DETAILED GEOLOGICAL MAPPING ON THE BOND AND TBMB CLAIMS.

BY TIMOTHY LIVERTON Ph.D. FGS

Watson Lake Mining Recorder's District
NTS 105B-3

Latitude and Longitude: 60°08'N to 60°10'N, 131°11'W to 131°16'W.

Claims: Bond 6 (YB89940)
TBMB 2 to 4 (YA91277-YA91279)
Work performed, fieldwork: 7th. to 11th. August 1998 and
28th. August to 2nd. September 1998.

This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of $ 7600.00 .

for Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

Claims worked on:	BOND 6	YB89940
	TBMB 3	YA91278
	TBMB 4	YA91279

Claims being renewed:	BOND 1-20	YB89935 - YB89954
	BOND 23-34	YB89957 - YB89968
	BOND 22	YB90645
	BOND 21	YB90646
	BOND 35-36	YB90647 - YB90648
	TANIS 1-40	YB16408 - YB16447

TBMB claims: looking west from survey station C. The main trench is in the centre.

CONTENTS

BOND AND TBMB CLAIMS, SWIFT RIVER AREA, N.T.S. 105B-3
DETAILED MAPPING OF MINERALIZATION

INTRODUCTION

During 1997 reconnaissance geological mapping was carried out over the Tanis and Bound claim blocks, part of which then covered the ground of the present Bond claims, and sampling of the trenches on the TBMB block was used to investigate mineralogy of the showings. It was noted that a mineralized carbonate horizon may be traced from the TBMB property eastward through the present Bond 6 claim. It was recommended that further mapping be performed to investigate the mineralization. The current work consists of detailed mapping of exposures of this mineralization and of the excavations created previously on the TBMB.

REGIONAL GEOLOGY

The region between the upper part of the Swift River and the Alaska Highway contains various metasedimentary sequences that have been assigned to a distinct Dorsey terrane by Wheeler et al. (1991). Whilst the western part of this tectonostratigraphic unit contains sediments that resemble continental North American Upper Proterozoic and Lower Paleozoic stratigraphy (Gordey, 1992; Liverton, 1992), the sequence SE of Dorsey Lake is in places obviously sheared and of uncertain affinity. The region south of the Swift River consists of low-grade metasediments that are in part disrupted by thrust-faulting and which have been intruded by a diorite to tonalite sill that is assigned (by lithological correlation) to Jurassic age by Stevens and Harms (1995). The dioritic part of this sill has at least been shown to be very similar in trace element chemistry to the NW and SW Thirtymile stocks of Jurassic age, in the western part of the Dorsey terrane (Liverton, 1992).

Immediately south of the Swift River the assemblage has been assigned to the Imbricate Assemblage by Stevens and Harms (1995) which, according to those authors is severely imbricated and bounded at ita upper and lower limits by thrust zones. This metavolcanic, siliciclastic and carbonate assemblage contains the stratabound mineralization of the current Dan/Park/Key claim groups. The extent of interanl thrust faulting within this unit is questioned by this author: continuity of mineralization over several kilometres strike on the Park claim group would suggest that at least the metavolcanic succession is not severely disrupted. Finely banded rocks from the Dan claims that have been named mylonites in the field by various geologists have been described in thin section as rhyolite and andesitic tuffs (Dr. S.P. Gordey, written comm.to H. Hibbing, Dr. J. Harris, unpublished report, see Fig. 14).

Two kilometres southeast of the Bond claims a northern protrusion of the Seagull batholith is exposed (Poole et al., 1960; Liverton and Alderton, 1994). A further small leucogranite apophysis is only just exposed in the canyon 2km NE (i.e downstream from) the Bond claims, indicating that the batholith underlies the region of the claims at a few hundred metres of depth and that contact metamorphism may have affected a considerable area.

Between the Jurassic stock and the Seagull batholith the succession (the Lower Unit of Stevens and Harms, 1995) consists of biotite-muscovite-feldspar-garnet schist to quartzite, with fine grained schist to semi-schist and dominant quartzite in the upper (SW) part. This unit contains the area covered by the Bond claims.

Mapping in 1997 (Liverton, 1997) showed that fine-grained siliceous metasediments, considered to be cherts, contain a band of marble (striking ESE with ≈60°S dip) that may be traced from the TBMB property eastward across the Bond and Mod claims. This marble contains sections of sphalerite±galena mineralization as well as banded magnetite on the Bond 6 claim. The current work has been to map the mineralized exposures in detail.

PROPERTY GEOLOGY: Methods

For the mapping performed on the Bond 6 claim, immediately east of the Mod group, theodolite tachymetry was used for survey control. For this mapping the elevation of Station A was assumed to be 1524m. A section of the ridge covering 135m of elevation difference was mapped. The TBMB group has mineralization over a larger region, so a control survey was performed. A baseline was chained along the road to the eastern trenches of the claims and control stations near to trenches located either by theodolite triangulation (stations A, B, D and claim posts) or tachmetry (stations C, E, F). Trench mapping was by plane table and alidade for the main trench and tachmetry/tape and offset for the others.

<u>MAP SYMBOLS:</u> On the accompanying Bond 1:1000 scale map M signifies marble; ch, chert; Chl-act, chlorite-actinolite rock (metatuff or exhalite) and Mt-act, magnetite-actinolite. For the TBMB maps, the additional abbreviation HF indicates an aphanitic amphibole rock (which may or may not actually be a hornfels). Ore minerals are: Po, pyrrhotite; Sph, sphalerite; and Ga, galena.

PROPERTY GEOLOGY: BOND

Prominent exposures of white marble may be followed up the ridge eastward from the bounddary with the Mod property. Immediately to the south this marble is succeeded by magnetite-amphibole rock and then chert. Chert is also found on the north (lower) side of the marble, which dips towards the SSE locally from 35° to 63°. Chlorite-actinolite rich beds within the upper chert, some 35m stratigraphically above the marble, are interpreted as either tuffaceous sediments or exhalites. The upper chert-tuff beds dip from 60° to 70° SSE. Mineralization is encountered in the magnetite-amphibole unit nd consists of irregularly banded (cm scale) magnetite±sphalerite in diopside and quartz. Exposures were not sufficient to determine accurate stratigraphic thickness, only half-metre sized blocks being visible in the sub-outcrop. Maximum possible true thickness would be ≈7.5m.

The limited exposures indicate that the magnetite-sphalerite-amphibole rich band shows a coarse banding (see Fig. 7, also Fig. 8b) and hand specimens show a much finer foliation. A re-examination of thin sections mentioned in the previous assessment report indicates that both euhedral crystals of magnetite and anhedral material are present (Figs. 9 and 10), with local hollow, skeletal crystals. Hand specimens show millimetre-scale plumose texture. Such textures are present in both skarns (e.g. Mindy, 105C-9) and also are reported from VMS deposits in sulphides (e.g. Krasnov et al., 1995; Duckworth et al,. 1995). In the field it was not possible to obtain a reliable estimate as to how much sphalerite was present at the mineralized locality. more extensive exposure is required for this.

PROPERTY GEOLOGY: TBMB

Mapping on the TBMB claims consisted of an initial control survey and mapping of some of the existing trenches. The only other geology noted this season was the limestone band by station D. Existing trenches and natural rock exposures to the north of station F still require attention.

Main trench: Fig. 3

This cut exposes the most obvious mineralization on the property. At the east end of the trench a layer of galena + sphalerite + pyrrhotite which dips towards the SSW at about 60° is exposed. This band, for which a true thickness of 1.5m has been calculated at 9m west of station A, is underlain by marble and overlain by actinolite-pyrrhotite rock of approximately 2m thickness and then cherty sediments. The mineralized horizon varies somewhat in mineralogy (e.g. Fig. 12) and is locally discordant to bedding. From 8 to 15m west of station A either predominantly galena or sphalerite mineralization may be encountered, although the contact between the two is semi-conformable. At the eastern exposure in the trench the mineralization is 0.7m thick and contains some pyrrhotite. At the opposite end of the trench the marble is divided by an actinolite rock that contains pyrrhotite for much of the exposure. The galena-sphalerite layer, which should be immediately south of the amphibole-rich layer is not exposed. These amphibole-rich layers also contain some magnetite.

Adjacent trenches: Figs. 3 & 4

Both trenches west and east of the main trench show either float or a small in-situ exposure of chert. They do not seem to have been excavated deep enough to obtain exposure on-strike with the mineralized horizon.

Trench by station E: Fig. 6

This exposure cuts grey chert and interbedded calc-silicate rock (probably mostly fine actinolite), that, at the northern end of the trench, contains up to 70% pyrrhotite. The central part of the trench also exposes about 1m of sphalerite in green aphanitic rock, on the map marked as HF or hornfels. Small amount of chalcopyrite were also noted from this location.

