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HAILSTORM MOUNTAIN GOLD PROSPECT RECONNAISSANCE GEOLOGY AND SELF-POTENTIAL SURVEY (82F/13)

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INTRODUCTION

Bonanza-type gold has been discovered by Alex Strebchuck on his Caribou claims located at the headwaters of the west branch of Caribou Creek located on Hailstorm Mountain. This location is 3.2 kilometres east of Tillicum Mountain peak.

The target area was initially indicated by a soil geochemical survey conducted by T. R. Stokes in 1983 under the direction of F. M. Smith. Since then Mr. Strebchuck has put in a caterpillar road to his discovery pit (Fig. 52-1). In this area free gold occurs as individual crystals and small nuggets in the soil, as similar material in a black sandy fault gouge, and as 'splashy' gold disseminated in a marble contained in a skarn zone adjacent to the fault. The discovery zone responds particularly well to geophysical surveys such as self potential (Fig. 52-2) and VLF-EM 16, possibly because of the graphite content of the fault.

GEOLOGY

The rocks containing gold in the Hailstorm Mountain area are similar to those in the Tillicum Mountain area to the west (Ray, 1985). The metasedimentary rocks are believed to be in the Pennsylvanian to Triassic Milford Group. The sedimentary units are repetitive making correlations across the switchback roads questionable. The sediments have not received further study, and no volcanic rocks were recognized. Unit 8 was seen in only one location but is important because of its very high gold content. In hand specimen the gold mineralization is associated with black argillaceous (?) layers which also contain pyrite, arsenopyrite, pyrrhotite, and sphalerite.

All the igneous rocks in this area are believed to be intrusive. They range from light-coloured feldspar porphyries to black lamprophyre dykes. One of the lamprophyre dykes is cut by a quartz vein suggesting the possibility of relatively young mineralization (50 Ma). However, no assays are available to confirm the hypothesis.

STRUCTURAL GEOLOGY

Twenty-one bedding plane observations plotted on a Schmitt stereographic projection indicate folding with an axis plunging 40 degrees toward 276 degrees (Fig. 52-3). A syncline observed on the west side of the gold-bearing fault (Fig. 52-1) plunges 35 degrees toward 279 degrees. Using Figure 52-3 it is possible to estimate an axial plane that strikes northwest and dips steeply west. The 'ac' or tension direction would therefore strike north-northeast. This is the direction of two of the faults in the discovery area, one of which is known to contain gold. The outcome of this preliminary study is that it is not possible to project the geology of the discovery area to the Hailstorm Mountain baseline.

OBSERVATIONS RELATING STRUCTURAL GEOLOGY AND GOLD GEOCHEMISTRY (Stokes, 1983)

The highest geochemical values for gold form a zone that is elongated in a north-northeast direction, approximately parallel to the 'ac' joint direction. The discovery zone on the initial survey had 170 ppb gold. At 525 metres due north of this location, another anomaly is 550 ppb gold; 1 300 metres north of the discovery pit on a bearing of north 5 degrees east there is another anomaly of 175 ppb gold. This line of projection is at the south end of the Hailstorm Mountain baseline.

SELF-POTENTIAL SURVEY (SP)

The long wire method (Thornton, 1980) was used to carry out the 1985 survey. Previous data using the short wire (20-metre) method was converted by accumulating the data. The SP anomalies observed are coincident with faults, one of which, in the discovery zone, is gold bearing. Three fault target areas are indicated by the survey (Fig. 52-2):

(1) The main gold-bearing shear zone identified with the -700 megavolt reading is interpreted to extend to the -230 megavolt location.

(2) The fault mapped at the -16 megavolt location may be offset to the -441-megavolt area.

(3) The -548-megavolt and -487-megavolt areas contain water seepages, however, the anomaly should be investigated.

WORKING HYPOTHESIS TO FIND MORE GOLD BASED ON STRUCTURAL GEOLOGY

There are probably a number of factors controlling the distribution of gold. At present it seems likely that there is a stratigraphic and a structural control. Relative to the other rock units the marble in the discovery area is highly anomalous in gold (G. Delane, personal communication). Because the sedimentary units are repetitive there should be other limestone or marble horizons. Where these units are intersected by gold-bearing faults it is likely that bonanza gold replacement deposits can be found.

