

144

GEOPHYSICAL REPORT ON  
THE EASTERN PORTION  
OF THE DIVIDE GROUP OF CLAIMS  
FOR  
GRAHAM BOUSQUET GOLD MINES LIMITED

HIGHLAND VALLEY AREA  
ASHCROFT, B.C.

Claims surveyed:

- M.A.G. No. 6
- S.S.W. Nos. 1, 3 and 5
- M.G.H. Nos. 1, 3 and 4
- C.C. No. 6
- H.W.D. No. 4
- H.W.D. Fr. No. 5
- C.M. Fr. No. 1

92I/6E & 7W

92I/6E & 7W

and in part claims:

- Jordan Nos. 5 and 6
- M.G.H. No. 2
- C.C. Nos. 5, 7 and 8.

Location of the Divide group of claims would place it northwest of longitude 121°, latitude 50°, and 12 miles southeast of Ashcroft in the Highland Valley area, B.C.

50° 121° S E

The work was carried out during the period from 4th October to 17th October, 1956.

Prepared by:

E.B. Nicholls, B.Sc., A.Inst.P.,  
Geophysicist.

Geo-Technical Development Company Ltd.  
24 Wellington Street West,  
TORONTO, Ontario.

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I N D E X

|  | p a g e    |
|--|------------|
| Introduction.....                                  | 1          |
| Summary and recommendations.....                   | 1 - 2      |
| Property, location and access.....                 | 2 - 3      |
| Topography.....                                    | 3          |
| General geology.....                               | 3 - 4      |
| Field operations.....                              | 4 - 5      |
| Explanation of the magnetometer survey.....        | 5          |
| Interpretation of the geophysical survey.....      | 5 - 7      |
| Survey data.....                                   | 7          |
| List of personnel employed on geophysical survey.. | Appendix A |

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#/ Plan No. 1..... Iso-dynamic Contours of Magnetic Intensities,  
and Geological Interpretation. (Drawing Ref:  
139-10-56).

Graham Bousquet Gold Mines,  
Suite 1600,  
100 Adelaide Street West,  
TORONTO, Ontario.

Gentlemen,

The following report describes the results and interpretation of the geophysical survey carried out over part of the Divide group of claims held by Graham Bousquet Gold Mines Limited, located in Highland Valley, 12 miles southeast of Ashcroft, B.C.

The magnetometer survey carried out over the property, was conducted by Geo-Technical Development Company Limited, 24 Wellington Street West, Toronto, Ontario, during the period from 4th October to 17th October, 1956. The results of the surveys are depicted on Plan No. 1 accompanying this report.

#### SUMMARY AND RECOMMENDATIONS

The magnetometer survey indicated an area of fairly uniform magnetic intensity, with two anomalies of "low" intensity. These anomalous zones are identified on the accompanying plan by the letters "A" and "B".

The property is located entirely within the Guichon Creek batholith, which would account for the uniformity of the magnetic intensities. It is known that the main ore deposits of the Bethlehem Copper Corporation, located on the northeast boundary of the Divide group of claims, occur in mineralized breccia and fault zones, and are intimately related to the complex igneous rocks that intrude the older granites of the batholith. These fault zones, will tend to stand out as magnetic "lows".

It is therefore possible that Anomalies "A" and "B" represent two of these breccia zones, and may also be mineralized. This appears to be true in the case of Anomaly "B" which coincides with an anomaly located during a geo-chemical survey which was carried out prior to the magnetometer survey. The geo-chemical survey indicated an increase in the metalliferous content of the soil in this area of Anomaly "B".

In order to ascertain the possibility of mineralization being associated with the magnetic anomalies, it is recommended that further investigation in the form of surface trenching and stripping be carried out over Anomaly "A". It is further recommended that before conducting a diamond drilling programme, the property be geologically mapped and that an electrical resistivity survey be carried out over the property to determine the extent of any mineralization that may be present.