Trenches by station C: Fig. 5
These two trenches have encountered sphalerite and pyrrhotite mineralization in amphibole rock over metre-scale widths. Much disturbance of the beds due to faulting is obviious in the upper (east) trench. A fault-bounded wedge of marble is contained within phylllite in the upper trench and contact with quartzite at the northern end may be faulted. It is unlikely that the spahlerite mineralization encountered in the lower trench is the same horizon as that at the southern end of the upper trench: the dip of the beds would project that horizon into the southern part of the trench without exposure.

Trench by station B:
The trench extending SE from station B exposes chert. A steep NW dip by the control station indicates that there may be some faulting in the immediate vicinity.

MAGNETIC TRAVERSE: TBMB

The presence of magnetite in the amphibole-rich rocks adjacent to the sulphide mineralization a the main TBMB trench indicates a possibility of using a magnetic survey to trace the stratigraphy across the property. A traverse using a vertical component fluxgate inatrument taking readings every 3m was run across the trench to test the response. The resulting profile is shown in Fig. 15. The immediate effect of the mineralized zone is to produce an anomaly of at least 400 gammas, although the larger positive peak is likely due to the dump material. It would also seem possible that the chert horizon above the mineralization is somewhat magnetic, giving rise to a locally elevated background of at least 500 gammas higher than the more distant chert units.

DISCUSSION

Mineralogies noted in both the Bond and TBMB claims are consistent with either an origin as distal skarns or as an exhalite. At least some of the TBMB mineralization has been re-mobilised if it is indeed of exhalite origin. The presence of coarse euhedral quartz crystals amongst sphalerite-pyrrhotite-galena-chalcopyrite mineralization (Fig. 8a) would indicate this possibility, although the fault-related mineralization in trench C may simply represent effect of the mineralized layer being weaker than surrounding lithologies. Some features of the mineralization on both claim groups are reminiscent of VMS deposits. Sulphide textures with plumose shape (Fig. 11) and finely banded magnetite (Fig. 10), as compared to discontinuous 'blebby' bands or wrigglite in skarns are found in volcanogenic mineralization. Differentiation between skarn and VMS mineralization in the field where there are only sparse exposures is expected to be difficult. Physical and chemical similarity in conditions of both VMS and retrograde skarn mineralization are expected to produce similar mineralogies. There is now ample evidence indicating that the neighbouring Dan/Bar ('Window' and 'Lucy' showings) mineralization is stratabound, i.e. VMS. A stratigraphic approach should be taken in investigating the TBMB-Bond mineralization. It is also difficult to recognise highly strained rocks. Material that in the field has been called ultramylonite appears on microscopic examination to be an acid volcanic flow or tuff (Fig. 14) on the Park claims, indicating presence of bimodal volcanism and a potential rift environment. Irrespective of the origin of the mineralization the immediate future exploration approach is the same, i.e. to trace the known horizon.

RECOMMENDATIONS: TBMB

No significant rock exposure exists between the trenches by station A and those of C. It is likely that the mineralization in the main trench and trenches by C are contained in the same horizon as the marble by station D and the marble traced from the eastern margin of the TBMB block across the Bond claims (Liverton, 1998). Minor displacement by faulting is quite likely, especially along the direction of Munson creek, which bisects the TBMB block and possibly follows a fault.
It is desirable to attempt to trace the mineralized horizon.
Recommendations are:

1) Since the main mineralization on the property is associated with magnetite a magnetic survey should be performed to cover possible strike extension of the main mineralization: both between the main trench and station D and also towards C.
2) The mapping of the claim block should be continued to include the natural exposures and an attempt be made to trace mineralization in float. There are good exposures north and east of station F which extend towards the eastern ridge on the Bond claims, as well as bulldozer cuts that have not been mapped yet. Mapping of the natural exposures around station C may enable the role of faulting to be deduced.
3) The trenches east and west of the main trench should be deepened if a backhoe is available in the area to search for on-strike extension of the mineralization.

BOND:

Since exposures of the mineralization on claim 6 are sparse, an attempt should be made to expose a complete section across the magnetite-bearing horizon. The mineralization is some 330m above road level, so hand methods are recommended.

1) Hand dig, drill and blast a trench of minimal cross-section over the magnetite-amphibole horizon level with station B, a total length of about 10 metres. Sample and assay.

2) Perform a magnetic survey over the Bond 2, 6 and possibly 1 and 5 claims to attempt to trace the mineralized horizon both to the west and east.

3) Extend the detailed mapping eastward to the top of the ridge.

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Watson Lake, 9th March 1999

Timothy Liverton

FIGURES

COST STATEMENT

Bond Claims

5 days' work, as follows:

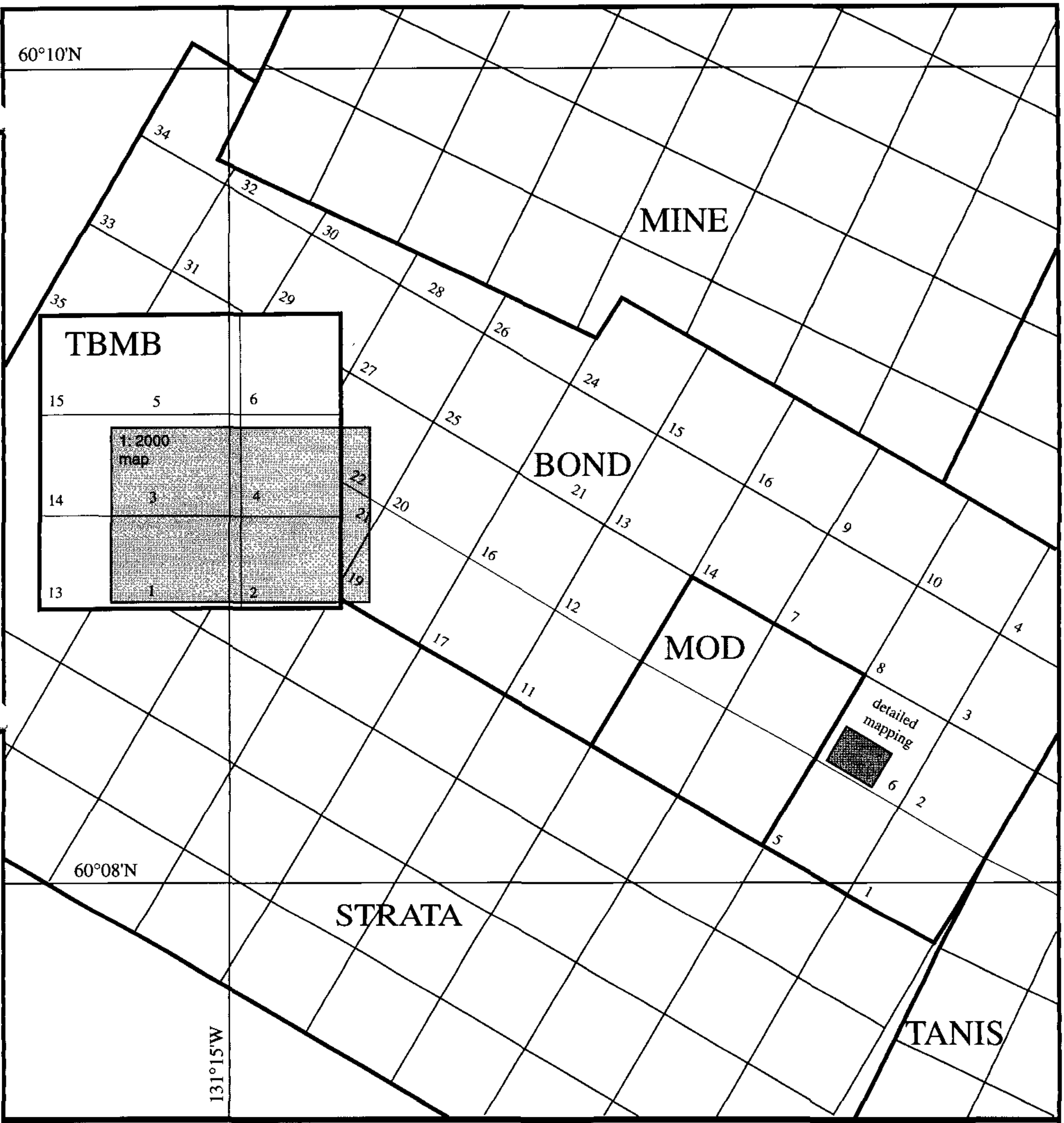
T. Liverton	5 days @ $600- per day	$3000-
H.Hibbing	5 days @ $300- per day	$1500-
2 vehicles @ $50- per day		$ 500-
Report preparation		$ 300-
Total		$5300-

