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## PROPOSED

### EXPLORATION IN EL 23/92, MLs

### 44-46M/88 AND ATP 1/93

**MICROFILMED**  
FICHE No. 013333-34

MINES		
FILE REF.		
- 5 OCT 1994		
DOC. REF.		
OFFICE	FOR ACTION	FOR INFO
SEE	FOLIOS	
EL23/92	FOLIO	055-57
44M/88	F.31	32
45M/88	F.24	25
46M/88	F.24	25
ATP 1/93	F.14	15

G.D. Iliff

Senior Geologist

5<sup>th</sup> August 1994

AMG REFERENCE POINTS ADDED

94-3635

Offices in N.S.W., Tasmania & Queensland

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**SUMMARY**

The potential of ten separate areas is discussed. Work, mainly diamond drilling, is proposed for each area, totalling about 2,200m and expected to take four to five months.

The total cost of all the drilling proposed, if done by contractor, would be about \$156,000. If Mancala could do the drilling itself, the cost would be about \$119,000.

## 1. REVIEW OF TARGETS

The potential value to Mancala of such targets as equivalents to Ringarooma United, Mt Victoria and Long Struggle must be questioned. The Alberton and Dan's Rivulet mines to date have all been very small, family affairs, albeit numerous and rich in grade. But chasing them with completely new workings like those at the lower levels of each of these mines would require development that seems out of proportion to the potential gains. It appears, in our limited experience, that such reefs become very thin and ore shoots run out by the depths of the lowest levels of some of these mines. For discussion in this regard, see the report entitled Alberton Mining Leases, 44M/88, 45M/88 and 46M/88, Diamond Drilling in 1994 (Iliff 1994).

If new reefs as rich, averaging an ounce a ton, can be found close to the surface, requiring minimal development to exploit, they would bring relatively quick, short term rewards, and a cash flow to enable exploration for larger, longer term propositions.

It can be argued, on the strength of one case, that each of these small mines has the potential to have a Golden Gate extending 600m in several shoots beneath it. But, in view of the Golden Gate mineralisation being reportedly hosted in a wide shear zone, the potential for the Golden Gate type of orebody must lie in structures much larger than these little Alberton-type reefs occupy, if for no other reason than to provide space to fit larger reefs.

The small reefs are undoubtedly parts or branches of a much larger system. The question must be asked, how did they all get there? Arguably, they must all originate from a feeder system. They could be interpreted as the equivalent of capillaries in a blood system; the final, fine outer end of the system. Mancala's long range targets should be the

equivalent of the main arteries, the 'aortae' of the system, of which there should be at least one at each of the concentrations of reefs, such as that of the Alberton Field and, on apparently a lesser scale, at Dan's Rivulet. The Golden Gate itself could be the 'aorta' of the Mathinna Field.

If this is the case, we should examine the geological setting and structural control of the Golden Gate mineralisation and look for similar situations.

## 2. THE GOLDEN GATE MODEL

The Golden Gate mineralisation is in the form of six major subparallel quartz veins striking north to north west (Figure 5, from Taheri & Findlay 1992). They are associated with a shear zone up to 12m wide, locally known as the 'main slide' (Figure 10), which trends  $327^\circ$  and dips  $70^\circ$  to the south west, though the auriferous veins occur mainly outside the shear zone, and the shear apparently terminates the mineralisation to the south. This structure is parallel to the regional cleavage (Figure 10). The shear has not been positively identified past the confines of the mine (Threader 1987), though it has been postulated by Keele (1994) to continue well outside the Mathinna Goldfield, as shown in Figures 10 and 11 (from Keele et al 1994).

The mine lies in a belt of intensely folded and cleaved Mathinna Beds up to 500m wide. In diamond drilling of two holes across the Dan's Rivulet (Figure 8), it was found that the shearing was confined to a 'lutite' formation (Threader 1987). Threader suggested the alignment of Dan's Rivulet valley could be due to a combination of the lutite formation and the shear structure, with the presence of the lutite determining the presence of the shear (Threader 1987). It is my contention that the continuity of the line of the Dan's Rivulet in the Dorset River Valley indicates a much more significant structure than one which is solely controlled in its position by lithology. The length of this structure is indicated by Threader (1987) as 80km (see Figure 12, from Keele et al 1994). It is terminated at the southern end by a granite and the northern end vanishes under the Quaternary sediments of Anderson's Bay. This is surely not simply a lithologically controlled structure. It is more likely to be the other way round, with the structure being older than the sediments and exercising some control on their deposition.

Post depositional movement of the structure would have

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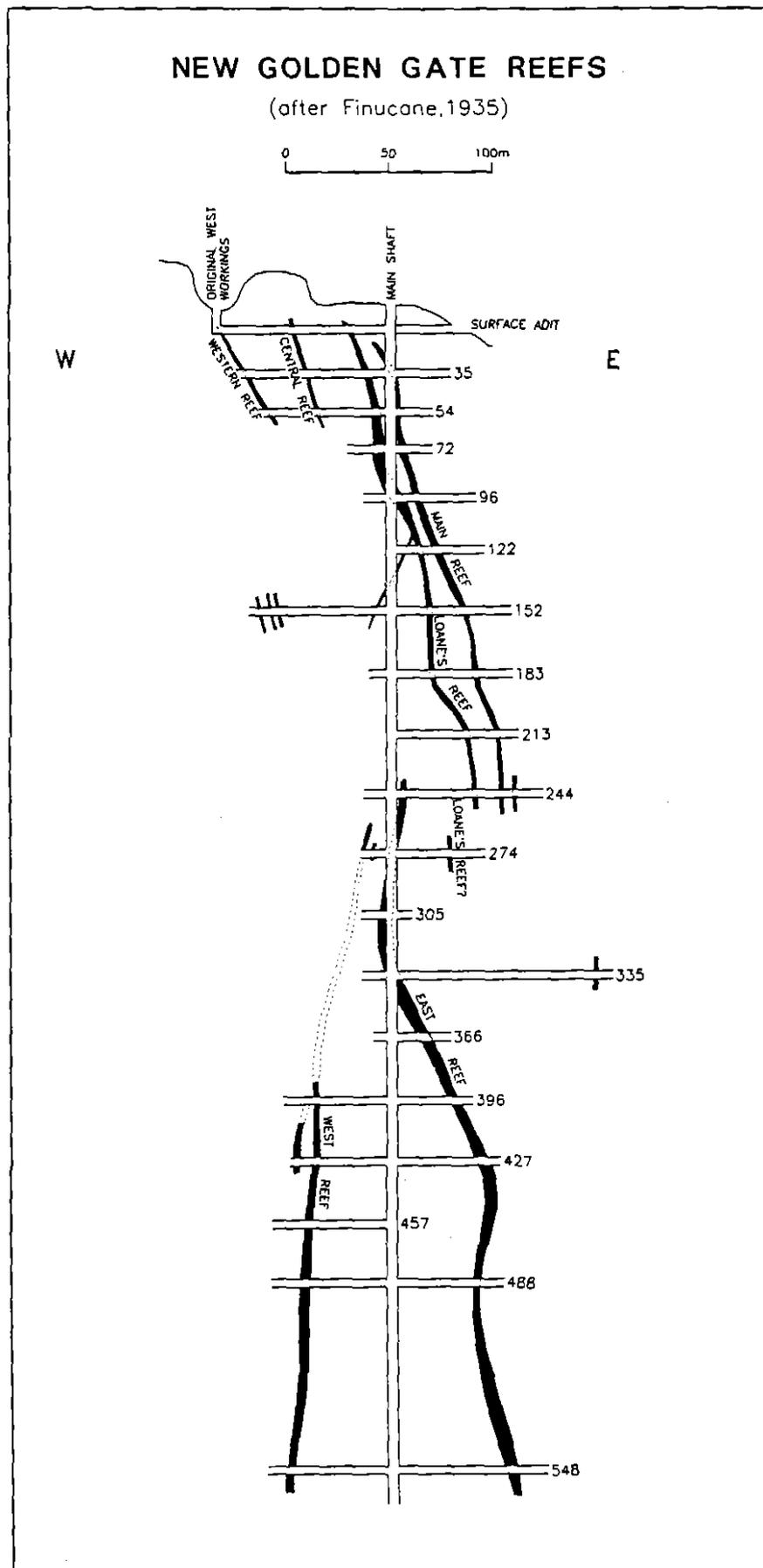


Figure 5

E-W cross section, showing the main reefs at the New Golden Gate Mine, Mathinna Goldfield

caused the shearing and deformation of the sediments, as seen in the broad nor-nor-westerly trending shear zone (about 200m wide) exposed on the Mt Victoria Road, which traverses the saddle between the Dorset River valley and the Dan's Rivulet valley. A structure of this size would be quite deep seated, in terms of several kilometres. It has been suggested (Taheri and Findlay 1992) that the concentrations of gold mineralisation at the Alberton, Dan's Rivulet and Mathinna goldfields are there because of jogs in the shear zone (Figure 9).

Fluids moving within such a structure would have been hydrothermal. Hydrothermal solutions can be generated by various agents:-

A. By heat sources, such as intruding granite (see Figure 12), which cause mobility of metals, including gold, and silica.

B. Fluids heated solely by metamorphic pressure being the transporting agent is the process favoured by Taheri (1992), as a result of fluid inclusion work.

C. A similar, but more localised process, occurs in fault movements. In studies of movement of modern active faults, such as the San Andreas Fault, it has been recognised the pressure in movement of the fault causes release of water from the fault wall rocks, and this water is typically hydrothermal: very hot, and it dissolves silica and metals in the adjacent rocks, including at depths of several kilometres. The faults are also conduits for these fluids. The fluids tend to deposit the silica (and other rock-forming minerals, such as carbonates) and metals in concentrations where physical conditions, such as traps and voids, combine with changes in chemical conditions, such as change in pH (C. Lutherborrow, pers. comm.).

Threader (1967) was of the opinion that gold

mineralisation is related to shear zones rather than the folding and emplacement of granitoid bodies, in agreement with Taheri and Findlay (1992).

A large shear structure thus provides all the ingredients for deposition of vein-type concentrations of metals: the hot water initially; the conduits for the water movement; and the cavities for deposition, often large enough to accommodate big reefs, in both lateral and vertical extent.

The contention here is that the Dorset River and Dan's Rivulet valleys manifest such a structure.

### **3. TARGET SPECIFICATIONS.**

We should be looking for a combination of the following:-

- a) Known gold mineralisation: old gold mines.
- b) A major shear zone: eg the Dorset River/Dan's Rivulet shear zone.
- c) Reefs within and generally parallel to the major shear.

#### 4. SPECIFIC TARGETS

Targets with the specifications above, in being related to and parallel to the Dorset River/Dan's Rivulet shear zone, grouped by area, are:-

##### 4.1 Alberton

See the extract of the Alberton 1:50,00 series geology sheet, enlarged to 1:25,000, as Figure 1.