Certainly the black, manganiferous, graphitic fault zones should be explored for their gold content. If they are in the 'ac' direction one would expect them to be short, but *en echelon*. This is the type of pattern indicated by the SP survey (Fig. 52-3).

Considering that the best geochemical values are to the north of the discovery zone, this is a favoured direction for further exploration. The potential strike length indicated to date from the reconnaissance geochemistry (Stokes, 1985) is 1 300 metres.

ACKNOWLEDGMENTS

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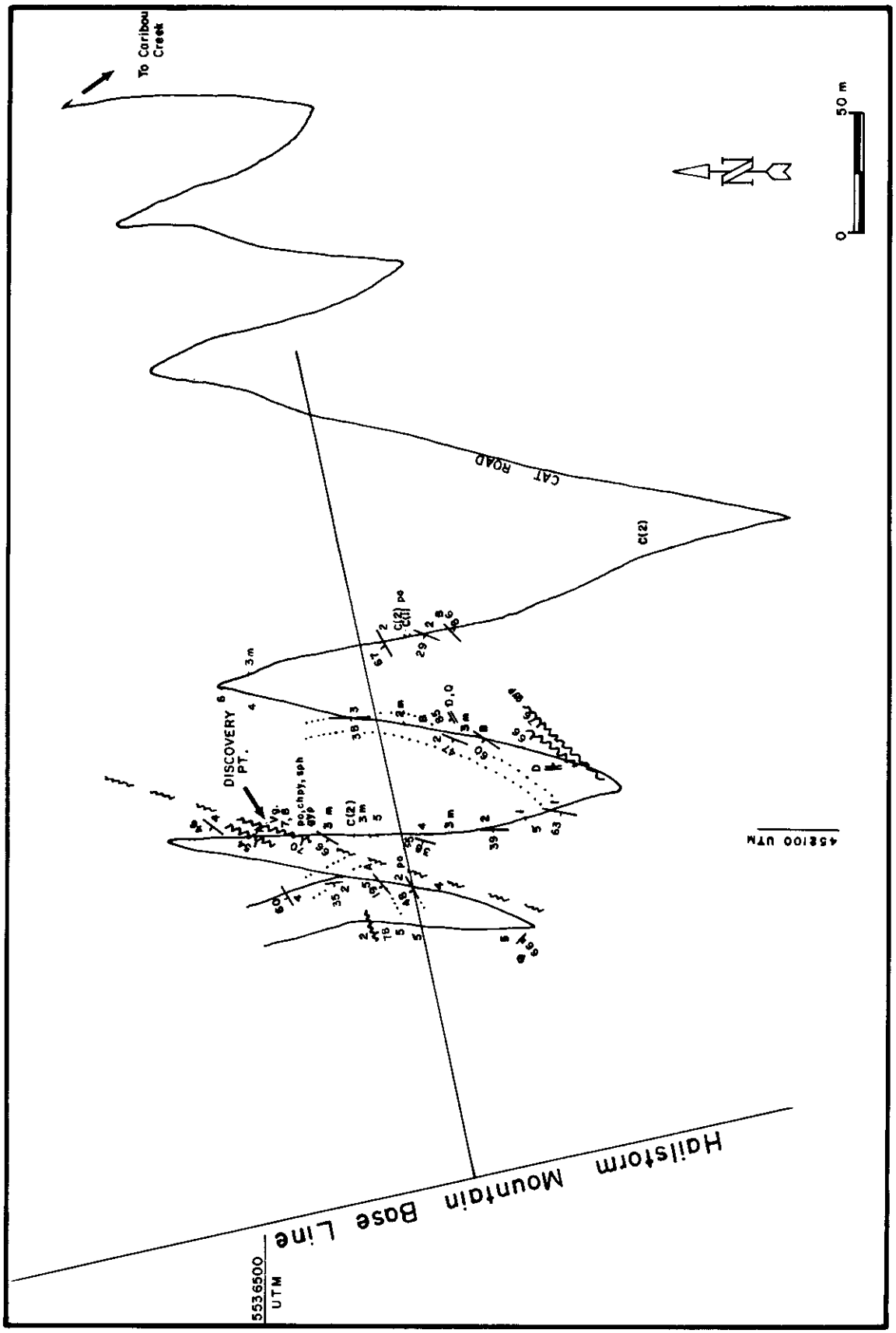

