the South Stitt area is highly recommended. Depending on IP and MMI results, a fenceline of holes drilling through the Henty Fault to test the volcanic sequence to the east would target several criteria for Henty-style Au mineralisation outlined above.

References

Bishop, J.R., 1984 Evaluation of the VLF follow-up of the Rosebery East Dighem Survey, EL 1/62 (Mt Black), December 1984, Getty Oil Dvpt Ltd. (RJV11)

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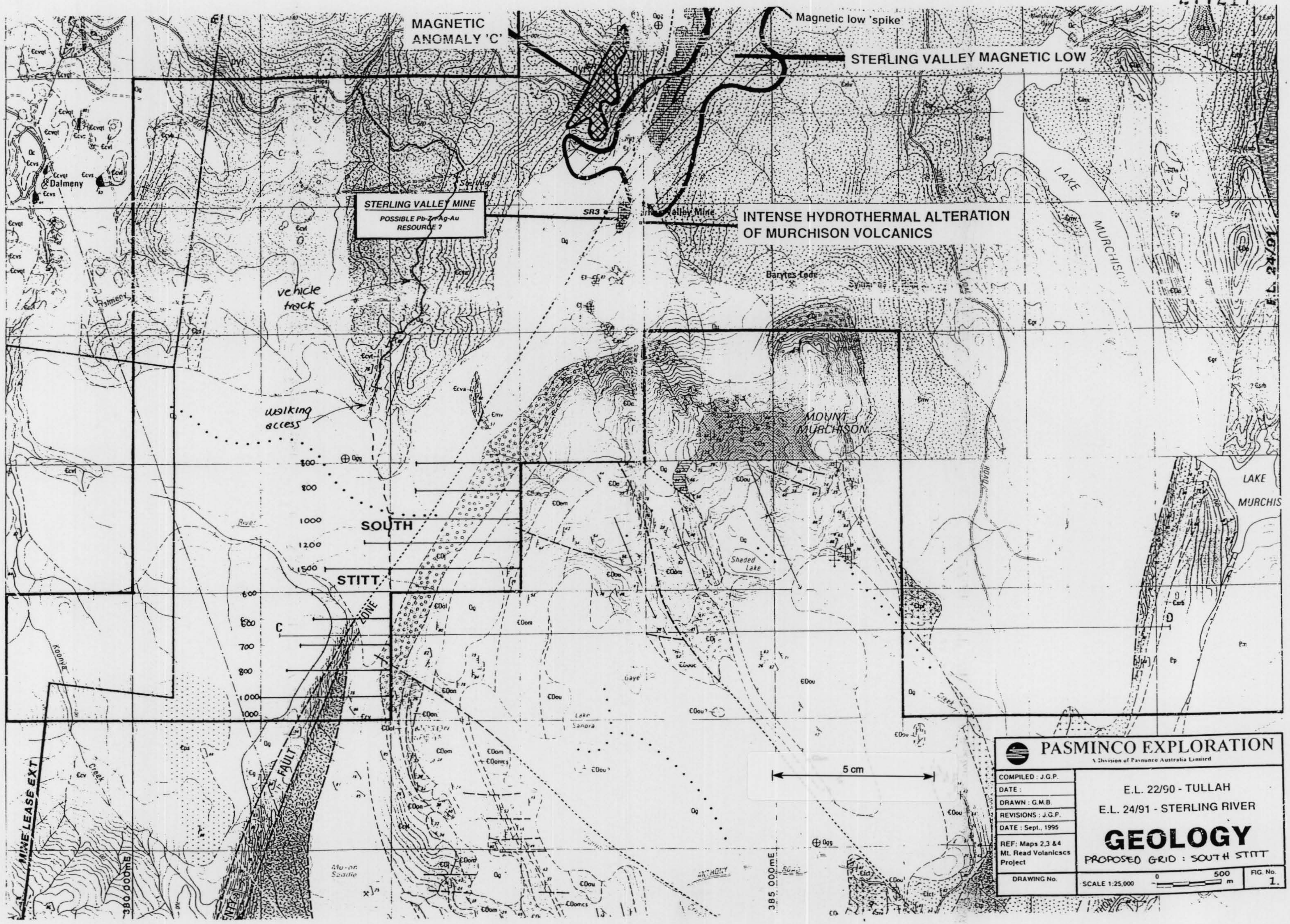
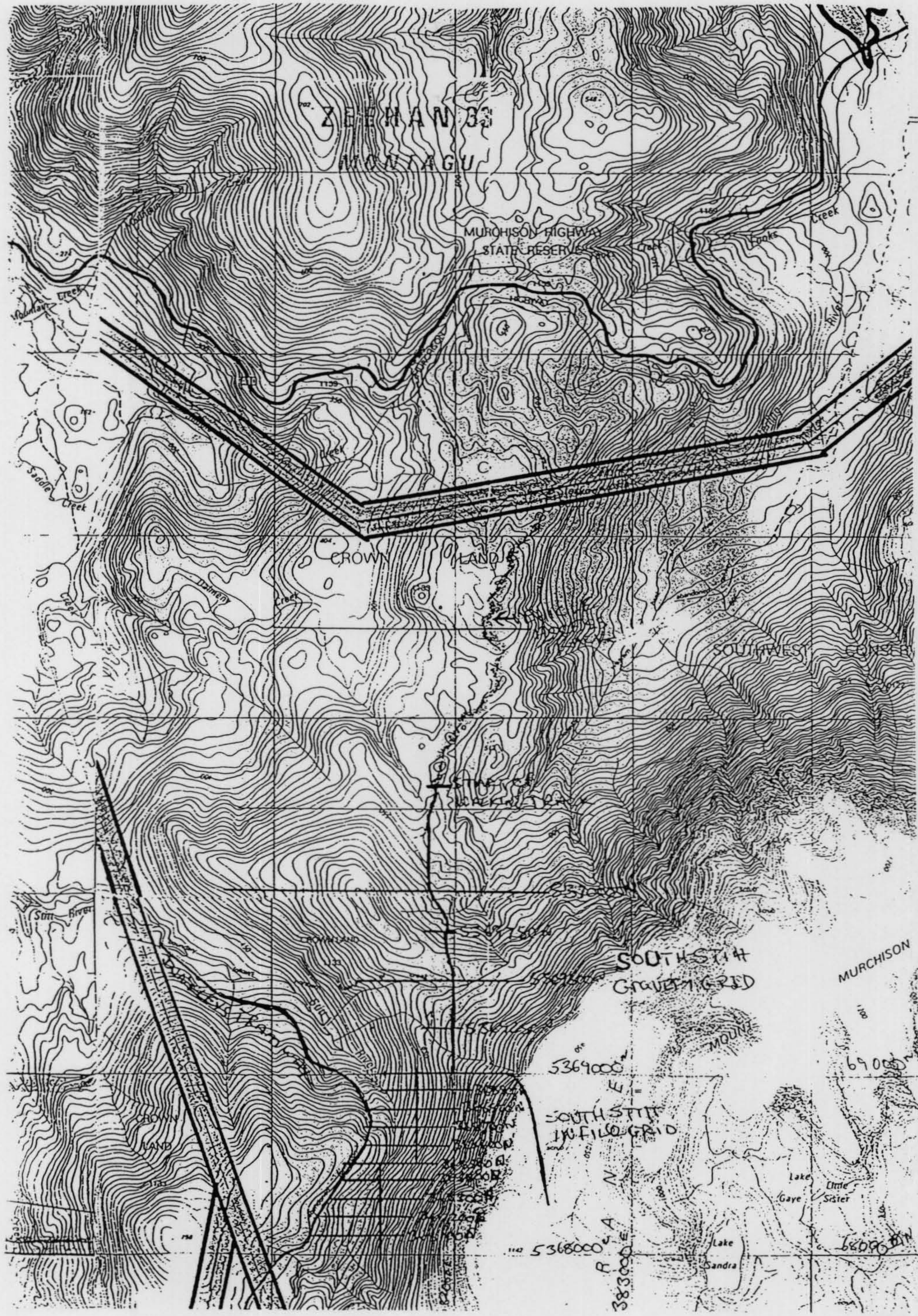