TBMB Claims

6 days' work, as follows:

T. Liverton	6 days @ $600- per day	$3600-
H.Hibbing	4 days @ $300- per day	$1200-
Vehicles @ $50- and 8 days		$ 400-
Supplies (batteries etc.)		S 40-
Report preparation		$ 350-
Total		$5590-

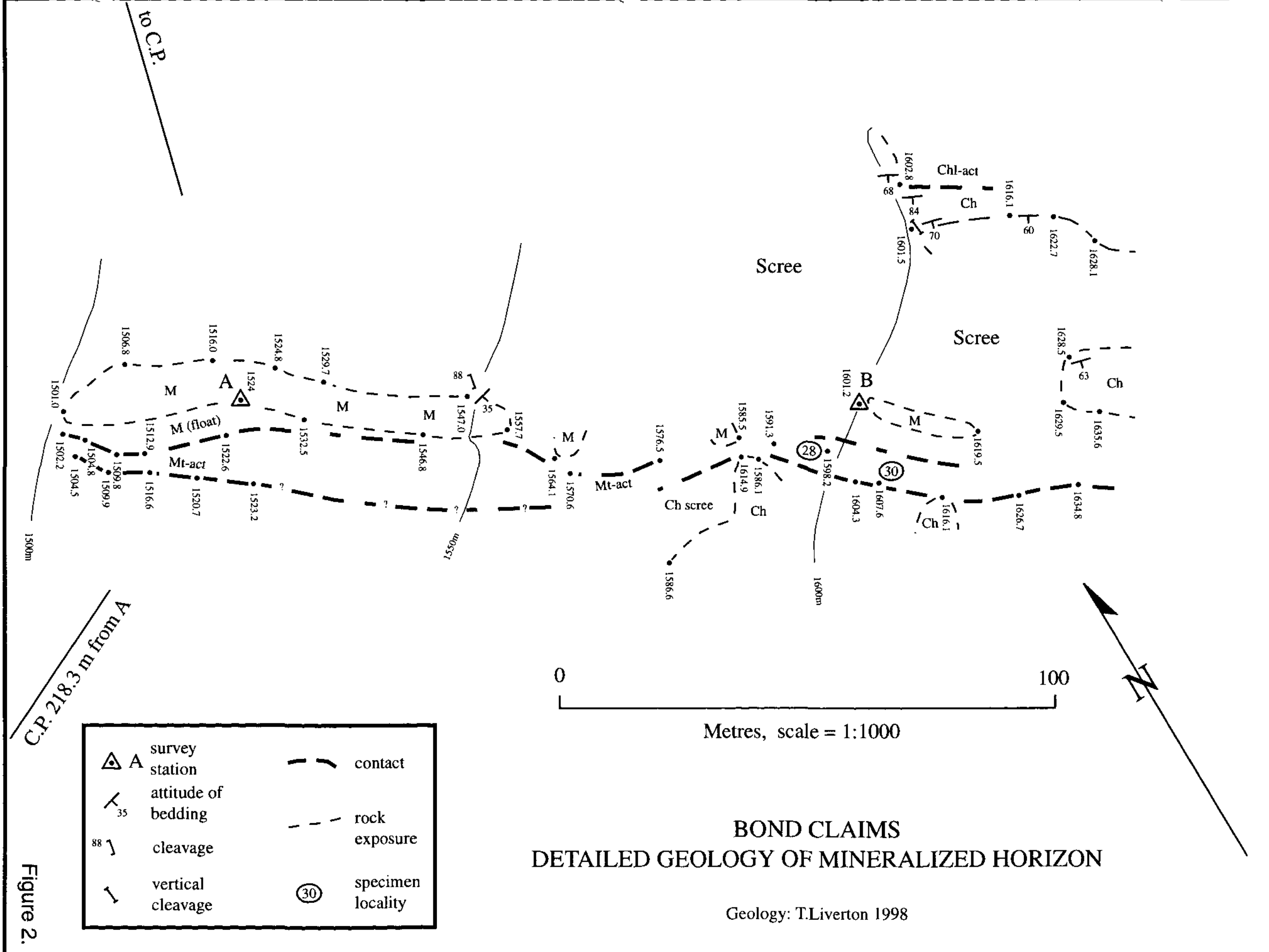
Timothy Liverton



CLAIM MAP 105B-3
LOCATION OF TBMB & BOND GROUPS

Scale = 1:25,000

Figure 1.

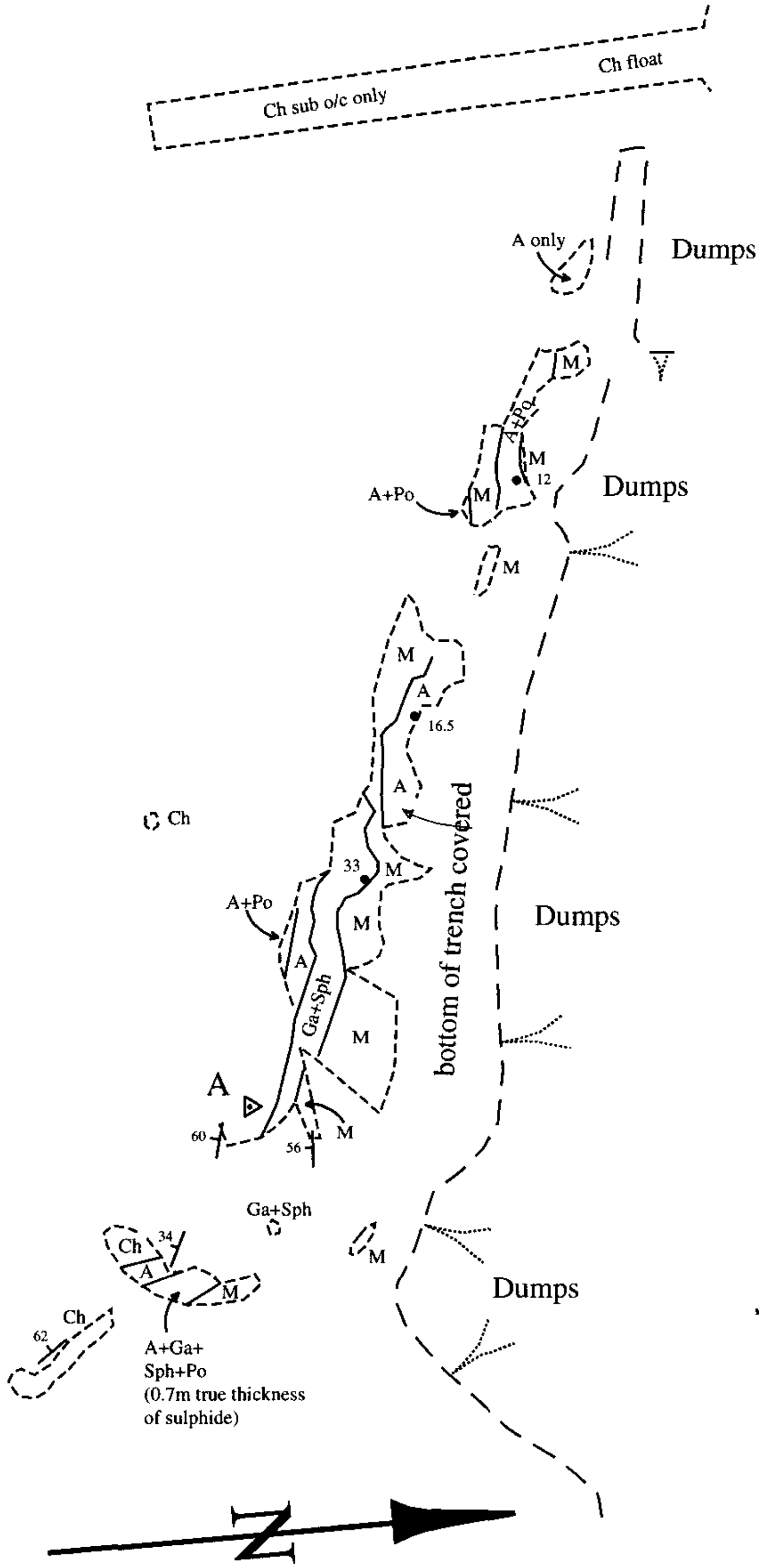


BOND CLAIMS
DETAILED GEOLOGY OF MINERALIZED HORIZON

Figure 2.

