

ASSESSMENT REPORT
TRENCH, GEOLOGICAL AND GEOCHEMICAL SURVEY
THOR GROUP
ATLIN MINING DIVISION
TATSAMENIE LAKE AREA, B. C.
N.T.S. 104K/Tulsequah Sheet

58°14'N
132°21'W

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,963

OWNER: CHEVRON CANADA LIMITED
OPERATOR: CHEVRON CANADA RESOURCES LIMITED

Authors: Mike Thicke
Ken Shannon

October, 1983

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LOCATION AND ACCESS

The THOR Group is situated at approximately 132°21'W and 58°14'N, 10 km south of Tatsamenie Lake (Figure 1). The claims are 166 km southeast of Atlin, B.C. and 78 km northwest of Telegraph Creek, B. C. Access to the claims was by helicopter from a base camp at Bearskin Lake.

CLAIMS

The THOR claims were staked between September of 1982 and June of 1983 (Figure 2).

| <u>Claim</u> | <u>Record Number</u> | <u>Record Date</u> | <u>No. of Units</u> |
|--------------|----------------------|--------------------|---------------------|
| THOR 1 | 1744 | September 22, 1982 | 15 |
| THOR 2 | 1878 | June 13, 1983 | 20 |
| THOR 3 | 1951 | July 14, 1983 | 12 |
| THOR 4 | 1952 | July 14, 1983 | 20 |
| THOR 5 | 1953 | July 14, 1983 | 20 |
| TAN 7 | 1943 | July 14, 1983 | 12 |

The claims cover previously unstaked ground.

REGIONAL GEOLOGY

The THOR Group is underlain by pre-Upper Triassic phyllite and intercalated volcanic rocks (Souther, 1972). South and west of the claims lie Tertiary Sloko Group rhyolite and pyroclastic rocks and a dyke swarm that is likely related to the Sloko Group (Souther, 1972). East and north of the THOR Group lie Permian limestone. A stock of Post Middle Jurassic diorite intrudes pre-Upper Triassic phyllite and volcanic rocks to the north of the claims.

