

MANCALA PTY LTD

ANNUAL REPORT

ALBERTON LEASES

JULY 1993 - JUNE 1994

MINING LEASES 44M/88 45M/88 46M/88

S.L.GULA

AUGUST 1994

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MANCALA PTY LTD**MEMORANDUM**

TO: F. W. Lannen
M. P. Kyne

Date: 17 August 1994

Copy: Tasmanian Development & Resources
Tas. Tiger Mines

From: S. L. Gula

RE: 44M/88, 45M/88 & 46M/88 - ANNUAL REPORT

The following is a summary of work completed during the period of July 1993 to June 1994, regarding Mining Leases 44M/88, 45M/88 & 46M/88 located near Alberton in North-East Tasmania.

1.0 THE OPTION AGREEMENT

During the period, Mancala entered into an Option to Purchase Agreement with Tas. Tiger Mines regarding the tenements. Upon completion of an agreed exploration programme, Mancala has proceeded with exercising its Option over the Leases as of 27th June. Tas. Tiger Mines have acknowledged that the transfer is to be completed, and the associated formalities are in progress.

2.0 EXPLORATION WORK

The scope of work has included the re-establishment of mine accesses for inspection, geological mapping and diamond drilling (TT46), with all work carried out in these Leases centred around the Ringarooma United, Long Struggle and Mount Victoria mines.

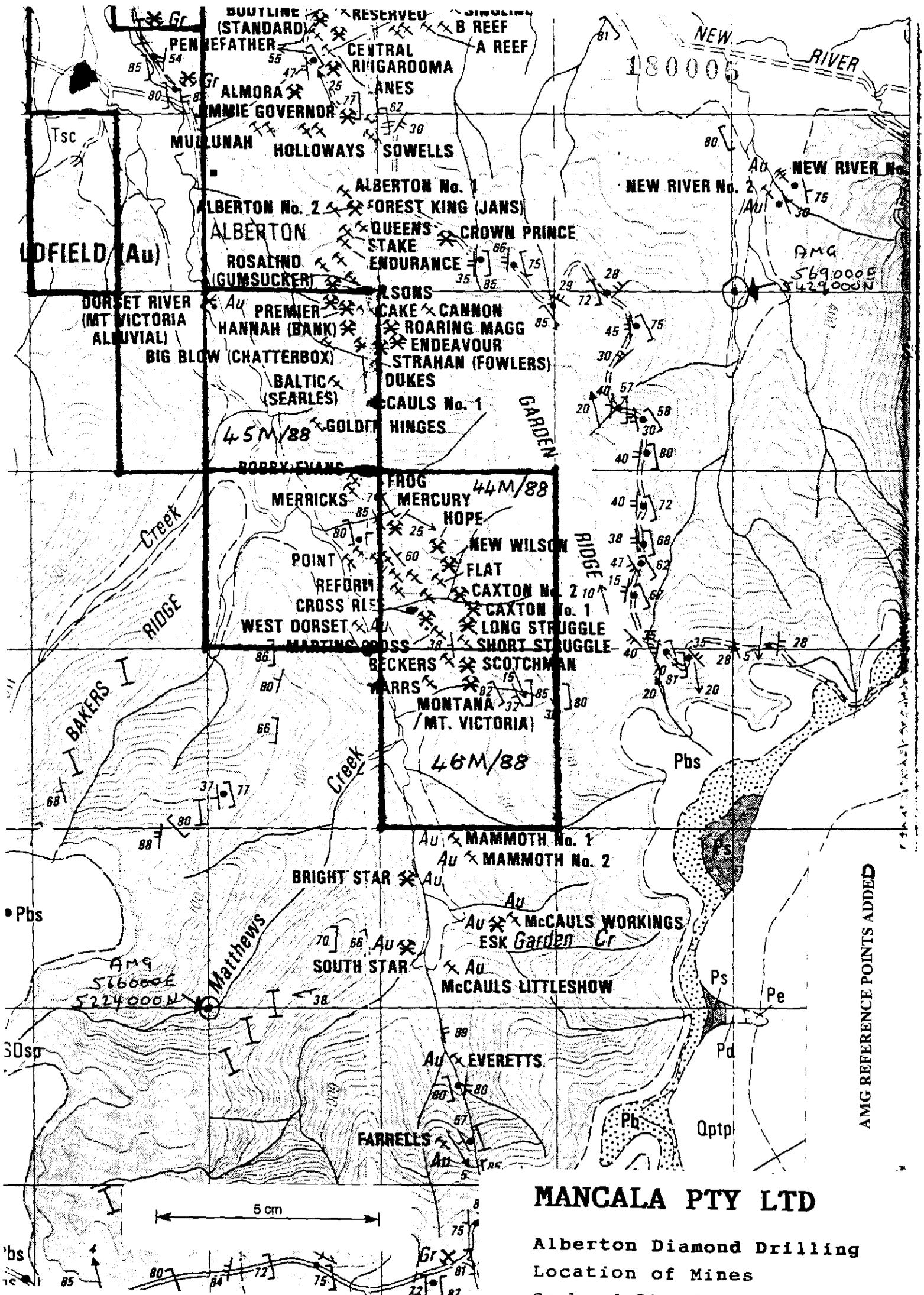
A summary of drilling is as follows:

Ringarooma United Mine	225.0m
Long Struggle Mine	530.8m
Mt. Victoria Mine	<u>228.8m</u>
	1,014.6m

All drilling was carried out from underground under quite difficult conditions due to the limited work space available. Holes were designed to test the extension of known reefs and appear to show reasonable continuity along strike and down dip. Assay results have been encouraging though not conclusive.

A follow-up exploration programme is currently being drawn up.

S. L. GULA



AMG REFERENCE POINTS ADDED

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Alberton Diamond Drilling
 Location of Mines
 Scale 1:25,000

TABLE OF CONTENTS

	Page
Summary	1
1. Diamond Drilling of Alberton Mines: Locations and Targets.	2
1.1 Ringarooma United Mine	2
1.2 Long Struggle Mine	2
1.3 Mt Victoria Mine	4
2. Results	5
2.1 Ringarooma United Mine	5
2.2 Long Struggle Mine	6
2.3 Mt Victoria Mine	7
3. Interpretation	8
3.1 Ringarooma United Mine	8
3.2 Long Struggle Mine	9
3.3 Mt Victoria Mine	13
4. Conclusions	14
4.1 Ringarooma United Mine	14
4.2 Long Struggle Mine	14
4.3 Mt Victoria Mine	16
4.4 New reefs	17
4.5 Other mines on the Leases	17
5. Recommendations	18
5.1 Ringarooma United Mine	18
5.2 Long Struggle Mine	18
5.3 Mt Victoria Mine	19
5.4 New reefs and other mines	20
References	21

SUMMARY

Three mines of the mine-crowded Alberton Goldfield were diamond drilled in two separate programmes, which totalled 1,014.6m. The mines were:-

Ringarooma United Mine (255m),
Long Struggle Mine (530.8m),
Mount Victoria Mine (228.8m).

The drilling in the Ringarooma United was a mixture of engineering holes, to test the extent of stoping beneath the lowest level, and exploration. That in Long Struggle and Mt Victoria Mines was exploratory, based on a programme designed by D. O'Connor of Tas Tiger Mining Pty Ltd.

Extensions of known reefs were intersected in Ringarooma United and Long Struggle. New, as yet unmined reefs were indicated in the environs of Long Struggle and Mt Victoria Mines. The potential of these for close to the surface ore shoots is encouraging.

Follow up of the results is recommended, particularly for Long Struggle and Mt Victoria Mines, with a view to defining virgin ore shoots close to the surface.

Detailed inspection of other accessible mines is also recommended, to assess their potential for reopening or indication of unmined resources in the vicinity.

1. DIAMOND DRILLING OF ALBERTON MINES: LOCATIONS AND TARGETS**1.1 Ringarooma United Mine****Table 1: Mancala drilling at Ringarooma United Mine.**

Hole No.	Site	Azimuth (AMG)	Dip	Depth m
RU1	1	130°	-10°	46.5
RU2	1	130°	-15°	52.5
RU3	2	120°	-55°	50.5
RU4	2	119.5°	-40°	62.5
RU5	2	090°	-25°	43.0
Total				255.0

The first two were engineering holes, to test the extent of the stoping of Rosalind Reef below the Long Adit level. The rest were to define the Rosalind and Premier Reefs and their conjunction below and north of the Long Adit.

1.2 Long Struggle Mine

Five holes were drilled in Long Struggle Mine, totalling 530.8m. The lengths of the holes are given in Table 2.

Table 2: Mancala drilling at Long Struggle Mine.

Hole No.	Site	Azimuth (AMG)	Dip	Depth m
LSM1	1	098.5°	0°	250.7
LSM2	1	080.5°	+1°	84.4
LSM3	2	117.5°	0°	75.5
LSM4	2	107.5°	+21°	51.4
LSM5	2	125.5°	+20°	68.8
Total				530.8

The first two holes, LSM1 and LSM2 were basically two out of three designed by David O'Connor as part of the programme of 500m to be drilled in Long Struggle and Mt Victoria mines. The first drilled, LSM2, was designed to go to 70m, but in lack of reaching any recognisable reef, it was extended, with the agreement of O'Connor, to cover any reasonable doubt of

there being a reef to reach, and the possibility the target might be parallel to the Cross Reef rather than to Long Struggle Reef.

The second hole drilled, LSM1, was originally planned to follow up the expected intersection of the first hole, and in so doing to verify the supposed intersection of the 1937 Mines Department DDH1 of 28.2g/t Au over 2.4m, which included 0.6m at 100.1g/t Au (Blake 1938). It was agreed with O'Connor that this hole should be extended to substitute for his originally planned hole LSM3, which was intended to be drilled from the surface. O'Connor agreed LSM1 should go to 210m, but, unlike Mancala, was not convinced it should go further.

It must be recognised that the drilling programme stipulated by Tas Tiger via David O'Connor, was based on invalid interpretation of the information provided by the logs and write-up of the three 1937 Mines Department diamond drill holes (Blake 1938). The descriptions in these logs were quite explicit in location of the holes, but not in their azimuth. The originally planned first two holes, LSM1 and LSM2, therefore, were aimed to test a doubtful target, which was based on a blast hole butt in the southerly drive at the corner in the adit as the supposed collar and indicator of the azimuth of the Mines Department hole, DDH1. This site did not coincide with the measured position of the face in which the hole was collared. This face was stated to be 456 feet (139m) from the main adit crosscut (Blake 1938). The position of this face at the time is verified by a sky rise (a specific excavation of the backs above the normal backs level) which was cut to accommodate the back throw of the rods for drilling the second hole at the face, DDH2, which was inclined downwards at 55°.

Unfortunately, neither of the original drill holes are identifiable, because the face in which they were drilled was fired as the first round in continuation of the cross cut to reach the very inviting lode supposedly intersected by DDH1. This had "coarse free gold" and average assays of 29.41g/t

over 1.1m and 15.5g/t Au over 2.4m, including 0.3m at 100g/t Au (Blake 1938). On the evidence of plotting its position and probable direction, the intersection apparently coincided with the Caxton Reef. The hole evidently passed through the Long Struggle Reef at 24.5 to 25.3m, which coincides well with its mapped position. The Long Struggle Reef intersection assayed only 0.93g/t Au, in some contrast with intersections in the recent programme.

1.3 Mt Victoria Mine

Table 3: Mancala Drilling at Mt Victoria Mine.

Hole No.	Site	Azimuth (AMG)	Dip	Depth m
MVM1	3	294.5°	0°	55.8
MVM2	2	122.5°	0°	52.2
MVM4	1	177.5°	0°	120.8
Total				228.8

The Mt Victoria Mine drilling was also basically the programme designed by O'Connor, with agreed modifications, there being concured 220m left of the 500m Tas Tiger programme, rather than 250m, as originally planned.

MVM1 is a wildcat test of the ground to the north west of the lower level workings, collared (as agreed) in the Montana Reef, as the access to the originally planned site is blocked by rubble of the early mining. The hole was extended past the planned length to compensate for the step back.

MVM2 was an agreed compromise between the originally planned MVM2 and MVM3, which were aimed at exploring south east of the workings. It was drilled at the MVM2 planned site, but was aimed diagonally between the two originally planned holes, MVM2 and MVM3, to test the same ground. It went slightly past the planned depth of 50m, to 52.2m.

MVM4, was originally planned by O'Connor to be 70m long (though he stated his preference for a 100m hole) to test for

offset continuation of the Victoria Reef and for new reefs in the direction of anomalous magnetic effects. By agreement that it should reach into and test the anomalous magnetics zone, it was drilled to 120m.

2. RESULTS

2.1 Ringarooma United Mine

The discovery last year by the first two drill holes RU1 and RU2 that the Rosalind Reef had been mined to at least 20m below the Long Adit level to the south of the adit was a disappointment; likewise the collapsed 'ballroom' and blocked underlay shaft.

Table 4: Reef Intersections in Ringarooma United drilling.

Hole No.	Sample No.	Interval m	Length m	g/t Au	Reef
RU4	73000	56.4-57.0	0.3	0.7/0.88	P.
RU4	73006	59.7-60.5	0.8	1.1	R.
RU4	73007	60.5-61.0	0.5	1.1/2.8	R.
RU5	73014	33.0-33.1	0.1	0.75	R.
RU5	73022	37.4-37.7	0.3	0.36	?
RU5	73028	41.1-41.2	0.1	0.28	P.

P.= Premier Reef. R.= Rosalind Reef.

The drilling to the north of the adit showed the reef is still intact below the level, though the grade of the intersection of the apparent confluence of the Rosalind and Premier Reefs in drill hole RU4 was at best 2.8g/t Au, in results to date. This might explain why the stoping was not continued northwards on Rosalind Reef. The intersection of the reef by RU4 showed the reef straddled a strong shear, represented by about a metre of pyritic sand, which was sampled as well as the reef.

2.2 Long Struggle Mine

Table 5: Reef Intersections in Long Struggle drilling.

Hole No.	Sample No.	Interval m	Length m	g/t Au	Reef
LSM1	73123	28.8-29.1	0.3	1.5	?
LSM1	73192	96.35-96.8	0.45	2.8	?
LSM1	73194	100.5-101.2	0.7	3.0	?
LSM1	73199	123.6-123.8	0.2	3.6	?
LSM1	73207	156.15-156.35	0.2	12.8/13.4	L.S.
LSM1	73419	156.35-156.75	0.4	3.2	L.S.
LSM1	73214	220.0-229.2	0.2	0.2	C?
LSM1	73210	249.05-249.3	0.25	0.2	C.2?
LSM2	73053	20.7-20.85	0.15	1.0	?
LSM3	73221	26.7-26.85	0.15	18.6/17.4	L.S.
LSM3	73275	59.5-59.8	0.3	0.42	C.
LSM3	73279	71.1-71.3	0.2	1.7	?
LSM3	73280	71.8-72.3	0.5	1.6	?
LSM3	73279	71.1-71.3	0.2	1.7	?
LSM3	73280	71.8-72.3	0.5	1.6	?
LSM4	73229	29.45-29.6	0.15	11.4	L.S.
LSM4	73231	33.45-33.75	0.3	1.0	?
LSM4	73281	39.6-39.7	0.1	1.5	C.
LSM5	73248	30.7-31.25	0.55	1.1	L.S.
LSM5	73239	31.25-31.35	0.2	2.4	L.S.
LSM5	73242	35.25-35.6	0.35	1.4	?
LSM5	73243	61.4-61.6	0.2	0.2	C.

The best intersections of LSM1, LSM3 and LSM4 plot as Long Struggle Reef (L.S), with enough proximity, continuity and similarity in grade to be reasonably convincing.

In LSM1, at 156-156.75m, is an intersection of a reef of semi massive arsenopyrite in grey quartz-filled breccia which assayed at 156.15-156.35m 12.8g/t Au (repeated with 13.4g/t Au) and at 156.35-156.75m 3.2g/t Au. The combined interval of 0.6m, interpreted as Long Struggle Reef, averages 6.4-6.6g/t Au. LSM1 intersected other reefs with lower assays, including Caxton Reef (C.). LSM3 to LSM5 also intersected Long Struggle and Caxton Reefs. These are discussed in Section 3.2, below.

2.3 Mt Victoria Mine

Each hole intersected reef-type quartz filled breccia, considered worth sampling.

The intersections of these holes are listed in Table 6.

Table 6: Intersections in Mt Victoria Mine drilling.