#### PROPERTY, LOCATION AND ACCESS

The Divide group of claims held by Graham Bousquet Gold Mines Limited, is located in the Highland Valley, 12 miles southeast of Ashcroft, B.C. Only the eastern part of the claim group was covered by the magnetometer survey. This portion of the property included 11 claims surveyed in full and another six in part. The claims surveyed are further described as follows:

M.A.G. No. 6.  
S.S.W. Nos. 1, 3 and 5.  
M.G.H. Nos. 1, 3 and 4.  
C.C. No. 6.  
H.W.D. No. 4.  
H.W.D. Fr. No. 5.  
C.M. Fr. No. 1.

and in part claims:

Jordan Nos. 5 and 6.  
M.G.H. No. 2.  
C.C. Nos. 5, 7 and 8.

The Canadian Pacific Railway and the Canadian National Railway pass through the town of Ashcroft, which is about 220 miles northeast of Vancouver.

Access to the property can be made by means of an unsurfaced, poorly ballasted road from Ashcroft, a distance of approximately 25 miles. The property can also be reached by road from Kamloops and Merritt, the former being a distance of 60 miles, half of which is over unsurfaced roads, whilst the latter is 37 miles by a poorly ballasted road.

#### TOPOGRAPHY

Highland Valley is a broad, shallow depression extending southeasterly and easterly across the rolling upland which separates the deep valley of the Thompson River on the west from the shallow southerly trending valley of Guichon Creek and Mamit Lake on the east.

The height of land is about 4,100 feet with patchy timber, meadows, swamps and small lakes. The bottom of Highland Valley has a deep cover of glacial drift. Eskers form low rounded hills and sinuous gravel ridges. The valley rises steeply at the sides, and the topography here is fairly rugged.

#### GENERAL GEOLOGY

The general geology of the area is shown on Map No. 1010A accompanying Memoir 262, Ashcroft Map area, B.C., by S. Duffell and K.C. McTaggart, published by the Department of Mines and Technical Surveys.

The property discussed in this report lies within an area underlain by the Guichon Creek batholith. This diorite complex occupies a large area east of the Nicola River. The rocks are

typically grey with some pink and greenish-grey phases. Mineralization of the area is found in breccias and fault zones and is intimately related to this complex of igneous rocks that have intruded the older granite rocks of the Guichon Creek batholith. As the valley bottom has a deep cover of glacial drift, outcrops in the area are scarce. Joints are conspicuous in many of the outcrops and are important because much of the copper mineralization in the area is found in them. However, in most instances the batholith is massive, but it has been subjected to stresses in certain areas that have created fault and shear zones. Joints are especially closely spaced in the vicinity of the faults in the mineralized areas.

Whilst magnetite is known to be an accessory mineral in the batholith, it apparently is not associated with the copper mineralization. In most of the mineral occurrences in the Highland Valley, the mineralization occurs in fracture zones within the batholithic rocks, and consists of chalcocite, bornite, chalcopyrite, azurite, malachite, some pyrite and specular hematite.

#### FIELD OPERATIONS

The base line was established in a north-south direction and located so as to pass claims Jordan No. 5, M.G.H. No. 2 and M.G.H. No. 4. Picket lines were then turned off at right angles to the base line at 400 foot intervals; all lines were laid out by a transit and were picketed every 100 feet. The traverse lines were cut to the east boundary from this base line, but only extended to the west to cover the area of the main trench.

All major topographic features were noted and wherever possible claim posts located; these are also plotted on the accompanying plan.

A Sharpe magnetometer, Model A-2, with a sensitivity of 25 gammas per scale division was used for the magnetometer survey. A more detailed discussion of the survey method is given in the following paragraphs.

#### EXPLANATION OF THE MAGNETOMETER SURVEY

A main base control station was established on the base line at 1400S. This control station had a value of 1,000 gammas and all other station readings are relative to this point.

At various points along the base line subsidiary control stations were established using the method that is general in laying out control stations in magnetic and gravimetric work. Readings were taken at these control stations every 2-3 hours, so that the diurnal variation could be allowed for.

All readings taken during the survey were converted into gammas and all variations were accounted for. The resulting readings were then plotted on the plan accompanying this report.

#### INTERPRETATION OF THE GEOPHYSICAL SURVEY

The results of the magnetometer survey conducted over the eastern part of the Divide group of claims held by Graham Bousquet Gold Mines Limited are depicted on Plan No. 1 accompanying this report.