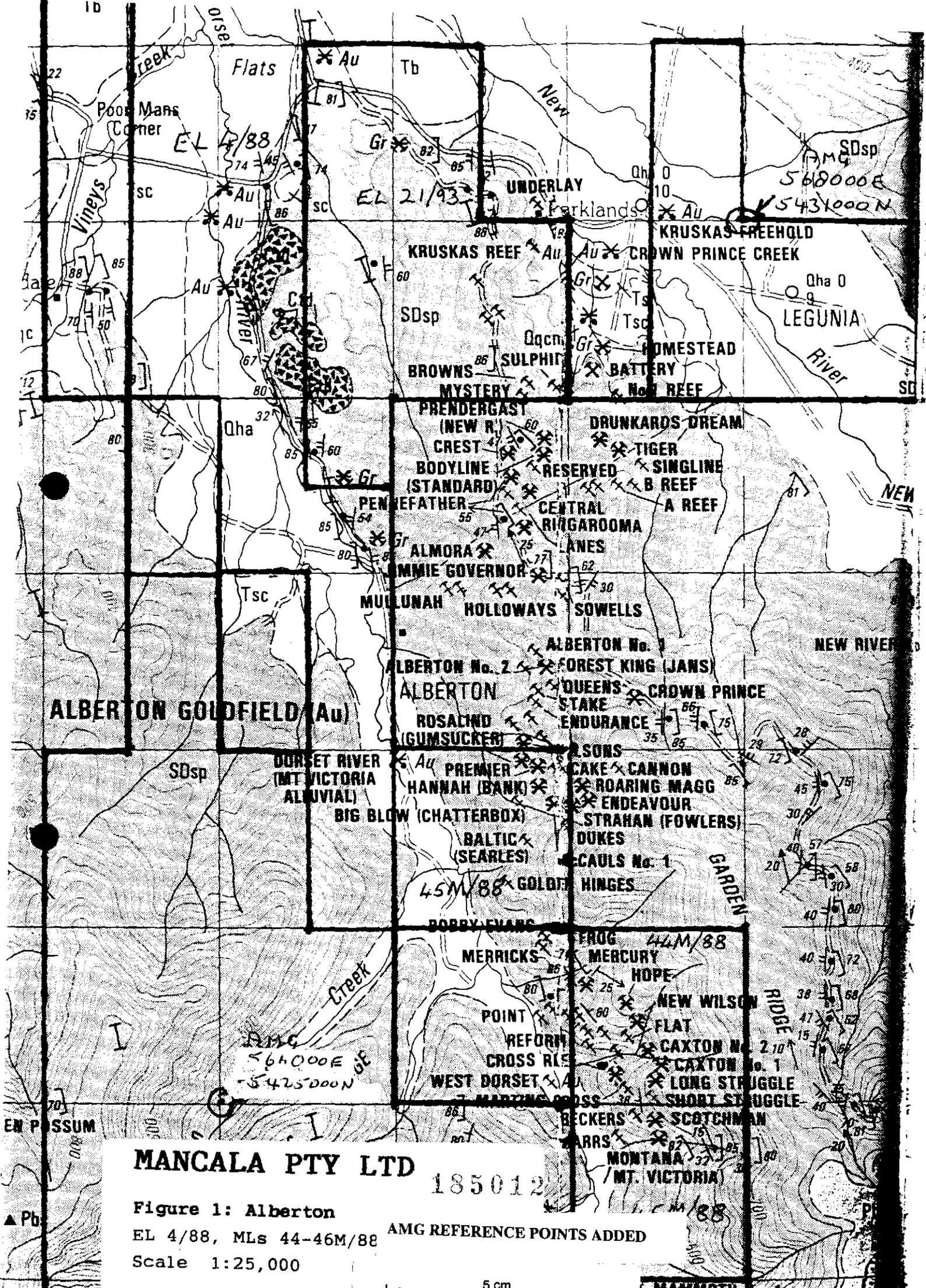
##### A. Mines/shows:

- Point (EL 4/88)
- Dark Horse (EL 4/88)
- Marrs (46M/88)
- South Star (EL 23/92)
- McCaul's Little Show (El 23/92)
- Everett's (EL 23/92)
- Farrell's (EL 23/92)

The last four are at the southern end of the Alberton Field, where the Dorset River Valley terminates. This is a logical position for the discovery of such shows, because the shear zone is exposed above the alluvial of the river flood plane and outcrop of it can be found.

##### B. Indications by alluvial deposits:

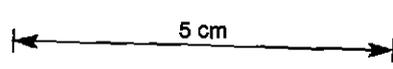
Sites of alluvial gold deposits could be clues to mineralisation of the shear beneath the river flood plane. This is on the supposition that the position of the river in the first place is because it has exploited the relative weakness of the rocks in the shear zone. While the river has cut itself into the underlying rocks, the rock has been broken down and washed down river, but the gold, being much more dense, has stayed fairly well in place, more as eluvial than



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Figure 1: Alberton  
 EL 4/88, MLs 44-46M/88 AMG REFERENCE POINTS ADDED  
 Scale 1:25,000



MAMMOTH No. 1  
 MAMMOTH No. 2

alluvial deposits. 'Alluvial' deposits exploited in the Dorset River valley were at the following positions:-

- 50-70m south of the New River Road bridge
- 250m south of this bridge
- 650m south of the bridge
- West Dorset Alluvial, opposite Long Struggle
- Dorset River Alluvial, opposite Ringarooma United

The first four of these are in EL 4/88, held by V. Threader and Associates and Mineral Banks. The fifth is just within the western boundary of ML 45M/88. The deposit by the bridge was described, "as if it dropped from the sky, so separate it was from any other occurrence."<sup>1</sup> To me, this suggests not a meteoric origin, but that the deposit is sitting on top of an ore shoot, which happens to be right where one could expect the major shear. This seems an equal likelihood for each of the other alluvial deposits on the Dorset River. If the alluvial are indeed above the major shear, over in situ deposits, these deposits should have depth and lateral potential, in keeping with the magnitude of the shear.

As targets, these are long shots, in that they are not aimed at established hard rock deposits, but are based on the assumption the 'alluvial' deposits are in reality eluvial deposits on top of ore shoots within the main shear, with the gold moving only minimally down stream, if at all. But in being long shots, they also have potential for discovery of major mineralisation.

The last site listed is chosen for testing over the others of this ilk because it occurs within ground Mancala will hold in its own right when the option agreement with Tas Tiger is expedited.

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<sup>1</sup> Ringarooma: the First Hundred Years.

Those targets in EL 4/88 will require prior agreement with Threader and Mineral Banks before Mancala can drill them. Threader's interest, he maintains, is solely in the alluvial. An agreement with him, he insists, would embody careful aircore or reverse circulation drilling of the overburden, as precollar, to ensure accurate sampling of the alluvial. It would also require careful demarcation to protect Mancala's control of the hard rock, in situ deposit, should this line of exploration prove a success.

Further investigation of the four Mines Department holes, drilled at Alberton in 1967 to 1970 (Figures 2 & 3), with this theory in mind, failed to find a definitive intersection of a major shear zone. Hole No.1 intersected the porphyry seen at the first encountered collapse in Ringarooma United. This was preceded in the hole by a zone described by Threader, who designed and logged it, as 'mylonitised phyllite'. Mylonite is a rock type formed when considerable movement has occurred on a fault/thrust plane, where the rock has been pulverised and reconstituted as a very fine, generally siliceous, often banded (parallel to the shear) rock. That described as 'mylonitised phyllite' by Threader is a zone of quartzitic sandstone beds with bands of black siltstone/shale up to 20cm wide, containing contorted, folded little (<25mm) quartz veins. These I sampled, incidentally. Grades were generally below the level of detection of Aquatic Labs fire assay. Further up the same hole, a 10cm section of an unconsolidated gravel breccia of siltstone, the pug of a fault, was described by Threader as 'a mylonite zone'. This could be a relatively recent fault, because it was not invaded by silica-bearing solution, which would have made it a typical Alberton reef, but is a loose pug/breccia. It might be related to the shear I would like to have seen in the core, as part of a phase of movement later than the mineralisation.

Hole No. 1 ended with the rods jammed in 'mud' at 295 to 296.6m. This mud I interpreted as fault pug, but in discussion

about it, Ralph Bottrill, who examined the 'mud' microscopically, said he thought it could be weathered, decomposed lamprophyre; the same that caused the collapse in the Long Adit of Ringarooma United, against the porphyry intrusive found there. One of these two intrusives evidently cuts across the other between the Long Adit and the end of MD No. 1 hole, probably closer to the Long Adit than to the end of the drill hole, judging by the indicated geometry.

The Mines Department No. 2 hole passed through a number of small shears, and two typical Alberton reefs, one 10cm wide, the other 0.5m wide at 158.4-158.5m and 164.3-164.8m respectively. Neither had been sampled, to my astonishment. I sampled both, but they assayed <0.05g/t Au: a disappointment. This hole also failed to show the significant shear I was looking for. Any drilling Mancala does to seek such a shear, therefore, must be collared west of MD No. 2.

I am assuming the main shear is close to vertical, because its manifestation is so straight, and because it appeared so on the Mt Victoria road across the saddle between the Dorset River and Dan's Rivulet valleys (Figure 4).

MD Nos. 3 and 4 appear to have intersected the northern extension of Premier Reef, seen as small shear zones in each of these holes (see the section of the four holes herewith). Neither of the shear intersections appeared mineralised or reef-like.

#### 4.2 South Mt Victoria

The two mines of interest in this area occur south west of Mt Victoria, in EL 23/92, just north of the boundary of EL 1/92 (Figure 4). They are:-

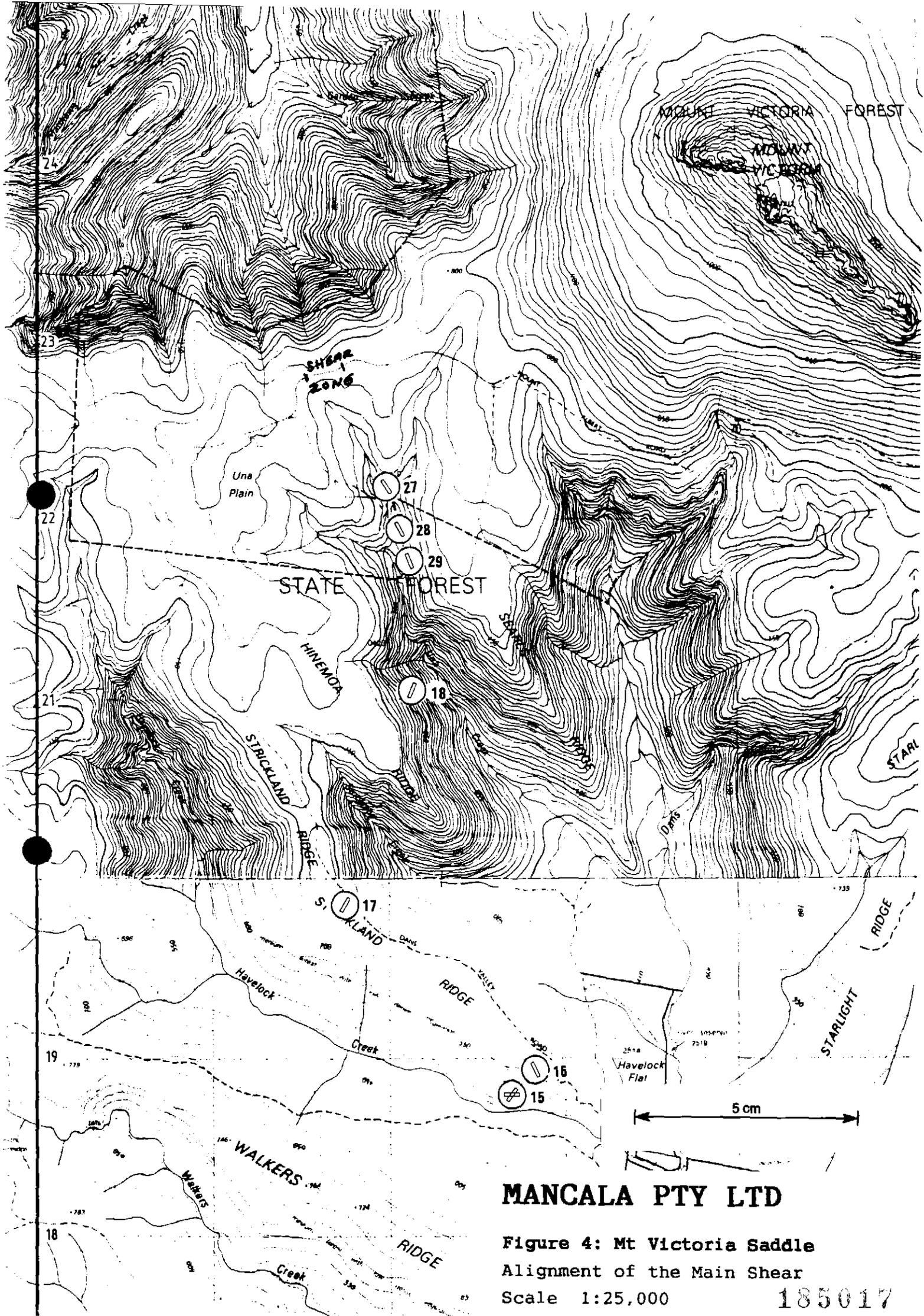
a) Una Mine (Figure 6), where mineralisation is noted in

several reefs in a zone 550m long and 75m wide, within and parallel to the main shear and south of where the shear was observed on the Mt Victoria road. Because it lies within the shear zone, it would seem to have unlimited depth potential, as well as over half a kilometre of known strike length. Recent sampling grades were: <83.5g/t Au in a 30cm vein; samples of a sulphide vein went up to <265g/t Au.

b) Hinemoa Mine (Figure 7) is in a reef defined over about 215m, at an acute angle to and an offshoot of the main shear. Samples have been reported <445g/t Au. The average of the sampling to date (without the 445g/t) is 23.25g/t Au. This makes the potential in situ gold content of the ground delineated by the workings to the level of the short lower adit about 287kg. There is no suggestion this adit is at the lowest extent of the mineralisation, nor that the 230m strike length shown by the pits across the reef, or reefs, is its complete lateral extent.