Hole No.	Sample No.	Depth m	Interval m	g/t Au
MVM4	73285	28.6-29.6	1.0	1.4
MVM4	73288	30.3-30.5	0.2	4.3
MVM4	73299	90.45-90.5	0.05	1.0
MVM4	73314	110.55-110.65	0.1	2.3
MVM2	73366	43.7-44.1	0.4	0.5
MVM1	73376	30.6-30.9	0.3	1.3
MVM1	73380	36.4-36.75	0.35	8.3
MVM1	73382	36.95-37.45	0.5	1.0
MVM1	73383	36.45-36.75	0.3	1.2
MVM1	73387	39.3-39.6	0.3	1.15
MVM1	73391	40.3-40.55	0.25	2.8
MVM1	73396	42.0-42.1	0.1	16.6
MVM1	73397	42.1-42.3	0.2	3.0
MVM1	73399	47.1-47.4	0.3	6.1
MVM1	73400	47.4-47.55	0.15	2.3
MVM1	73403	47.95-48.05	0.1	0.75

The true width of the 4.3g/t Au intersection in MVM4 was 5cm. The intersections in MVM2 and MVM4 could be indicating a structure roughly parallel to the Victoria Reef which was mined on levels above.

Incidentally, it was observed by Malcolm Bendall that the core of MVM4 was oily in places. This was not oil from the drilling, though soluble oil, which leaves no stain on the core was used. Therefore, it is surmised the oily effect is natural. This is in line with reports of an oil seep noticed by loggers in the area. Contemplation of the commercial implication of this is outside the scope of this report.

3. INTERPRETATION

3.1 Ringarooma United Mine

Reading McIntosh Reid's report on Ringarooma United again, it seems the stoping on the north side of the shaft was from the bottom of the shaft level or close to it, from 33m below the Long Adit level. The report is ambiguous on this point, saying the "The orebody at shaft level is 3 to 5 feet wide," (McIntosh Reid 1925), not explaining whether at the top or bottom of the shaft. The top is presumed.

It is still not known whether the stoping below Long Adit level was taken south of the shaft. It would seem very likely it was, given that there was access already in place, by the shaft and ten metre drive south from it, opposite the drive north, and presuming the grade was worth chasing, which it evidently was above the level (McIntosh Reid 1925). According to the longitudinal section, the Rosalind ore shoot was known to extend about ten metres south of the shaft on the Long Adit level, continuing below the level.

It was also recognised that the Rosalind ore shoot pitches to the south, according to the longitudinal section (Twelvetrees c.1900). Its northern edge was drawn 13-15m south of the junction of the drive and Long Adit and southern edge 42-44m south of this junction.

The confluence of Rosalind and Premier Reefs was calculated to plunge about 45° on a bearing about 190°. This is complicated by the steep southerly pitch of the Rosalind ore shoot and the steep apparently northerly pitch of the Premier ore shoot (Twelvetrees c.1900).

The Premier Reef definitely has not been stoped below the Long Adit level, nor was there encouragement to do so, judging by the results of our sampling of it at the end of Long Adit, where it is seen as a half a metre wide quartz-filled breccia. We should go there again, being better acquainted with the

nature of the reefs and the occurrence of the gold in them, to re-examine and selectively sample the reef, though it differs from the Caxton Reef (described below), with only one generation of veining apparent. The north pitch of Premier Reef ore shoot has not been borne out by the assays of either grab or drill samples.

The assays so far, both drilling and grab samples, have not been encouraging, but none of them have been taken from, or drilled through recognised ore shoots (except for RU1 and RU2, which entered stoped void), though they were from the reefs containing the ore shoots.

There is a distinction between reef and ore shoot: ore shoots are parts of reefs, but not all reefs are ore shoots.

It has been suggested there is a relationship between the content of arsenopyrite and other sulphides and gold (McIntosh Reid 1925), but this has not proved to be the general rule, because the intersection of the reefs in RU4 was rich in arsenopyrite and galena, but assayed at best 2.8g/t Au. As it transpired, nor does it hold for the other Alberton mines investigated in this programme.

3.2 Long Struggle Mine

The interval of semi massive arsenopyrite in grey quartz-filled breccia at 156.15-156.75m, assaying an average of 6.4-6.6g/t Au, plots in a position that makes it reasonably interpreted as Long Struggle Reef. This makes evident a divergence of Long Struggle Reef from Caxton Reef at this level, which can be explained by the sharp steepening, and overturning, of the former reef, as it is seen dipping steeply to the west on the 390m level. It is shown at the surface to be dipping at 80-85° east at the south end and 65° east at the north, portal end. The Caxton still dips 60-70° east on this level (Blake 1934). The upper levels of the two reefs are apparently gradually converging as they continue south rather

than being parallel or diverging (ibid.).

Though Caxton Reef is recognisable as quartz and carbonate-filled sandstone and siltstone breccia with disseminated and aggregated arsenopyrite and pyrite, in the right positions in LSM1, LSM3, LSM4 and LSM5, the assays have proved disappointing. This is especially so, in the light of the grades of the apparent intersection of Caxton Reef in the Mines Department drill hole, DDH1 (Blake 1938).

The exposed Caxton Reef on the lowest level is a narrow (<0.4m) blue-grey quartz vein with discontinuous thin bands of grey sandstone and siltstone that has evidently been subsequently sundered and infilled with white 'buck' quartz. According to Botrill and Taheri (pers. comm.) the blue-grey quartz, banded with slivers of brecciated country rock, is recognised as typical lode material that was found to be reasonably reliable in carrying grade, whilst the white quartz is generally barren, though it has been known to carry rare discrete grains to nuggets of gold (Botrill pers. comm. 1994). Perhaps it was a patch of these that DDH1 hit, by a fluke.

Unfortunately, in his log of DDH1, Blake's description of the intersection was just, "Lode matter", and he wrote, "A specimen from midway between 136 feet and 138 feet showing coarse, free gold was excluded from the sample and not assayed." (Blake 1938). Blake made no distinction between breccia-fill, grey or buck quartz. The buck quartz type of mineralisation is completely unreliable as a minable gold source, according to Bottrill and Taheri (pers. comm.), being too erratic in its mineralisation.

The exposure of the Caxton Reef in the lower adit shows truncation and displacement in a minor fashion by faulting. This makes it difficult to get a good fix on the strike, which can be surmised to some extent on the average direction of a rather bent drive. The drafted upper level drives and stopes to surface (Blake 1934) are continuous enough to give some guide as to the strike and evident approximate parallelism of

the Long Struggle and Caxton Reefs, and quite constant dip when a cross section is drawn through the reefs.

In the logging of LSM1, beyond that interpretable as Long Struggle Reef, reefs can be identified at 194.05-194.35m (boudinaged, pyritic quartz veining), 229-229.2m (quartz filled brecciated sandstone with arsenopyrite and galena) and 249.05-250m (stockwork quartz veining with semi massive arsenopyrite, pyrite and some carbonate).

The first of these (194.05-194.35m) is in a position interpretable as Caxton Reef, assuming it continues in a straight line from its position in the workings, though it is not a perfectly typical breccia reef, being boudinaged quartz veining instead.

The second (229-229.2m) is a typical breccia reef, and perhaps can more correctly be interpreted as Caxton Reef, if the swing of the southern ends of the surface expression of both Long Struggle and Caxton Reefs towards the east (Blake 1934) is maintained at the level of LSM1. In fact, it occurs within a metre of where I expected Caxton Reef to turn up in the drill hole, after deliberation on the reef's apparent dip and likely attitude at this southing and RL.

The third, at the end of the hole (240-250m), is possibly No.2 Caxton Reef (Blake 1934).

Evidently, LSM1 intersected more than the two known lodes. There are signs of another two reefs well in the footwall of Long Struggle, at about 96-101m and 123-124m (see Table 3) besides the one on the hangingwall side of the Caxton Reef (interpreted at 229m) at 249-250m.

The 1.5g/t Au assay at 28.8-29.1m in LSM1 together with the 0.97g/t Au at 20.85-20.9m in LSM2 might be indication of potential for yet another reef parallel to the Long Struggle and Caxton Reefs, making the possibility of three reefs in the footwall of Long Struggle, possibly developing to the south

east and, if the two already mined reefs are typical examples, up towards the surface.

The so-called Twelvetrees Reef, reportedly cropping out parallel to and in the footwall of Long Struggle (D. O'Connor, pers. comm. 1994) has not yet been identified. It could be represented in LSM1 by the 3.6g/t Au at 123.6-123.8m or, less likely, the 3g/t Au included in the 96.4-101.2 zone of quartz veining. The latter interval has veins at an oblique angle to the core, which suggests it might be a 'cross reef' rather than one parallel to the Long Struggle. This could be interpreted as Martin's Reef, shown on the Blake (1934) surface map.

The potential for other reefs is also highlighted by the 3.6g/t Au chip sample of the quartz vein across the crosscut about a metre west of the corner of the Caxton drive, and various other hints in the drill holes, including several better than 0.5g/t Au samples in all the holes.

It can be seen in Table 3 that the intersections of grade over 10g/t Au are very narrow, (<0.15m). All appear to be of the Long Struggle Reef. The rock chip sampling of the north and south faces of the Long Struggle Reef were at best 3.7g/t Au over about 20cm and 4.1g/t Au over about 35cm. However, the reefs' azimuths are indicated:-

- Long Struggle: 180° for about 10m, turning 155° (AMG).
- Caxton: 145° AMG in the vicinity of the workings.

Long Struggle's azimuth coincides with that of its upper levels. Its dip is vertical to 80° west for up to 12m above the lower adit floor level. It then rolls to about 45° to join the 450m RL, where it apparently lies at 55°. Caxton's azimuth has swung 10° to the east, in comparison to its upper levels, with a dip of 65-70° east.

The best rock chip sample out of the Long Struggle Mine to date is 10.6g/t Au (repeated at 12.8g/t Au) from the 5cm

westerly dipping quartz vein on the footwall side of the Caxton Reef, which we have dubbed the 'Little Caxton'. This is a northeasterly trending, northwesterly dipping vein. This puts it in the category of the generally richer northeast trending veins of the field. It is conceivable that the 3.6g/t Au at 123.6-123.8m in LSM1, considered above as Twelvetrees' Reef, might be 'Little Caxton'. The direction is close enough to support this notion. This particular vein should be tested to the north of the adit. It appears to be truncated by the Caxton Reef in the Caxton drive, but if it can be proved to be continuous to the north east and in the hangingwall of Caxton, it could have potential for rich, Ragged Youth style of mineralisation.

3.3 Mt Victoria Mine

Obviously, the most interesting results are those of MVM1, which indicate a reef or reefs possibly parallel to the Montana Reef. With only one hole drilled in that direction, the idea of parallel reefs is a presumption. If this presumption is correct, the reefs are also of the type that trend to the north east; in other words, those with the apparently better grade potential of the two main reef trends.

The grades intersected in MVM4, two of about 4g/t Au, are evidently in a mineralised zone. This could be indicating a reef parallel to Victoria Reef, but the suggestion is not positively supported by the assays in MVM2.

4. CONCLUSIONS

4.1 Ringarooma United Mine

Because this mine would need declining to reach the known ore shoot of Rosalind, and because it is still not known whether there is any of it left unmined to the bottom of the shaft (and highly unlikely there is), no immediate follow up is recommended.

Eventually, some more drilling must be done to test the continuity and viability of the Rosalind ore shoot past the bottom of the shaft and to test the continuity of the Premier ore shoot both above and below the Long Adit level.

4.2 Long Struggle Mine

It has been established that there is continuity of both the Long Struggle and Caxton Reefs as very narrow breccia structures on the 390m level of this mine.

Long Struggle looks much the more prospective, with near half ounce assays in three of the four holes intersecting it.

Of the 100g/t and 42g/t Au intersections of the 1937 Mines Department DDH1 (Blake 1937), which was the target of this drilling programme, there was no confirmation. It was reasonably established they might have been in the Caxton Reef, or possibly the 0.3m 100g/t Au might have been in what we call the 'Little Caxton', though unlikely, as this is only about 7cm wide. The intersections in our programme of the Caxton did nothing to recommend development along it in blind faith. Nor was there convincing indication of the 'Little Caxton' in the core, except perhaps in LSM1: a long shot.

Despite these less than spectacular results of the drilling, the fact remains there is still about 70m up-dip untouched reef above the 390m level of Long Struggle Reef and

about 50m of Caxton Reef.

The drilling has also pointed out the potential for at least one parallel reef in the footwall of Long Struggle, the unsubstantiated Twelvetrees Reef for one, for which there would be a minimum of 100m untouched vertical extent and, if it is similar to Long Struggle, 100m horizontal potential. This applies also to the No.2 Caxton Reef.

The relatively wide stoping of the upper levels and reports of an average grade of about an ounce a ton throughout the field compared with the narrow reefs and disappointing grades encountered in the drilling is cause for speculation about:-

- a) **Structure:** whether the reefs were formed by dilatatory as opposed to as lateral movement, with the folding causing axial plane parallel openings that are wedge-shaped: wider at the top, narrowing at depth. The idea that these reefs are dilatatory fissures rather than faults is supported by Twelvetrees (1900 p. xviii).
- b) **Geochemical:** whether there has been secondary supergene enrichment of the upper parts of the reefs by weathering above them, by the process of oxidation and leaching of sulphides, or leaching and reprecipitation of gold in near surface reefs (Taheri 1993).

If the conjecture on the structure is correct, it would suggest there is a physical depth limit to these reefs. If, however, regional compressive forces have caused reefs contained in faults, there is potential for greater depth continuity (Iliff 1994), except this is not seen as applicable to the reefs such as these of Long Struggle and Mt Victoria.

Likewise, if the geochemical conjecture is correct, there is a grade fall off with depth in the veins. Arguing against this is the grade of the Mines Department's DDH1 intersection, which we have neither emulated, nor corroborated in our

drilling and therefore cannot be taken as reliable. Nor has evidence of secondary enrichment of gold at shallow depths been observed in studies (Taheri 1993), except in oxidation of sulphides at or near surface. The presence of fresh sulphides close to the surface and well above levels where high grades of gold were reported points to the limited extent of this process (ibid.). But continuity of a substantial time of weathering must be considered as a possible mechanism of enrichment of the remaining veins.

These might have been the reasons for the limited depth of the field's mines, and specifically the reason why the Premier, Long Struggle and Caxton Reefs have not been mined to the lower adit levels.

We should follow up the potential of the other reefs indicated by the drilling, particularly at levels above the 390m level, where they should reasonably emulate the grades of those reefs already mined, as well as work on the known reefs.

4.3 Mt Victoria Mine

The zone indicated by MVM1 is the most encouraging in the drilling here. It is presumed these results indicate a reef parallel to the Montana and Mt Victoria Reefs, 40-50m to the north west of the Montana.

A hint of the Victoria Reef, or something parallel to it, occurs in a 2 metre zone with a 5cm oblique vein at 30.3-30.4m in MVM4, assaying 4.3g/t Au, though it is not well corroborated in MVM2.

The Montana Reef has been exploited, probably comprehensively, from the 380m level up, but the Victoria Reef does not seem to have been mined much on both the 450m and 490m levels. This gives it a potential of at least 70m lift.

If indeed there is a reef represented in MVM1, it has

untouched potential of a good 100m depth and only guessable horizontal extent at this stage. It definitely warrants follow up closer to the surface, with its potential for revelation of an unexploited ore shoot.

4.4 New reefs

The information from our drilling indicates as yet undiscovered reefs. This is perhaps where we should primarily be focussing our attention. We should establish the projections of these reefs, such as 'Twelvetrees Reef' to the surface and locate them by excavator. The drilling of Long Struggle, in LSM1, and Mt Victoria, in MVMI, had such indications.

Our follow up drilling there should concentrate on more intersections of these reefs to establish their geometry enough to be able to locate them on the surface, if not in outcrop, then by costeaning. This would seem to be our best chance of finding unworked reefs that would emulate those worked by the miners 100 years ago in grade, ease of access and simplicity of mining.

4.5 Other mines on the Leases

In all the work we have put into the three Leases, we have had little time to investigate the many other mines within them. The best sample we collected on the Leases, for instance, was at the Strahan (30g/t Au in grey quartz).

Those mines at RLs higher than the three we have investigated would seem to have the potential of ore shoots continuing down to the levels of Ringarooma United, for instance. It also seems the reefs were found to be richer closer to the surface, despite denials there has been any supergene enrichment in the veins.

5. RECOMMENDATIONS**5.1 Ringarooma United Mine**

Two holes should be drilled southeasterly to determine the continuity of the Rosalind Reef ore shoot, one aimed beneath the shaft, and one aimed about 20m south of the shaft 40m below the Long Adit level. The two should total about 140m.