The magnetometer survey indicates that the property is located in an area of fairly uniform magnetic intensity. The main anomalous zones show a somewhat lower order of magnetic intensity than is observed over the immediate adjacent areas, and are identified on the accompanying plan as Zones "A" and "B".

From the geological survey, it will be noted that the property is situated entirely within the area of the Coast Intrusions



which form the Guichon Creek Batholith. The results obtained from the magnetometer survey show that the rock types are all similar, as there is very little variation in the magnetic susceptibility of these rocks.

In most instances the batholith is massive, but in places it has been subjected to stresses that have caused shears and fractures to form. Vein deposits of the Highland Valley areas are known to occur within these fracture zones. These zones would tend to stand out as magnetic "lows". It is therefore possible that Anomalies "A" and "B" represent two of these shear or fracture zones which may carry mineralization.

Anomaly "B" located by the magnetometer survey is found to coincide with an anomaly indicated by a geo-chemical survey which was conducted prior to the magnetometer survey.

Hence, it is possible that magnetic "lows" found within the Guichon Creek batholith are due to the shear or fracture zones. However, it does not mean that every anomaly of "low" intensity will be associated with mineralization.

The strike of these two anomalies, as indicated by the contouring, are in the same general direction in which known deposits lie in the area, notably on the property of Bethlehem Copper Corporation which adjoins the Divide group of claims to the northeast. Another copper showing is to be found, to the west of the Divide group, on the Johnson group of claims.

Paralleling the base line is a zone of slightly higher readings than the immediately adjacent ones, this zone which lies in a north-south direction, is probably indicative of some regional feature having that strike trend. It is to be noted that the readings

to the east and west of it are very similar. However, insufficient work was conducted over this area to enable complete interpretation of the zone to be made.

In conclusion, the geophysical results show two lenticular anomalies of "low" intensity, one of which is associated with a geochemical anomaly. These anomalies are probably indicative of shear or fracture zones within the batholith.

However, the magnetometer survey in this particular instance does not provide enough conclusive evidence to assume that mineralization is to be found in these anomalies. Further work in the form of geological mapping, possibly followed by an electrical resistivity survey next summer is recommended.

SURVEY DATA

A base line was established in a north-south direction in the eastern portion of the property. Ficket lines were then turned off at right angles to this base line every 400 feet. A total of 13.8 miles of line was cut and chained.

The magnetometer was conducted over these traverse lines, and a total of 13.1 miles of line was surveyed, requiring 692 station readings taken at 100 foot intervals.

Respectfully submitted,

GEO-TECHNICAL DEVELOPMENT COMPANY LIMITED

*E.B. Nicholls*

E.B. Nicholls, B.Sc., A.Inst.P.,  
Geophysicist.

Toronto, Ontario.  
25th October 1956.

APPENDIX "A"

LIST OF PERSONNEL EMPLOYED

|                  |                                |
|------------------|--------------------------------|
| E. B. Nicholls - | Geophysicist                   |
| J. R. Needham -  | Geophysical Operator           |
| D. Connauton -   | Assistant Geophysical Operator |
| Arsene Decaire ) |                                |
| Gille Grondin )  | Line Cutters and Chainer       |
| J. P. Decaire )  |                                |
| R. Harding )     |                                |
| R. Guenther )    | Surveyors.                     |

\* \* \* \* \*

C E R T I F I C A T E

I, E.B. Nicholls, of the City of Toronto, Ontario,  
do hereby certify:

1. that I am a geophysicist employed by Geo-Technical Development Company Limited of 24 Wellington Street West, Toronto, Ontario, and that I reside at 39 Addison Crescent, Don Mills, Ontario.
2. that I am a graduate of London University, England, (B.Sc. 1947), majoring in physics.
3. that I am an Associate of the Institute of Physics, London, England.
4. that I have been practising my profession since 1947.

*E.B. Nicholls*

E.B. Nicholls, B.Sc., A.Inst.P.

Toronto, Ontario.  
25th October 1956.

EBN-mc.

GRAHAM-BOUSQUET GOLD MINES LIMITED

Divide Group, Highland Valley, B. C.

Statement of Expenditures - October 4, 1956, to October 17, 1956.