It would be desirable at a later date to map the confluence of the Hinemoa structure with the main shear zone and to test it with a drill hole, if it is possible to site a rig appropriately in what amounts to a gorge. A discovery in such a location, with the possibility also of being an extension of the Una mineralisation, opens up a potential strike length of 1.5 km. A discovery in such a location would have the great advantage of enabling a start at a lower level of the orebody, for mining upwards 250-300m from an adit at the valley floor level. Exploration for downwards continuity could be done concurrently with mining, by drilling underground at this level.

It is my feeling that this locality (Figure 4) has the best potential in all the ground held by Mancala (or by anyone, for that matter) in Tasmania for the discovery of the next Golden Gate equivalent orebody. Much of it would be mineable without the necessity of a shaft or of pumping water,



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**Figure 4: Mt Victoria Saddle  
Alignment of the Main Shear**

Scale 1:25,000

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as it lies above the level of the valley floor of Dan's Rivulet.

#### 4.3 Warrentinna

The reefs of Warrentinna (Figure 13) are mostly neatly aligned at 015° AMG over a strike length of nearly 5km. A cluster of reefs has been worked, until 1921, to a depth of 85m at Golden Mara, where the depth continuity potential of several reefs makes it the prime target of the Warrentinna Field.

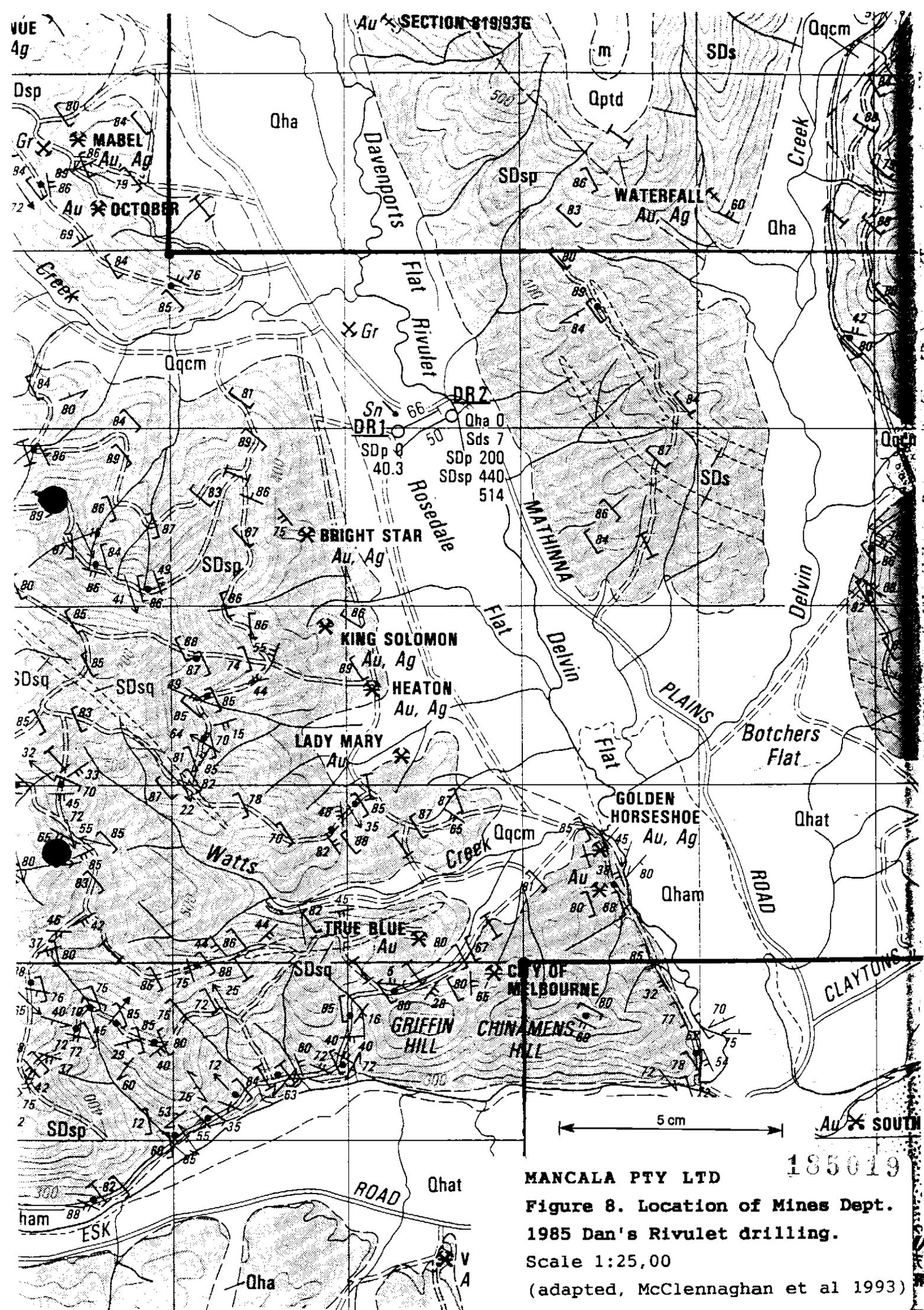
The information to hand suggests the production of Golden Mara was about 4,850 tons at 21.5g/t Au.

#### 4.4 Dan's Rivulet

The reader is referred to the report titled EL 1/92 and O'Briens Mine, Proposed Exploration Programme (Iliff 1994).

In EL 1/92 (Cuttack Mining) is a cluster of nine old mines straddling the Dan's Rivulet valley, around O'Briens on the west side and Starlight on the east side. This juxtaposition across the valley suggests the possibility of a conduit in the shear in the middle of the valley, which is the prime target in this locality for vertically as well as horizontally extensive mineralisation. Apparently, no alluvial workings have been tried in this locality (Threader 1987).

In 1985-86 the Mines Department drilled two holes across the Dan's Rivulet Valley across the AMG northing of 5,413,000N, 4.5km south of O'Briens (Threader 1987). These holes intersected a shear zone. Threader (1987) commented, "Drilling beneath the alluvium between O'Briens mine and the



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**Figure 8. Location of Mines Dept. 1985 Dan's Rivulet drilling.**

**Scale 1:25,00**

**(adapted, McClennaghan et al 1993)**

Carnegie mine would be a suitable site for a follow-up drilling programme because these mines were two of the best lode prospects of the district and the ground between them is therefore more prospective".

O'Briens (of which a lump of vagrant quartz I picked up assayed 133g/t Au and checked at 149g/t) has been drilled recently by Lindsay Newnham for Goldstream Mining NL/Montroyal Mining, with the premise that the ore shoot pitches westwards into the hillside (Figures 15 & 16). This drilling failed to enhance the value of the property. All the drilling to date has been west of the main shaft. One reef intersection of 4.5m true width in the 1954-55 Mines Department hole MD3 at 9.9g/t Au was within the ground encompassed by the workings. This intersection, I suggest, is near the lower western margin of the ore shoot, for the following reason.

If the hypothesis of the main shear being the conduit for the mineralisation is correct, it is more logical that the ore shoot pitches eastwards, towards the main shear, for it came from that direction. The recent drilling was done at the west end of the reef, and I would suggest, passed beneath the shoot. Further drilling of O'Briens should be done east of the workings. Any intersections of a shoot by such drilling should provide clues to guide drilling of the confluence of the O'Briens reef with the main shear, for that is where there should be the best chance of finding depth continuity.

O'Briens is a target that has the advantages of:-

- An evidently rich reef that has been only partly worked.
- It has been recently drilled, with well documented but negative results, showing where not to drill: half the battle!
- Easy access.
- The owner, Cuttack Mining & Exploration NL, wishes to have Mancala drill it, in joint venture.

#### 4.5 Heathorn's Mine

We know very little about Heathorn's, except the bottom of the winze yielded a sample going 5 ounces, and this is not unique of the samples taken at various times in the mine.

The main structure, a curved southeasterly trending shear, vertical or dipping steeply to the northeast, was driven on, 32m in, off the south side of a straight adit at 070° (mag) (Figure 17). A chamber with a shallow winze in it and a short southerly drive on two parallel, steep westerly dipping faults off it, is encountered on the south side of the main drive. It is this winze, full of water, from which the five ounce per ton samples were taken.

Off the east side of this chamber, passing over the top of the southeasterly drive, is a stope of unknown length and height, which evidently emerges at the surface a bit further up the hill from the portal. The stope trends to the northeast, which is significant for the reason stated more than once above, in terms of the expected grade of the ore shoot.

It appears the potential of Heathorn's has barely been touched. Being in the middle of pastures, it is easily accessed, though we would have to advise the owners if we drill there.

## 5. PROPOSED WORK

To test the targets outlined above would require a fairly extensive diamond drilling programme. The targets are ranked in perceived order of merit, tempered with convenience in terms of Mancala's tenure of the ground containing the targets. The best, in my opinion, is first.

It is understood that significant success in any one of these targets will cause diversion of funds from other targets, should any be earmarked for them.

The costs are estimated on the basis of \$66 per metre, which is close to the contract rate for TT46, all up. If we drill the holes ourselves, with a rented or purchased rig, the rate would be in the region of \$50 per metre. Aircore or reverse circulation drilling I have costed at \$40 per metre.