Costs:		\$
Diamond drilling:	140m at \$66/m	9,240
Geological supervision, logging, sampling		3,000
Assays	30 at \$13	390
Logistics		1,000
Total		13,630

5.2 Long Struggle Mine

With the presence of Long Struggle Reef on the lower adit level fairly well established, it should be further tested above the level to determine if it is worth driving along the reef on this level with a view to stoping above the level, up to the 450m level. The 450m level itself should be investigated and the reef sampled in it.

In the plane of LSM1, a 15° up hole would test the presence of Twelvetimes Reef and any other of the reefs hinted at in LSM1 between 80m and 105m, reach Long Struggle Reef by 135m, Caxton Reef by 170m and No.2 Caxton at about 230m. This hole would be designated LSM6.

Costs:		\$
Diamond drilling:	230m at \$66/m	15,180
Geological supervision, logging, sampling		4,200
Assays	50 at \$13	650
Logistics		1,500
Total		17,330

If development is to be done in the 390m level of the Long Struggle Reef, it should be narrow as possible. This development would be on reef for at least 100m, probably up to 120m.

Costs:		\$
Driving:	120m at \$800 (estimated)	96,000
Geological input		4,800
Logistics		9,600
Management		10,000
Total		120,400

At about 60m south of the access cross cut it would be useful to have a cross cut of about 7m in which to place a rig to drill easterly up holes into and beyond Caxton Reef, and westerly holes to seek Twelvetrees Reef and to test for the potential other reefs in its footwall. About 240m would suffice to establish the presence of these reefs from such a site.

Costs:		\$
Diamond drilling:	240m at \$66/m	15,840
Geological supervision, logging, sampling		4,500
Assays	50 at \$13	650
Logistics		1,510
Total		22,500

5.3 Mt Victoria Mine

The mineralisation in MVM1 should be followed up with a hole above it as steeply upwards as possible, and another one or two holes further round to the north to look for continuity of this mineralisation in the northeasterly direction.

Another hole or two of 50m each should be drilled at about 290m in the adit towards the north west to test the southwesterly extent of this mineralisation.

A total of about 270m drilling would be required to further test the mineralisation found by MVMI.

Costs:	\$
Diamond drilling: 270m at \$66/m	17,820
Geological supervision, logging, sampling	4,500
Assays 50 at \$13	650
Logistics	1,530
Total	24,500

If the development option is deemed more appropriate, about 40m development would be required, after the waste has been dug out of the crosscut in the hangingwall of the Montana Reef, to reach the hangingwall of the presumed new reef. Such a step would be premature, on the information available of just one hole.

5.4 New reefs and other mines

The follow up of new reefs has been mainly covered in the other sections of Item 5, above, where follow up drilling has been recommended. There is strong potential for discovery of more high grade, low tonnage ore shoots close to the surface in the vicinity of the reefs tested.

The access to other mines on the Leases should be investigated for other unmined resources close to the surface. Some are already well documented and sampled by Hermann (Roberts 1987), and should still be accessible. Hermann's sampling should be a guide to the ranking their potential.

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180028

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2nd December 1994

RE: ADDITIONS TO ANNUAL REPORT 1993-94 - TCR 94-3602
MLs 44M/88, 45M/88 AND 46M/88

Dear Gil,

Apologies for the tardiness of my reply to your fax of 4th October 1994, with a request to provide further information for Annual Report TCR 94-3602.

I have at last been able to comply, to some extent.

There has been no recent survey of the mines on these Leases. Therefore, the AMG grid I have put on the plans and sections is an approximation, measured off the Geological 1:50,000 sheet. The coordinates of the drill hole collars are thus also approximations.

Only one drill hole, LSM 1, was down-hole surveyed, because of its length. The others were checked after drilling with a hand compass-clinometer for direction and dip of the collars.

The geological mapping to date was done a little by Wally Hermann on behalf of RGC (EL 17/86, Branhholm Area, Annual Report for 1986/87 by P.A.Roberts, Goldfields Exploration Pty Ltd, 1987.) and by David O'Connor, Tas Tiger Mining Pty Ltd. Mancala has not yet done its own mapping.

Of the drill hole logging, the first two drill holes at Ringarooma United, RU1 and RU2, were not logged, though they

were sampled, as shown in a separate sheet amongst the drill logs enclosed.

Yours sincerely,

A handwritten signature in black ink, appearing to read "G.D. Iliff". The signature is written in a cursive style with a prominent loop at the end of the last name.

G.D. Iliff

Senior Geologist.

OBJECTIVE : To test the intersection of the Mines Dept. hole DDH1 of 1937, as interpreted by David O'Connor, 1993, and southern extensions of Long Struggle and Caxton Reefs.

RESULT : Located Long Struggle Reef at 156.15-156.35m: 12.8g/t Au (repeat 13.4g/t Au). Caxton Reef position indicated at 194m.

DEPTH : 250.7m

HOLE SIZE: TT46

COMMENCED: 2nd March 1994

COMPLETED: 29th March 1994

Depth	Direction	Dip
0	098.5 AMG	0
5	098.5 AMG	0
99	099.5	-1
195	099.5	-2

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FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0.0	2.1	Quartzite sandstone with quartz veins parallel to and across the core grey in colour.			qtz sst	
2.1	2.7	Grey quartz sandstone with black siltstone interbeds. Intensely cut by quartz veins, some minor bleaching.			qtz sst/siltst	Pyrite also present.
2.7	5.0	Black siltstone with grey quartz sandstone interbeds. Quartz veining is cross-cutting, parallel and right angles to the core. Some iron staining.			siltst/sst	
5.0	5.3	Bleached, grey-green sandstone. Iron staining (oxidation) on the broken ends.	blchd		sst	
5.3	5.6	Grey sandstone with quartz veining that has been folded. Some bleaching around the veins.			sst	
5.6	10.5	Grey quartz sandstone with 40cm black siltstone bed at 5.6 - 6m. Sandstone inclusions within the siltstone. Grey sandstone contains quartz veins parallel to and right angles to the core. Bedding obtuse to core.			qtz sst	
10.5	14.5	Black siltstone with quartz veins parallel to, right angles and across the core. Some approx. 1cm wide. 3cm quartz vein at 13.5m plus a 4cm quartz vein at 14.4m. Sharp contact with quartz sandstone at 14.5m. Bedding parallel to core.			siltst	
14.5	18.9	Grey quartz sandstone. Quartz and pyrite veining. At 17.15m there is a 10cm quartz vein. At 14.5 the contact is sharp, indicating a change in facing. Now going up sequence.			qtz sst	
18.9	44.8	Grey quartz sandstone interbedding with black siltstone, interbeds range from a few cm through to 1.5-2m in thickness. The siltstone/sandstone contacts all indicate drilling up sequence. Bedding is oblique to the core. Facing changes a number of times.			qtz sst/siltst	
18.9	25.3	The drilling is up sequence.				
25.3	44.8	Facing indicates drilling down sequence.				
28.6	28.7	Quartz vein with a 3cm alteration zone.				Pyrite is present in quartz vein.
34.2	34.4	2 Quartz veins (3 & 7cm wide) separated by an alteration zone.				Pyrite is present within the quartz veins.
36.55	36.70	Quartz vein (7cm wide) with iron staining and brecciation. Surrounded by additional quartz veins.				
37.0	37.2	10cm quartz-pyrite vein. 7cm zone of siltstone with quartz-pyrite vein with siltstone inclusions.				Pyrite vein.
37.2	37.6	Siltstone with iron oxidation.			siltst	
37.7	40.3	Bedding parallel to core.				
40.0	40.3	Oxidation of the core. Iron staining predominant in the grey sand-	oxdn			

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40.0	40.3	Oxidation of the core. Iron staining predominant in the grey sandstone units.	oxdn		
44.8	49.4	Grey sandstone with quartz veins parallel to the core.		sst	
44.9	45.4	Iron staining in the sandstone (quartzite).			
49.2	49.4	Whispy quartz-pyrite veins within sandstone-siltstone interbeds. Sandstone has been altered.			
49.4	89.0	Black siltstone interbedded with a grey sandstone. Facing down sequence. Small quartz veins parallel & right angles to the core. Sandstone is uniform throughout. 54.6m: 1.5cm quartz vein in grey sandstone. 57.3m: 1.5cm quartz vein in grey sandstone. 59.4m: 1.5cm quartz vein in grey sandstone. 61.4m: 1.5cm quartz vein in grey sandstone. 62.15m: 1.5cm quartz vein in grey sandstone.		siltst/sst	
63.2	63.6	Sandstone is brown. Bleached by iron staining.			
68.45	68.85	Bedding nearly parallel to the core			
69.55	70.15	Sandstone/siltstone breccia. Iron stained quartz vein within it.		sst bx	
70.6	71.0	Grey to brown sandstone with siltstone interbeds cross cut by quartz and pyrite veins.		sst	Small amount of galena.
72.0	72.05	Black siltstone interbedded cut by quartz-pyrite vein.			
75.35	75.45	Breccia 5cm wide. Grey sandstone on either side. Clasts of sandstone in a quartz-calcite-chlorite matrix. Small calcite veins also present. Breccia clasts are angular and vary from 3cm to a few mm. Facing changes. Now going up sequence.		bx	
At 76.9					
85.2	85.7	Grey sandstone has been bleached. One calcite vein cutting core at 85.6m.	blchd		
86.2	87.0	Quartz veining in black siltstone, run parallel and right angles to the core.			
87.6	87.70	7cm quartz-pyrite calcite vein. Some minor brecciation. At contact between siltstone and sandstone.			
89.0	94.0	Grey sandstone with black siltstone interbeds. Quartz and pyrite veins parallel and right angles to core. A little bleached in some places around the veins.		sst-siltst	
94.0	109.5	Quartz sandstone (grey) with small interbeds of black siltstone. Quartz veining is present throughout. Several generations of quartz veining evident.		qtz sst	
94.5	94.58	Quartz and pyrite with calcite associated. Appears to occur at contact of sandstone and siltstone.			
94.25	94.5	Bleached grey sandstone prior to the vein mentioned above. Calcite/chlorite may be associated.			
96.0	96.2	Quartz-pyrite veining parallel to the core.			
96.35	96.45	Quartz vein (1.5cm wide) with chlorite inclusions.			
96.55	96.65	Quartz veining within quartz sandstone. Contains galena, pyrite min. which chlorite appears to be associated with the veining.			
96.8	97.85	Grey sandstone with arsenopyrite within the host rock.			
97.2	97.35	Quartz vein with galena & pyrite associated. Arseno-pyrite in the surrounding host rock.			
97.45	97.6	Quartz vein with galena and pyrite. Arseno-pyrite associated with the sandstone.			
99.7	99.75	Quartz vein with galena and pyrite associated.			
100.5	101.5	Broken black siltstone with quartz vein parallel to the core.			Pyrite and galena present in the vein.

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100.5	101.5	Broken black siltstone with quartz vein parallel to the core. Calcite/sericite/chlorite associated and present within the siltstone.		Pyrite and galena present in the vein.
101.55	102.3	Quartz veining with pyrite, arseno-pyrite and chlorite in sandstone.		
103.7	103.8	Quartz veining with small stockwork veining within grey sandstone.		
104.3	104.45	Quartz veining with pyrite and chlorite.		
109.0	250.7	Quartz sandstone with interbedded black siltstone. Small quartz veins occur throughout.		
109.6	109.7	Broken zone within siltstone some quartz veining.	bx	
110.65	110.70	Quartz vein with pyrite.		
112.8	112.9	Broken zone within siltstone.		
118.2	118.3	Broken area in siltstone.		
122.9	123.1	Quartz vein with pyrite in quartz sandstone.		
123.8	123.85	Quartz vein with pyrite at contact.		
123.6	123.8	Broken quartz zone in sandstone.		
123.85	124.0	Siltstone with small veins beside vein above.		
129.7	130.9	Quartz veining in quartz sandstone with pyrite.		
130.8	130.9	Siltstone clasts in a shear type zone within quartz sandstone.		
136.15	136.2	Quartz vein within grey quartz sandstone.		
146.0	146.1	Broken zone within siltstone (minor brecciation).		
146.8	146.85	Quartz vein with pyrite within siltstone.		
146.85	-	Contact with sandstone interbed.		Quartz also present.
147.0	147.1	Quartz vein with pyrite and carbonate within sandstone.		
152.25	152.3	Calcite veining within siltstone clasts as a breccia.		
154.0	154.1	Sharp contact between siltstone and sandstone indicate going up through the sequence.		
156.15	156.35	Quartz, calcite and pyrite veining in siltstone. Long Struggle Reef.	L.S. Reef	156.15-156.35m Strong pyrite mineralisation.
156.35	156.4	Broken siltstone.		156.35-156.75m Semi massive aspy in sil matrix.
159.3	-	Sharp contact between siltstone and sandstone. Up sequence.		
161.15	161.2	Quartz vein with siltstone clasts. Breccia with pyrite.	bx reef	Pyrite in reef.
172.4	172.6	Broken siltstone zone.		
176.7	-	May have been a change in facing.		
186.4	-	Facing up sequence.		
194.05	194.35	Breccia reef, ptigmatic folded quartz vein lower end. Caxton Reef.		Pyrite is also present.
202.35	202.65	Siltstone clasts within grey quartz sandstone.		
204.8	-	Sharp contact of siltstone and sandstone. Indicates facing up sequence.		
229.0	229.2	Quartz breccia within sandstone. Galena and arseno-pyrite present.		Minor pyrite and galena.
248.95	249.00	Quartz vein with minor pyrite, galena? in siltstone.		
249.05	250.0	Quartz stockwork type veining in quartz sandstone with galena, pyrite and arseno-pyrite.		
249.7	249.8	Broken zone in siltstone.		
249.8	249.85	Intense quartz veining in siltstone.		
249.85	249.95	Broken zone in siltstone.		
235.0	235.1	Quartz vein, and pyrite within siltstone bed.		
236.1	236.15	Quartz vein in siltstone.		
End of Log				

LSM1

Dip	Depth	Direction	Dip
0			
0			
-1			
-2			

COLLAR DIP : Hor. HOLE No. : LSM1
 DIRECTION : 098.5' LOCATION : Long Struggle Mine,
 Alberton
 NORTHING : 5,426,128mN LOGGED BY : Karen Mathews
 EASTING : 567,262mE COLLAR RL : 392.5m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD% <S=Shear>
73104	1.2	1.6	0.40	0.08							
73105	1.6	1.9	0.30	0.10							
73106	1.9	2.3	0.40	0.06							
73107	2.3	2.5	0.20	0.12							
73108	2.5	2.65	0.15	0.05							
73109	2.65	2.9	0.25	0.05							
73110	2.9	3.4	0.50	0.05							
73111	12.6	13.0	0.40	0.05							
73112	13.0	13.1	0.10	0.05							
73113	13.1	13.5	0.40	0.05							
73114	13.5	13.65	0.15	0.05							
73115	13.65	13.8	0.15	0.05							
73116	13.8	13.9	0.10	0.36							
73117	13.9	14.0	0.10	0.05							
73118	21.7	22.1	0.40	0.05							
73119	22.1	22.2	0.10	0.63							
73120	22.2	22.6	0.40	0.18							
73121	28.4	28.7	0.30	0.05							
73122	28.7	28.8	0.10	0.46							
73123	28.8	29.1	0.30	1.50							
73124	33.8	34.1	0.30	0.12							
73125	34.1	34.15	0.05	0.05							
73126	34.15	34.2	0.05	0.06							
73127	34.2	34.3	0.10	0.05							
73128	34.3	34.4	0.10	0.14							
73129	34.4	34.8	0.40	0.18							
73130	34.8	35.1	0.30	0.05							
73131	36.5	36.6	0.10	0.05							
73132	36.6	36.8	0.20	0.30							
73133	36.8	37.0	0.20	0.05							
73134	37.0	37.1	0.10	0.10							
73135	37.1	37.2	0.10	0.05							
73136	37.2	37.9	0.70	0.05							
73137	48.9	49.2	0.30	0.10							
73138	49.2	49.4	0.20	0.05							
73139	49.4	49.8	0.40	0.08							
73140	49.8	50.6	0.80	0.10							
73141	50.6	51.1	0.50	0.05							