Figure 52-1. Reconnaissance geology of the Hailstorm Mountain gold prospect (82F/13).

LEGEND

IGNEOUS ROCKS

TERTIARY

D LAMPROPHYRE DYKES

CRETACEOUS AND/OR JURASSIC

C FELDSPAR PORPHYRY: (1) CROWDED FELDSPARS; (2) UNCROWDED FELDSPARS

AGE UNKNOWN (PROBABLY TERTIARY)

B ANDESITE DYKES

A APLITE DYKES

METAMORPHIC ROCKS

PRE-JURASSIC

MILFORD GROUP

8 MARBLE

7 SKARN

6 BIOTITE SCHIST

5 BIOTITE FELDSPAR GNEISS

BEDDED ROCKS

PRE-JURASSIC

MILFORD GROUP

4 BLACK ARGILLITE

3 SEDIMENTS, BLACK PELITES, SILTSTONES

2 THIN-BEDDED SEDIMENTS, SILTSTONES WITH ARGILLACEOUS PARTINGS APPROXIMATELY 10 CENTIMETRES APART

1 SANDSTONE AND/OR TUFF

MINERALS

Vg = VISIBLE GOLD
m = MELANTERITE
po = PYRRHOTITE
chpy = CHALCOPYRITE
sph = SPHALERITE
Q = QUARTZ VEIN
gyp = GYPSUM

Legend for Figure 52-1.

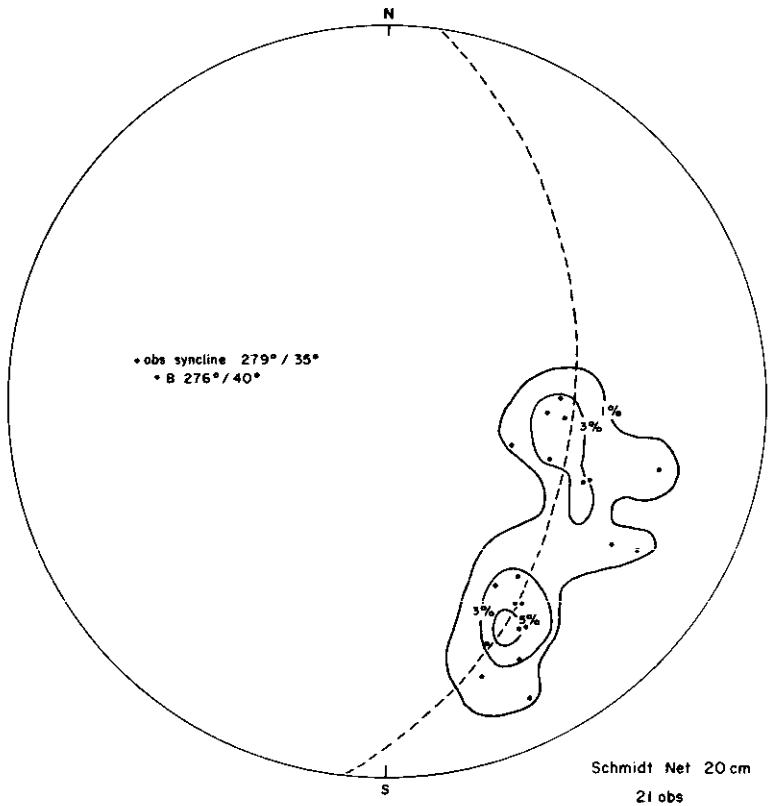

Figure 52-3. Bedding plane poles from the Hailstorm Mountain prospect.