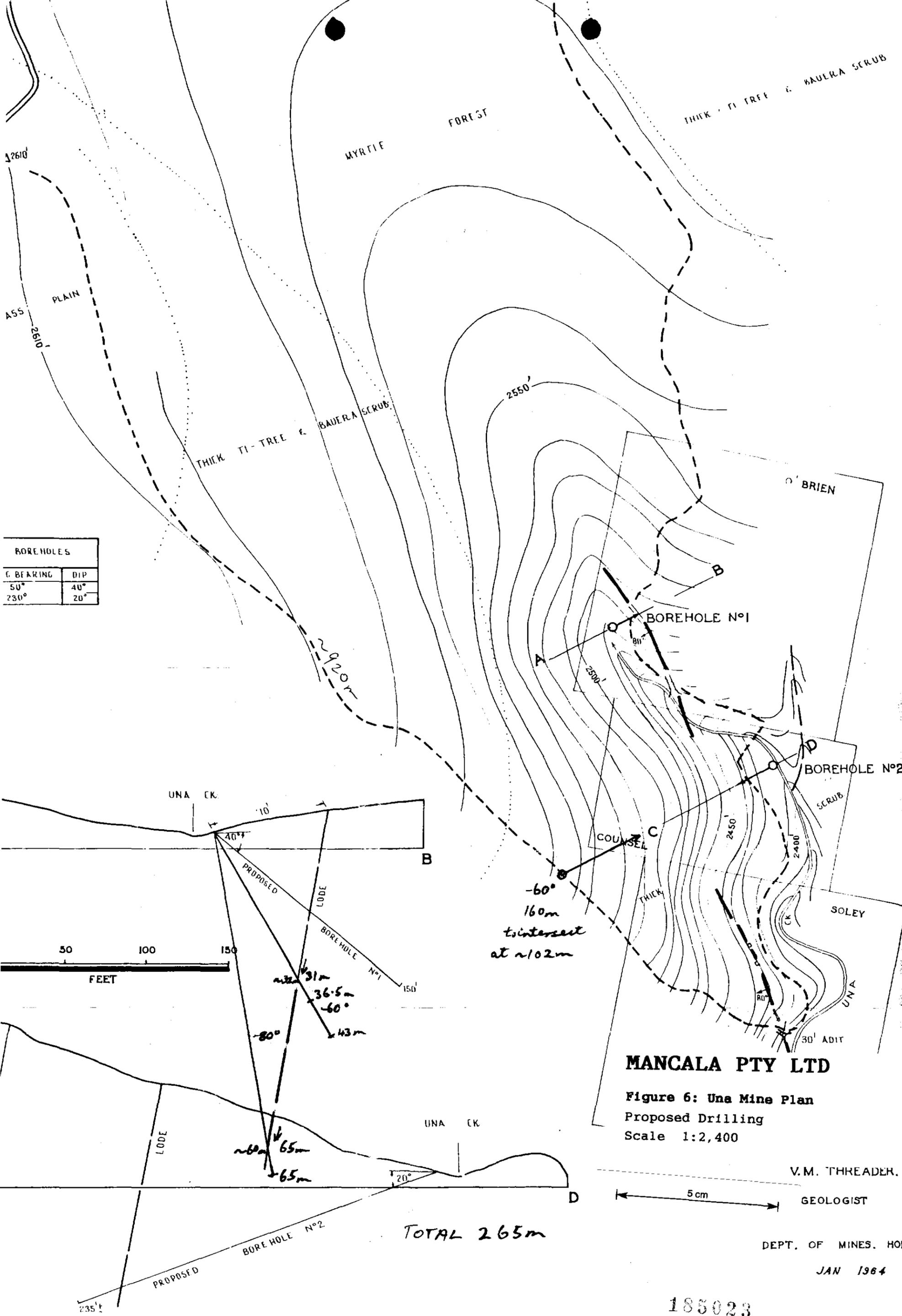
### 5.1 Una Mine

Three holes are proposed to test the Una reef at depths of 31m (40m hole), 60m (65m hole) and 102m (160m hole), totalling 265m at a cost estimated at \$17,700. These holes are proposed for the sections drawn by Threader, 1964, but are more ambitious in the depth to be tested (Figure 6).

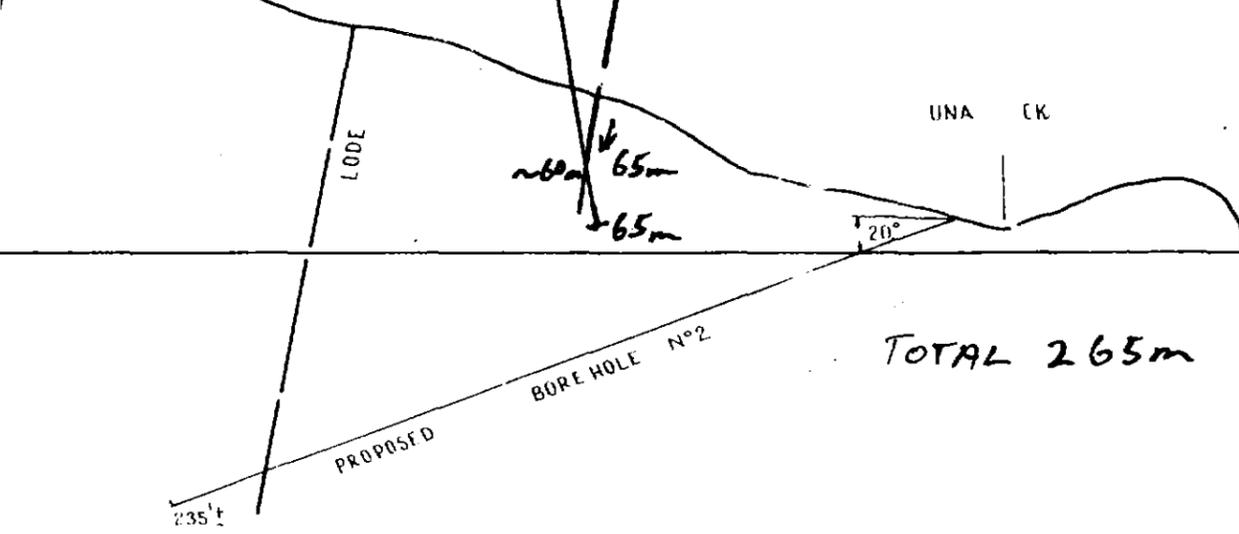
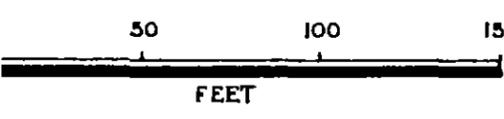
### 5.2 Hinemoa Mine

Access to the Hinemoa will be difficult, as the ground is very steep. Two 50m holes are proposed to test the Hinemoa reef within the confines of the workings, at a cost estimated at \$7,000. It will require ground reconnaissance to determine where the rig can be sited.

While the rig is there and if it is possible to place it



BOREHOLES	
C. BEARING	DIP
50°	40°
230°	20°



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**Figure 6: Una Mine Plan**  
Proposed Drilling  
Scale 1:2,400

V.M. THREADER.

GEOLOGIST

DEPT. OF MINES. HOBART

JAN 1964

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appropriately, I would like to have a 50m hole drilled at the confluence of the projected Hinemoa reef with the main shear in the hope of finding another ore shoot. This would cost about \$3,500. Total drilling cost: \$10,500.

### 5.3 O'Briens Mine

Three holes are proposed, of 50m, 80m and 120m, totalling 250m to test the reef at 30m, 50m and 105m depths to test the suspected easterly pitch of the ore shoot. Cost: \$23,650.

A stream sediment sampling programme and another 200m diamond drilling are proposed (Iliff 1994) for another \$20,350.

The total cost of the proposed programme is \$44,000.

### 5.4 Alberton: Dorset River Alluvial, 45M/88

This working was practically opposite Ron Easterbrook's house. To drill beneath it would require the rig to be sited on the west bank of the river. At least three 50m holes should be drilled at 60° towards Ringarooma United to try to locate the shear (in assumption it is dipping steeply west if it is not vertical). This initial drilling would cost up to \$10,000.

### 5.5 Warrentinna: Golden Mara, ATP 1/93

The lower workings of the Golden Mara are about 85m below the surface. To test 20m or more beneath them will require holes least 120m long. I propose we start with two holes totalling 260m. Cost: \$17,200.

#### 5.6 Dorset River by New River Road bridge, EL 4/88

The depth of the overburden is completely unknown in this area, but it is not, as far as I know, glacial, so it is unlikely to be much deeper than 10m.

I suggest we drill three 50m holes here, with precollar of the alluvial drilled with reverse circulation or aircore.

Cost: \$9,200.

#### 5.7 Heathorns, EL 23/92

Heathorns is a mine with a known in situ gold occurrence, but we have no knowledge of its extent. It is an obvious target that requires some drilling, with at least two 50m holes, for about \$6,600.

#### 5.8 Three other Dorset River sites, EL 4/88

The three sites similar to that in 5.6, above (250m south of the New River Road bridge, 650m south of the bridge and West Dorset Alluvial, opposite Long Struggle), in being past alluvial workings, could be drilled in the same manner as that site, with a combination of aircore, or reverse circulation, with diamond drilling. Cost: \$27,600.

#### 5.9 Long shot little shows

The following small shows aligned parallel to the shear should at least be investigated and sampled, assuming they can be found:-

- Point (EL 4/88)
- Dark Horse (EL 4/88)
- Marrs (46M/88)
- South Star (EL 23/92)

- McCaul's Little Show (El 23/92)
- Everett's (EL 23/92)
- Farrell's (EL 23/92)

#### 5.10 Mt Victoria Saddle

Because of its relative proximity to the Una Mine (Figure 4) and the fact that it is a unique opportunity to sample across the main shear zone, we should systematically sample the outcrop of the shear along the Mt Victoria road with something like a series of channel samples, to see if we can pick any of it as anomalous.

If any of the sampling does prove anomalous, we should drill a fence of holes beneath the anomaly, targeted at 20m, 50m and 80m, totalling about 200m, costing about \$13,200.

## 6. COST, METRES AND TIME

If Mancala drills all these prospects as outlined, the total drilling cost, if done by contractor, would be about \$156,000.

If Mancala could do the drilling itself, the cost would be in the vicinity of \$118,600: about 76% of the cost by contractor.

The programme would be close to 2,200m and would take four to five months.

## REFERENCES

- Iliff, G.D., 1994. EL 1/92 and O'Briens Mine, proposed exploration programme. Unpub. Report, Mancala Pty Ltd.
- Keele, R.A., Taheri, J. and Bottrill, R. S. 1994. Structure and veining in the Devonian-aged Mathinna-Alberton Gold Lineament, northeast Tasmania. NETGOLD Report 1994/06. Mineral Resources Tasmania.
- McClellanaghan, M. P., Everard, J. L., Goscombe, B. D., Findlay, R. H. and Calver, C. R. 1993. Alberton Geological Atlas 1:50,000 Series - Sheet 8415S (40). Department of Mines, Hobart.
- Newnham, L.A. 1992. O'Briens Gold Mine, Mathinna, North-east Tasmania. Report on drilling program completed April-May 1992. Newnham Exploration and Mining Services. Unpub. rep. for Montroyal Mining N.L. 1992.
- Newnham, L.A. 1994. EL 1/92, Mathinna, Tasmania. Results of a core drilling program, O'Briens Mine. Annual Report E.L. 1/92: Mathinna Area, 1994 (unpublished).
- Taheri, J. and Findlay, R. H. 1992. Northeast Goldfields: A summary of the Tower Hill, Mathinna and Dans Rivulet Goldfields. NETGOLD Report 1992/10. Mineral Resources Tasmania, 1994.
- Tasmap, 1982. Derby Sheet, 5644, Tasmap 1:25,000 Series. Mapping Division, Lands Department, Hobart.
- Threader, V. M. 1987. Diamond and churn drilling in the Dans Rivulet valley. Unpublished Report 1987/54, Tasmania Department of Mines.