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73141	50.6	51.1	0.50	0.05
73142	51.1	51.2	0.10	0.16
73143	51.2	51.6	0.40	0.14
73144	69.55	70.40	0.85	0.12
73145	70.40	70.45	0.05	0.22
73146	70.45	70.5	0.05	0.37
73147	70.5	70.55	0.05	0.14
73148	70.55	70.6	0.05	0.25
73149	70.6	70.7	1.00	0.06
73150	70.7	70.88	0.18	0.16
73151	70.88	71.3	0.42	0.12
73152	71.3	72.0	0.70	0.06
73153	72.0	72.05	0.05	0.12
73154	72.05	72.6	0.55	0.18
73155	72.6	72.8	0.20	0.16
73156	72.8	73.05	0.25	0.20
73157	73.05	73.1	0.05	0.26
73158	73.1	73.75	0.65	0.16
73159	73.75	74.2	0.45	0.24
73160	74.2	75.05	0.85	0.18
73161	75.05	75.35	0.20	0.28
73162	75.35	75.45	0.10	0.52
73163	75.45	76.1	0.65	0.34
73164	85.4	85.65	0.25	0.10
73165	85.65	86.2	0.55	0.24
73166	86.2	86.9	0.70	0.96
73167	86.9	87.0	0.10	0.40
73168	87.0	87.6	0.60	0.96
73169	87.6	87.75	0.15	0.62
73170	87.75	88.1	0.35	0.94
73171	93.0	93.25	0.25	0.12
73172	93.25	93.45	0.20	0.20
73173	93.45	93.65	0.20	0.05
73174	93.65	93.85	0.20	0.08
73192	96.4	96.6	0.20	0.84
73193	97.2	97.65	0.45	2.80
73194	100.5	101.2	0.70	3.00
73195	101.2	101.55	0.35	0.36
73196	101.55	102.35	0.80	0.05
73197	102.35	102.75	0.40	0.05
73198	122.9	123.1	0.20	0.05
73199	123.6	123.8	0.20	3.60
73200	123.8	123.85	0.05	0.10
73201	123.85	124.0	0.15	0.05
73202	130.8	130.9	0.10	0.05
73203	146.8	146.9	0.10	0.66
73204	146.9	147.0	0.10	0.24
73205	147.0	147.1	0.10	0.28
73206	152.25	152.35	0.10	0.05
73207	156.15	156.35	0.20	12.80 (rept. 13.4)
73208	194.05	194.35	0.30	0.05

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73208	194.05	194.35	0.30	0.05
73209	248.95	249.0	0.05	0.05
73210	249.05	249.3	0.25	0.18
73211	249.3	249.4	0.10	0.05
73212	249.4	250.0	0.60	0.46
73213	104.3	104.45	0.15	0.06
73214	229.0	229.2	0.20	0.20
73412	124.7	125.4	0.70	0.05
73413	125.4	125.8	0.40	0.73
73414	125.8	126.6	0.80	0.13
73415	126.6	126.8	0.20	0.08
73416	154.6	154.9	0.30	0.05
73417	154.9	156.0	1.10	0.05
73418	156.0	156.15	0.15	0.10
73419	156.35	156.75	0.40	3.20
73420	156.75	157.25	0.50	0.10
Average	156.15	156.75	0.65	6.40 (rept. 6.60)

isation.
sil matrix.

OBJECTIVE : To test the intersection of Mines Dept hole, DDH1, 1937, as interpreted by D. O'Connor, Tas Tiger Mines, 1993.

RESULT : No significant mineralisation intersected.

DEPTH : 84.4m

HOLE SIZE: TT46

COMMENCED: 16th Feb.1994

COMPLETED: 2nd March 1994

Depth	Direction	Dip
0	080.5	+1
5	080.5	+1

180036

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0.0	5.25	Sandstone unit. First 4m: uniform sandstone unit with small quartz veins.			sst	
5.25	9.3	Siltstone - mudstone unit with sandstone interbeds. Slumping features and small veinlets with iron staining. Pyrite associated with the veinlets.			siltst-mst + sst	Pyrite in veinlets.
9.3	12.3	Sandstone unit that grades up into a siltstone unit. Large quartz-iron rich vein at 9.7m. Pyrite associated. Siltstone grades out into a fine sandstone at 9.3m. Fine laminations and small quartz veinlets in the sandstone. 15cm wide mudstone unit at 11.0m.			sst-siltst	Pyrite associated.
12.3	13.2	Siltstone with sandstone slump features. Small quartz veinlets.			siltst-sst	Quartz and pyrite also present.
13.2	19.55	Sandstone unit with small veins of quartz & pyrite. 50cm zone of interbedded siltstone. Quartz and pyrite associated at 18.55m. Graded area at top.			sst	Pyrite in quartz veins.
19.55	20.9	Graded siltstone - sandstone at the bottom. Grades into siltstone with quartz and pyrite veinlets. At 20m there is a quartz-pyrite zone of veins 3cm wide at 20.9.			siltst-sst	
20.9	26.1	Sandstone unit with siltstone interbeds and quartz-pyrite veins. The larger veins are primarily quartz with pyrite selvages. At 24.7m the veins display a bleached alteration zone. This alteration continues for 1m.	bichd		sst-siltst	Pyrite in quartz veins. Pyrite in quartz veins.
26.1	47.3m	Sandstone unit with oxidized zone starts at 26.1m and extends to 32.3m. Within this zone there are small veinlets and one large quartz-pyrite vein at 26.6m. The core is very broken from 27.3m through to 30.8m. From 29.0m through to 32.3m the oxidation is very pronounced resulting in a brown-red colour to the core. At 30.6 - 30.8m there is a 15cm zone of veining. The veins are quartz-pyrite and contain a lot of iron-staining. At 30.6m the alteration around the small veinlets continues intermittently to 36.8m. Within this interval siltstone is also interbedded with the sandstone. The alteration around the veinlets, within the sandstone continues. Small oxidized areas are also present. At 42.2-42.4m light green (olive) the sandstone becomes totally bleached due to alteration. This bleached zone is 15cm wide. At 43.7-43.8m a quartz-pyrite rich vein is present and has been oxidized.	oxdsd		sst	26.6m Pyrite in quartz vein. 30.6-30.8m Pyrite in quartz veins.
			oxdn			
			bichd			
			bichd			
						43.7-43.8m Pyrite in quartz vein.

180037

		oxidized.			
		At 42.9-43.3m another bleached zone occurs and is approx. 30cm wide.	blchd		
		At 43.7m a 10cm quartz and pyrite rich zone is present. A lot of veins together.			43.7m 10cm quartz vein + pyrite.
		At 44.3m an oxide zone is present. This zone extends to 44.8m.	oxdn		
		At 44.8-45.9m the sandstone contains veins that have been altered.			
		A broken (fault) zone occurs at 45.9-46.2m.			
46.2	47.2	Siltstone unit with quartz and pyrite veining. Some minor oxidation of the pyrite.		F sltst	
47.2	47.9	Sandstone unit. First 70cm have been intensely altered. Bleaching around the veins is present throughout.	blchd	sst	
47.9	48.6	Sheared and annealed quartz veins - in a sandstone with loosely parallel quartz veining.		S + qtz vns	
48.6	51.4	Grey sandstone with mottles of light grey.		sst	
51.7	56.2	Grey sandstone with small quartz veins both ~ 70° and parallel to core, with oxidized vugs presumably after pyrite. Iron staining on joint faces.		sst	Pyrite relicts.
56.2	58.1	2 bands khaki, bleached massive sandstone at ~40° with a grey sandstone band at 57.1-57.7m. Rim of brown oxide <5mm at start of each band. Oxide on joint faces.		sst	
58.1	63.2	Grey, fine grained massive sandstone/quartzite with occasional small quartz veins with oxidized pyrite vugs. Some fresh pyrite 61.4-62.3m (predominance of quartz veining; massive white quartz with small vugs, some after pyrite.		sst-qte	61.4-62.3m Minor pyrite in quartz.
63.2	64.3	Mainly dark grey siltstone with minor sandy bands. Showing signs of shearing 70-80°.		sltst	
		63.2-63.3m quartz filled shear 80 - 90°.		S reef	
64.3	82.5	63.4m. Irregular vein of brecciated sandstone and quartz. Dominantly grey, fine grained sandstone/qte in several beds, grading to dark grey siltstone/shale down hole. Shaley bands <30cm thick, at 70-80°. Fine quartz veins. <1% disseminated pyrite.		sst-qte	1% dis py.
82.5	84.4	Dark grey fine grained sandstone/quartzite with lighter bands. Occasional fine quartz veins.		sst-qte	
		End of log			



180028

Depth	Direction	Dip

COLLAR DIP : +1' HOLE No. : LSM2
 DIRECTION : 080.5' AMG LOCATION : Long Struggle Mine
 NORTHING : 5,428,130mN LOGGED BY : Karen Mathews/ Geoff Iliff
 EASTING : 567,264mE COLLAR RL : 392.6m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD% <S=Shear>
73052	20.40	20.70	0.30	0.05							
73053	20.70	20.85	0.15	0.24							
73054	20.85	20.90	0.05	0.97							
73055	20.90	21.90	1.00	0.12							
73056	21.90	22.70	0.80	0.12							
73057	26.00	27.00	1.00	0.05							
73058	27.00	28.00	1.00	0.20							
73059	28.00	29.00	1.00	0.12							
73060	29.00	29.60	0.60	0.30							
73061	29.60	30.30	0.70	0.08							
73062	30.30	30.70	0.40	0.60							
73063	30.70	31.20	0.50	0.02							
73064	31.20	32.00	0.80	0.18							
73065	32.00	32.80	0.80	0.08							
73066	32.80	33.40	0.60	0.08							
73067	38.50	39.50	1.00	0.05							
73068	39.50	40.40	0.90	0.10							
73069	40.40	41.30	0.90	0.05							
73070	41.30	42.20	0.90	0.08							
73071	42.20	43.00	0.80	0.16							
73072	43.00	43.30	0.30	0.06							
73073	43.30	43.70	0.40	0.05							
73074	43.70	43.80	0.10	0.05							
73075	43.80	44.30	0.50	0.05							
73076	44.30	44.80	0.50	0.10							
73077	44.80	45.80	1.00	0.05							
73078	45.80	46.40	0.60	0.75							
73079	46.40	47.20	0.80	0.05							
73080	47.20	47.90	0.70	0.12							
73081	47.90	48.10	0.20	0.05							
73082	48.10	48.40	0.30	0.05							
73083	48.40	48.90	0.50	0.05							
73084	51.40	51.70	0.30	0.05							
73085	55.60	55.90	0.30	0.05							
73086	55.90	56.20	0.30	0.05							
73087	58.20	56.90	0.70	0.05							
73088	56.90	57.70	0.80	0.08							
73089	57.70	58.40	0.70	0.05							

180029

73089	57.70	58.40	0.70	0.05
73090	58.40	58.90	0.50	0.05
73091	60.50	61.50	1.00	0.05
73092	61.50	62.40	0.90	0.05
73093	62.40	63.20	0.80	0.42
73094	63.20	63.40	0.20	0.05
73095	63.40	64.30	0.90	0.08
73096	74.60	75.40	0.80	0.06
73097	75.40	75.60	0.20	0.08
73098	75.60	76.80	1.20	0.05
73099	76.80	76.90	0.10	0.12
73100	79.75	79.85	0.10	0.14
73101	76.90	77.80	0.90	0.06
73102	77.80	78.60	0.80	0.05
73103	78.60	79.75	1.15	0.06

OBJECTIVE : To test for southerly extension of the Long Struggle and Caxton Reefs, following up the likely intersection of Mines Dept. hole DDH1.

DEPTH : 75.5m
HOLE SIZE: TT46

Depth	Direction	Dip
0	117.5	0
75.5	117.5	0

RESULT : Indication of Long Struggle Reef at 27.6-27.85m with 18.6g/t Au. Probable extension of Caxton Reef at 71.1-72.3m, 1.65g/t Au.

COMMENCED: 29th March 1994
COMPLETED: 31st March 1994

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	8.1	Grey quartz sandstone with interbeds of dark siltstone. Contacts indicated facing up sequence.			qtz sst	
8.1	8.6	Siltstone with interbeds of sandstone. Sharp contact (top) with quartz sandstone. Small veins right angles to bedding.			siltst-sst	
8.6	31.4	Quartz sandstone with interbeds of siltstone. Small veins associated with the siltstone (mostly parallel with the bedding).			qtz sst-siltst	
22.8	24.6	Quartz sandstone with quartz veining and pyrite mineralisation.			qtz sst	
24.6	26.45	Calcite quartz veining with quartz sandstone.				Pyrite, galena and arsenopyrite present.
26.45	26.85	Black siltstone, minor quartz veining.			siltst	Minor arsenopyrite.
26.85	26.95	Quartz vein with minor stockwork type veining, chlorite alteration and arsenopyrite present.	chl			Minor arsenopyrite.
31.4	34.4	Siltstone with sandstone clasts and interbeds. Minor veining. Still facing up sequence.			siltst-sst	
34.4	75.5	Grey sandstone with small to thick siltstone beds. Some irreg. structures between siltstone & sandstone + clasts.			sst-siltst	
66.8	67.7	Quartz veining, last 25cm carbonate rich.				
69.5	69.9	Quartz veining within quartz sandstone.			qtz sst	69.6m Pyrite vein.
59.5	59.8	Sheared, brecciated, with grey mineralised quartz.			S, bx + qtz	Arsenopyrite in quartz-filled breccia.
71.1	71.3	Folded grey quartz with strong arsenopyrite.				Arsenopyrite in folded grey quartz.
71.8	72.3	Small quartz veins with pyrite and arsenopyrite.				Pyrite and arsenopyrite in small quartz veins.

180040



180041

Depth	Direction	Dip

COLLAR DIP : Hor. HOLE No. : LSM3
 DIRECTION : 117.5° AMG LOCATION : Long Struggle Mine
 Alberton
 NORTHING : 5,426,171.5mN LOGGED BY : Karen Mathews
 EASTING : 567,367.5mE COLLAR RL : 393.7m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD% <S=Shear>
73215	22.80	23.40	0.60	0.30							
73216	23.40	24.00	0.60	0.80 (rept. 0.70)							
73217	24.00	24.60	0.60	0.06							
73218	24.60	25.40	0.80	0.12							
73219	25.40	26.30	0.90	0.34							
73220	26.30	26.70	0.40	0.40 (rept. 0.32)							
73221	26.70	26.85	0.15	18.60 (rept. 17.4)							
73271	22.70	22.80	0.10	0.06							
73272	27.60	28.00	0.40	0.06							
73273	28.80	29.85	1.05	0.05							
73274	46.60	46.65	0.05	0.05							
73275	59.50	59.80	0.30	0.42							
73276	63.70	64.70	1.00	0.30							
73277	66.80	67.70	0.90	0.25							
73278	69.40	70.30	0.90	0.05							
73279	71.10	71.30	0.20	1.70							
73280	71.80	72.30	0.50	1.60							
73421	27.00	27.60	0.60	0.13							

OBJECTIVE : To test the up-dip continuity of Long Struggle and Caxton Reefs.

DEPTH : 51.4m

HOLE SIZE: TT46

RESULT : Long Struggle Reef defined in zone 29-30m.
Position of Caxton indicated at 39.6-39.7m.

COMMENCED: 5th April 1994

COMPLETED: 7th April 1994

Depth	Direction	Dip
0	107.5	+21
51	107.5	+21

180042

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	2.0	Grey sandstone with small interbeds of black siltstone.			sst	
2.0	2.9	Black siltstone with small quartz veins parallel and right angles that run irregularly along the core.			siltst	Pyrite associated.
2.9	26.9	Grey sandstone with interbedded black siltstone. 8.0m Broken area in sandstone/siltstone. No associated veining. 9.0 m 4 cm quartz vein within siltstone. 9.5-9.6m Siltstone bed with minor veining, altered and broken. 20.9-21.2m Quartz vein within sandstone/siltstone. 21.0-21.1m Broken area. 23.3-23.5m Quartz veining within in siltstone. Minor alteration. 24.8-24.9m Quartz vein within sandstone. <i>Minor galena, some pyrite and sphalerite associated.</i> 25.1-25.2m Quartz veining within siltstone.			sst-siltst	Minor pyrite. Minor pyrite and galena. 24.8-24.9m Minor pyrite, galena and sphalerite.
26.9	51.4	Interbedded grey sandstone and black siltstone. Siltstone beds range from 20 to 80 cm wide. 27.9-28.1m Quartz veining in sandstone. 28.6-29.6m Quartz veining (stockwork type) within siltstone. Several generations. 29.35-29.45m Quartz vein with sphalerite and galena. 31.1m Sharp contact between sandstone and siltstone. Facing indicates drilling down sequence. 31.4m Graded unit confirms facing. 33.5-33.7m Quartz veining within in sandstone. Calcite and chlorite alteration. 39.4-40.4m Grey sandstone and black siltstone with quartz veining (stockwork type) with pyrite mineralisation and chlorite alteration. 40.4m Graded bedding indicates facing down sequence. 48.3-48.35m Quartz vein within black siltstone. Minor pyrite, galena and chlorite alteration.			sst-siltst	Galena and pyrite associated. Galena and pyrite mineral. associated. Pyrite, galena & possibly sphalerite mineral. Minor sphalerite and galena.
			cb			
			chl			
			chl			
			chl			48.3-48.35m Minor pyrite and galena.