TBMB CLAIMS
MAIN TRENCH

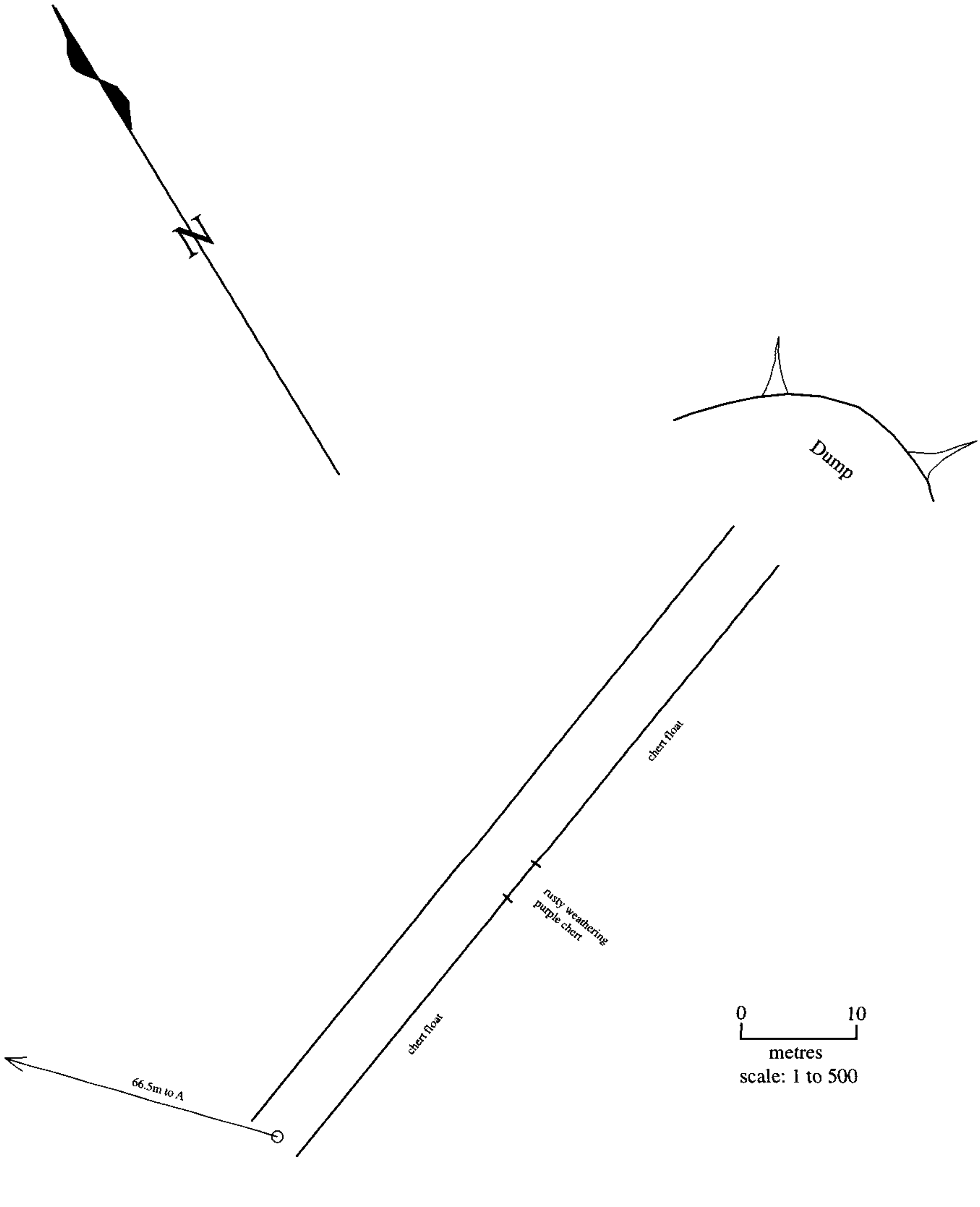
Ch = chert
A = Amphibole rock
M = Marble
Ga = galena
Sph = sphalerite
Po = pyrrhotite