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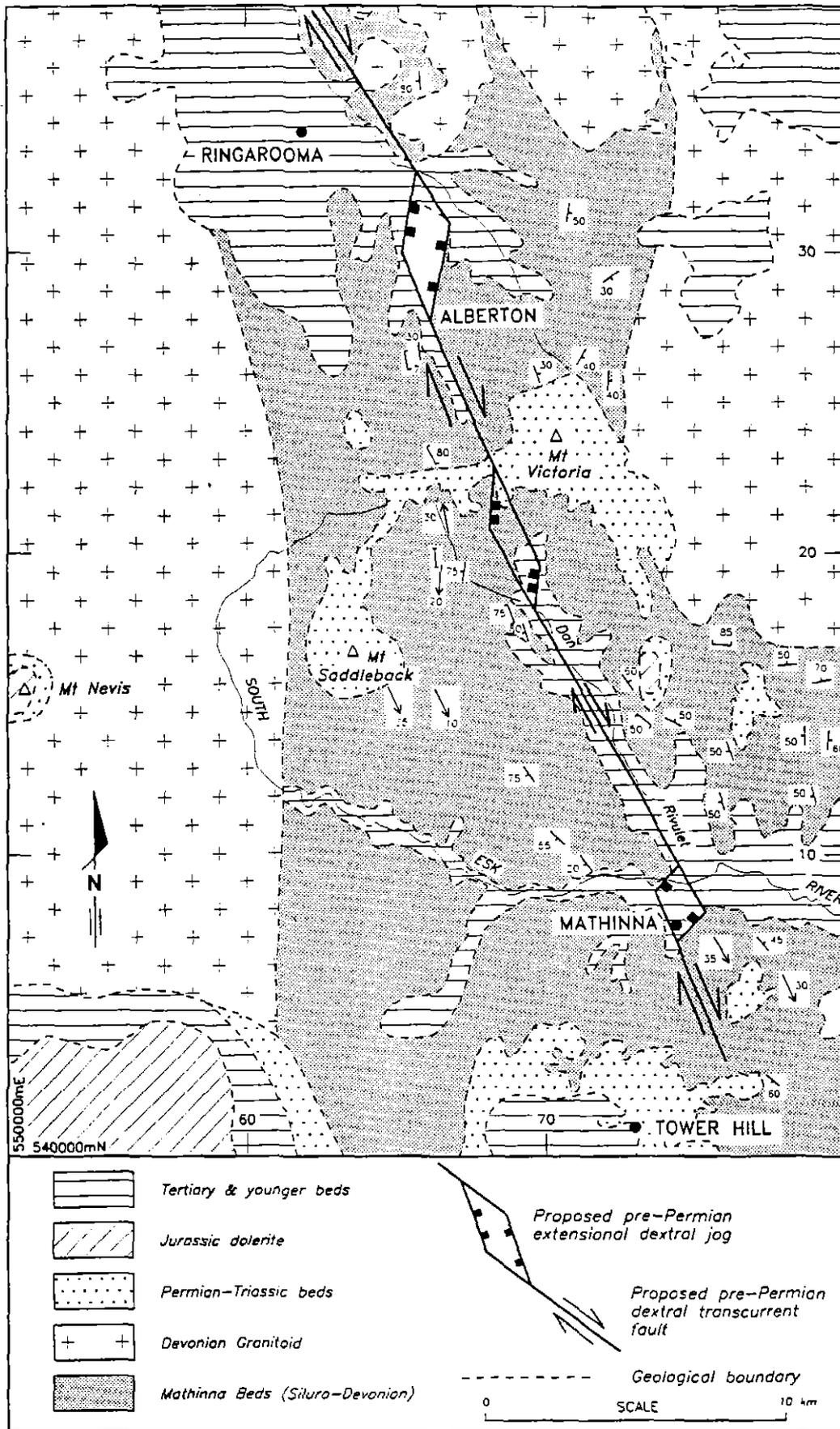


Figure 9

Simplified geology of Tower Hill — Ringarooma area, showing proposed pre-Permian extensional jog and dextral transcurrent fault.

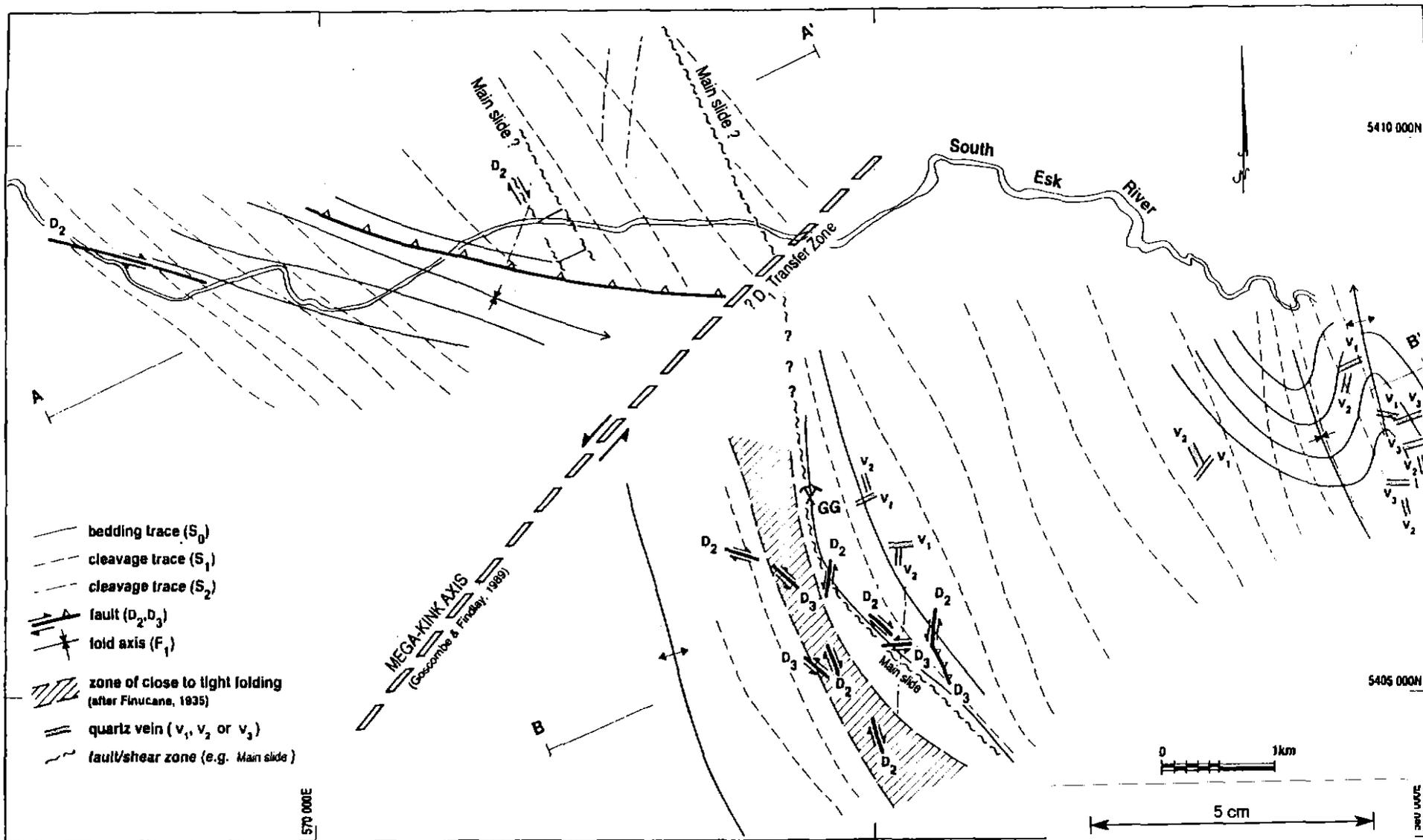


Figure 10. Structural map of the Mathinna mining district. The Mathinna traverse has been divided into a western and eastern section. A lack of correlation between the two sections suggests that a major D1 transfer zone separates a northwestern structural domain from a southeastern domain; the mega-kink zone (Goscombe and Findlay, 1989), which passes through the township, is the most likely site of such a transfer zone. Localities mentioned in the text are marked, as also are the positions of individual structural stations which appear in Appendix 1 at the back of this report. For further explanation, see text.