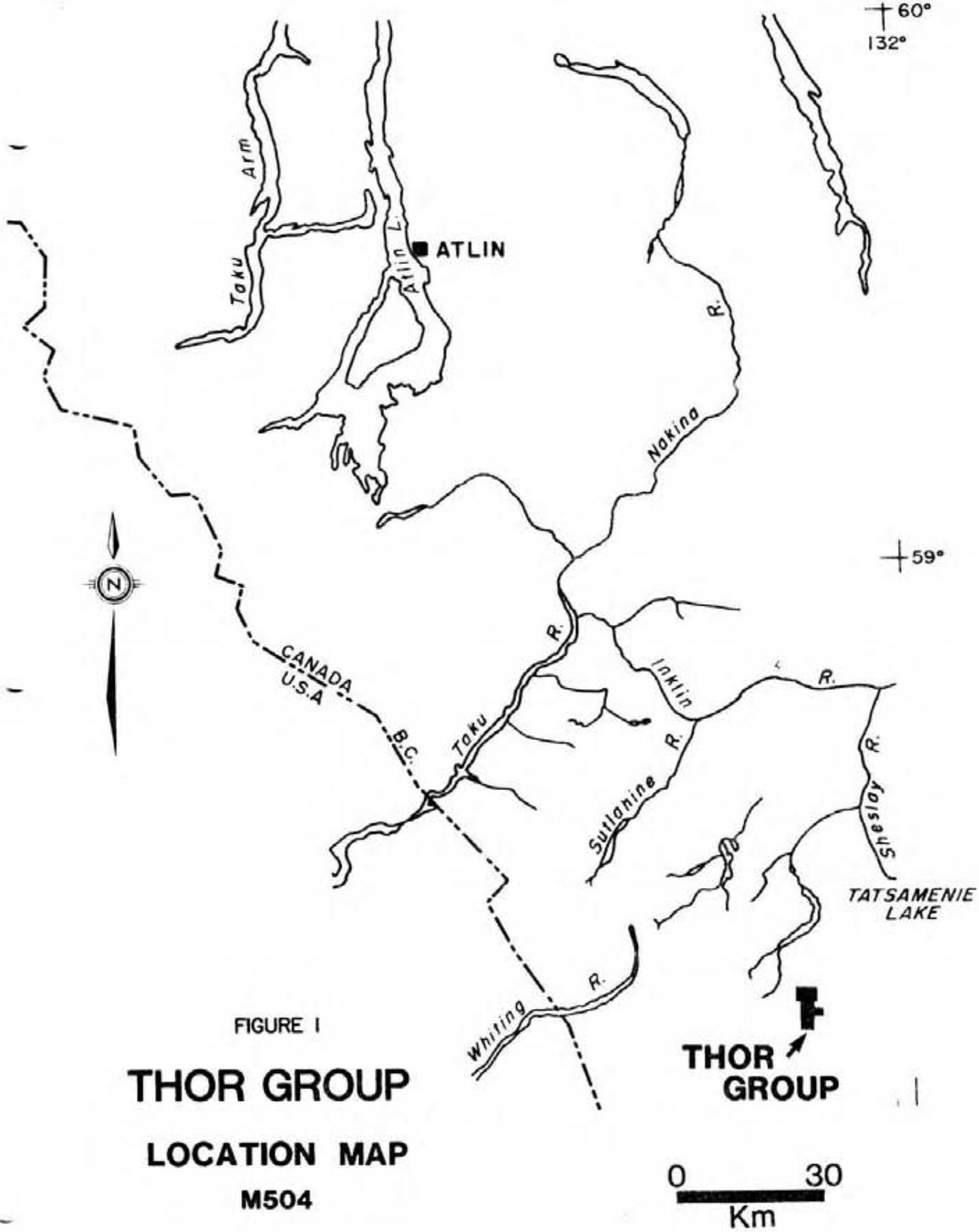


FIGURE 1
THOR GROUP
LOCATION MAP
M504

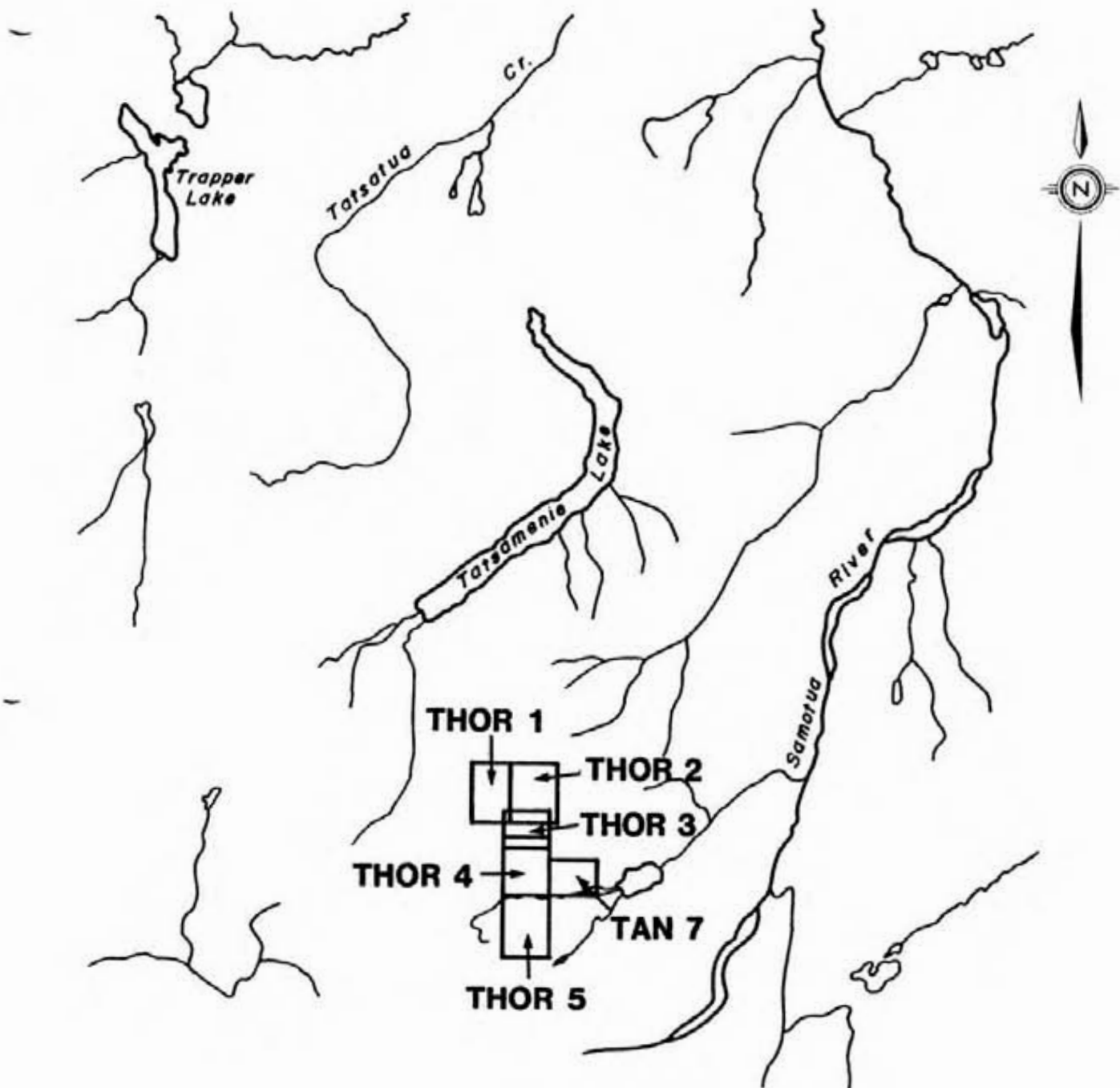


FIGURE 2

THOR GROUP CLAIM MAP



M504

GEOLOGICAL SURVEY OF CLAIMS

Geological mapping was focussed along a northwest-southeast trending ridge and its talus covered southwest facing slope of THOR 1 claim (Figure 3). A fault bounded block of felsic and mafic phyllite is conspicuous from an aerial view due to characteristic rusty coloured weathering. Greenstones occur northwest of the block of phyllite while southeast lies a mafic volcanic feldspar porphyry. The fault bounded block of phyllite may possibly be a small horst.

Pre-Upper Triassic

Unit 1: Greenstone

The greenstone unit is fine grained, massive, fairly resistant and weathers a medium to dark green colour. Extensive chlorite alteration is restricted to localized areas within the greenstone.

Unit 2: Felsic Phyllite

The felsic phyllite unit is well foliated and light green in colour. Numerous quartz veins which parallel foliation also contain K-spar, hematite and tourmaline. The felsic phyllite is fairly recessive and weathers a rusty orange-brown colour.

Unit 3: Mafic Phyllite

The mafic phyllite is dark grey to black and fine grained. The foliation of this unit resembles a slaty parting. The mafic phyllite is moderately recessive and weathers a dark grey to a dirty brown colour.

Unit 4: Dolomite - Limestone

The dolomite - limestone unit is interbedded with the phyllites. Dolomite occurs in beds ranging from a few centimeters to a few meters wide. The colour of the dolomite is creamy white to pink or grey. The dolomite weathers buff to dark brown.

Unit 5: Mafic Volcanic Feldspar Porphyry

Unit five is fresh, dark grey to black. White to light grey feldspar phenocrysts are up to 0.5 cm long and compose about 30% to 35% of the rock. The groundmass of the feldspar porphyry consists of aphanitic mafic minerals. The porphyry is blocky and weathers dark green to black.

ALTERATION AND MINERALIZATION

Silicification within the felsic phyllite is bounded by conjugate sets of faults. Silicification totally masks foliation within the phyllite. Within the dolomite - limestone unit silicification appears controlled by bedding planes to form lense-shaped alteration zones often greater than ten meters in length. Quartz-chalcedony veins, mostly found in sub-crop and talus, cut dolomite and phyllite units at various orientations. Iron-carbonate alteration appears to be fairly pervasive throughout the fault bounded package of phyllite and dolomite. Within quartz veins K-spar, hematite and tourmaline are present.

Tetrahedrite, malachite, azurite and pyrite occur as veins, within quartz-chalcedony veins and on fracture surfaces within felsic phyllite. Tetrahedrite veins are narrow, sporadic and irregular. Most samples were obtained from talus or sub-crop; few from outcrop.