10m

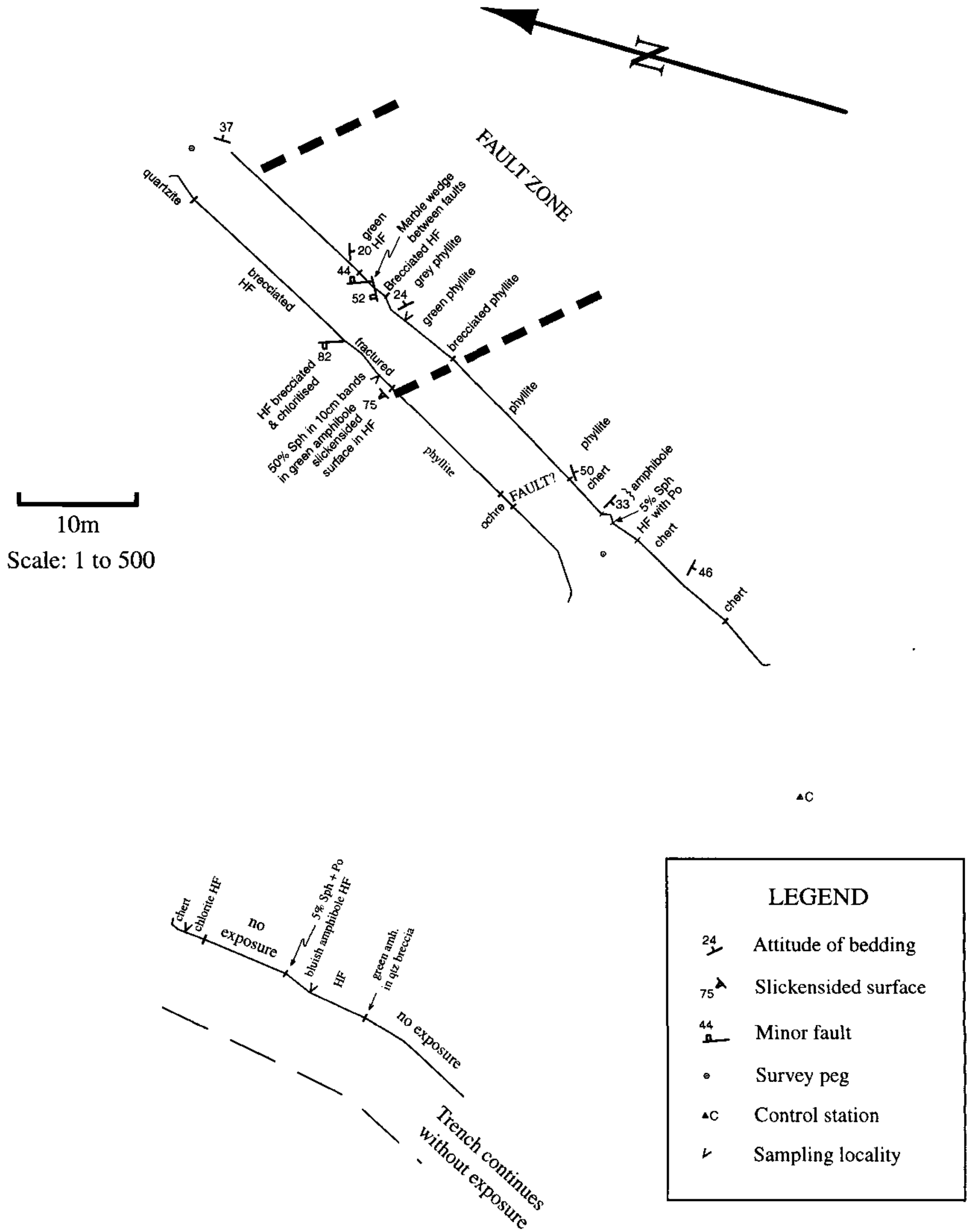
Scale: 1 to 500

Figure 3



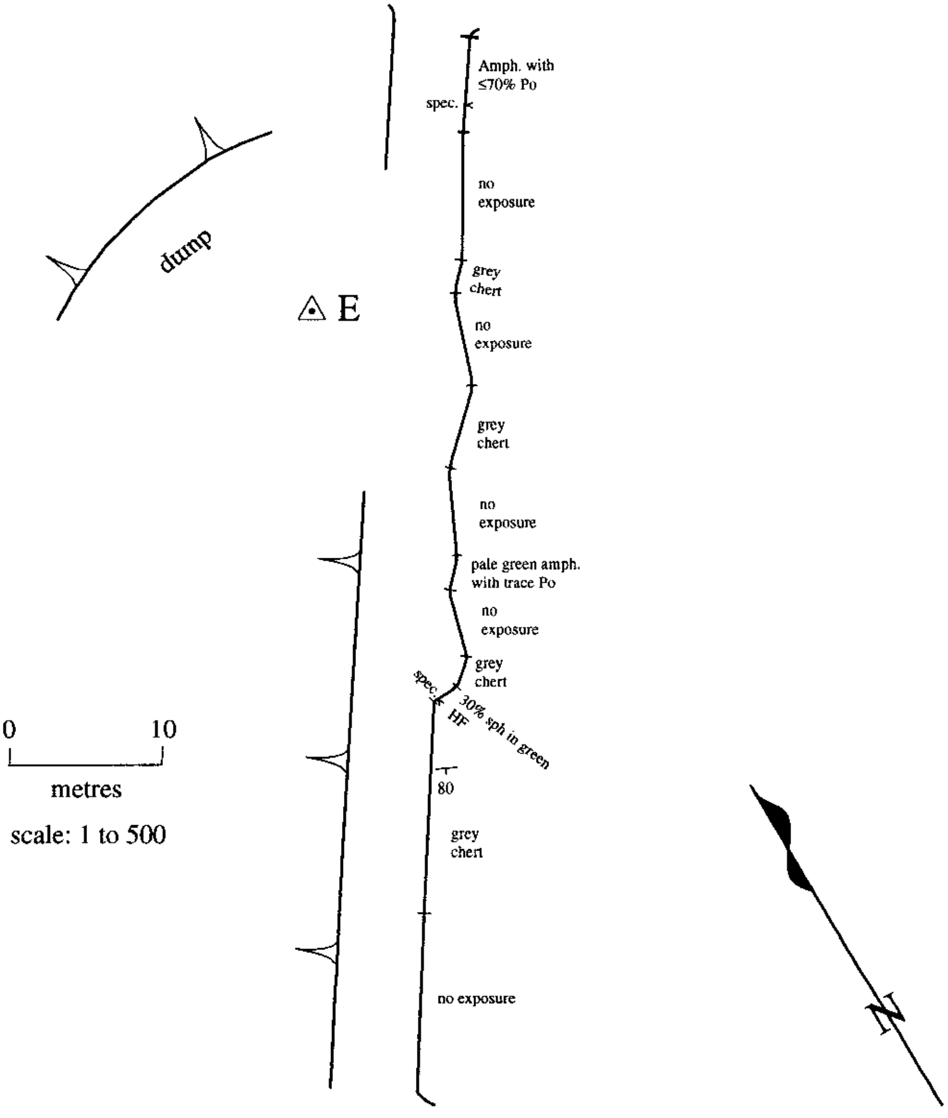
TRENCH SE OF STATION A: DETAILED GEOLOGY

Figure 4



DETAILED GEOLOGY OF TRENCHES BY SURVEY STATION C

Figure 5



TRENCH BY STATION E: DETAILED GEOLOGY

Figure 6

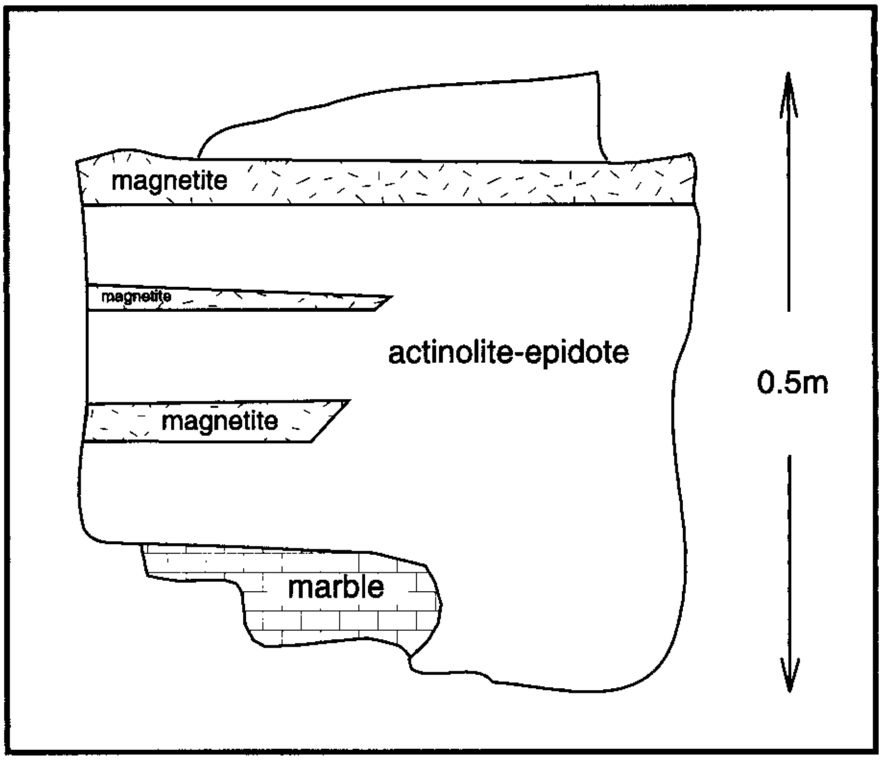


Figure 7. Sketch of calc-silicate block by survey point 28 on the Bond 6 claim.

Figure 8a.
Sphalerite (sph) + pyrrhotite (Po) + galena (Ga) +
chalcopyrite (Cpy) in a quartz (Q)-chlorite (Ch) gangue.
Full size.

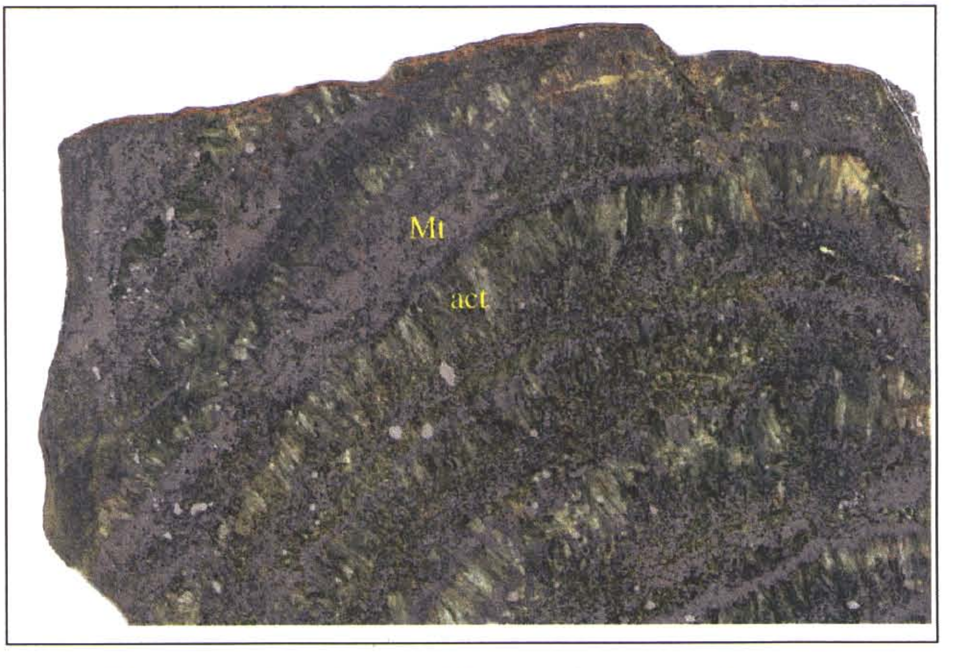


Figure 8b. Bond 6 claim. Banded magnetite (Mt) - actinolite (Act). Full size.