SALARIES

|                |          |           |
|----------------|----------|-----------|
| D. Connauton   | \$140.20 |           |
| E. B. Nicholls | 155.40   |           |
| J. R. Needham  | 171.40   |           |
| R. Harding     | 82.41    |           |
| R. Guenther    | 25.20    | \$ 574.61 |

OTHER EXPENDITURES

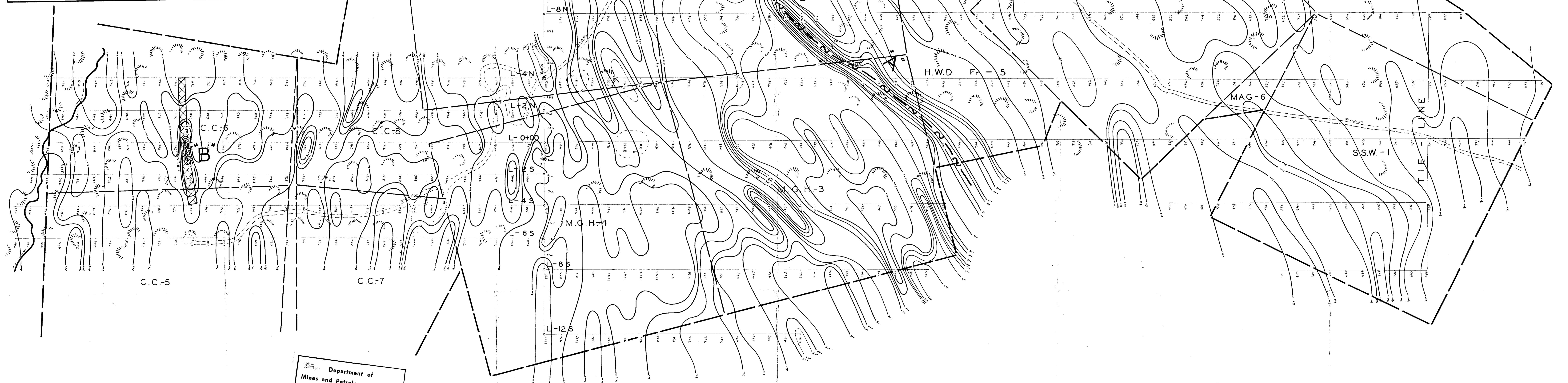
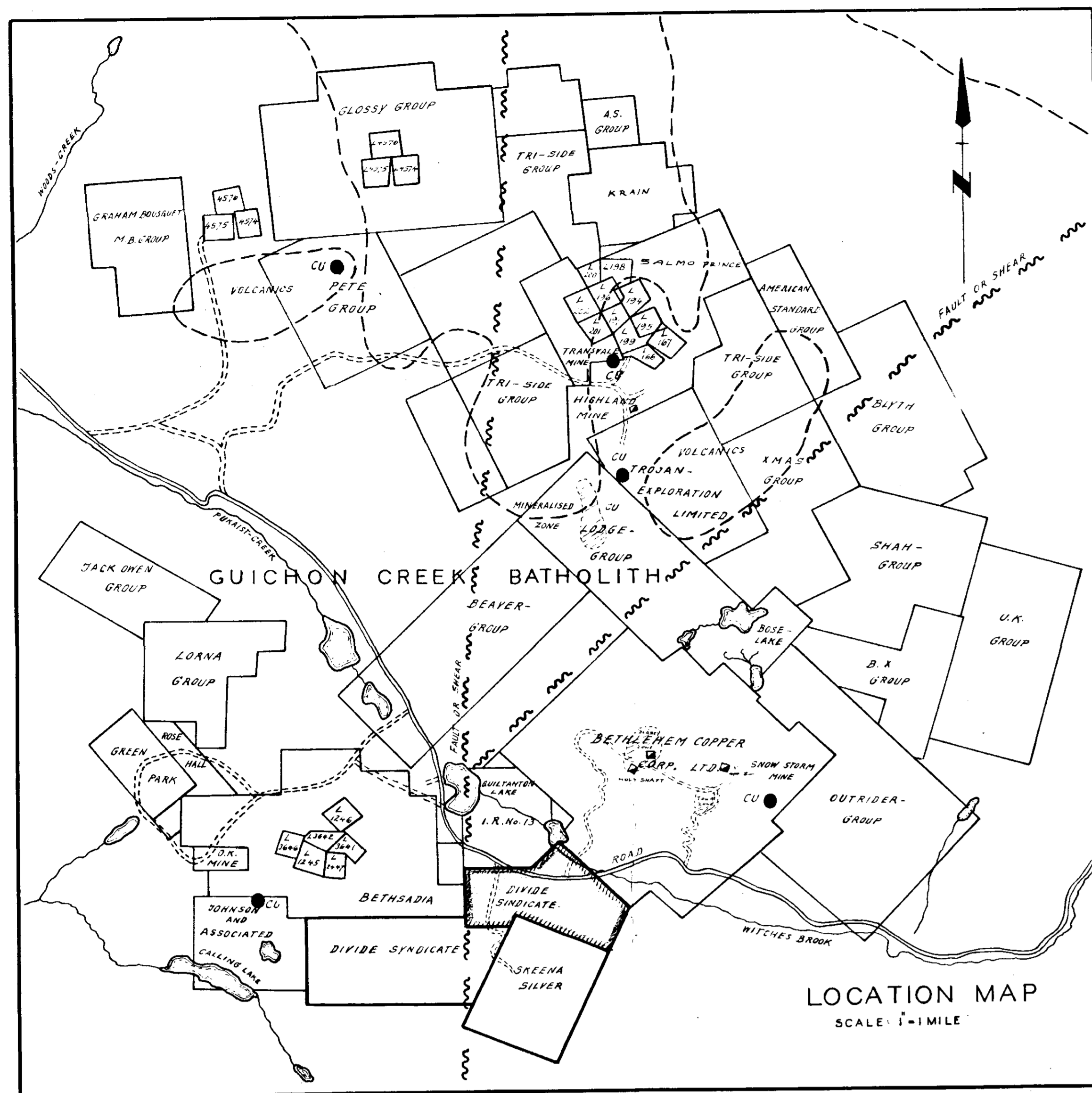
|                      |                             |
|----------------------|-----------------------------|
| Line Cutting (3 Men) | 460.00                      |
| Travel Expenses      | 204.80                      |
| Food Supplies        | 123.07                      |
| Hotel and Meals      | 12.61                       |
| Camp Supplies        | 35.00                       |
|                      | <u>                    </u> |
|                      | \$ 1,410.09                 |