GEOCHEMICAL SURVEY OF CLAIMS

Thirty rock samples were collected from the THOR Group (Figure 4). Rock chips were placed in heavy duty plastic sample bags then shipped to Chemex Labs Limited of North Vancouver.

Rock samples were crushed and then pulverized in a ring grinder to -100 mesh. For Au determination, a fire assay - atomic absorption technique is used with the fire assay bead being dissolved in HCl and HNO₃ then analyzed by conventional atomic absorption techniques. For Ag, a mixture of HClO₄ and HNO₃ is used to digest the sample, which is followed by atomic absorption spectrophotometry. The As analyses are done by standard colorometric techniques following an HClO₄ plus HNO₃ digestion. Antimony analyses are done by digesting the sample in HCl, then adding potassium iodide, extracting with TOPO - MIBK and then analyzing by atomic absorption spectrophotometry.

GEOCHEMICAL RESULTS

Gold and silver values are plotted on Figure 5 while arsenic and antimony values are plotted on Figure 6. Samples containing over a few hundred ppb gold were often, but not always, associated with tetrahedrite mineralization. A subcrop sample of a chalcedony vein contained 1350 ppb gold.

TRENCH GEOLOGY AND MINERALIZATION

Two trenches were established on the THOR claims to follow-up previous reconnaissance sampling. The location of the two trenches is illustrated on Figure 3 and trench geology is illustrated on Figure 7.

THOR trench #1 was placed to follow-up abundant tetrahedrite mineralization in talus and subcrop. As fresh phyllite was exposed it became apparent that tetrahedrite was confined to narrow less than 1 cm wide veins and fracture coatings. Siliceous or felsic phyllite is basically unaltered with minor silicification near the southwest end of the trench.

THOR trench #2 exposed siliceous phyllite in contact with a carbonaceous phyllitic unit. Very little sulphide mineralization was observed in trench #2 though narrow surficial zones of silicification - carbonatization contained malachite and azurite mineralization.

TRENCH ASSAY RESULTS

Assay results for THOR trenches #1 and #2 are listed in Table 1. Twenty-one rock samples were collected over approximately 1.0 m intervals, placed in large heavy duty plastic rock sample bags and shipped to Chemex Labs Ltd. of North Vancouver.

Silver and gold analyses are done by standard fire assay techniques. In the sample preparation stage the screens are checked for metallics which, if present, are assayed separately and calculated into the results obtained from the pulp assay.

0.5 assay ton sub samples are fused in litharge, carbonate and siliceous fluxes. The lead button containing the precious metals is cupelled in a muffle furnace. The combined Ag and Au is weighed on a microbalance, parted, annealed and again weighed as Au. The difference in the two weighings is Ag.

ROCK ASSAY

| | <u>Ag (g/t)</u> | <u>Au (g/t)</u> |
|-----------|-----------------|-----------------|
| MT3T1-157 | 0.3 | 0.3 |
| 158 | 0.7 | 0.2 |
| 159 | 0.7 | 0.1 |
| 160 | 0.7 | 0.2 |
| 161 | 0.3 | 0.2 |
| 162 | 0.3 | 0.1 |
| 163 | 0.3 | 0.1 |
| 164 | 0.3 | 0.1 |
| 165 | 0.3 | 0.1 |
| 166 | 0.3 | 0.1 |
| 167 | 0.3 | 0.3 |
| 168 | 0.3 | 0.1 |
| 183 | 1.0 | 0.1 |
| 184 | 0.3 | 0.1 |
| 185 | 0.3 | 0.1 |
| 186 | 1.4 | 0.1 |
| 187 | 2.0 | 0.1 |
| 188 | 58.9 | 0.1 |
| 189 | 0.3 | 0.1 |
| 190 | 3.4 | 0.1 |
| 191 | 5.5 | 0.1 |

TABLE 1: ASSAY RESULTS FOR TRENCH #1 AND TRENCH #2

None of the samples collected from either trench contain any gold mineralization. Only one significant silver value of 58.9 ppm was obtained from trench #2.

CONCLUSIONS AND RECOMMENDATIONS

Thirty-one man-days were spent geologically mapping, geochemically sampling and trenching the THOR claims. Mapping outlined areas of silicification. Rock geochemistry suggests that gold mineralization is not only confined to tetrahedrite mineralization but also within silicified zones.

It appears that silver bearing tetrahedrite veins are irregular, discontinuous and not abundant. Trenching is a relatively fast method of exposing outcrop in this type of terrain. It is recommended that trenching of anomalies and tetrahedrite veins be continued. It is also recommended that zones of silicification be prospected, sampled in detail and possibly trenched.

REFERENCE

Souther, J.G. (1971). Geology and mineral deposits of Tulsequah
map-area, British Columbia. Geological Survey of Canada
Memoir 362, 84 p.

1983 EXPLORATION PROGRAM
THOR GROUP
COST STATEMENT

PERIOD: August 2 to August 24, 1983.

A. PHYSICAL WORK:

LABOUR:

| | <u>Position</u> | <u>Field Days</u> |
|-----------|------------------|-------------------|
| B. Dieter | Contract Blaster | 5 |
| J. Woods | Assistant | 5 |
| G. Wober | Assistant | <u>5</u> |
| | Total | 15 |

Contractor cost per day \$275. = \$1,375.00
Assistant cost per day \$100. = 1,000.00

CAMP COSTS:

15 man days @\$60. per day = 900.00

HELICOPTER:

1.7 hrs. @\$500. per hr. including fuel 835.00

Total \$4,110.00

B. GEOLOGY AND GEOCHEMISTRY:

| | <u>Position</u> | <u>Field Days</u> | <u>Office Days</u> |
|------------------------------------|----------------------|-------------------|--------------------|
| D. Shaw | Geologist | 1 | 1 |
| M. Thicke | Geologist | 2 | 2 |
| M. Gray | Geological Assistant | 5 | - |
| W. Hewgill | Assistant | 5 | - |
| D. Hodge | Assistant | 1 | - |
| P. Frank | Assistant | 1 | - |
| B. Daniel | Assistant | <u>1</u> | <u>-</u> |
| | | Total | 16 |
| | | | 3 |
| Cost per field man day \$100. | = | | \$ 1,600.00 |
| Cost per office man day \$150. | = | | 450.00 |
| <u>DRAFTING:</u> | | | |
| 2 days @\$100. per day | = | | 200.00 |
| <u>CAMP COSTS:</u> | | | |
| 16 days at \$60. per day | = | | 960.00 |
| <u>GEOCHEMISTRY:</u> | | | |
| 30 rocks @ \$17.65 each | = | | 529.50 |
| 21 rock assays @\$10.50 each | | | 220.50 |
| <u>HELICOPTER:</u> | | | |
| 2.9 hrs. @\$500./hr including fuel | | | <u>1,450.00</u> |
| | | Total | <u>\$ 5,410.00</u> |