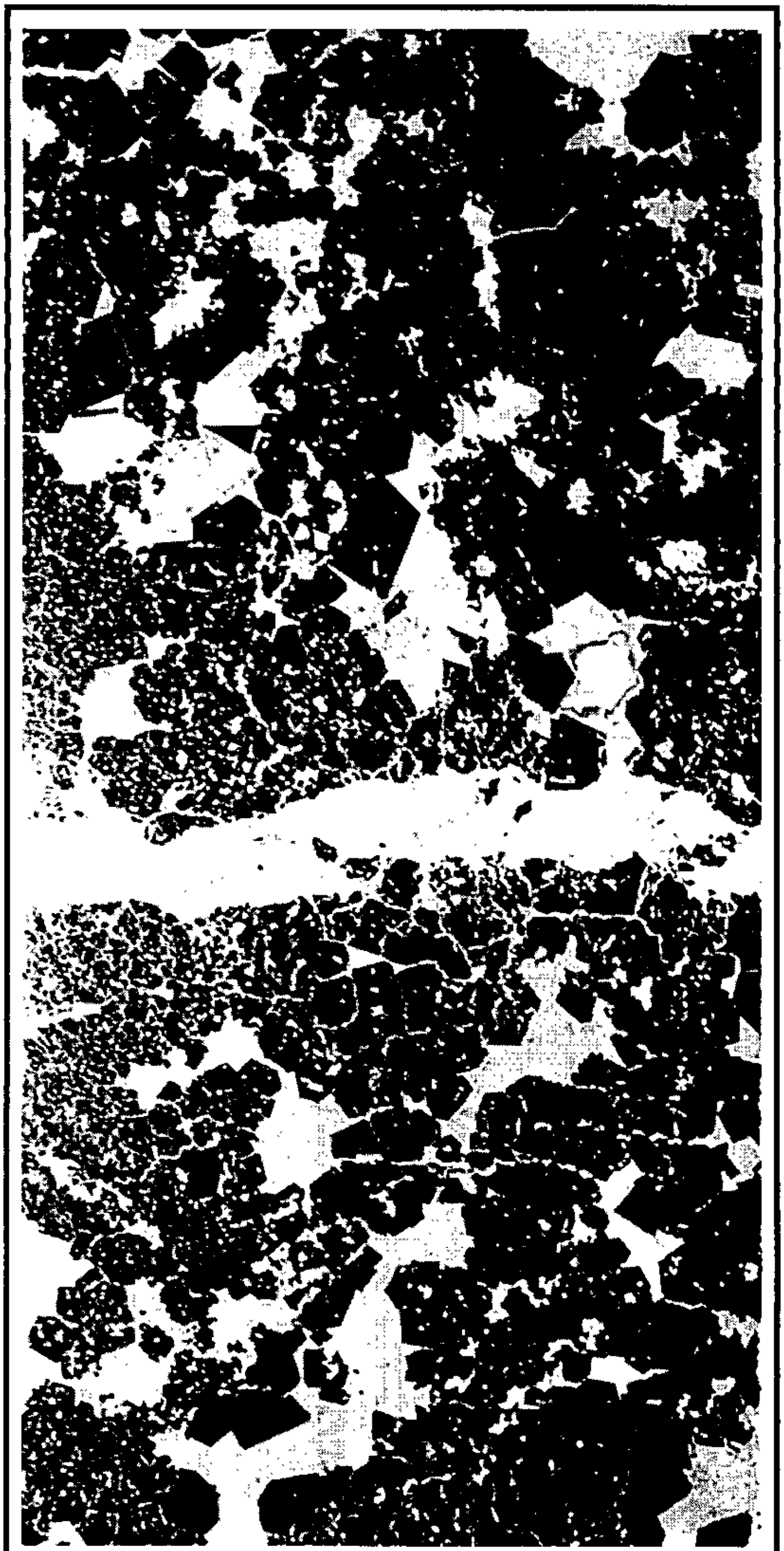


Figure 9. Bond 6 claim. Thin section (No. 777688a) in transmitted light showing euhedral magnetite in tremolite-actinolite and calcite. Width of field = 22 mm.

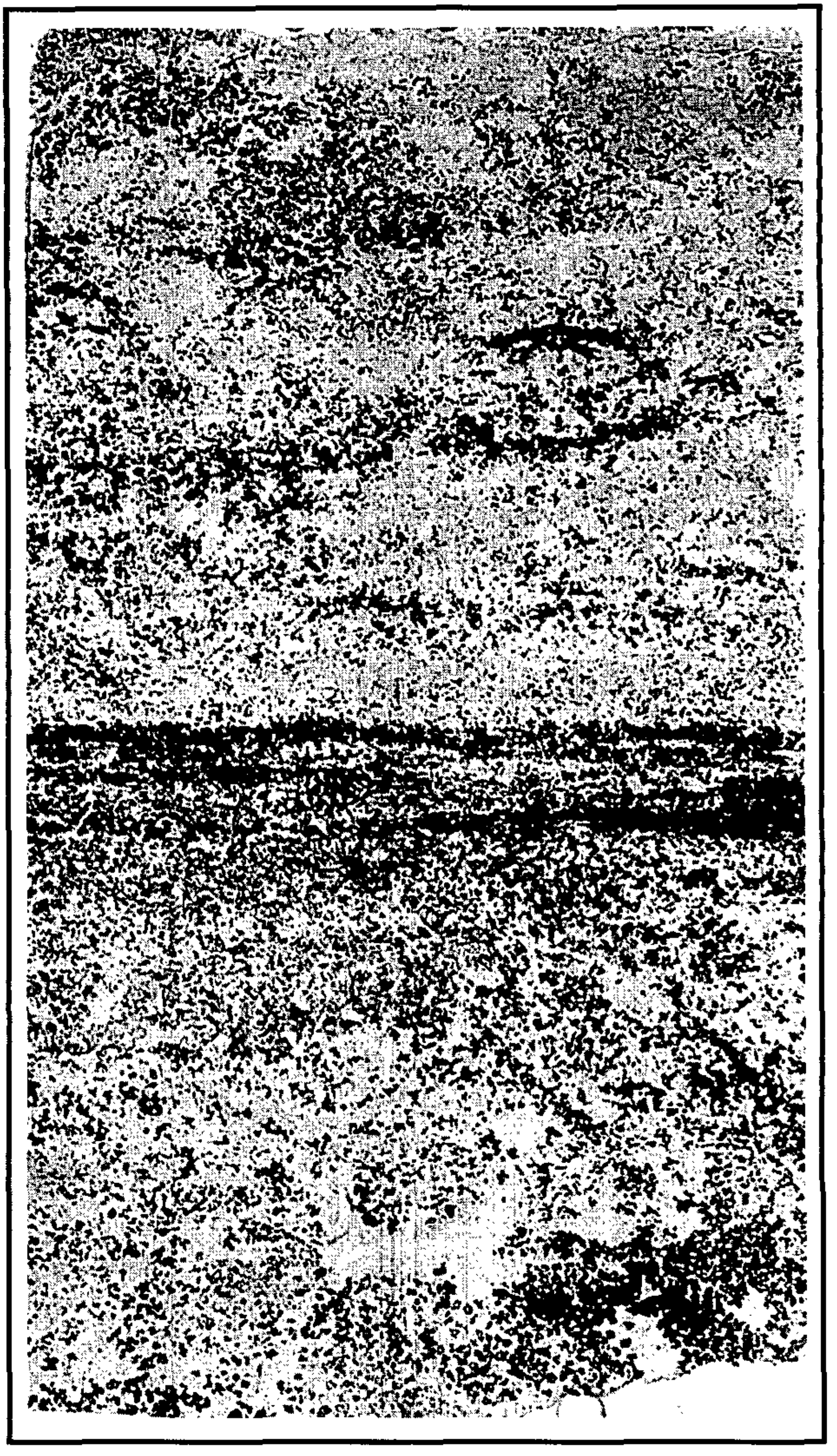
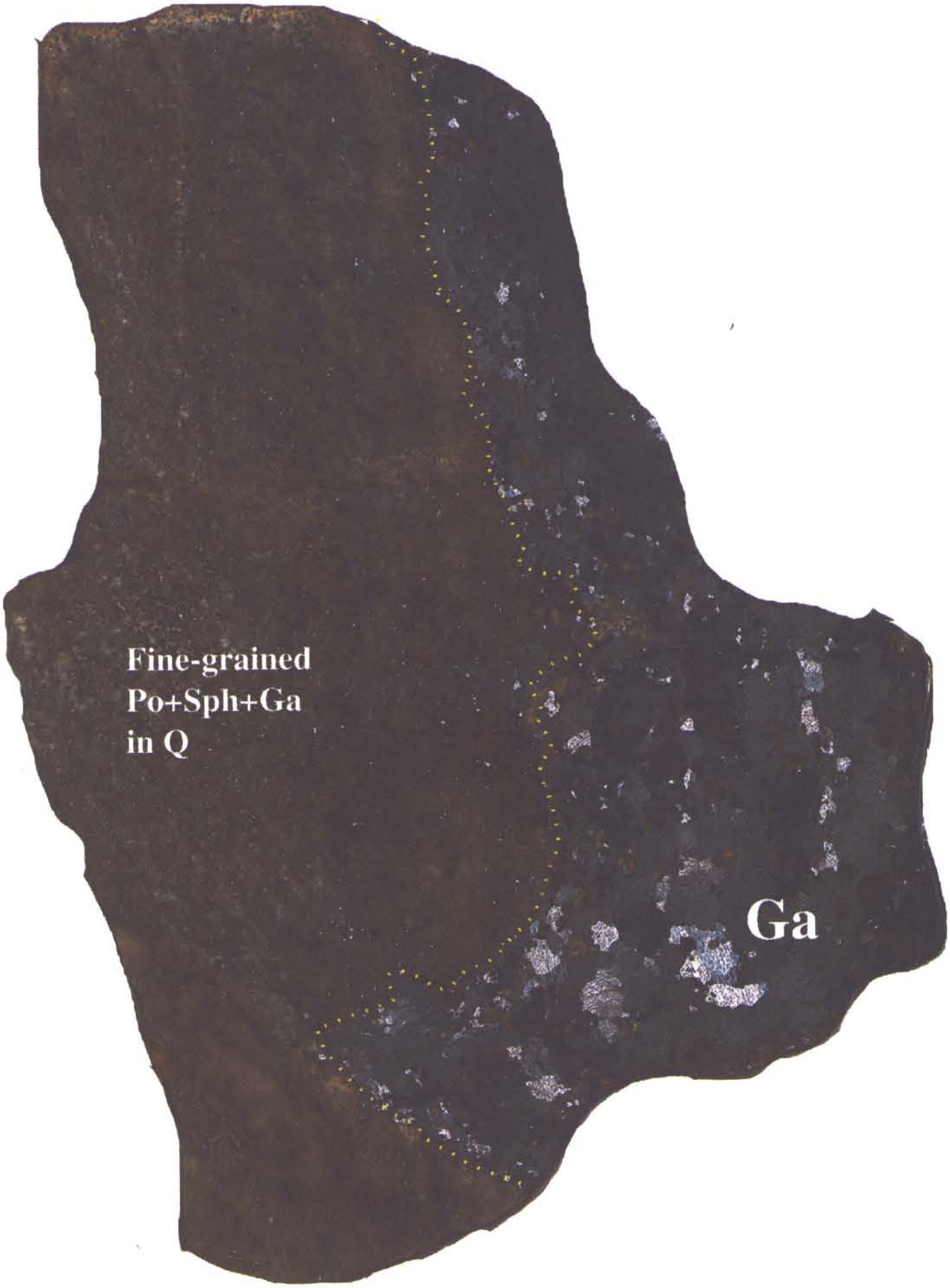