180043

Depth	Direction	Dip
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COLLAR DIP : +21'
 HOLE No. : LSM4
 DIRECTION : 107.5' AMG
 LOCATION : Long Struggle Mine
 Alberton
 NORTHING : 5,426,171.8mN
 LOGGED BY : Karen Mathews
 EASTING : 567,367.5mE
 COLLAR RL : 394.8m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD <S=Shear>
73222	20.80	21.20	0.40	0.40							
73223	22.95	23.30	0.35	0.42							
73224	23.85	24.35	0.50	0.05							
73225	27.95	28.25	0.30	0.58							
73226	28.25	28.50	0.25	0.20							
73227	28.90	29.35	0.45	0.64							
73228	29.35	29.45	0.10	0.88							
73229	29.45	29.60	0.15	11.40							
73230	33.45	33.75	0.30	1.00							
73231	34.85	35.00	0.15	0.28							
73232	38.05	38.10	0.05	0.05							
73233	39.85	40.10	0.25	0.48							
73234	42.50	42.60	0.10	0.05							
73235	48.30	48.40	0.10	0.32							
73236	24.55	24.90	0.35	0.30							
73237	24.90	25.25	0.35	0.16							
73238	39.40	39.60	0.20	0.16							
73281	39.60	39.70	0.10	1.50							
73282	48.20	48.30	0.10	0.21							

OBJECTIVE : To test the up-dip extension of Long Struggle and Caxton Reefs south of LSM4.

RESULT : Position of Long Struggle indicated at 30.7-31.35m.
Position of Caxton Reef at 61.4-61.6m.

DEPTH : 68.8m

HOLE SIZE: TT46

COMMENCED: 8th April 1994

COMPLETED: 12th April 1994

Depth	Direction	Dip
0	125.5	+20
68.8	125	+20

180044

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION	
0	25.8	Grey quartz sandstone with interbeds of black siltstone. 3.1-3.15m Quartz vein within black siltstone. 8.15m Sharp contact between sandstone & siltstone indicates facing up sequence. 9.5-9.7m Bleached quartz sandstone. 10.6-10.7m Bleached quartz sandstone. 11.1-11.5m Quartz sandstone. Bleached and iron oxidation. Also broken.			qtz sst		
25.8	68.8	15.4-16.0m Black siltstone, broken, with small quartz veins. Quartz sandstone with thicker beds of black siltstone, up to 1m thick. 30-30.35m Quartz vein within sandstone/siltstone contact. Pyrite and chlorite alteration. 30.7-34.6 Quartz veining within siltstone and sandstone. Pyrite, chlorite alteration and sphalerite. 34.6-34.9m Mottled quartz veining within siltstone. Galena, pyrite and chlorite alteration. 35.0-35.2m Quartz vein within sandstone. 35.2-35.6m Black siltstone with arsenopyrite. 41.1-41.45m Mottled quartz veining within black siltstone. Pyrite, galena, arsenopyrite and chlorite alteration. 40.3-40.4m Quartz vein within quartz sandstone. Chlorite alteration. 48.0-48.5m Quartz veining within sandstone and siltstone. 48.5-50.2m Small quartz/breccia type veins within sandstone. 51.3-57.8m Quartz sandstone with small quartz veins (5cm max). No visible mineralisation in white quartz. 61.4-61.6m Bleach quartz sandstone with mottled quartz breccia type vein. Pyrite & galena and a chlorite alteration. 63.2-63.9m Stockwork type quartz veining within quartz sandstone. 67.9-68.0m Quartz vein within sandstone. Chlorite alteration. 68.5-68.6m Quartz vein within sandstone.	bichd bichd oxdn				Minor pyrite. 32m Pyrite and sphalerite in quartz veining. Galena and pyrite in quartz veining. Pyrite, galena and arsenopyrite. Arseno-pyrite, pyrite and galena. Pyrite mineral.

180045

Depth	Direction	Dip

COLLAR DIP : +20'

HOLE No. : LSM5

DIRECTION : 125.5' AMG

LOCATION : Long Struggle Mine
Alberton

NORTHING : 5,426,121.5mN

LOGGED BY : Karen Mathews

EASTING : 567,467mE

COLLAR RL : 394.8m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD% <S=Shear>
73239	31.25	31.35	0.10	2.40							
73240	34.25	34.65	0.40	0.44							
73241	34.65	35.00	0.35	0.26							
73242	35.25	35.60	0.35	1.40							
73243	61.50	61.90	0.40	0.18							
73244	67.90	68.10	0.20	0.05							
73245	68.40	68.70	0.30	0.05							
73246	40.30	40.40	0.10	0.28							
73247	43.20	43.80	0.60	0.05							
73248	30.70	31.35	0.65	1.10							
73249	31.50	31.85	0.35	0.05							
73250	32.00	32.50	0.50	0.05							
73251	32.50	33.35	0.85	0.23							
73252	33.35	34.25	0.90	0.05							
73253	47.95	48.50	0.55	0.23							
73254	66.15	66.35	0.20	0.28							
73255	68.20	68.40	0.20	0.05							
73256	63.20	63.85	0.65	0.05							
73257	35.00	35.15	0.15	0.30							
73258	38.15	38.35	0.20	0.28							
73283	30.10	30.30	0.20	0.12							

OBJECTIVE : To test the ground northwest of the Mt Victoria Mine workings.

DEPTH : 55.5m

HOLE SIZE: TT46

RESULT : Interesting results 42 to 47.55m. 16.8g/t Au (check 10.3g/t) at 42.0-42.1m and 36.4-36.75m.

COMMENCED: 3rd May 1994

COMPLETED: 4th May 1994

Depth	Direction	Dip
0	294.5	0
55.5	294.5	0

180046

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	32.4	Grey, quartz sandstone with small black siltstone interbeds in places. Small quartz veins are present, parallel, right angles and oblique to the core. 20.5-20.7m Quartz, stockwork type veining. No visible mineralisation. 24.8-25.1m Quartz veining within quartz sandstone. Some minor pyrite associated. 25.87-25.9m Vuggy quartz vein with iron staining. Indicates the presence of pyrite mineralisation. Approx 60° to the core. 26.0-26.1m Black siltstone interbed with assoc. quartz veining. Pyrite associated with the quartz veining. Also pyrite veins and galena. Chlorite alteration also present. 26.1-27.0m Quartz veining within quartz sandstone, pyrite associated with the quartz, small pyrite veins and arseno-pyrite within the sandstone. Some chlorite alteration is also present. 27.5-27.65m Quartz breccia within the quartz sandstone. Black clasts of siltstone present. 27.7-27.8m Black siltstone. Contact with the sandstone is gradational indicating facing up sequence. Patches of pyrite veining are present. Breccia type quartz vein contains a lot of pyrite and galena. Some minor chlorite alteration present near upper contact. 28.5-28.75m Contact between sandstone/siltstone. Green chlorite alteration vein at 28.5. May have been some pyrite min association due to iron staining. Minor quartz veining within siltstone. Pyrite and chlorite alteration associated. 30.45-30.95m Stockwork type quartz veining within quartz sandstone pyrite, arseno-pyrite and galena associated as veins and inclusions in the quartz veining. Chlorite alteration associated with the siltstone present.			qtz sst	Minor pyrite in quartz veining.
			chl			Pyrite and galena in quartz veins.
						Pyrite associated with quartz veins.
					bx	Pyrite mineralisation visible
						Pyrite and galena veining in quartz filled breccia.
			chl			Associated pyrite.
			chl			Pyrite and arsenopyrite in quartz veins.
32.4	32.7	Black siltstone with pyrite veins and small quartz veins.				Small pyrite veins.
32.7	35.8	Grey quartz sandstone with minor quartz veins and small black siltstone interbeds. Pyrite associated with the siltstone and quartz in the siltstone. Quartz veins in the sandstone have no associated just minor chlorite alteration. 34.6-34.7m Broken quartz sandstone/siltstone zone. Chlorite alteration present. Arsenopyrite in the sandstone and pyrite. 35.0-35.3m Quartz stockwork-type veining. Arsenopyrite in the	chl	c		
			chl	b		Arsenopyrite and pyrite in groundmass.
			chl	b		Galena and arsenopyrite in siltstone bands.

180047

		35.0-35.3m Quartz stockwork-type veining. Arsenopyrite in the sandstone. Pyrite, galena and chlorite alteration associated with the quartz vein.	chl	b		Galena and arsenopyrite in siltstone bands.
35.8	41.4	Stockwork-type and breccia-type quartz veining in quartz sandstone. Many arsenopyrite crystals in the surrounding sandstone. Pyrite and galena associated with the quartz. Veining is grey mottled in places, while in other places as discrete veins. Small siltstone interbeds contain pyrite, galena and arsenopyrite. Chlorite alteration is very intense in some places, occurring as discrete veins of alteration.	chl	a		
		39.0-39.55m Very intense quartz veining with intense chlorite alteration. Also very broken. Strong pyrite, galena and arsenopyrite at contact with small siltstone interbeds.	chl	a		Galena pyrite and arsenopyrite on siltstone band contacts.
41.4	41.7	Grey quartz sandstone with minor quartz veining.				
41.7	47.5	Mottled grey quartz within quartz sandstone. Vuggy, indicating pyrite. Visible pyrite and galena. Chlorite alteration. Small siltstone clasts present in the quartz.	chl	b	reef	Pyrite and galena in reef.
47.4	48.4	Black siltstone with quartz veining, part at contact with sandstone (47.5m) iron staining ind. by pyrite veins. Rich galena mineralisation. Discrete pyrite veining.				Rich galena mineralisation and discrete pyrite veining.
48.4	55.5	Grey quartz sandstone and black siltstone minor discrete quartz veining. 52.7m Contact between siltstone and sandstone indicates facing down sequence. Quartz veins within the sandstone are barren. The veining within the siltstone are iron stained indicating pyrite. Most of the veins within the siltstone show some chlorite alteration.	chl	c		

Depth	Direction	Dip
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COLLAR DIP : Hor. HOLE No. : MVM1
 DIRECTION : 294.5' LOCATION : Mount Victoria Mine
 Alberton
 NORTHING : 5,425,837.5mN LOGGED BY : Karen Mathews
 EASTING : 587,495mE COLLAR RL : 384.5m

180048

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD% <S=Shear>
73373	25.85	26.15	0.30	0.52							
73374	26.15	28.45	0.30	0.55							
73375	27.55	27.70	0.15	0.05							
73376	30.60	30.90	0.30	1.30							
73377	30.90	31.00	0.10	0.25							
73378	35.80	36.05	0.25	0.83							
73379	36.05	36.40	0.35	0.45							
73380	36.40	36.75	0.35	8.30							
73381	36.75	36.95	0.20	0.45							
73382	36.95	37.45	0.50	1.00							
73383	37.45	37.75	0.30	1.20							
73384	37.75	38.30	0.55	0.20							
73385	38.30	39.05	0.75	0.13							
73386	39.05	39.30	0.25	0.10							
73387	39.30	39.60	0.30	1.15							
73388	39.60	39.90	0.30	0.25							
73389	39.90	40.00	0.10	0.08							
73390	40.00	40.30	0.30	0.05							
73391	40.30	40.55	0.25	2.80							
73392	40.55	40.75	0.20	0.23							
73393	40.75	41.15	0.40	0.35							
73394	41.15	41.40	0.25	0.08							
73395	41.40	42.00	0.60	0.08							
73396	42.00	42.10	0.10	16.60 (rept. 10.3)							
73397	42.10	42.30	0.20	3.00							
73398	42.30	42.50	0.20	0.20							
73399	47.10	47.40	0.30	6.10 (rept. 4.4)							
73400	47.40	47.55	0.15	1.40 (rept. 2.3)							
73401	47.55	47.80	0.25	0.40							
73402	47.80	47.95	0.15	0.43							
73403	47.95	48.05	0.10	0.75							
73404	48.05	48.35	0.30	0.15							
73405	51.20	51.35	0.15	0.08							
73406	51.35	51.75	0.40	0.13							
73407	53.15	53.45	0.30	0.05							
73408	54.20	54.40	0.20	0.05							
73409	55.20	55.50	0.30	0.63							
73410	0.00	1.00	1.00	0.26							

180049

73410	0.00	1.00	1.00	0.26
73411	1.00	1.40	0.40	0.05
73422	35.15	35.30	0.15	0.05
Av.	36.40	37.75	1.35	2.86
Av.	42.00	42.30	0.30	5.53 (rept. 3.63)
Av.	47.10	47.55	0.45	4.53 (rept. 3.70)

OBJECTIVE : To test the ground southeast of the Victoria Mine workings.

DEPTH : 52.2m

HOLE SIZE: TT46

RESULT : No significant mineralisation intersected.

COMMENCED: 29th April 1994

COMPLETED: 3rd May 1994

Depth	Direction	Dip
0	122.5	0
52.2	122.5	0

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	30.55	Grey quartz sandstone with small quartz veins throughout. 3.9-4.15m Stockwork veining. 4.5-4.8m More intense quartz veining. 5.45- 5.5m Quartz vein with small sandstone inclusions: breccia. 5.5-5.6m Quartz veining associated with the above breccia. 6.1-6.3m 2-5cm quartz veins at about 45°, some stockwork. 11-11.1m Stockwork veining. 16.25-16.45m Intense quartz veining. 18.9-19.2m Mottled grey quartz vein. 25.2-25.85m Mottled grey stockwork quartz veining; breccia-like. 29.9-30.55m Breccia-type quartz veining in dark grey sandstone/siltstone with shear textures.			sst bx bx + S	Minor pyrite. Minor pyrite.
30.55	32.8	Largely broken dark grey sandstone/siltstone with some shearing. Quartz veining of both breccia and stockwork type.			sst-sltst S + bx	
32.8	33.25	Very broken fault gouge with some fragments of vein quartz: fault.			F	
33.25	40.42	Broken black siltstone/shale. Breccia fill and stockwork quartz veining. Shear textures. 40.4-40.42m White bleached siltstone contact zone.			sltst bx + S	
40.42	43.0	Olive green porphyritic intrusive with small crystals (<2mm) of calcite or quartz; disseminated pyrite; small calcite-pyrite veins sub parallel to the core. Some chlorite alteration. 40.42-40.55m Purple grading to olive green chilled margin, with pyrite veins and small calcite and pyrite phenocrysts. 42.98-43m Chilled margin similar to the other, except lack of pyrite. 43m Contact of soft green and white chlorite and calcite.	chl	b	porph intrusive	Disseminated pyrite. Fine pyrite veins and crystals.
43.0	45.3	Black siltstone/shale. 43-43.2m Intense quartz veining and strong shear texture. Some ptigmatic folding of quartz veins and chlorite alteration. 43.2-43.4m Breccia with quartz fill. 43.4-44.45m Intervals of quartz veining and brecciation. Small folds in veins.			sltst/shl S	

180050

180051

45.3	52.2	<p>in veins. 44.45-44.65m Zone of broken black siltstone/shale with minor quartz veining. 44.65-44.8m Very broken and altered siltstone and quartz with some folding and brecciation. 44.8-45.3m Zones of quartz veining, broken and altered black siltstone.</p> <p>Grey siltstone interbedded with black siltstone/shale. Facing indicates drilling down sequence. Quartz veining, both parallel and across with minor pyrite in some of the veins.</p>	bx	siltst/shl	Minor pyrite in some quartz veins.
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180052

Depth	Direction	Dip	COLLAR DIP :	Horizontal	HOLE No. :	MVM2
			DIRECTION :	122.5° AMG	LOCATION :	Mount Victoria Mine Alberton
			NORTHING :	5,425,833mN	LOGGED BY :	Karen Mathews
			EASTING :	567,506mE	COLLAR RL :	384.4m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD9 <S=Shear>
73316	3.90	4.00	0.10	0.08							
73317	4.00	4.15	0.15	0.04							
73318	4.50	4.80	0.30	0.12							
73319	5.40	5.60	0.20	0.03							
73320	6.10	6.30	0.20	0.26							
73321	10.90	11.10	0.20	0.08							
73322	12.35	12.45	0.10	0.06							
73323	16.25	16.45	0.20	0.30							
73324	18.90	19.20	0.30	0.06							
73325	25.20	25.30	0.10	0.06							
73326	25.30	25.55	0.25	0.02							
73327	25.55	25.70	0.15	0.03							
73328	25.70	25.85	0.15	0.04							
73329	29.00	29.15	0.15	0.10							
73330	29.90	30.00	0.10	0.08							
73331	30.25	30.55	0.30	0.08							
73332	30.55	30.80	0.25	0.03							
73333	30.80	31.20	0.40	0.14							
73334	31.60	31.75	0.15	0.08							
73335	31.75	32.40	0.65	0.16							
73336	32.40	32.60	0.20	0.48							
73337	32.60	32.70	0.10	0.10							
73338	32.70	32.80	0.10	0.03							
73339	32.80	33.25	0.45	0.08							
73340	33.25	33.50	0.25	0.04							
73341	33.50	33.70	0.20	0.03							
73342	33.70	34.15	0.45	0.02							
73343	34.15	35.15	1.00	0.03							
73344	35.15	35.25	0.10	0.10							
73345	35.25	35.55	0.30	0.05							
73346	35.55	36.00	0.45	0.04							
73347	36.00	36.60	0.60	0.03							
73348	36.60	36.80	0.20	0.04							
73349	36.80	37.35	0.55	0.14							
73350	37.35	37.50	0.15	0.08							
73351	37.50	37.70	0.20	0.06							

180053

73351	37.50	37.70	0.20	0.06
73352	37.70	37.85	0.15	0.08
73353	37.85	38.05	0.20	0.08
73354	38.05	38.25	0.20	0.06
73355	38.25	38.75	0.50	0.16
73356	38.75	39.15	0.40	0.10
73357	39.15	39.90	0.75	0.16
73358	39.90	40.30	0.40	0.05
73359	40.30	40.45	0.15	0.03
73360	40.45	40.55	0.10	0.08
73361	41.60	41.80	0.20	0.04
73362	42.85	43.00	0.15	0.18
73363	43.00	43.20	0.20	0.05
73364	43.20	43.40	0.20	0.08
73365	43.40	43.70	0.30	0.04
73366	43.70	44.10	0.40	0.50
73367	44.10	44.35	0.25	0.08
73368	44.35	44.55	0.20	0.08
73369	44.55	44.65	0.10	0.04
73370	44.65	44.80	0.15	0.03
73371	44.80	45.00	0.20	0.02
73372	45.00	45.30	0.30	0.03

OBJECTIVE : To test the ground south of Mt Victoria Mine workings, including a zone of ground magnetics 'noise'.