NOTE:

The above expenditures to be applied against Assessment Work on the Divide Group of Claims, property of Graham-Bousquet Gold Mines Limited, located in the Highland Valley of British Columbia.

CERTIFIED CORRECT as per the Cost Records of Geo-Technical Development Company Limited.

*Geo. Frank*  
.....  
A c c o u n t a n t .



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 144 MAP #1

**LEGEND**

- LINES CUT AND CHAINED MAGNETIC READINGS OBSERVED AND PLOTTED ON SOUTH SIDE OF LINE GRID.
- MAGNETIC CONTOUR.
- MAGNETIC BASE CONTROL STATION.
- MAGNETIC CONTROL STATION.
- AREA OF HIGHER GROUND.
- TRENCH.
- OUTCROP.
- CLAIM POST LOCATION AND CLAIM BOUNDARY.
- ZONE OF FRACTURING OR SHEARING INFERRED FROM MAGNETIC SURVEY DATA.

Report 144  
MAGNETIC SURVEY DATA OVER PART OF PROPERTY  
**GRAHAM - BOUSQUET GOLD MINES LIMITED**  
(DIVIDE SYNDICATE GROUP)  
ISO-DYNAMIC CONTOURS OF MAGNETIC INTENSITIES  
AND  
GEOLOGICAL INTERPRETATION

HIGHLAND VALLEY  
BRITISH COLUMBIA  
GEO-TECHNICAL DEVELOPMENT COMPANY LIMITED

PLAN NO-1

SCALE: 1" = 200'

OCTOBER-1958

**LEGEND**

- 0 - 100 GAMMA
- 0 - 100
- 100 - 200
- 200 - 500
- 500 - 800
- 600 - 800
- 800 - 1000
- 1000 UP

#144  
MAP 1