Fig. 10. Bond 6 claim: thin section (No. 777688c) in transmitted light. Anhedral magnetite in tremolite-actinolite showing distinct layering. Width of field = 22 mm.

Figure 11. TBMB main trench. Banded sphalerite-pyrrhotite-galena in quartz gangue. Scale: full size.



Ga = galena; Po = pyrrhotite; Sph = sphalerite; Q = quartz.
Scale: twice full size.

Fig. 12. TBMB claims: galena from the main trench (locality 33 on 1:500 scale map). Contact of the coarse galena is shown by the dotted yellow line.

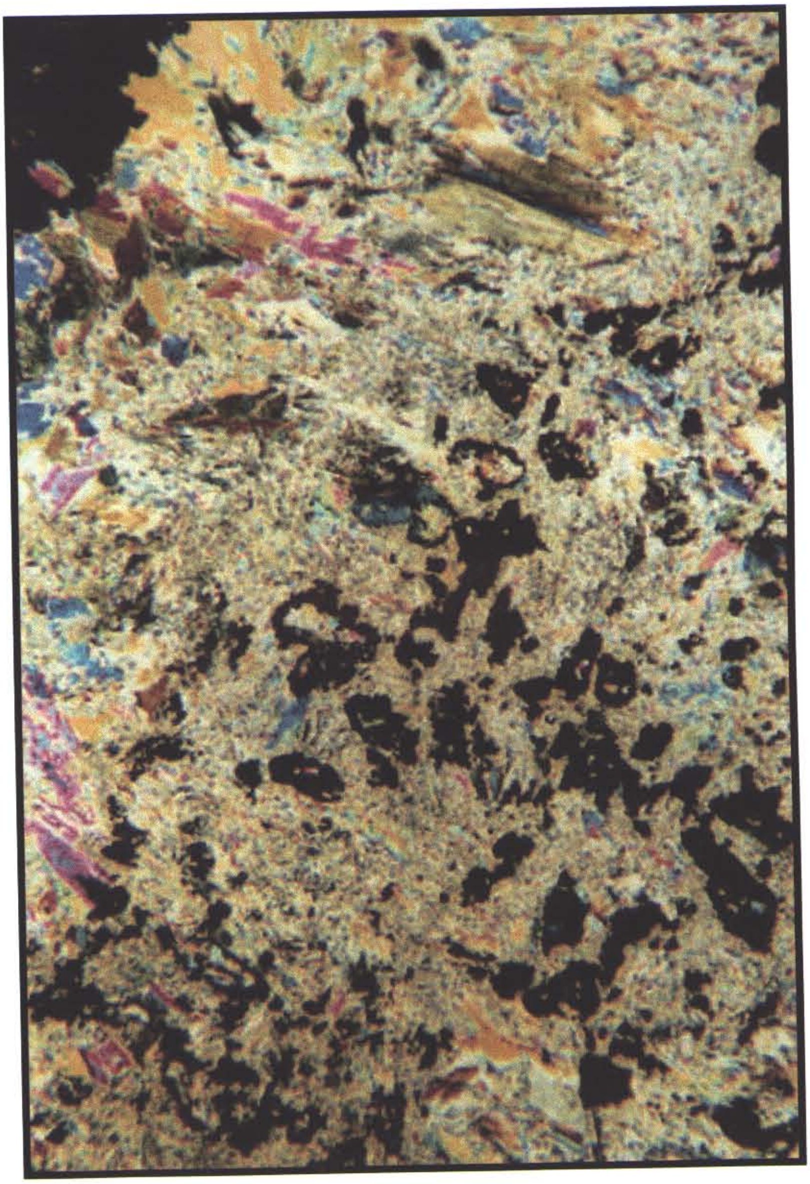


Figure 13. Hollow magnetite crystal aggregates in tremolite-actinolite. Bond 6 mineralization. Photomicrograph using crossed polarizers. Scale: length is 5mm.

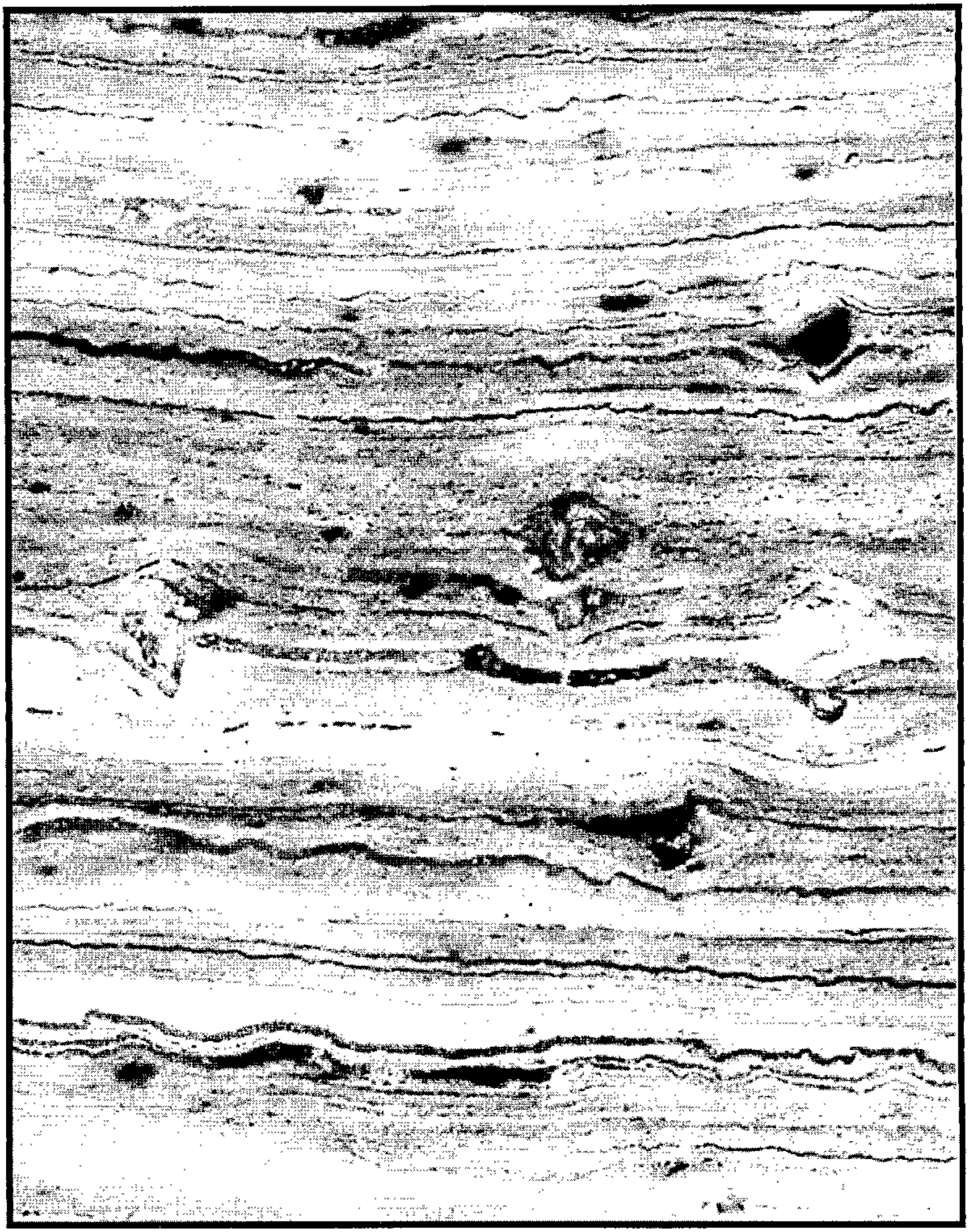


Fig. 14. Sawn and ground slab of rhyolite from the 'Window' showing (the original Dan or Bar prospect of the present Park claims. This outcrop has been descibed as a 'light green ultramylonite' by several observers. Courtesy of Dr. S.P. Gordey (specimen 66A-94-22-01E. Scale: width = 22mm.