TOTAL GEOLOGY & GEOCHEMISTRY = \$5,410.00

TOTAL PHYSICAL WORK = \$4,110.00

Total \$9,520.00

STATEMENT OF QUALIFICATIONS

I, Mike Thicke, graduated from the University of British Columbia in May, 1980 with a B.Sc. degree in geology. Six seasons have been spent working in exploration geology in B.C., including four since graduation. I am presently employed as a geologist by Chevron Canada Resources Limited of Vancouver, B. C.

A handwritten signature in cursive script that reads "Mike Thicke". The signature is written in dark ink and is positioned centrally on the page, below the typed text.

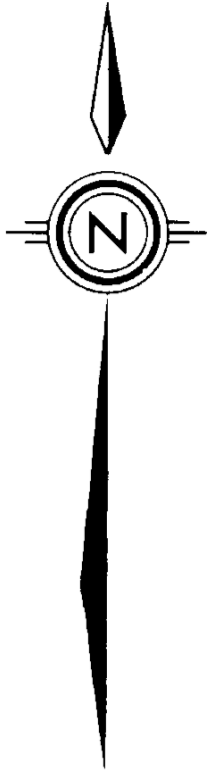
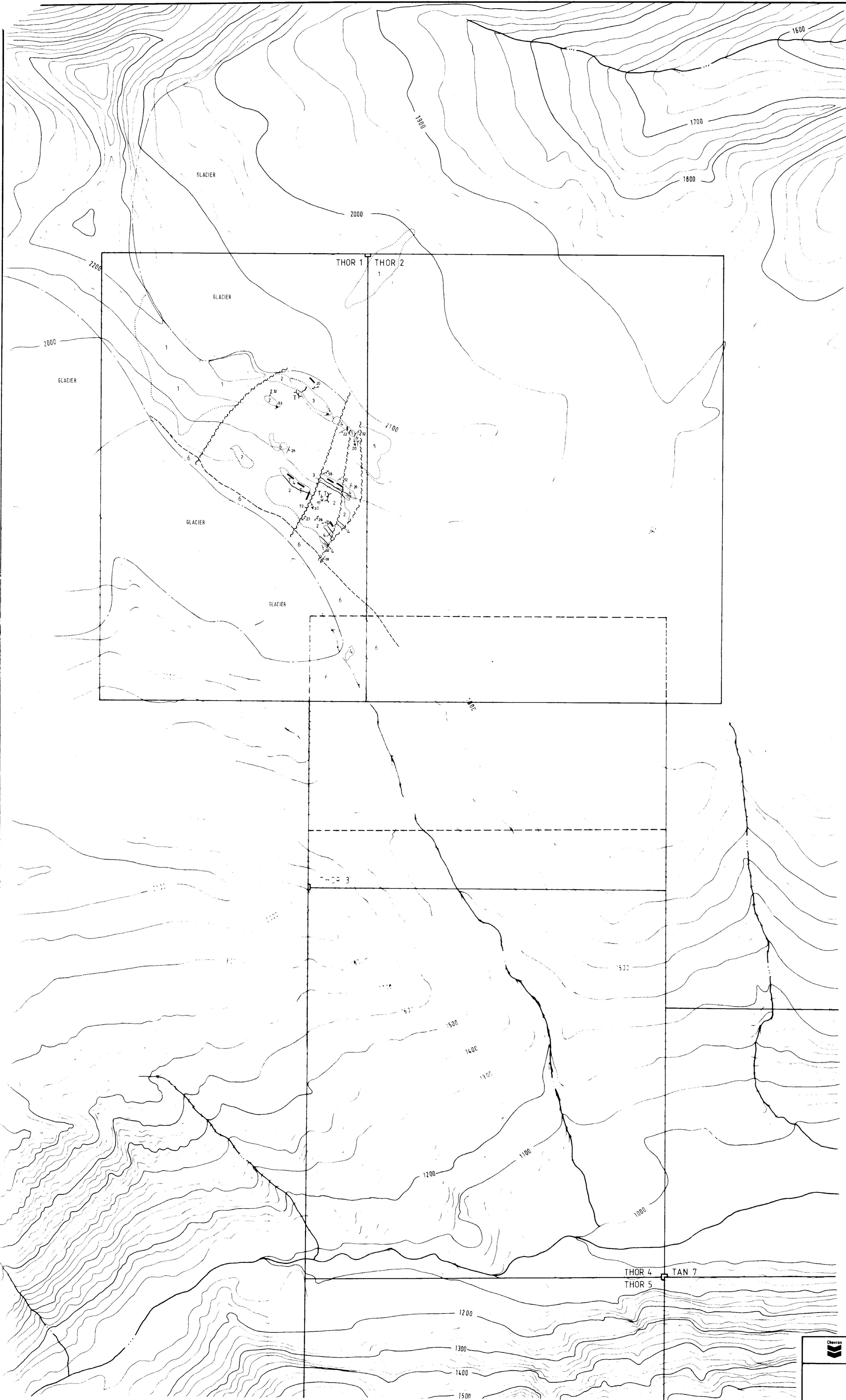
Mike Thicke

STATEMENT OF QUALIFICATIONS

I, Ken Shannon, have worked as a geologist in B. C. on a seasonal basis since graduation from the University of British Columbia with a B.Sc. (Hons. Geology) in 1975. A M.Sc. degree was awarded from the Department of Geology at U.B.C. in May, 1982. I am employed as a geologist by Chevron Canada Resources Limited of Vancouver, B. C. Work on the THOR claims was done under my supervision.

A handwritten signature in cursive script that reads "Ken Shannon". The signature is written in dark ink and is centered on the page.