MAGNETIC ANOMALY 'C'
Magnetic low 'spike'
STERLING VALLEY MAGNETIC LOW
STERLING VALLEY MINE
POSSIBLE Pb-Zn-Ag-Au RESOURCE ?
SR3
INTENSE HYDROTHERMAL ALTERATION OF MURCHISON VOLCANICS
Barytes Lode
Dalmeny
vehicle track
walking access
MOUNT MURCHISON
LAKE MURCHISON
Shaded Lake
Lake Sandra
SOUTH STITT
C
D
FAULT ZONE
MINE LEASE EXT
380 000mE
385 000mE
5 cm
E.L. 24/91
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : J.G.P.
DATE :
DRAWN : G.M.B.
REVISIONS : J.G.F.
DATE : Sept., 1995
REF: Maps 2,3 &4 Mt. Read Volanicscs Project
DRAWING No.
E.L. 22/90 - TULLAH
E.L. 24/91 - STERLING RIVER
GEOLOGY
PROPOSED GRID : SOUTH STITT
SCALE 1:25,000
500 m
FIG. No. 1.

EXISTING GRIDS : SOUTH STITT AREA

277218 | 1



South Stitt - Southern infill Grid 87'

Line #	EASTING	TO	EASTING	meters
68100 N	381240		381740	500
68200	381330		381790	460
68300	381370		381810	440
68400	381400		381890	490
68500	381400		381900	500
68600	381480		381950	470
68700	381520		381980	460
68800	381550		382030	480
68900	381620		382080	460
69000	381600		382100 E	500
			sub	4760

BaseLine (S)	northing	to	northing	
381600 E	68000		68500	500
381820 E	68500		69000	500
			sub	1000

Total to Refurbish 5760 metres.

South Stitt Gravity Grid 92'

Line #	Easting	to	Easting	meters.
5369250 N	?		382000 E	
5369500 N	381480 E		382400 E	920
5369750 N	381 ?		?	
	380700 E		382250 E	1550
			sub total	2470

total 8230 meters

5 cm

APPENDIX 10

Memorandum on the North Lakeside Induced Polarisation Target

277220

PASMINCO EXPLORATION

MEMORANDUM

TO: N K McGunnigle

FROM: P W Basford

DATE: 10 October 1996

REF: pwb/96288

SUBJECT: **North Lakeside Induced Polarisation Target**

Summary

The induced polarisation anomaly on line 7000N in the Dutton's area does not appear to have been fully tested.

Conclusion and Recommendations

Although a source for the induced polarisation anomaly has been recognised, there is a possibility of an up-dip component which may contain more Au. The anomaly may also be related to a N-S shear zone continuing for 2km to the south. It is undetermined if the Au is associated with the Henty Fault or the N-S shear.

A shallow drill hole, collared on 5015E, 7000N, drilled at 60 degrees should intersect the up-dip component of the induced polarisation anomaly at 115m down the hole.

Review

Further to the work carried out on the Lakeside deposit, it has been discovered that a gradient array chargeability anomaly located on line 5377000N adjacent to the Henty fault has not been properly tested. The feature appears similar to that observed over Lakeside.

The anomaly was tested by drill hole RED87-4 on line 7000N, which intersected the Henty Fault at a depth of 193.5m down the hole, with Zn, Pb and graphite further down. Au grades recorded at a depth of 259.3m are 0.21 g/t over 2m. Although the hole intersected a possible source for the induced polarisation anomaly, it is located 200m vertically below the anomaly. This would therefore require the feature to extend up dip, in a near vertical orientation to be associated with the chargeability anomaly.

A transfer fault appears to exist between line 7000N and 7200N and data on line 7100N was not completed. It is possible that the anomaly is larger than currently observed, and although the anomalous zone is strike limited, intersection of higher gold grades would be encouraging for further exploration along the Henty fault zone.

A shallow hole on line 7000N would be useful to test the up-dip section of this target. If the target was to be intersected at 100m vertical depth, and the hole drilled at 60 degrees, then the target should be intersected at around 115m down hole, with the collar at 5015E. The Henty Fault Zone should be intersected at approximately 55m down hole. Note that only 6m of glacial cover was intersected in hole RED87-4.