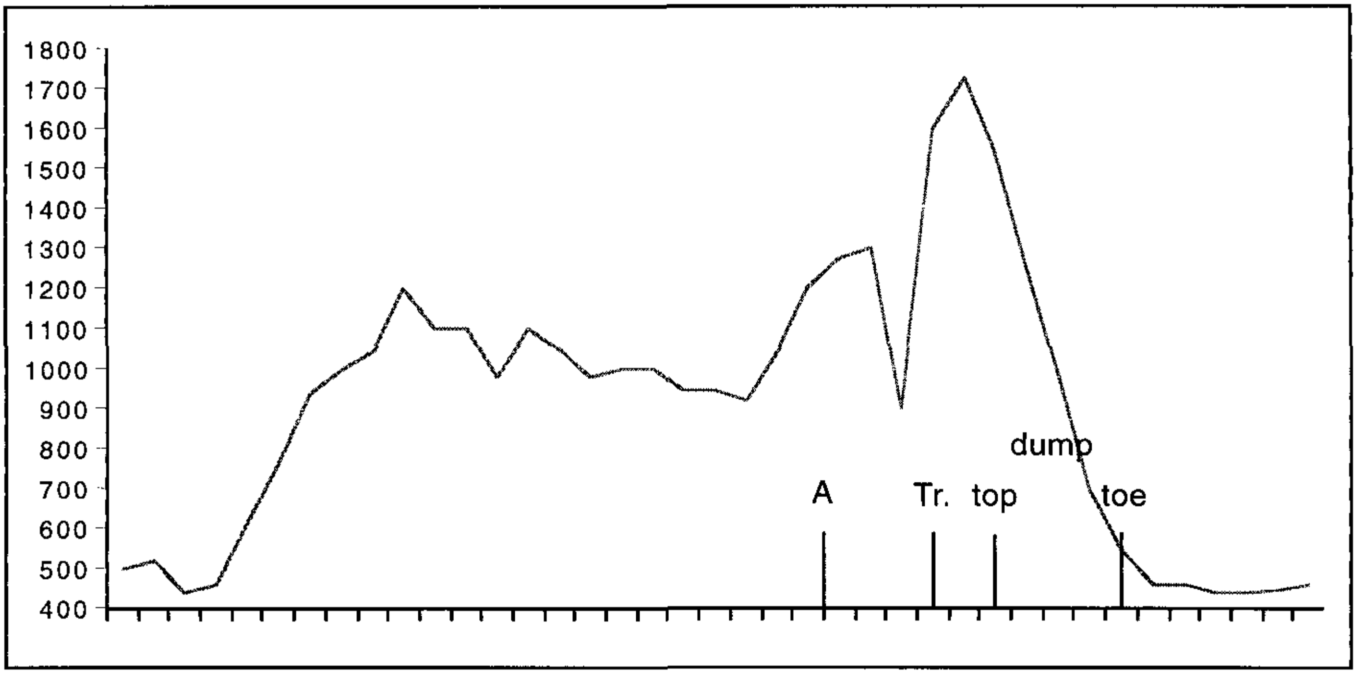


Figure 15.
Reconnaissance magnetic profile across mineralization at the main trench:
Horizontal interval = 3m; position of station A, trench bottom and dump shown.
Facing NW, readings of vertical magnetic component in gammas. Interval =
3 metres, facing WNW.

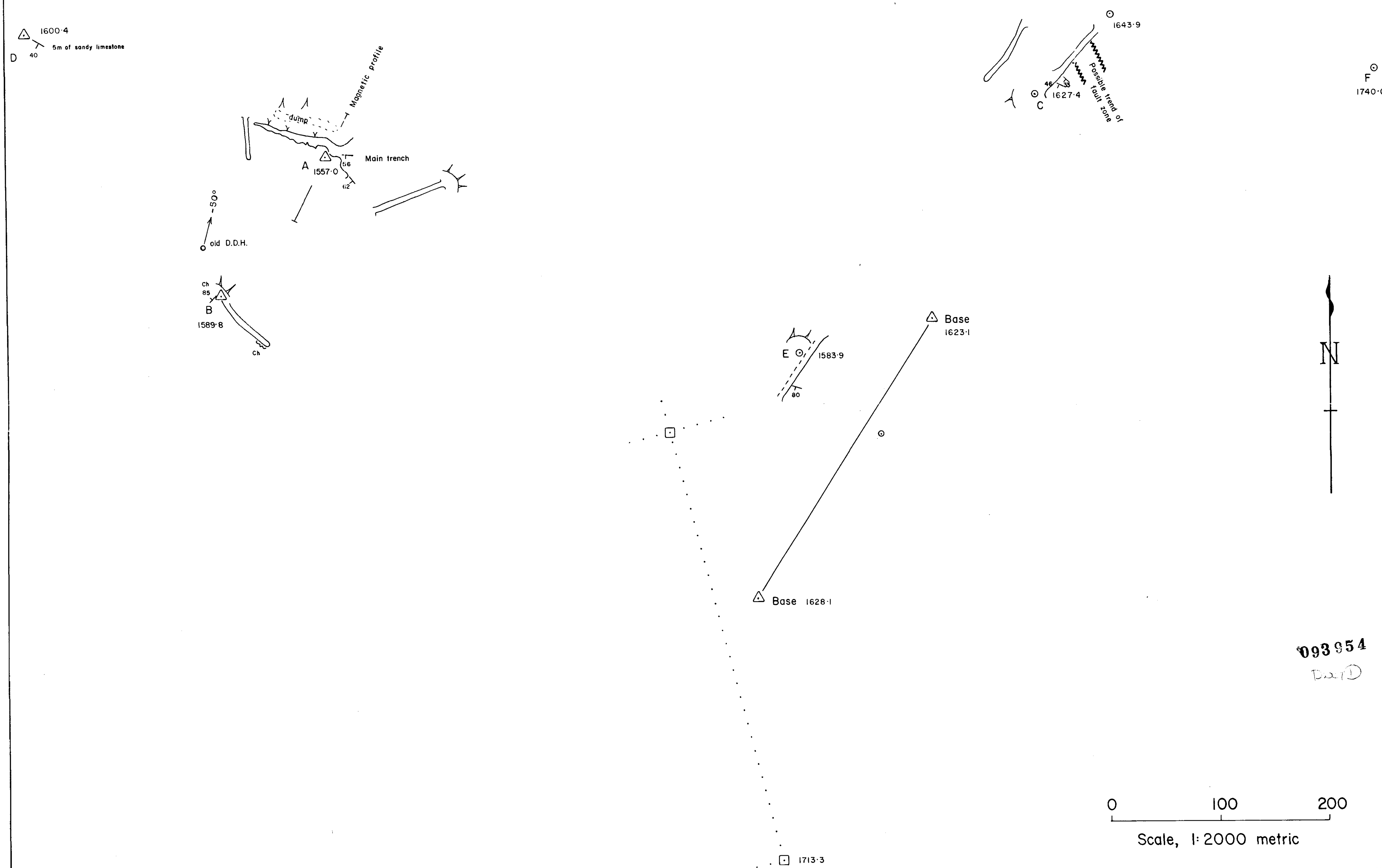
STATEMENT OF QUALIFICATIONS

TIMOTHY LIVERTON

Degrees obtained:
B.Sc. in Geology and Geophysics: University of Sydney, conferred1965;
B.Sc. (Hons.) in Economic Geology: University of Adelaide, conferred 1968; Ph.D. (Geology and Geochemistry): Royal Holloway, University of London, conferred 1993.

Professional experience:
26 years in mineral exploration and mining in Australia, Greenland, Norway, Portugal, Brazil, U.K. aand Canada; 5 years in museums and as a university lecturer.

Professional membership:
Fellow of the Geological Society; Member of the Geological Society of America; Fellow of the Geological Association of Canada.



TBMB CLAIMS: SURVEY CONTROL & TRENCHES