KEN SHANNON



LEGEND

QUATERNARY

6 GLACIAL TILL

PRE-UPPER TRIASSIC

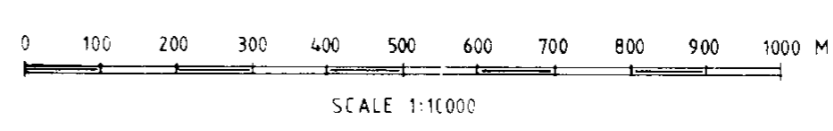
- 5 MAFIC VOLCANIC FELDSPAR PORPHYRY
- 4 DOLOMITE AND LIMESTONE - THIN TO THICKLY BEDDED, GRAY TO BUFF-PINK.
- 3 PHYLLITE - MAFIC; BLACK FOLIATION RESEMBLES SLATEY PARTING.
- 2 PHYLLITE-FELSIC; LIGHT GREEN TO BROWN, WELL FOLIATED.
- 1 GREENSTONE - RELATIVELY UNALTERED.

SYMBOLS

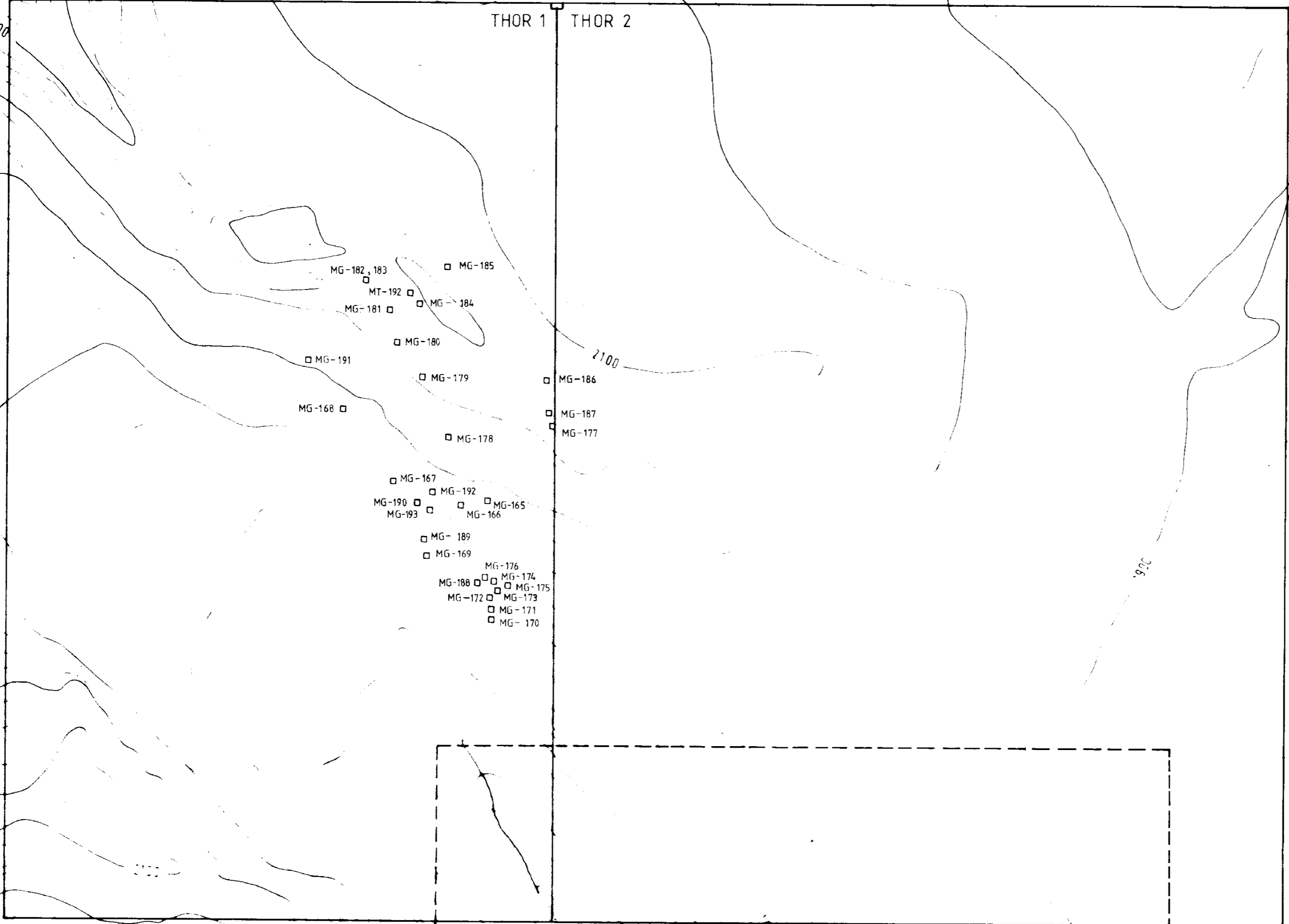
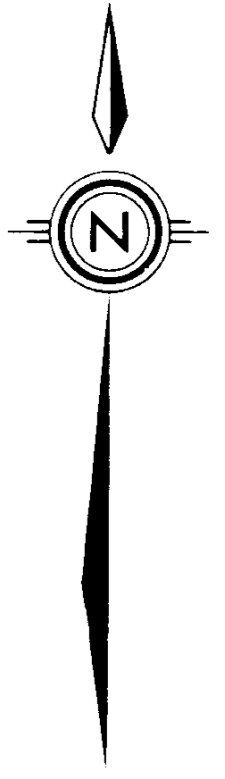
- GEOLOGICAL CONTACT; OBSERVED, APPROXIMATE
- LIMIT OF OUTCROP
- FAULT; OBSERVED, APPROXIMATE
- BEDDINGS
- FOLIATION
- MINOR FOLD AXIS
- VEIN ATTITUDE
- SILICA ALTERATION
- TRENCH LOCATION
- TETRAHEDRITE OCCURRENCE

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,963




| | | | |
|---|-----------------|--|----------------|
| Chevron Canada Resources Limited Minerals Staff | | | |
| THOR CLAIM GROUP GEOLOGY | | | |
| FIGURE No 3 | PROJECT No M504 | | |
| DATE OCT. 1983 | REVISIONS | | SCALE 1:10,000 |
| NTS No. 104 K | | | FILE No. |
| COMPILED BY | | | G-17 |