An alternative hole would be on line 7050N, moving the collar back west slightly to avoid collaring the hole on the east side of the Henty Fault. More work would be required to target a hole on this line. This would include geological mapping and induced polarisation surveying along lines 7200N, 7100N, 7000N and 6900N. Hole RED87-4 may also want to be revisited.

It was observed in the drill logs that the zone with graphite was compared to that drilled in MR1, MR2 and RED86-1. If this is so, then there would exist a large N-S shear zone running along 385000E from approximately 5375000N to 5377000N. This feature may be of interest where it intersects the Henty Fault, especially if it developed contiguous with or after the Henty Fault. Alternatively, the structure may be of interest if the Au is associated with it and not the Henty Fault.

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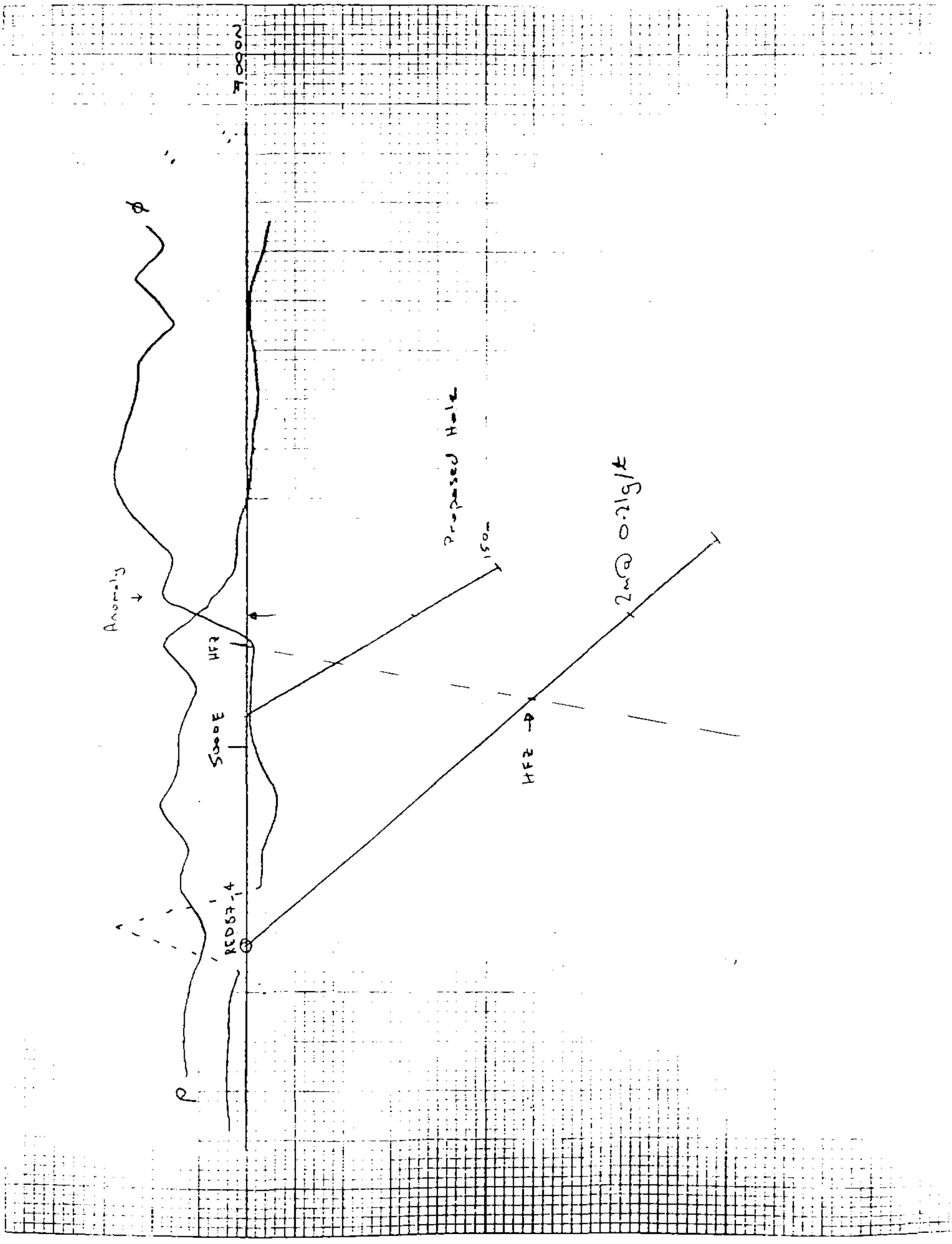