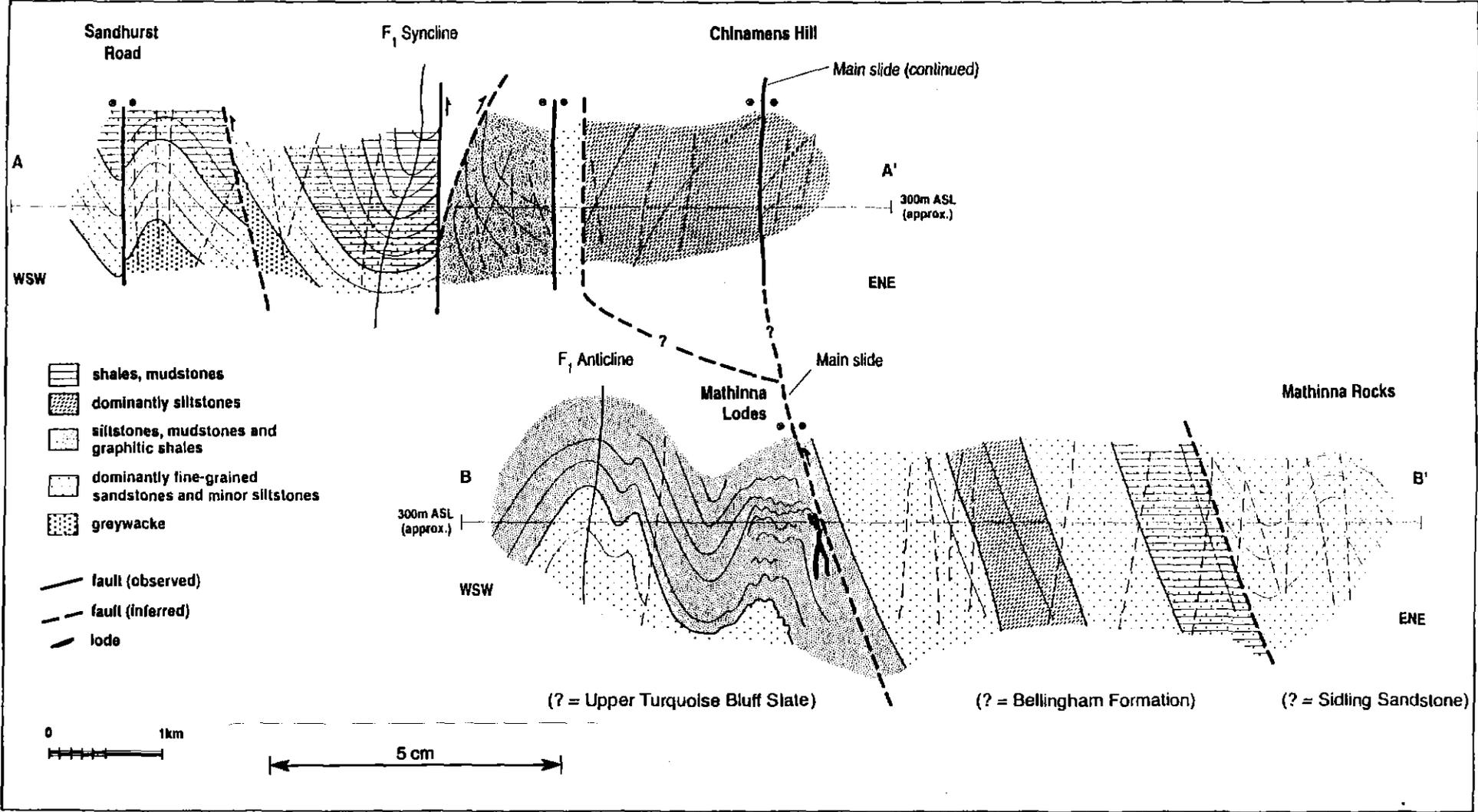
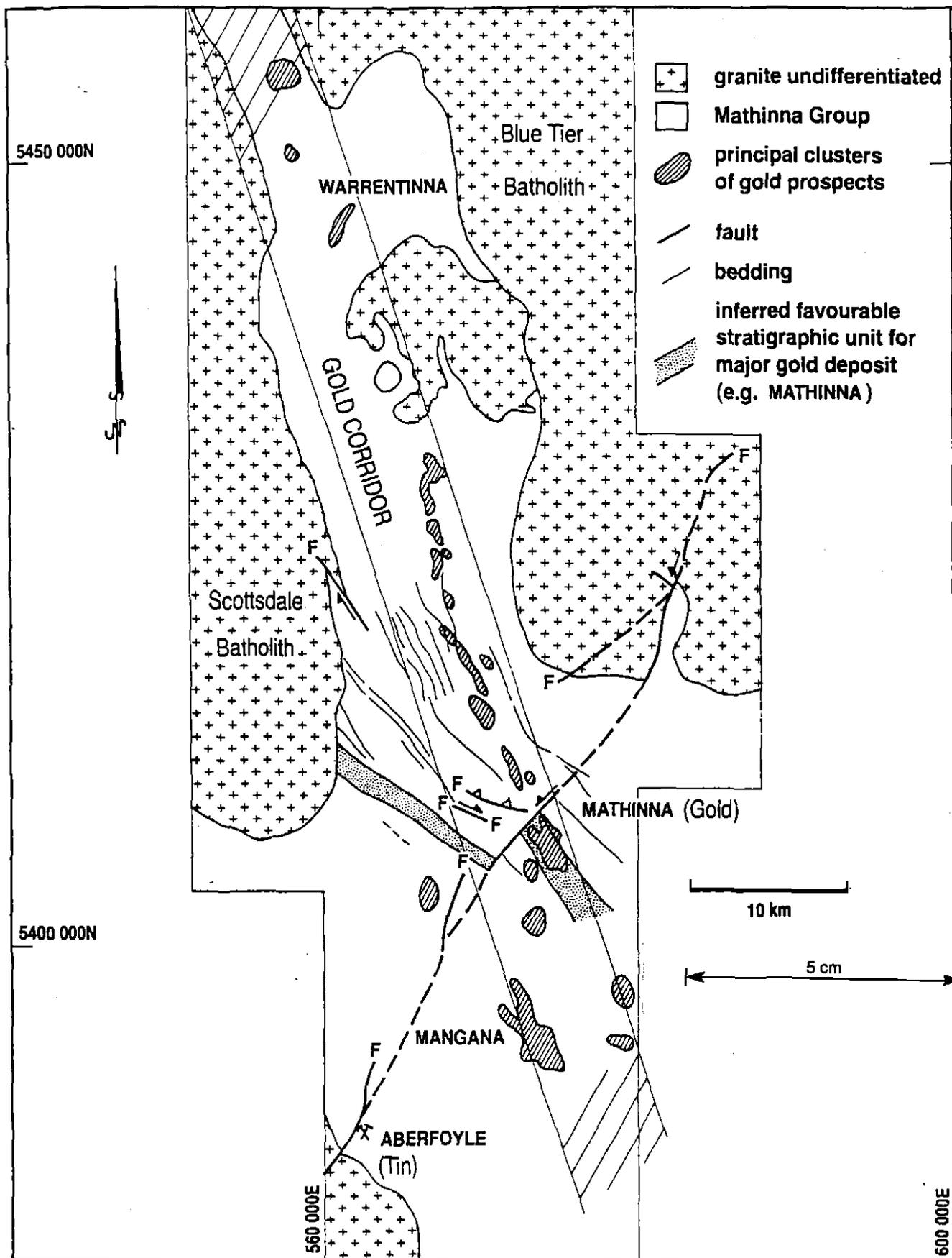
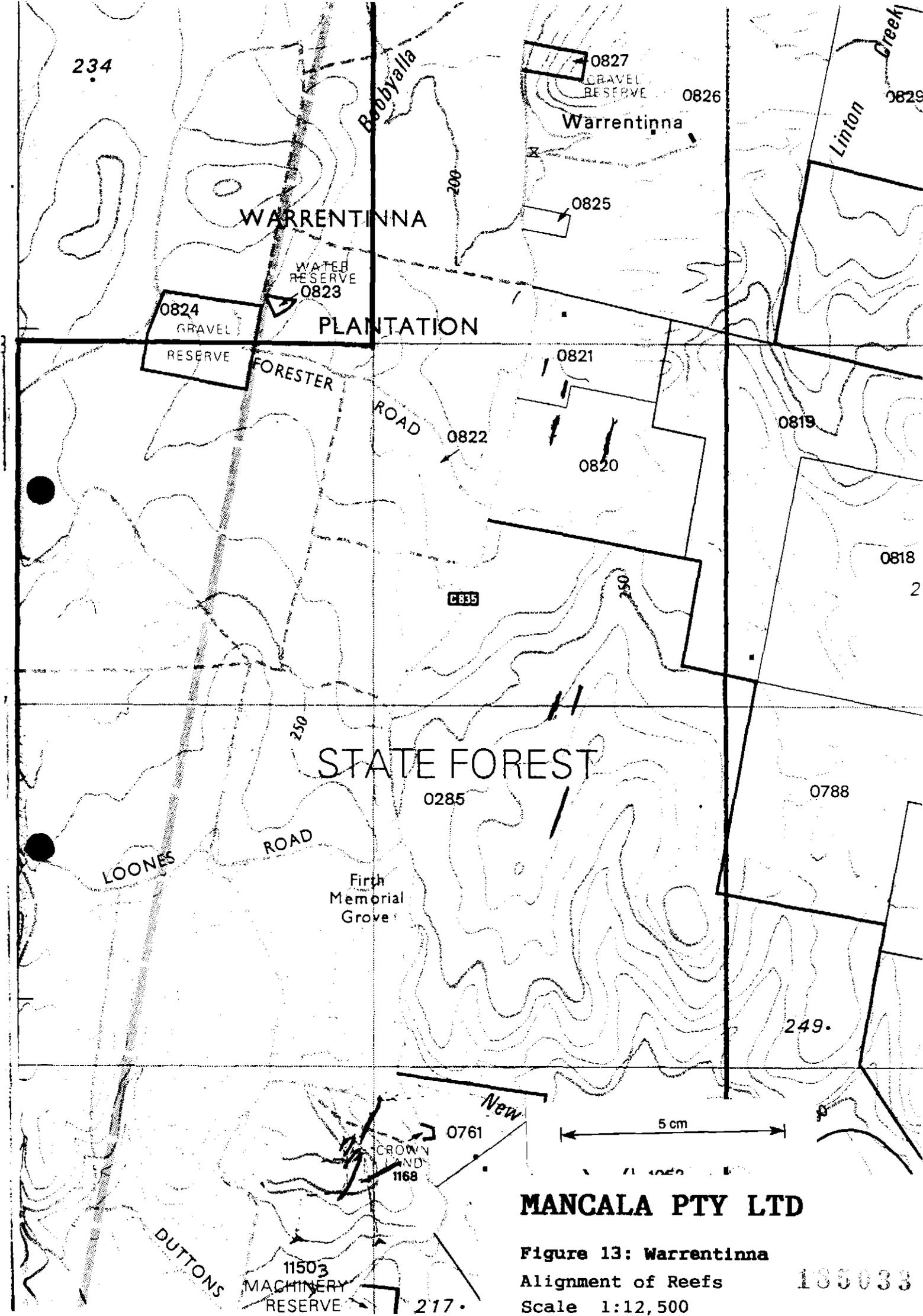


Figure 11. Structural traverse through the Mathinna goldfield. The section line A-A' follows the north bank of the South Esk River as far as the Main Slide, whilst the section line B-B' passes directly through the main mineralised area, including a projected cross-section through the Golden Gate mine. The western end of this section includes data from Finucane (1935).



**Figure 12.** The Mathinna-Alberton Gold Lineament. The 70 by 6 km corridor contains the majority of the gold occurrences in the region. Bedding trends range from being parallel to the lineament to being markedly oblique to it. The main feature of this diagram is the NE-trending transfer fault zone which passes north of Mathinna. It has been extended to show how it appears also to control the position of the major Aberfoyle tin deposit, southwest of Mathinna. Sinistral offsets of about 500-600 m are apparent on this structure in the granites of the Blue Tier Batholith.



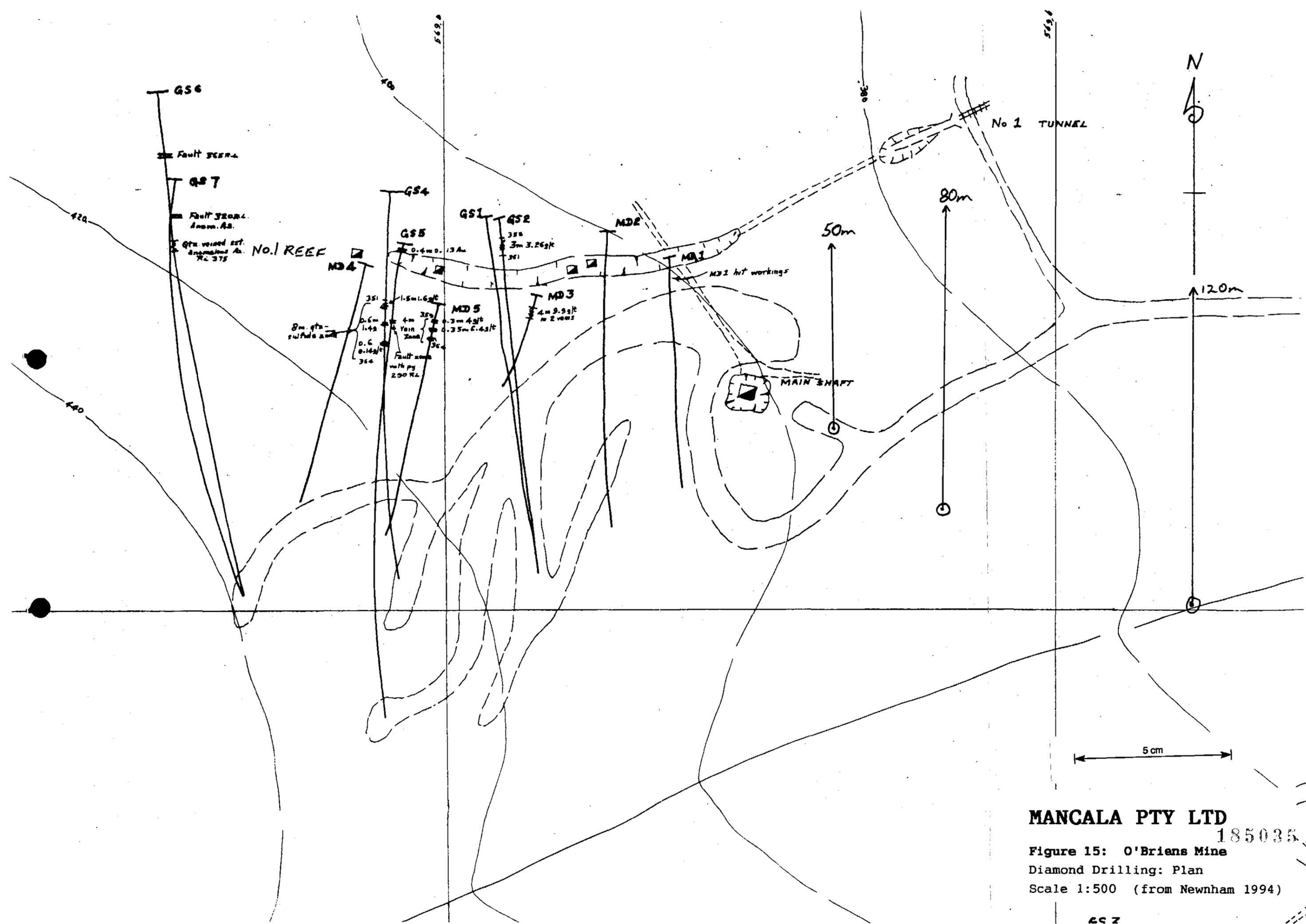


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**Figure 13: Warrentinna**  
**Alignment of Reefs**  
**Scale 1:12,500**