GEOLOGICAL BRANCH
ASSESSMENT REPORT

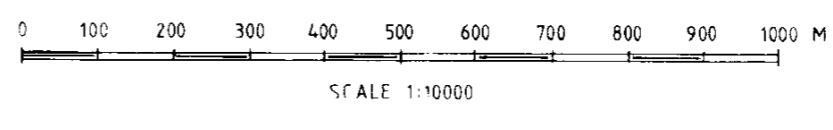
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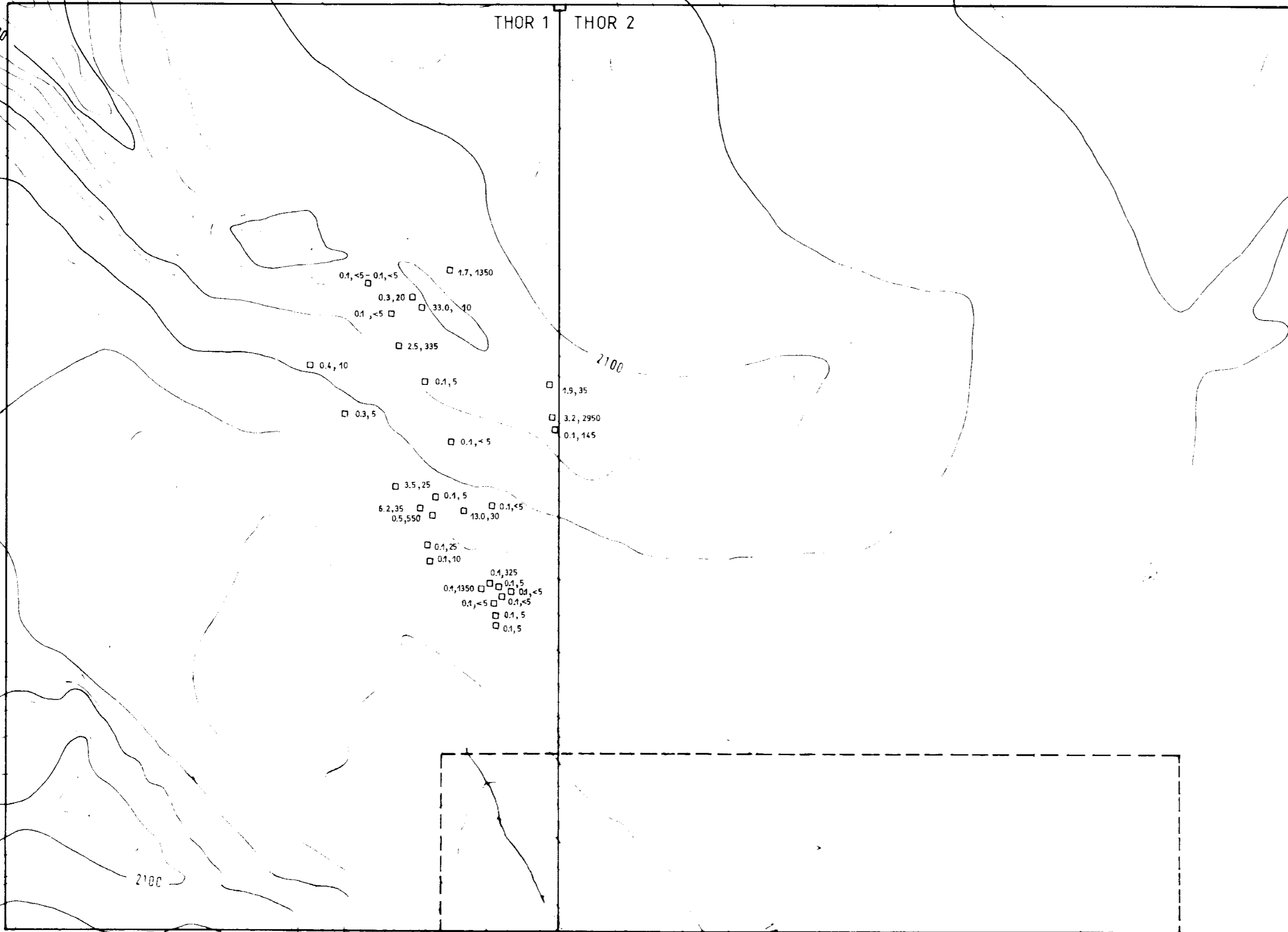
- LEGEND
- SOIL
 - ROCK
 - △ SILT

 **Chevron Canada Resources Limited**
Minerals Staff

THOR CLAIM GROUP
SAMPLE STATIONS LOCATION

| | | |
|---------------|-----------------|----------------|
| FIGURE No 4 | PROJECT No M504 | |
| DATE OCT 1983 | REVISION: | SCALE 1:10 000 |
| NTS No 104 K | | FILE No |
| COMPILED BY: | | S-55 |