RESULT : Interesting zone at 28.6-30.5m: average 1.3g/t Au.

DEPTH : 120.8m

HOLE SIZE: TT46

COMMENCED: 20th April 1994

COMPLETED: 28th April 1994

Depth	Direction	Dip
0.0	177.5	0.0
120.8	177.5	0.0

180054

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	27.6	Grey, fine grained sandstone: quartz greywacke with tracery of fine quartz veins <8mm, oriented mostly 60-90'. 0.9-1m Semi-breccia in quartz matrix. 2.6-3.1m Dark grey siltstone, contacts at 5-10'. 3.2-4m Broken ground. 3.2-3.5, 4-6.5m Dark grey siltstone/shale with signs of slumping. 16.8-17m Shear at 40' <15mm pug. Quartz on up-hole side <10mm. 17-18.2m Broken ground. 23.7-24.6m Semi-breccia with quartz filled cracks.	chl	b	qtz gwk semi-bx siltst/shl S	23.7-24.6m Minor disseminated and aggregates of pyrite and arsenopyrite.
27.6	30.5	Zone of semi-brecciated sandstone with quartz veins and brecciated quartz. 30.3-30.4m Quartz vein in sandstone at 45', true width 5cm.	sil	a	semi-bx	27.6-30.5m Disseminated pyrite and arsenopyrite, fine vns py & aspy.
30.5	73.9	Grey fine grained sandstone: quartz wacke with fine irregular quartz veins. 32.4-32.7m Dark grey siltstone/shale with rough contacts. 36-36.05m Breccia in grey quartz.	chl	b	qtz gwk	Dis & ags pyrite in the sst on contacts.
73.9	83.0	Grey and dark grey fine grained quartz wacke characterised by larger quartz veins and zones of semi-breccia as at sample intervals. 76.2-76.5m Sheared zone at 45'.	chl	b	qtz gwk S	Minor disseminated arsenopyrite in semi-breccia zones.
83.0	120.8	Essentially as above, ie quartz wacke, with intervals of breccia or aggregates of light grey quartz. 112.5-113.8m Irregularly fractured along the the core, with oxidised fractures: presumed source of water in the hole. 116.1-117.1m White quartz vein along the core. 118.6-119.4m White quartz veins about parallel to the core.	sil oxdn	b b	qtz gwk + bx + qtz	Fine disseminated arsenopyrite in breccia zones. 116.1-117.1m Minor pyrite associated with quartz vein.
End of Log						

180055

Depth	Direction	Dip

COLLAR DIP : Horizontal HOLE No. : MVM4
 DIRECTION : 177.5 AMG LOCATION : Mount Victoria Mine
 NORTHING : 5,425,815mN LOGGED BY : G. Iiff 29.4.94
 EASTING : 567,502mE COLLAR RL : 348.2m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD% <S=Shear>
73284	23.7	24.6	0.9	0.23							
73285	27.6	28.6	1.0	0.28							
73286	28.6	29.6	1.0	1.40							
73287	29.6	30.3	0.7	0.30							
73288	30.3	30.5	0.2	4.30							
73289	47.7	47.9	0.2	0.04							
73290	62.9	63.2	0.3	0.03							
73291	73.8	74.1	0.3	0.02							
73292	75.1	75.3	0.2	0.01							
73293	76.5	76.7	0.2	0.02							
73294	76.7	77.0	0.3	0.03							
73295	77.8	78.2	0.4	0.04							
73296	79.6	79.75	0.75	0.03							
73297	80.2	80.45	0.25	0.06							
73298	82.65	83.0	0.35	0.06							
73299	90.55	99.6	0.05	1.00							
73300	96.9	97.1	0.2	0.30							
73301	97.3	97.6	0.3	0.18							
73302	103.8	103.9	0.1	0.08							
73303	105.6	105.7	0.1	0.06							
73304	108.25	108.5	0.25	0.12							
73305	108.5	108.6	0.1	0.10							
73306	110.4	110.55	0.15	0.08							
73307	111.4	111.6	0.2	0.05							
73308	116.1	116.3	0.2	0.04							
73309	116.3	116.5	0.2	0.03							
73310	116.5	117.0	0.5	0.02							
73311	117.0	117.25	0.25	0.03							
73312	118.2	118.5	0.3	0.04							
73313	36.0	36.05	0.05	0.06							
73314	110.55	110.65	0.1	2.30							
73315	90.5	90.55	0.05	0.04							
(Av.	28.6	30.5	1.9	1.30							

MANCALA PTY LTD A.C.N. 056 204 267

ASSAYS OF DRILL HOLES RU1 AND RU2.

(Site 1: RU1: 130 Deg, -18, RU2 130 Deg, -26)

Au ppm

72742	09-Nov-93	Ringarooma United	Core: RU1 2.2-2.8m Quartz in grey sltst and sst + <5% py & aspy.	0.007
72743	09-Nov-93	Ringarooma United	Core: RU1 3.3-3.6m Quartz in grey sltst and sst + <5% py & aspy.	0.007
72744	09-Nov-93	Ringarooma United	Core: RU1 4.1-4.6m Quartz in grey sltst and sst + <5% py & aspy.	0.016
72745	09-Nov-93	Ringarooma United	Core: RU1 11.2-11.6m Quartz in grey sltst and sst + <5% py & aspy.	0.007
72746	09-Nov-93	Ringarooma United	Core: RU1 17.1-17.5m Quartz in grey sltst and sst + <5% py & aspy.	0.011
72747	09-Nov-93	Ringarooma United	Core: RU1 28.2-28.3m Quartz in grey sltst and sst + <5% py & aspy.	0.007
72748	09-Nov-93	Ringarooma United	Core: RU1 28.7-29.3m Quartz in grey sltst and sst + <5% py & aspy.	0.007
72749	09-Nov-93	Ringarooma United	Core: RU1 31.0-31.2m Quartz in grey sltst and sst + <5% py & aspy.	0.011
72750	09-Nov-93	Ringarooma United	Core: RU1 32.0-32.9m Quartz in grey sltst and sst + <5% py & aspy.	0.009
72751	09-Nov-93	Ringarooma United	Core: RU1 37.0-37.2m Quartz in grey sltst and sst + <5% py & aspy.	0.046
72752	09-Nov-93	Ringarooma United	Core: RU1 41.6-47.1m Quartz in grey sltst and sst + <5% py & aspy.	0.272
72753	09-Nov-93	Ringarooma United	Core: RU1 44.8-45.6m Quartz in grey sltst and sst + <5% py & aspy.	1.260
72754	09-Nov-93	Ringarooma United	Core: RU1 45.6-46.5m Quartz in grey sltst and sst + <5% py & aspy.	0.191
72757	16-Nov-93	Ringarooma United	Core: RU2: 2.3-2.9m. Quartz veins in grey siltstone.	0.580
72758	16-Nov-93	Ringarooma United	Core: RU2: 5.4-5.5m. Massive quartz vein in grey siltstone.	0.500
72759	16-Nov-93	Ringarooma United	Core: RU2: 15.6-16m. Quartz veins in grey siltstone.	0.440
72760	16-Nov-93	Ringarooma United	Core: RU2: 16.7-16.9m. Quartz veins in grey siltstone.	0.360
72761	16-Nov-93	Ringarooma United	Core: RU2: 18-19m. Quartz veins/bands in grey siltstone.	0.260
72762	16-Nov-93	Ringarooma United	Core: RU2: 23.3-23.8m. Quartz veins in grey siltstone.	0.220
72763	16-Nov-93	Ringarooma United	Core: RU2: 31.2-32.1m. Irregular quartz veins in grey siltstone/sst.	0.340
72764	16-Nov-93	Ringarooma United	Core: RU2: 32.1-33.5m. Irregular quartz veins in grey siltstone.	0.160
72765	16-Nov-93	Ringarooma United	Core: RU2: 37.2-38.1m. Sparse quartz veins in grey siltstone & sst.	0.200
72766	16-Nov-93	Ringarooma United	Core: RU2: 50.5-51.5m. Light grey sandstone/quartzite, <5% aspy.	1.780
72767	16-Nov-93	Ringarooma United	Core: RU2: 51.5-52.5m. Light grey sandstone/quartzite, <5% aspy.	0.050

tuff?

tuff?

tuff?

OBJECTIVE : Aimed at the confluence of Rosalind and Premier Reefs (but drilled too steep: not allowing for apparent dip and arbitrary sketch of old mine section).

RESULT : No significant mineralisation, though a barren reef-type breccia was intersected at 49.5-50.3m.

DEPTH : 50.5m

HOLE SIZE: TT46

COMMENCED: 6th Jan. 1994

COMPLETED: 7th Jan. 1994

Depth	Direction	Dip
0	119.5	-60
50	119.5	-60

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	27.7	Dark grey sandstone with black siltstone interbeds. Contains small quartz veins, which are both irregular, right angles and parallel to the core. 2.9-3.7m Oxidation surfaces present. 4.3-4.4m Intense quartz veining within sandstone. Pyrite associated. 7.6m Sharp contact between sandstone and siltstone indicates facing down sequence. 7.9-8.5m Intense quartz veining within siltstone and sandstone. Pyrite, chlorite alteration and arseno-pyrite present. 8.6-8.7m Quartz vein in quartz sandstone. Pyrite present. 10.5-12.2m Broken zone in sandstone and siltstone. Quite a lot of quartz veining and brecciation. Pyrite, and chlorite alteration. 16.2m Gravely material and pieces of core. Mainly quartz. 17.6-18.0m Siltstone/sandstone contact nearly parallel to core. Quartz veining within siltstone. Pyrite associated. 18.2-18.3m Siltstone/sandstone contact parallel to core. Minor veining within the siltstone.			sst-siltst	Pyrite associated with quartz veins. Minor pyrite and arsenopyrite. Minor pyrite. Minor pyrite. Associated pyrite.
27.7	37.7	Grey/black siltstone. Quartz veins throughout. Most have pyrite associated. 34.9-35.2m Quartz vein within siltstone. 35.2-37.7m Grey siltstone in the black siltstone. Small quartz veins irregular in both siltstones.			siltst	Pyrite associated with quartz veins.
37.7	50.5	Grey sandstone/siltstone with interbedded black siltstone, small quartz veins throughout. Irregular, parallel and right angles to core. 44.45-44.6m Red-brown oxidized surfaces within black siltstone. 45.5m Contact between siltstone and sandstone appears to indicate going up sequence (not that clear). 47.7-47.9m Quartz vein within heavily mineralised sandstone. Pyrite present. 48.3-48.4m Breccia with pyrite mineralisation. 48.45-48.65m Breccia within black siltstone. Broken area, quartz veining and pyrite present. 48.65-50.5m Quartz veining within green siltstone/sandstone. Small breccia zones at 49.5 to 49.6m (pyrite and quartz associated) 49.5-50.3m Brecciated turbidite filled with quartz. Possible extension of Premier Reef. Two phases of quartz veining. 49.7-49.75m Pug: fault 65-70°.			sst-siltst bx bx bx zones bx reef	Strong pyrite mineralisation. Pyrite in breccia. Pyrite in breccia. Pyrite associated with quartz.

180057

Depth	Direction	Dip

COLLAR DIP : -60°
 DIRECTION : 119.5°
 NORTHING : 5,427,714mN
 EASTING : 568,728mE

HOLE No. : RU3
 LOCATION : Ringarooma United Mine, Alberton.
 LOGGED BY : Karen Mathews
 COLLAR RL : 377.9m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD? <S=Shear>
73037	47.70	48.30	0.60	0.14							
73038	48.30	48.40	0.10	0.14							
73039	48.40	48.50	0.10	0.20							
73040	48.50	49.50	1.00	0.16							
73041	49.50	50.40	0.90	0.18							
73042	50.40	50.50	0.10	<0.05							

180058

OBJECTIVE : To test the projected confluence of Rosalind and Premier Reefs, as calculated with apparent dips.

RESULT : Hit below the confluence, with Premier Reef at 57.0-57.7m and Rosalind Reef at 59.7-60.1m.

DEPTH : 62.5m

HOLE SIZE: TT46

COMMENCED: 10th January 1994

COMPLETED: 11th January 1994

Depth	Direction	Dip
0	119.5	-40.0
30	117.5	-39.3
62m	116.5	-38.8

180059

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	62.5	<p>Sequence of turbidite beds of dark grey greywacke grading up to black shale: drilled down sequence (fine to coarse in each bed), for first 31m, up sequence for second half. Beds mostly about 1m thick, rarely <8m thick.</p> <p>0-1.5m 1.3m core lost</p> <p>8.4-10.6m Mainly quartz veins, well contorted, and minor brecciation.</p> <p>12-17.8m Frequent irregular and contorted quartz veins.</p> <p>34.3-35.2m Irregular veins to massive quartz.</p> <p>43-43.3, 44-44.9m Contorted massive quartz veining.</p> <p>48.7-53.9m Patches of contorted quartz veins to massive quartz in fine, partly brecciated shaley parts of graded beds. Pyrite (<2%) associated with quartz.</p> <p>57.0-57.7m Brecciated turbidite and quartz fill with vugs of crystals, <3% pyrite. Contact 80°. Premier Reef.</p> <p>57.7-58.4m Fault, pug either side of pyritic sandy mud, 80°.</p> <p>58.4-59.2m Partly brecciated with quartz fill. Stringers of pyrite.</p> <p>59.7-61.0m Brecciated turbidite and semi-massive quartz + 5-10% sulphides: fine grain arsenopyrite, pyrite, sphalerite, minor chalcopyrite. Contacts 25-30°. 2 generations quartz veins. Rosalind Reef.</p> <p>62.2-62.3m Black shale top of a graded bed.</p> <p>Note: in view of the low grades of samples taken in Premier Reef and the continued stoping of Rosalind Reef below the Long Adit level, compared with the grades in this hole, it seems the hole passed beneath the confluence, intersecting the Premier Reef first, and then the Rosalind Reef. This is supported by the angles of the contacts of the reefs: the reef dipping westwards would be intersected at an obtuse angle, and the easterly dipping reef at an acute angle, in these circumstances.</p>			<p>sst-slt-shl turb</p> <p>Premier</p> <p>F</p> <p>Rosalind</p>	<p>Pyrite (2% associated with quartz).</p> <p><3% pyrite in reef.</p> <p>Pyritic sand. Pyrite stringers.</p> <p>5-10% sulphides: arsenopyrite, galena, pyrite, sphalerite, chalcopyrite.</p>

Depth	Direction	Dip
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COLLAR DIP : -40° HOLE No. : **RU4**
 DIRECTION : 119.5° AMG LOCATION : **Ringarooma United Mine, Alberton**
 NORTHING : 5,427,713.75mN LOGGED BY : **Geoff Iloff**
 EASTING : 566,728.5mE COLLAR RL : 377.9m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD% <S=Shear>
72985	48.00	48.70	0.70	0.10							
72986	48.70	48.90	0.20	0.10							
72987	48.90	49.70	0.80	0.10							
72988	49.70	50.10	0.40	0.06							
72989	50.10	50.60	0.50	0.08							
72990	50.60	50.70	0.10	0.04							
72991	50.70	50.95	0.25	-							
72992	50.95	51.10	0.15	0.10							
72993	51.10	52.10	1.00	-							
72994	52.10	52.30	0.20	0.08							
72995	52.30	53.20	0.90	0.14							
72996	53.20	53.90	0.70	0.38							
72997	53.90	54.70	0.80	-							
72998	54.70	55.50	0.80	0.03							
72999	55.50	56.40	0.90	0.18							
73000	56.40	57.00	0.60	0.70 (rept. 0.88)							
73001	57.00	57.70	0.70	0.30							
73002	57.70	58.40	0.70	0.20							
73003	58.40	58.70	0.30	0.40							
73004	58.70	59.20	0.50	0.10							
73005	59.20	59.70	0.50	0.30							
73006	59.70	60.50	0.80	1.10							
73007	60.50	61.00	0.50	1.10 (rept. 2.80)							
73008	61.00	61.80	0.80	-							
73009	61.80	62.50	0.70	-							
average	59.70	61.00	1.30	1.10 (rept. 1.75)							

180060

OBJECTIVE : To test the projected confluence of Rosalind and Premier Reefs, as calculated with apparent dips.