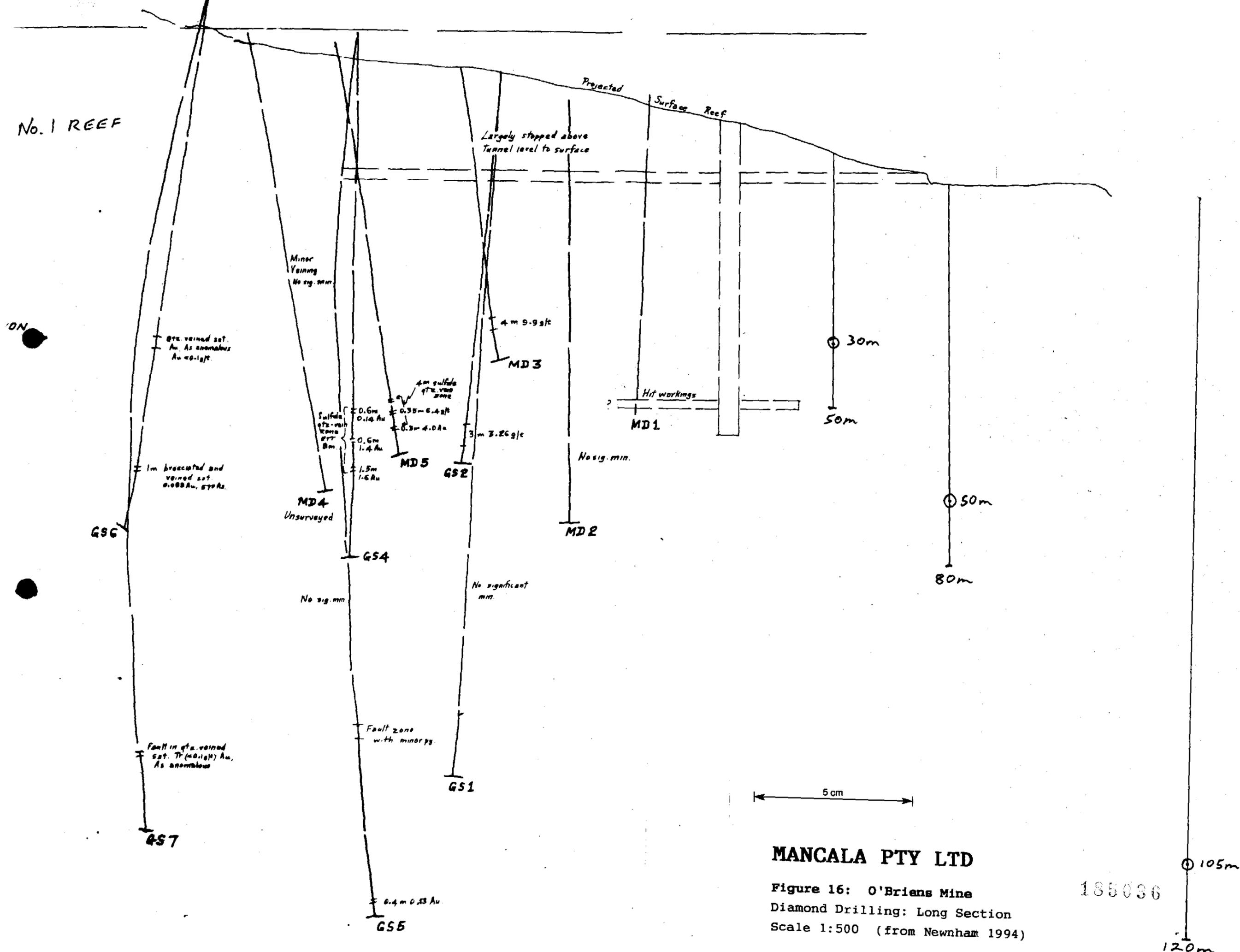
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**Figure 15: O'Briens Mine**  
 Diamond Drilling: Plan  
 Scale 1:500 (from Newnham 1994)

No. 1 REEF



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Figure 16: O'Briens Mine  
Diamond Drilling: Long Section  
Scale 1:500 (from Newnham 1994)

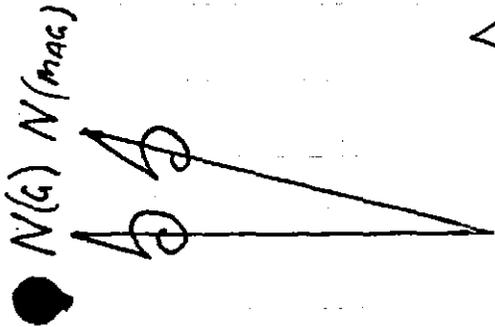
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# HEATHORNS

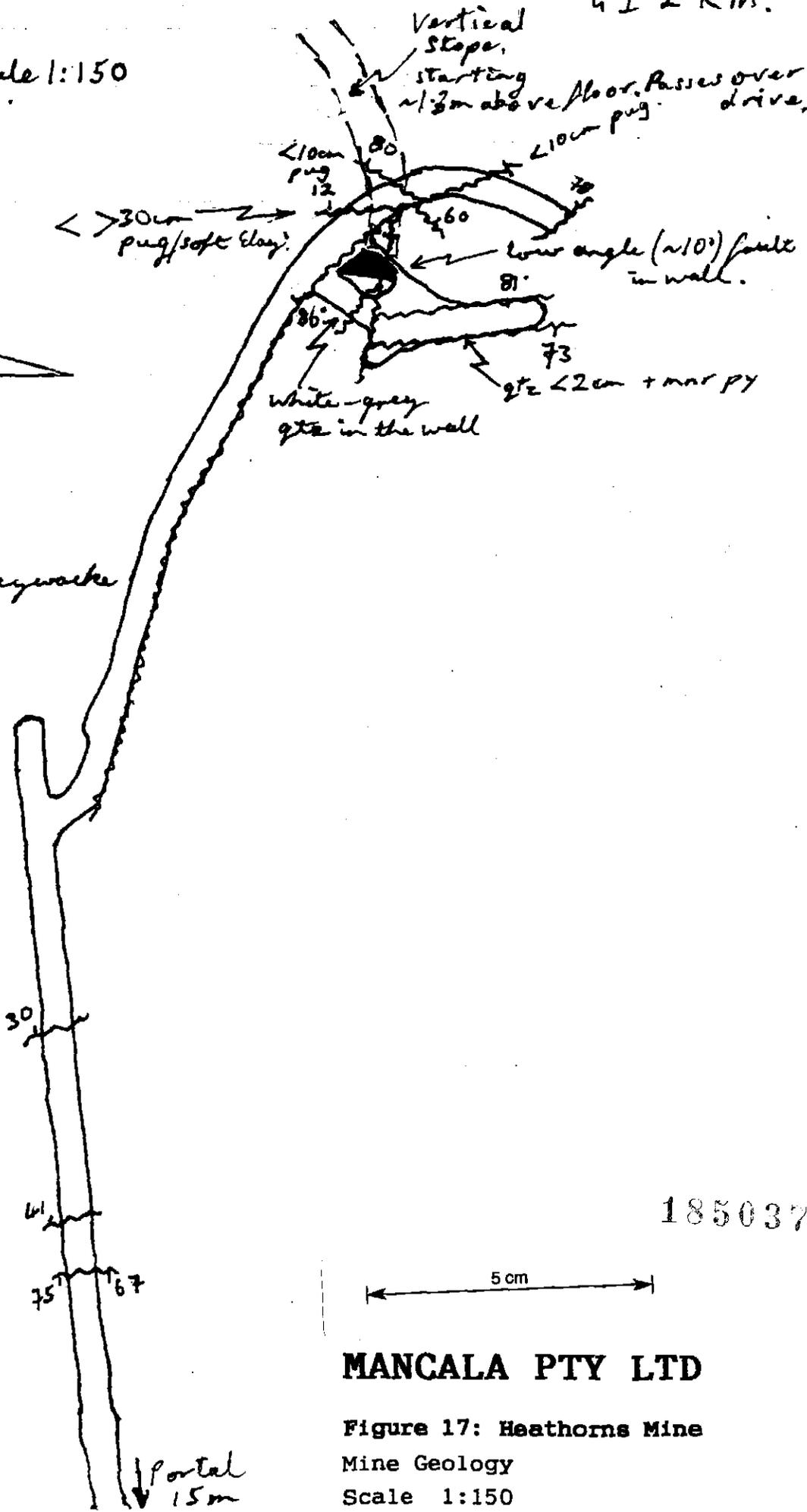
22.2.94

9 I & KM.

Scale 1:150



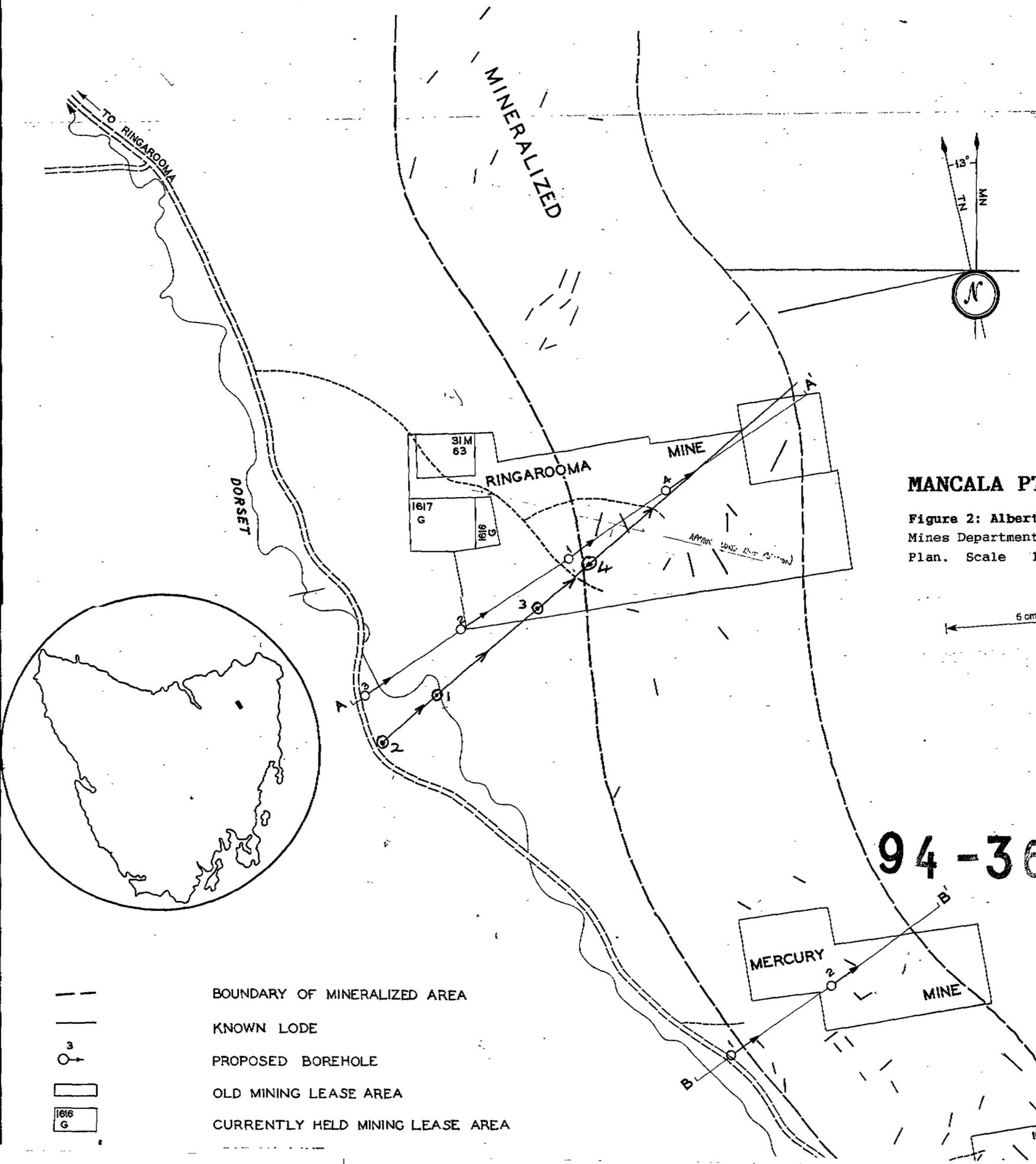
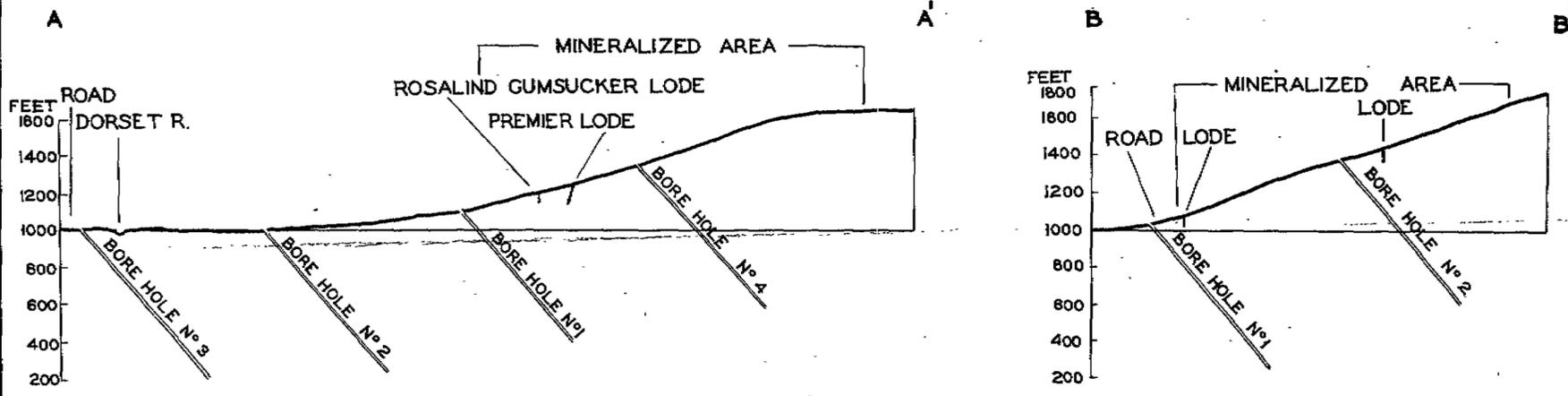
Rock:  
Sandstone/greywacke