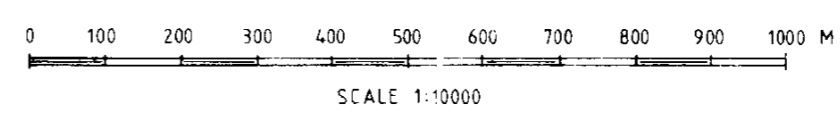



GEOLOGICAL BRANCH
ASSESSMENT REPORT

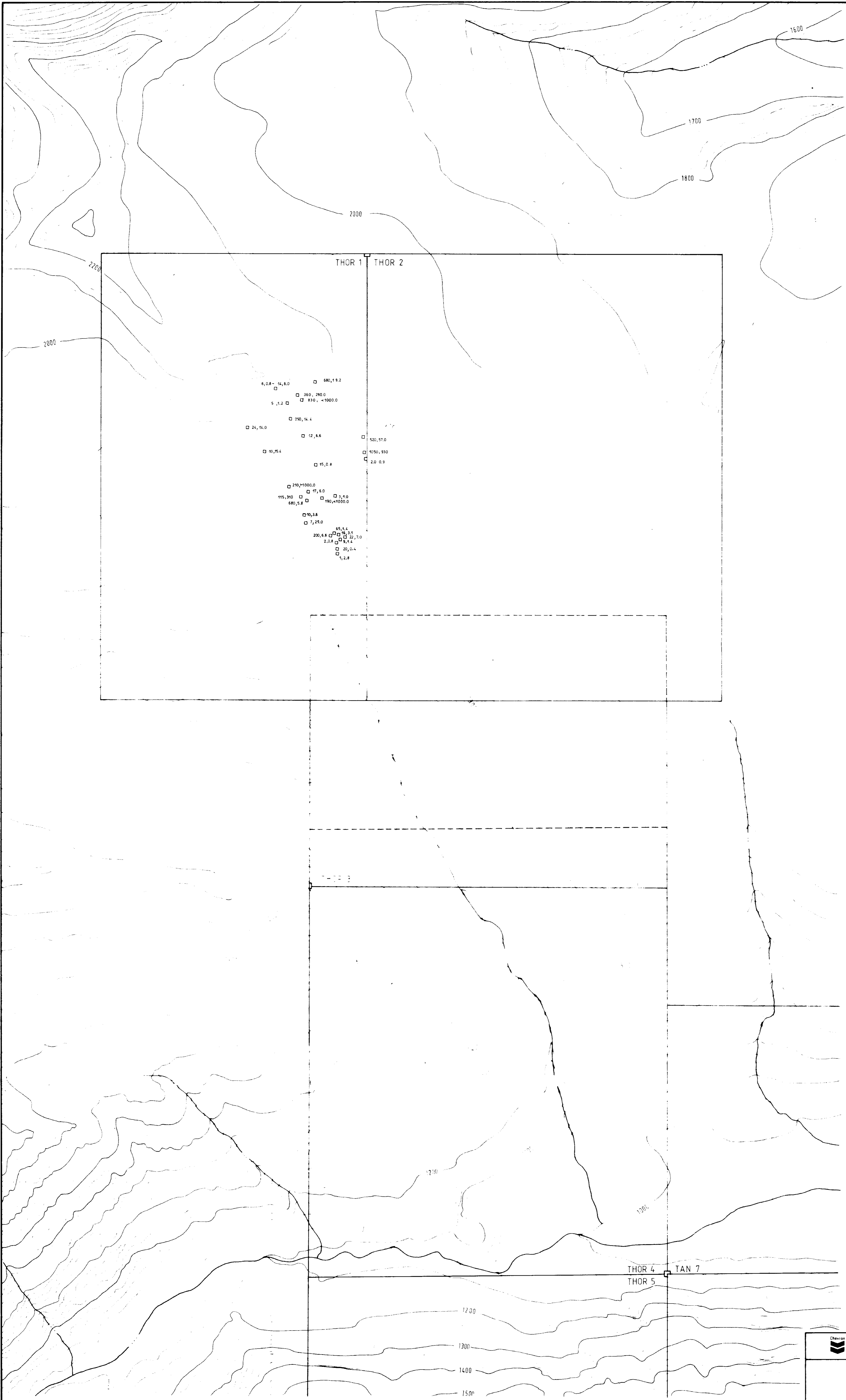
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- LEGEND
- SOIL
 - ROCK
 - △ SILT

Ag (ppm), Au (ppb)
1:7, 1950



| | | | |
|---|-----------|------------|----------|
|  Chevron Canada Resources Limited Minerals Staff | | | |
| THOR CLAIM GROUP GEOCHEMISTRY Ag (ppm) Au (ppb) | | | |
| FIGURE No | 5 | PROJECT No | M504 |
| DATE | OCT. 1983 | REVISIONS | |
| NTS No | 104 K | SCALE | 1:10,000 |
| COMPILED BY | | FILE No. | C-173 |



GEOLOGICAL BRANCH
ASSESSMENT REPORT

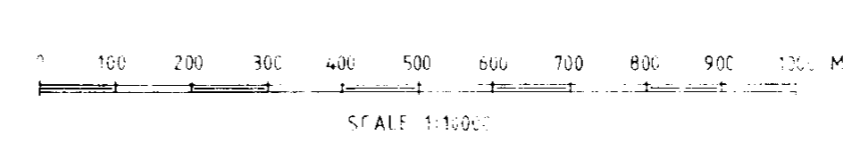
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LEGEND