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APPENDIX 11

1:25K Geology Lithostratigraphic Codes and Modification Based on Lithotypes

1 : 25 K LITHOSTRATIGRAPHIC CODES

DGE - Modified Lithology codes

EDQ - Original Rock codes from 1:25K sheets

- DGE — [ED, EHF, EQ, ET]
  - DGEQW *(EDQ, Eq)*
  - DGESM *(EDS, ETS, EFS)*
  - DGESD *(GDD)*
  - DGELW *(EF, Edg, Edw, Enlg, Edgm, Edgl, Edwl)*
  - DGECG *(Edc)*
  - DGEM *(Ela, Edba, Enlab)*
  - DGEB *(Edbr, Enfb, Edb)*
  - DGEA *(Eda, Enfa)*
  - DGEF *(Edlf, Ell, Elv, Elp, Elpi, Elpl)*
  - DGET *(Edl, Enll, Ell, Elcl, Elvc, Elt)*
  - DGEVC *(Elc)*
  - DGEVT *(Edlv, Elva)*

- CVC — [*EMV, ECV, EWS*]
  - CVCT — [*EMVT, ECVT, EWST, EKVR*] — [*ECVI, ECVIB, ECVAG, ECVXT, ECVVT, ECVAT*]
  - CVCS — [*EKM, ECVS, EWSS*] — [*ECVSC*]
  - CVCL — [*EUVP, EMVC, ECVL*] — [*ECVA, ECVLM, ECVQ, ECVG*]

1 : 25 K LITHOSTRATIGRAPHIC CODES

GROUP NAME	GROUP CODE	LITHOCODE 1	LITHOCODE 2	LITHOCODE 3
Alteration	Alt	MS. (Masive sulphide) BA (Barite) ALSI (Argillic) FeSI (Silicic) FeRED (Pyritic) FeOx (Hematitic)		
INTRUSIVES	I	MI	JDC XL	
		DI	DQP (Porphyry) DDL (Dolerite) DG (Granite) DL (Lamprophyre)	
		OI	OP (Porphyry)	
		EI	Ep (Porphyry) Ep1 (Felsic Intrusive) Eg (Gabbro) Eb (Basalt) Eus (Ultramafic) Egr (Granite)	
Quaternary	Qu	Qc (Cultural) Ql (Talus) Qa (Alluvium) Qg (Glacial)		
Tertiary Basalt	Tb	Tb (Basalt)		
Upper Palaeozoic	Pu	Pu (Sediments)		
Siluro - Devonian	S - D	Sd (Sediments)		
Gordon Limestone	OGL	Ogl (Limestone)		
Owen Conglomerate & Equivalents	EO	EOo (Sediments)	EOoM (Siltstone) EOoC (Chert) EOoS (Siliciclastic cong.) EOoVC (Volcaniclastic cong.)	
Dundas Group & Equivalents	DGE	DGES (Sediments)	DGEQW (Quartzwacke)	DGEQC (Quartzite Cong.)
			DGESI (Siltstone)	DGESM (Micaceous Siltstone) DGESD (Dolomitic Siltstone)
			DGELW (Lithic Wacke)	
			DGECG (Conglomerate)	
		DGEL (Lavas)	DGEM (Mafic Lavas)	DGEB (Basaltic) DGEA (Andesitic)
			DGEF (Felsic Lavas)	
		DGET (Tuffs)	DGEVT (Vitric Tuffs) DGEVC (Conglomeratic Tuffs)	
Central Volcanic Sequence	CVC	CVCT (Tuffs)		
		CVCL (Lavas)	CVCA (Felsic) CVCB (Basic)	
		CVCS (Sediments)		
Sticht Range Beds	ESRB	ESRB (Sandstone Cong.) ESRV (Conglomerate) ESRV (Volcaniclastic)		
Crimson Creek Fm	ECC	ECC (Siltstone/sandstone)		
Proterozoic	P	Pm	Pp Phs Phq	
		Po		

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