DEPTH : 62.5m

HOLE SIZE: TT46

RESULT : Hit below the confluence, with Premier Reef at 57.0-57.7m and Rosalind Reef at 59.7-60.1m.

COMMENCED: 10th January 1994

COMPLETED: 11th January 1994

Depth	Direction	Dip
0	119.5	-40.0
30	117.5	-39.3
62m	116.5	-38.8

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	62.5	Sequence of turbidite beds of dark grey greywacke grading up to black shale: drilled down sequence (fine to coarse in each bed), for first 31m, up sequence for second half. Beds mostly about 1m thick, rarely <8m thick. 0-1.5m 1.3m core lost 8.4-10.6m Mainly quartz veins, well contorted, and minor brecciation. 12-17.8m Frequent irregular and contorted quartz veins. 34.3-35.2m Irregular veins to massive quartz. 43-43.3, 44-44.9m Contorted massive quartz veining. 48.7-53.9m Patches of contorted quartz veins to massive quartz in fine, partly brecciated shaley parts of graded beds. Pyrite (<2%) associated with quartz. 57.0-57.7m Brecciated turbidite and quartz fill with vugs of crystals, <3% pyrite. Contact 80°. Premier Reef. 57.7-58.4m Fault, pug either side of pyritic sandy mud, 80°. 58.4-59.2m Partly brecciated with quartz fill. Stringers of pyrite. 59.7-61.0m Brecciated turbidite and semi-massive quartz + 5-10% sulphides: fine grain arsenopyrite, pyrite, sphalerite, minor chalcopyrite. Contacts 25-30°. 2 generations quartz veins. Rosalind Reef. 62.2-62.3m Black shale top of a graded bed. Note: in view of the low grades of samples taken in Premier Reef and the continued stoping of Rosalind Reef below the Long Adit level, compared with the grades in this hole, it seems the hole passed beneath the confluence, intersecting the Premier Reef first, and then the Rosalind Reef. This is supported by the angles of the contacts of the reefs: the reef dipping westwards would be intersected at an obtuse angle, and the easterly dipping reef at an acute angle, in these circumstances.			sst-slt-shl turb	Pyrite (2% associated with quartz). Premier <3% pyrite in reef. F Pyritic sand. Pyrite stringers. Rosalind 5-10% sulphides: arsenopyrite, galena, pyrite, sphalerite, chalcopyrite.

180061

180062

Depth	Direction	Dip

COLLAR DIP : -40°

HOLE No. : RU4

DIRECTION : 119.5° AMG

LOCATION : Ringarooma United
Mine, Alberton

NORTHING : 5,427,713.75mN

LOGGED BY : Geoff Iliff

EASTING : 566,728.5mE

COLLAR RL : 377.9m

SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD? <S=Shear>
72985	48.00	48.70	0.70	0.10							
72986	48.70	48.90	0.20	0.10							
72987	48.90	49.70	0.80	0.10							
72988	49.70	50.10	0.40	0.06							
72989	50.10	50.60	0.50	0.08							
72990	50.60	50.70	0.10	0.04							
72991	50.70	50.95	0.25	--							
72992	50.95	51.10	0.15	0.10							
72993	51.10	52.10	1.00	--							
72994	52.10	52.30	0.20	0.08							
72995	52.30	53.20	0.90	0.14							
72996	53.20	53.90	0.70	0.38							
72997	53.90	54.70	0.80	--							
72998	54.70	55.50	0.80	0.03							
72999	55.50	56.40	0.90	0.18							
73000	56.40	57.00	0.60	0.70 (rept. 0.88)							
73001	57.00	57.70	0.70	0.30							
73002	57.70	58.40	0.70	0.20							
73003	58.40	58.70	0.30	0.40							
73004	58.70	59.20	0.50	0.10							
73005	59.20	59.70	0.50	0.30							
73006	59.70	60.50	0.80	1.10							
73007	60.50	61.00	0.50	1.10 (rept. 2.80)							
73008	61.00	61.80	0.80	--							
73009	61.80	62.50	0.70	--							
average	59.70	61.00	1.30	1.10 (rept. 1.75)							

OBJECTIVE : To test the projected confluence of Rosalind and Premier Reefs north of and below the Long Adit.

RESULT : No positive reefs recognised in the core. A shear at 41.1-41.2m possibly represents Rosalind Reef.

DEPTH : 43m

HOLE SIZE: TT46

COMMENCED: 12th Jan. 1994

COMPLETED: 12th Jan. 1994

Depth	Direction	Dip
0	089.5	-25
40	090.5	-24.8

180063

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0	43	<p>Sequence of grey & dark grey sandstones - siltstones - shales in fine to coarse graded beds, ie turbiditic greywacke. Beds are 0.3-1m thick, at 45-60°. Down sequence to about 10m then up sequence, i.e. grades coarse to fine from about 10m.</p> <p>0.7m Core loss in first 1.6m broken ground to 1.8m.</p> <p>5.6 - 7.1m Mostly qtz vein.</p> <p>Generally only fine quartz veins to 24.3m, then coarser, contorted veins to:</p> <p>33-33.1m Greyish quartz vein at about 35° <2cm thick with recrystallised pyrite and minor arsenopyrite. 2 phases of veining.</p> <p>33.1-34.2m Sporadic quartz veins</p> <p>35.4-35.6m Sporadic quartz veins</p> <p>37.4-37.7m Sporadic quartz veins</p> <p>37.7-40.3m Occasional straight quartz veins</p> <p>40.3-43m Sporadic contorted quartz veins</p> <p>41.1-41.2m Annealed shear. Solid with small contorted quartz veins.</p>			<p>sst-siltst-shl turb</p> <p>S</p>	<p>Recrystallised pyrite and arsenopyrite in quartz.</p>

100064

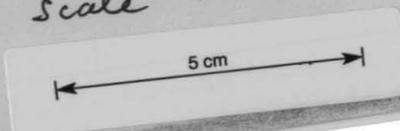
Depth	Direction	Dip

COLLAR DIP : -25° HOLE No. : RU5
 DIRECTION : 089.5° LOCATION : Ringarooma United Mine, Alberton
 NORTHING : 5,427,715mN LOGGED BY : Geoff Iliff
 EASTING : 566,729mE COLLAR RL : 377.9

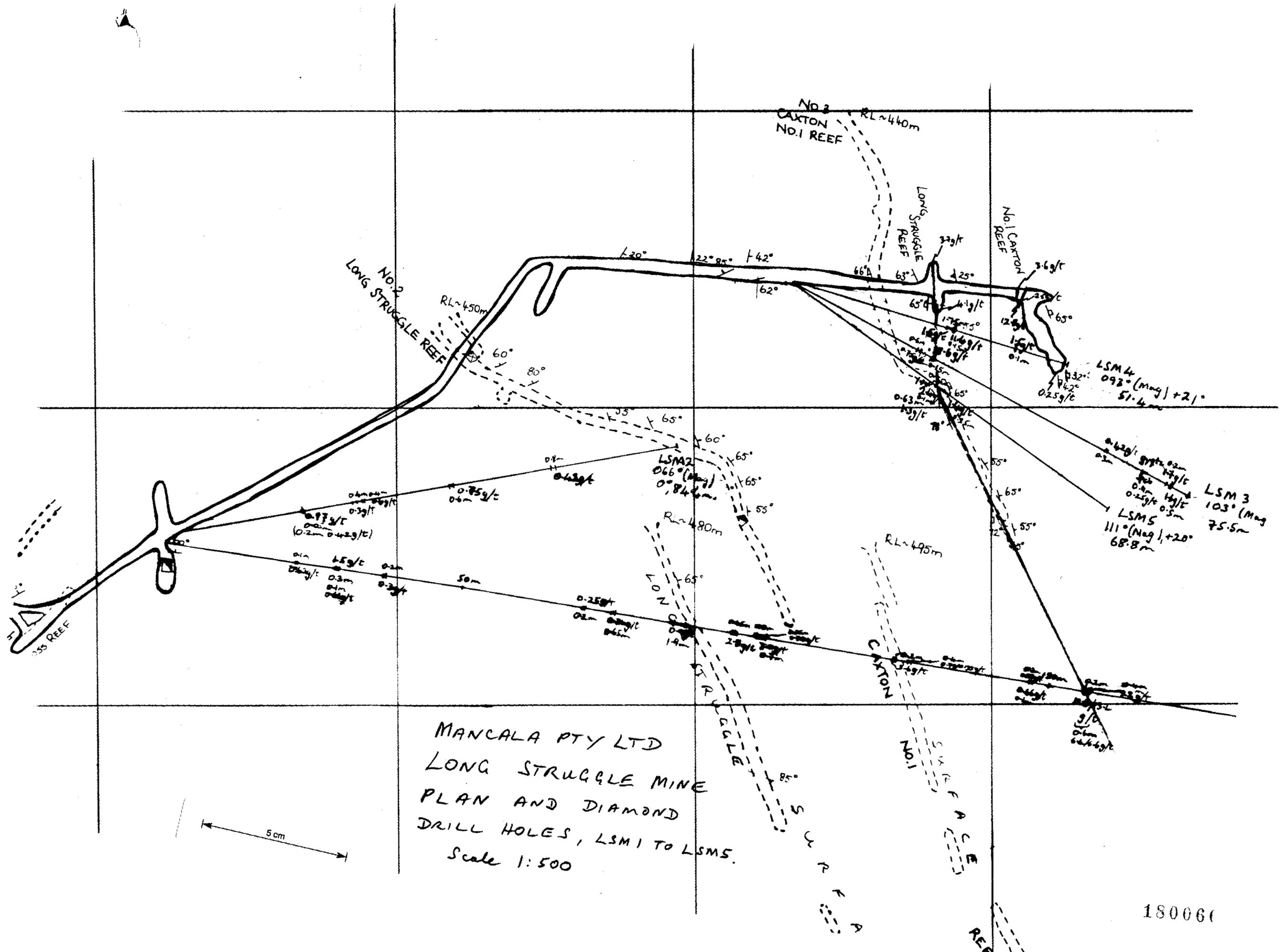
SAMPLE NO.	FROM	TO	Length	Au g/t	Pb %	Zn %	Cu %	Ag g/t	Fe %	\$	To RQD <S=Shear>
73014	33.00	33.10	0.10	0.75							
73022	37.40	37.70	0.30	0.36							
73028	41.10	41.20	0.10	0.28							
73029	41.20	41.50	0.30	0.20							
73030	41.50	41.60	0.10	0.12							
73032	42.40	43.00	0.60	0.16							



MANCALA PTY LTD
 RINGAROOMA UNITED MINE
 PLAN AND DIAMOND
 DRILL HOLES, RU1 TO RUS.
 Scale 1: 500



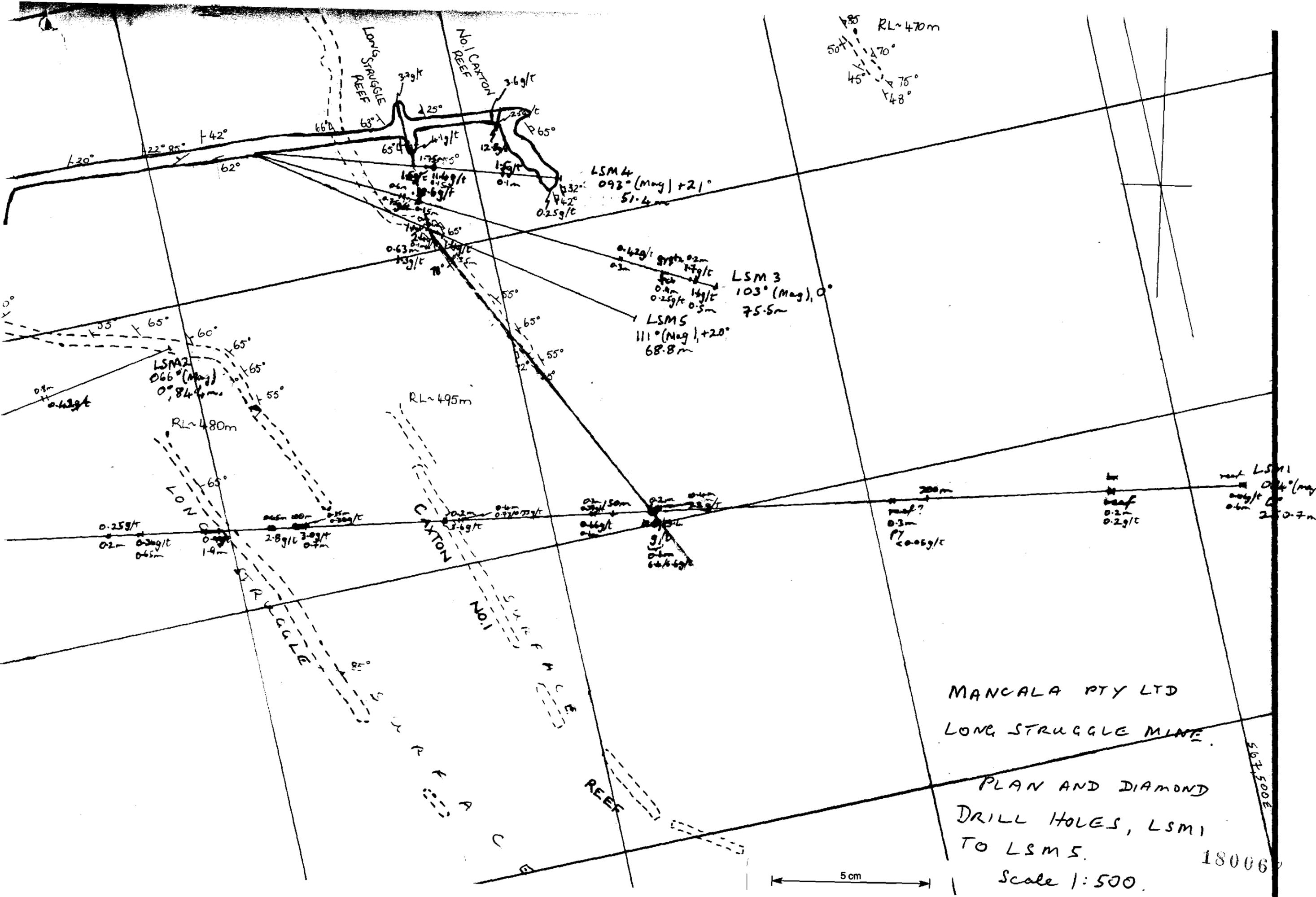
180065



MANCALA PTY LTD
 LONG STRUGGLE MINE
 PLAN AND DIAMOND
 DRILL HOLES, LSM1 TO LSM5.
 Scale 1:500

5cm

180060



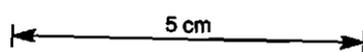
MANCALA PTY LTD
LONG STRUGGLE MINE.