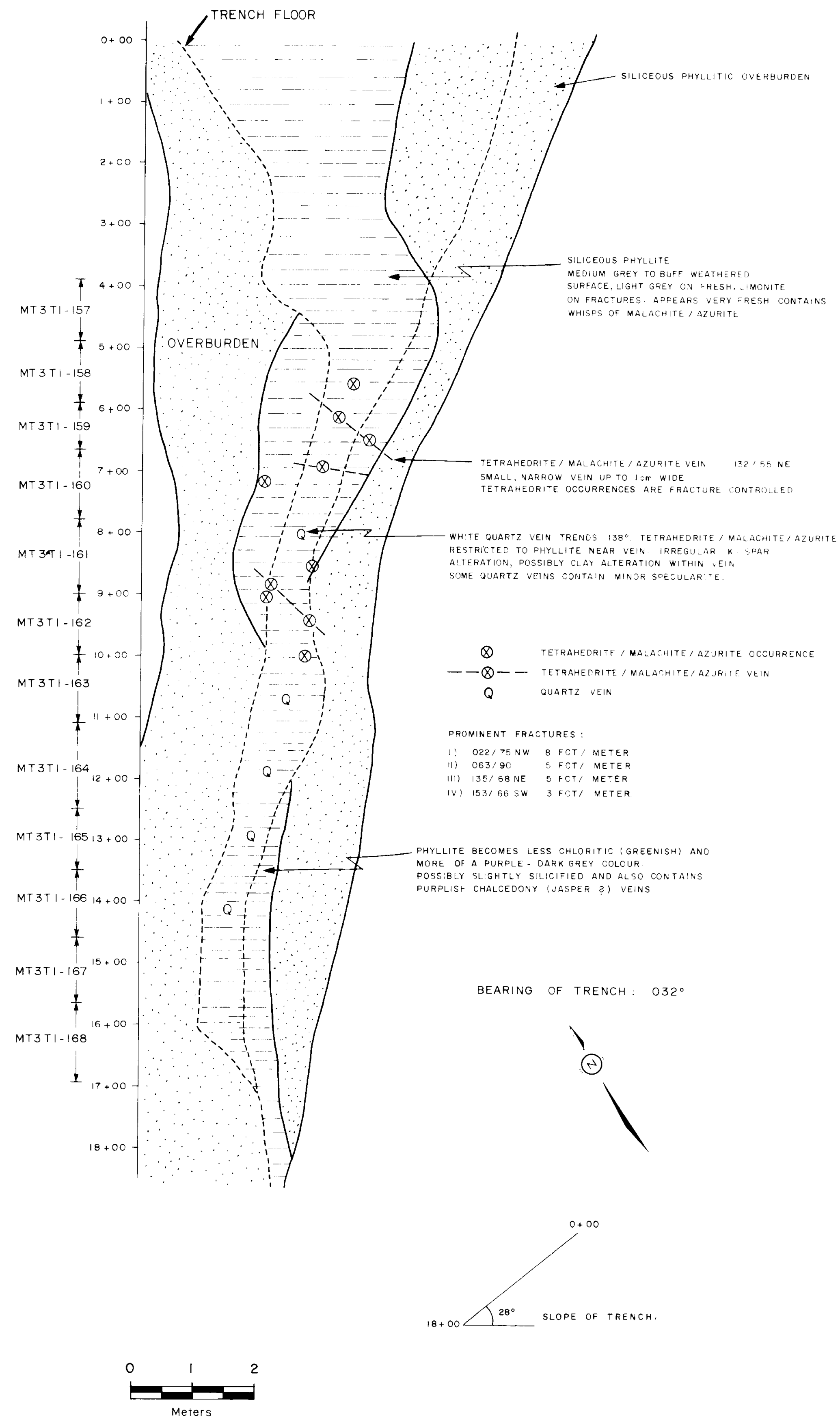
- SOIL
- ROCK
- ▲ SILT

As (ppm), Sb (ppm)
□ 200, 6.6

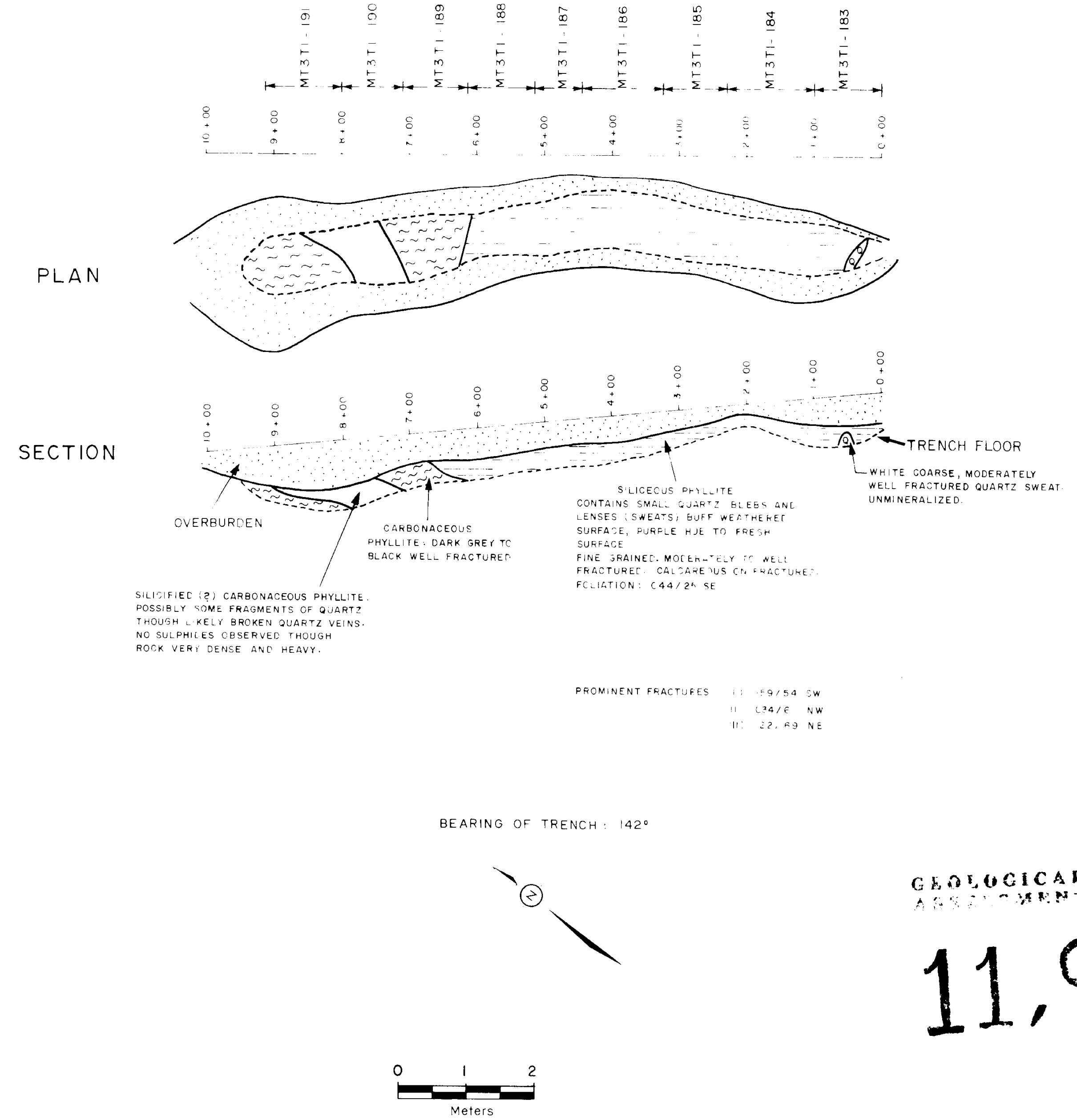
| | | |
|---|------------------|-------------|
| Chevron Canada Resources Limited Minerals Staff | | |
| THOR CLAIM GROUP GEOCHEMISTRY As (ppm) Sb (ppm) | | |
| FIGURE No. 6 | PROJECT No. M504 | |
| DATE: OCT 1983 | BY: [unclear] | REV: 1.10.3 |
| SCALE: 10:1 | | |
| | | C-174 |



THOR TRENCH #1



THOR TRENCH #2



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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| | | | |
|--|----------|------------|--------------|
| Chevron Canada Resources Limited Minerals Staff | | | |
| THOR GROUP TRENCH 1 & 2 GEOLOGY | | | |
| FIGURE No | 7 | PROJECT No | M504 |
| DATE | OCT / 83 | REVISIONS | SCALE 1 : 50 |
| NTS No | | | FILE No |
| COMPILED BY M.T. | | | |