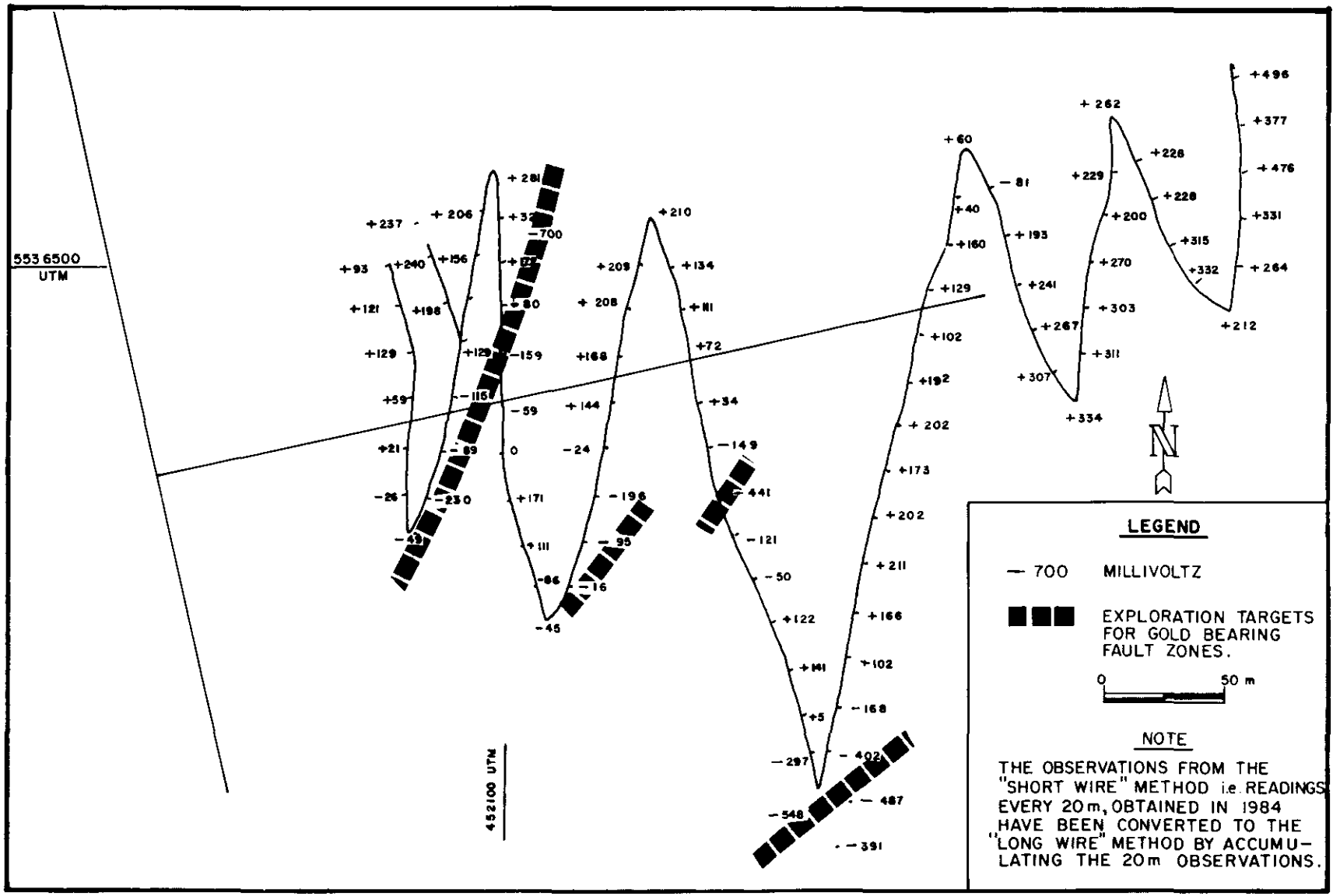

Figure 52-2. Reconnaissance self-potential survey of the Hailstorm Mountain gold prospect.

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