PLAN AND DIAMOND
DRILL HOLES, LSM1
TO LSM5.

Scale 1:500.

567500E

18006



CROSS
REEF

MAIN
ADIT

LSM 1

0.1m 0.1m 0.3m
0.36g/t 0.63g/t 1.59g/t
0.42g/t 0.3g/t

50m

0.25g/t
0.2m 0.36g/t
0.65m

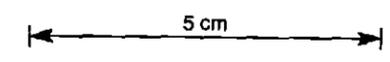
0.9g/t
1.9m

0.45m 100m
2.8g/t 3.0g/t

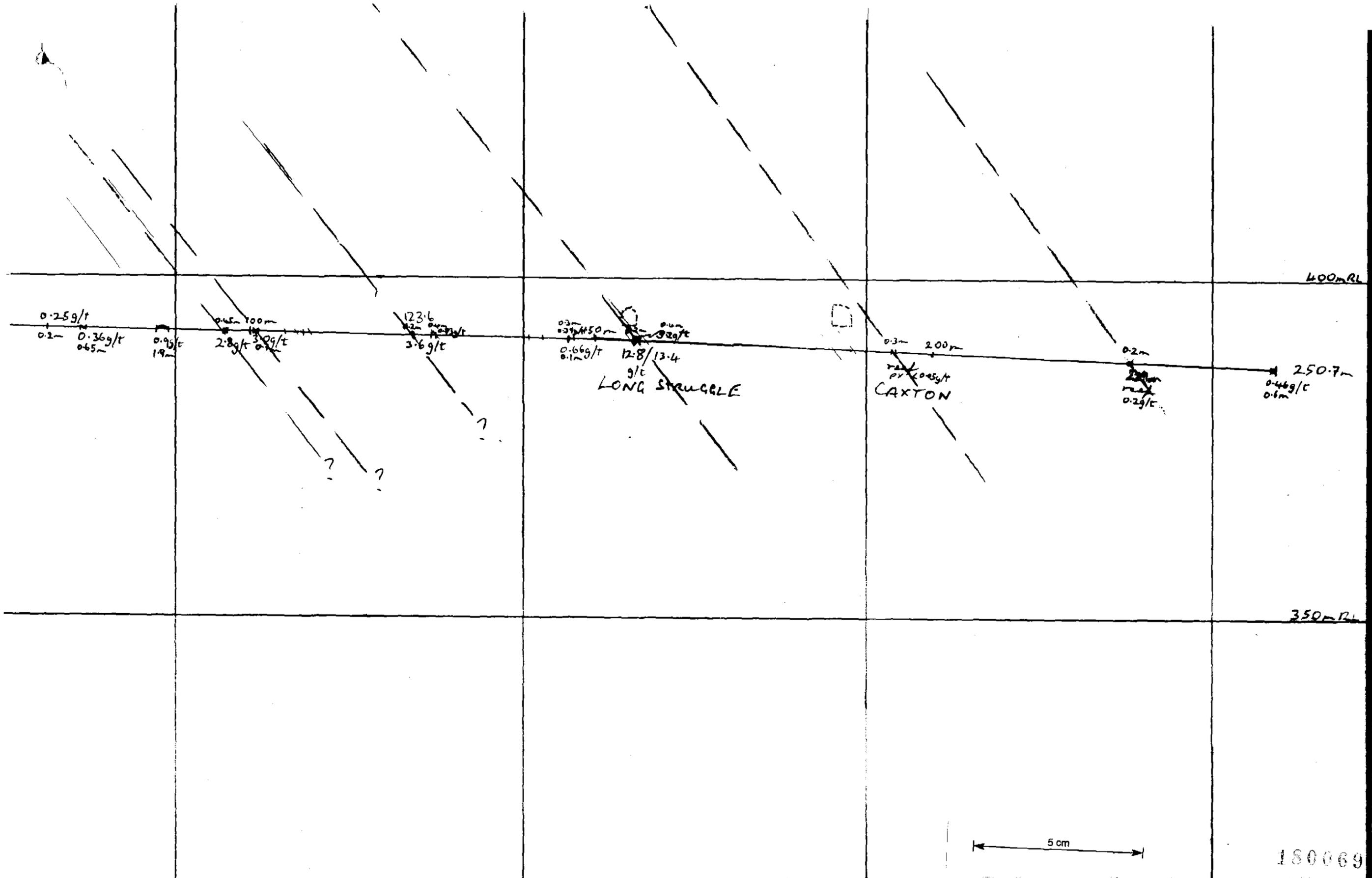
123.6
3.6g/t

MANCALA PTY LTD
LONG STRUGGLE MINE
SECTION OF LSM 1,
DIAMOND DRILL HOLE.

scale 1: 500.



180068



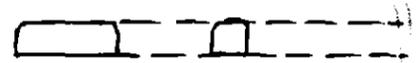
Drawn:	GI	MANCALA PTY. LTD.	
Traced:			
Approved:		Long Struggle Mine, Alberton	Drawing No.:
		Section of Drill Hole LSM1	
		Scale: 1:500	Date: 8/11/94
		Revision	Sheet

500mRL

LONG STRUGGLE 480RL

LONG STRUGGLE 450RL 450mRL

400mRL



MAIN

ADIT

0.97g/t

0.75g/t

0.42g/t

84.4m

5 cm

567,250mE

DRAWN	GI
TRACED	
APPROVED	

MANCALA PTY. LTD.

CROSS SECTION LSM2
LONG STRUGGLE MNE
ALBERTON

DRAWING No.

SCALE 1:500

DATE 25.5.94

REVISION

SHEET

180070 A 50880

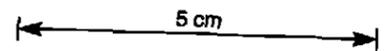
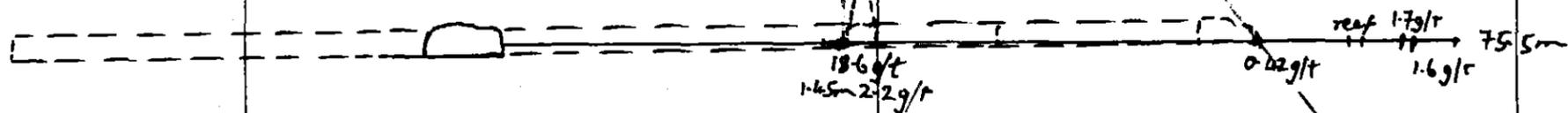
500mRL

LONG STRUGGLE 450RL

450mRL

CAXTON 440 RL

400mRL



567350mRL

DRAWN	GI	MANCALA PTY. LTD.	
TRACED		CROSS SECTION LSM3 LONG STRUGGLE MINE ALBERTON	DRAWING No.
APPROVED			
		SCALE 1:500	DATE 25.5.96
		REVISION	SHEET

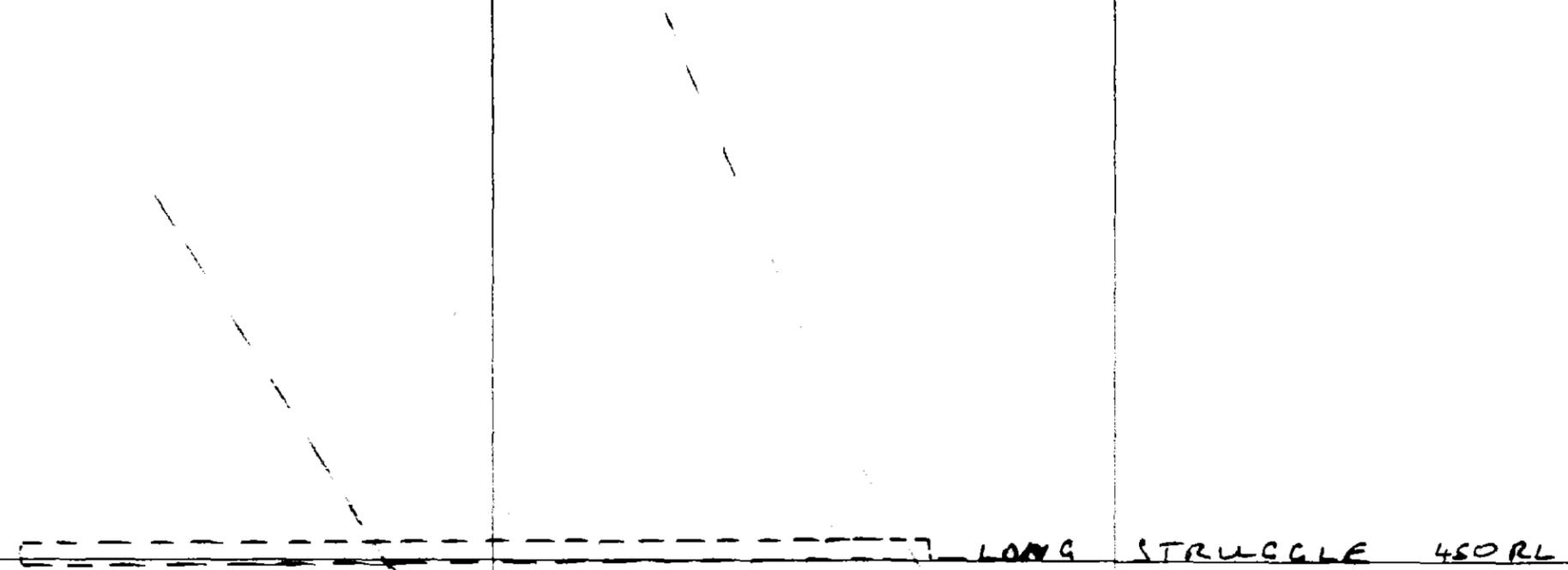
A 50980

180022

500mRL

450mRL

400mRL



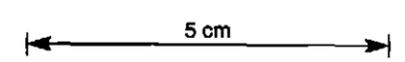
CAXTON 440RL

51.4m

1.6g/t

1.5g/t

1.6g/t



567350mE

DRAWN	GI	MANCALA PTY. LTD.	
TRACED		CROSS SECTION LSM4 LONG STRUGGLE MINE ALBERTON	DRAWING No.
APPROVED			
		SCALE 1:500	DATE 25-5-94
		REVISION	SHEET

180072

A 50880

500m RL

LONG STRUGGLE 480 RL

LONG STRUGGLE 450 RL

450m RL

CAXTON 440 RL

400m RL

roof 68.8m

right

5 cm

567350mE

DRAWN	GI	MANCALA PTY. LTD.	
TRACED		CROSS SECTION LSM5 LONG STRUGGLE MINE ALBERTON	DRAWING No.
APPROVED			
		SCALE 1:500	DATE 25.5.94
		REVISION	SHEET

A 5000

100028

LONG STRUGGLE & CAYTON
SECTION (ANG 236°)
1:500

RL
m
-500

□ RL 495m

□ RL ~ 480m

-475

-35° -45° RL ~ 470m

WILSON REEF

□ RL ~ 450

-450

□ RL ~ 440m

-420

RL Portal $\frac{1232'}{3} = 375.5m$.

Assuming rise of 1:100 of adit.

-400

RL ~ 385m

55°

71°

150

172.5

200

220

225

240

195

200

220

230

240

250

43°

Scale: 1:500

5cm

-375

-350

180075

MVM1
280°(mag)
55.5m

36.4-42.3m: 2.0g/t
23 0.15m
26.1 0.3m
28.6 0.4m
31.1 0.5m
33.6 0.7m
36.1 0.9m
38.6 1.1m
41.1 1.3m
43.6 1.5m
46.1 1.7m
48.6 1.9m
51.1 2.1m
53.6 2.3m
56.1 2.5m
58.6 2.7m
61.1 2.9m
63.6 3.1m
66.1 3.3m
68.6 3.5m
71.1 3.7m
73.6 3.9m
76.1 4.1m
78.6 4.3m
81.1 4.5m
83.6 4.7m
86.1 4.9m
88.6 5.1m
91.1 5.3m
93.6 5.5m
96.1 5.7m
98.6 5.9m
101.1 6.1m
103.6 6.3m
106.1 6.5m
108.6 6.7m
111.1 6.9m
113.6 7.1m
116.1 7.3m
118.6 7.5m
121.1 7.7m
123.6 7.9m
126.1 8.1m
128.6 8.3m
131.1 8.5m
133.6 8.7m
136.1 8.9m
138.6 9.1m
141.1 9.3m
143.6 9.5m
146.1 9.7m
148.6 9.9m
151.1 10.1m
153.6 10.3m
156.1 10.5m
158.6 10.7m
161.1 10.9m
163.6 11.1m
166.1 11.3m
168.6 11.5m
171.1 11.7m
173.6 11.9m
176.1 12.1m
178.6 12.3m
181.1 12.5m
183.6 12.7m
186.1 12.9m
188.6 13.1m
191.1 13.3m
193.6 13.5m
196.1 13.7m
198.6 13.9m
201.1 14.1m
203.6 14.3m
206.1 14.5m
208.6 14.7m
211.1 14.9m
213.6 15.1m
216.1 15.3m
218.6 15.5m
221.1 15.7m
223.6 15.9m
226.1 16.1m
228.6 16.3m
231.1 16.5m
233.6 16.7m
236.1 16.9m
238.6 17.1m
241.1 17.3m
243.6 17.5m
246.1 17.7m
248.6 17.9m
251.1 18.1m
253.6 18.3m
256.1 18.5m
258.6 18.7m
261.1 18.9m
263.6 19.1m
266.1 19.3m
268.6 19.5m
271.1 19.7m
273.6 19.9m
276.1 20.1m
278.6 20.3m
281.1 20.5m
283.6 20.7m
286.1 20.9m
288.6 21.1m
291.1 21.3m
293.6 21.5m
296.1 21.7m
298.6 21.9m
301.1 22.1m
303.6 22.3m
306.1 22.5m
308.6 22.7m
311.1 22.9m
313.6 23.1m
316.1 23.3m
318.6 23.5m
321.1 23.7m
323.6 23.9m
326.1 24.1m
328.6 24.3m
331.1 24.5m
333.6 24.7m
336.1 24.9m
338.6 25.1m
341.1 25.3m
343.6 25.5m
346.1 25.7m
348.6 25.9m
351.1 26.1m
353.6 26.3m
356.1 26.5m
358.6 26.7m
361.1 26.9m
363.6 27.1m
366.1 27.3m
368.6 27.5m
371.1 27.7m
373.6 27.9m
376.1 28.1m
378.6 28.3m
381.1 28.5m
383.6 28.7m
386.1 28.9m
388.6 29.1m
391.1 29.3m
393.6 29.5m
396.1 29.7m
398.6 29.9m
401.1 30.1m
403.6 30.3m
406.1 30.5m
408.6 30.7m
411.1 30.9m
413.6 31.1m
416.1 31.3m
418.6 31.5m
421.1 31.7m
423.6 31.9m
426.1 32.1m
428.6 32.3m
431.1 32.5m
433.6 32.7m
436.1 32.9m
438.6 33.1m
441.1 33.3m
443.6 33.5m
446.1 33.7m
448.6 33.9m
451.1 34.1m
453.6 34.3m
456.1 34.5m
458.6 34.7m
461.1 34.9m
463.6 35.1m
466.1 35.3m
468.6 35.5m
471.1 35.7m
473.6 35.9m
476.1 36.1m
478.6 36.3m
481.1 36.5m
483.6 36.7m
486.1 36.9m
488.6 37.1m
491.1 37.3m
493.6 37.5m
496.1 37.7m
498.6 37.9m
501.1 38.1m
503.6 38.3m
506.1 38.5m
508.6 38.7m
511.1 38.9m
513.6 39.1m
516.1 39.3m
518.6 39.5m
521.1 39.7m
523.6 39.9m
526.1 40.1m
528.6 40.3m
531.1 40.5m
533.6 40.7m
536.1 40.9m
538.6 41.1m
541.1 41.3m
543.6 41.5m
546.1 41.7m
548.6 41.9m
551.1 42.1m
553.6 42.3m
556.1 42.5m
558.6 42.7m
561.1 42.9m
563.6 43.1m
566.1 43.3m
568.6 43.5m
571.1 43.7m
573.6 43.9m
576.1 44.1m
578.6 44.3m
581.1 44.5m
583.6 44.7m
586.1 44.9m
588.6 45.1m
591.1 45.3m
593.6 45.5m
596.1 45.7m
598.6 45.9m
601.1 46.1m
603.6 46.3m
606.1 46.5m
608.6 46.7m
611.1 46.9m
613.6 47.1m
616.1 47.3m
618.6 47.5m
621.1 47.7m
623.6 47.9m
626.1 48.1m
628.6 48.3m
631.1 48.5m
633.6 48.7m
636.1 48.9m
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641.1 49.3m
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