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Figure 17: Heathorns Mine  
Mine Geology  
Scale 1:150



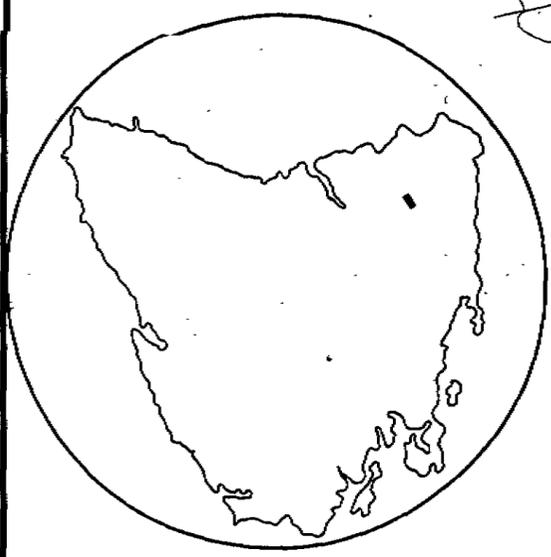
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Figure 2: Alberton  
Mines Department Drilling 1965-68  
Plan. Scale 1"=10 chains

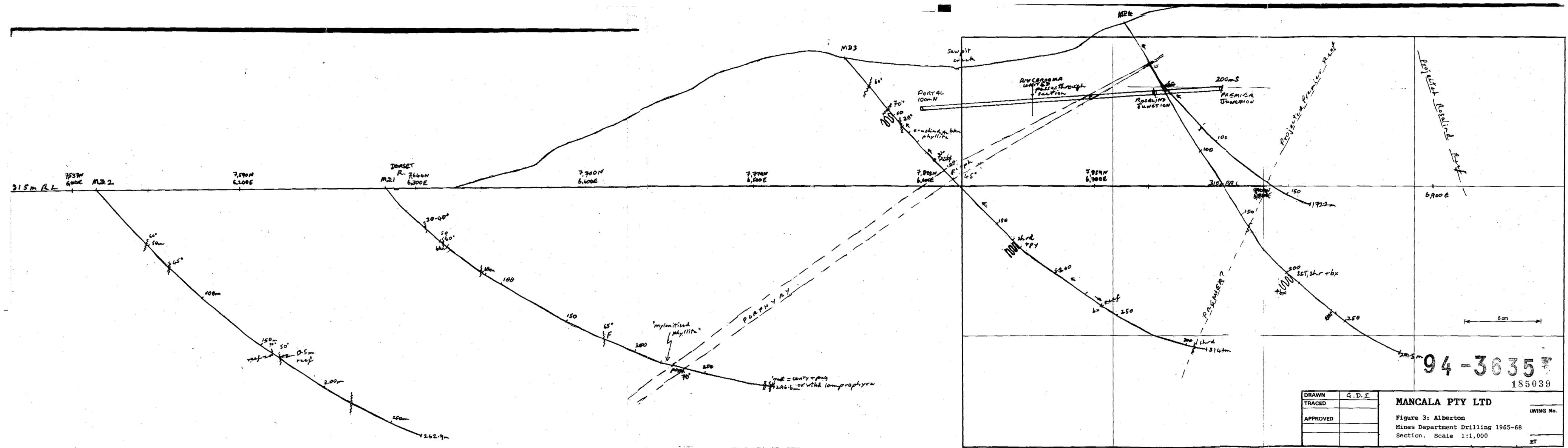
5 cm

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94-3635



- BOUNDARY OF MINERALIZED AREA
- KNOWN LODE
- PROPOSED BOREHOLE
- OLD MINING LEASE AREA
- CURRENTLY HELD MINING LEASE AREA

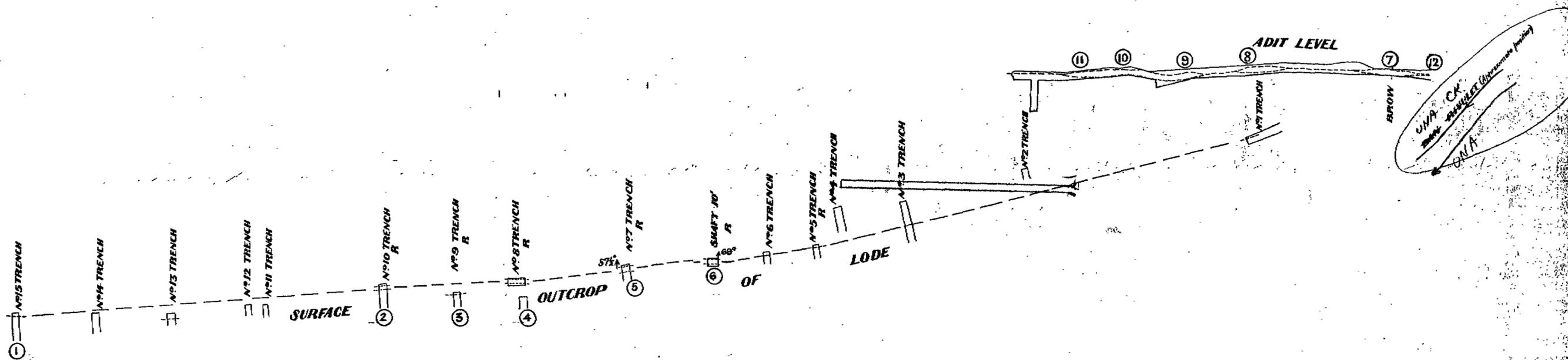


94-3635  
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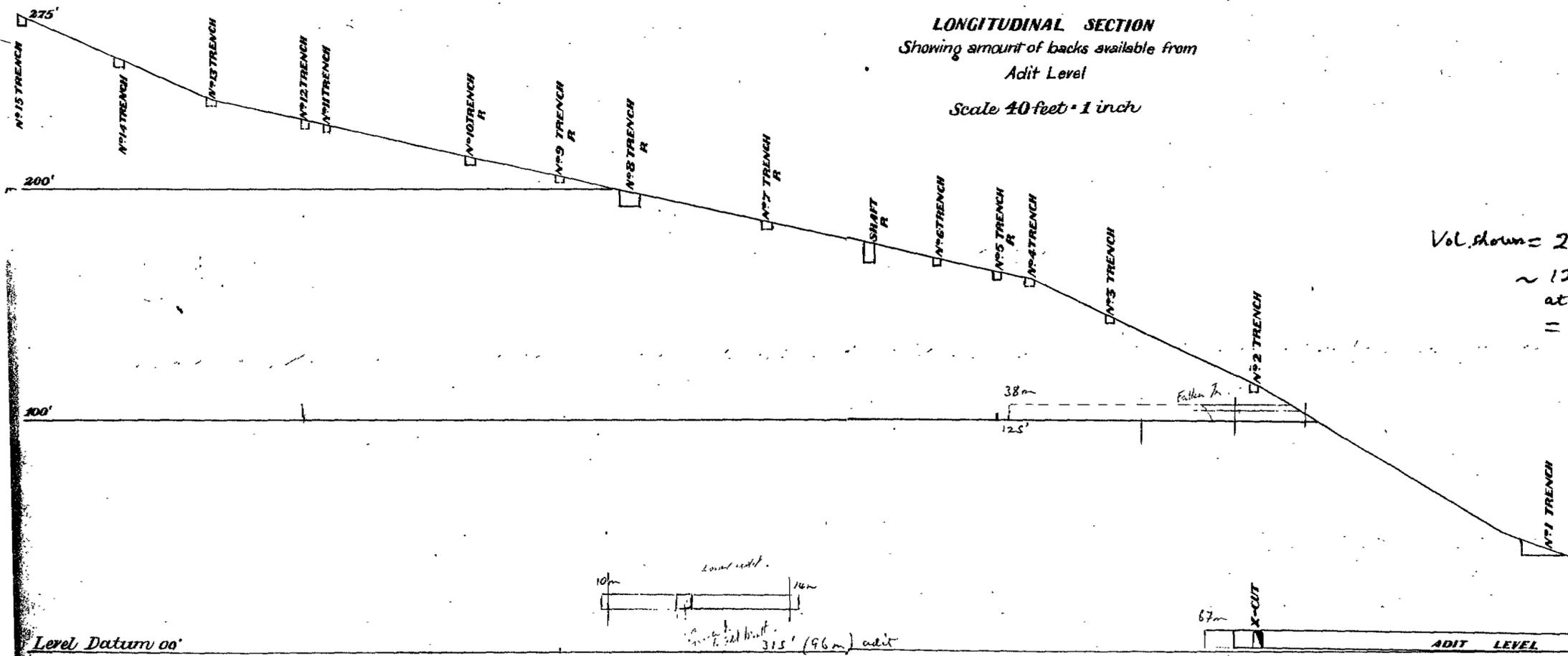
DRAWN	G.D.I.
TRACED	
APPROVED	

**MANCALA PTY LTD**  
 Figure 3: Alberton  
 Mines Department Drilling 1965-68  
 Section. Scale 1:1,000  
 I/WING No. \_\_\_\_\_  
 ET

PLAN OF WORKINGS



LONGITUDINAL SECTION  
Showing amount of backs available from  
Adit Level  
Scale 40 feet = 1 inch



Vol. shown = 24,680 cum.  
~ 12,340t  
at 15 dwt (23.25g/t)  
= 286.905kg = 9,255oz.

94-3035

MANGALA PTY LTD

Figure 7: Hinemoa Mine  
Plan and Long Section  
Scale 1:480 (1"=40')

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K. J. Finnane  
Field Geologist