3773

94K/6W

GEOPHYSICAL REPORT

on a

MAGNETIC SURVEY

on the

MARGE CLAIM GROUP

RACING RIVER AREA, LIARD M.D., B.C.

June, 1972

MARG CLAIM GROUP: 105 miles S80W of Fort Nelson, B.C.

: 50° 125° SE

N.T.S. : 94K/6W

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3773 MAP .....

Written for: Vallex Mines Ltd.,
403-540 Burrard Street,
Vancouver, B.C.

by: David G. Mark
Geophysicist
Geotronics Surveys Ltd
514-602 West Hastings Street,
Vancouver 2, B.C.

July 17, 1972

Geotronics Surveys Ltd.
Vancouver, Canada

Geophysical Services — Mining & Engineering

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MAPS AND GRAPHS - at end of report

MAP - in pocket

SUMMARY

A ground magnetic survey was completed over a portion of the Marg claims which abut Delano Creek, a tributary of Racing River within the Liard Mining Division. The survey was carried out in the early part of June, 1972. The purpose of the work was to outline andesite dykes which are associated with the copper mineralization within the area.

The terrain is quite rugged with relief being about 3,000 feet. The property extends from Delano Creek northwards up talus slopes and impassable bluffs to the top of a mountain that is immediately north of Mount Roosevelt. Timber is limited to areas around the creeks.

The geological description of the property is largely taken from J. R. Vail. Most of the property is underlain by the Windermere argillite shale.South of Delano Creek is found the Windermere quartzites. In the east-central part of the claims area is a patch of grey limestone. No andesite dykes are known so far to exist on the property.

Copper mineralization in the area is found in quartz-calcite veins within a contorted argillite.

The range in the magnetic values from the survey is very small which is typical of sedimentary-type rocks. However, four lineal magnetic highs could be indicative of andesite dykes. The rest of the results give little extra information about the underlying geology.

CONCLUSIONS AND RECOMMENDATIONS

The survey results have indicated that there may exist on the property andesite dykes as shown on sheet 1. There may also be other dykes that have a negligible magnetite content and therefore would not be revealed by the survey.

It is strongly felt that before any other work is undertaken, the property be thoroughly prospected and geologically mapped, that is, on all the accessible areas. Special emphasis should be placed on whether the property has any andesite dykes, contorted argillite such as is around the mineralization in the area, and copper sulphides.

A soil sample survey should also be undertaken, if it is felt the geological conditions warrant it. Any anomalies that might occur

may be caused by mineralized float glaciated out of the Magnum Creek valley.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.,

David G. Mark,
Geophysicist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
T. R. TOUGH

July 17,1972

GEOPHYSICAL REPORT

on a

MAGNETOMETER SURVEY

MARG CLAIM GROUP

RACING RIVER AREA, LIARD M.D., B.C.

INTRODUCTION AND GENERAL REMARKS

This report discusses the procedure, compilation, and interpretation of a magnetometer survey carried out over the Marg claims at the beginning of June, 1972.

The field work was under the supervision of E.A. Dodd and assisted by R. S. Simpson. The number of line miles completed was approximately 12.5. The survey area is shown on Figure 2.

The object of the survey was to try to locate andesite dykes, which according to Vail, have a magnetite content of 15% in many cases. These dykes are associated with the copper mineralization in the Churchill Copper mine and copper showings in the area.

An airborne magnetometer survey was carried out with the same object during September 1970. There was a small one-value anomaly on the south-central border of the property on Delano Creek that may have been caused by either magnetic noise or an andesite dyke. However, it was felt that if any dykes exist on the property, they may be too small or carry an insufficient amount of magnetite to be detected by airborne methods.

PROPERTY AND OWNERSHIP

The property consists of 20 contiguous mineral claims as shown on Figure 2 and the table below. The registered owner of the claims is Estey Agencies Ltd of Vancouver who, it is understood, is holding the property in trust for Vallex Mines Ltd (NPL)

Name	Record No.	Expiry Date
Marg 1-20	44821-840	June 19, 1973

The expiry date is that after the ground magnetic survey has been applied for assessment credits.

LOCATION AND ACCESS

The property is located about 100 miles S80W of Fort Nelson, B.C. on Delano Creek immediately north of Mt. Roosevelt.

Geographical coordinates are 58° 28' N. latitude and 125° 30'W longitude.

Access is by the Churchill Copper Mines access road which leaves the Alaska Highway at about Mile 401.

PHYSIOGRAPHY

The terrain over the Marg E Claim Group is very rugged with a relief in excess of 3,000 feet. The elevation varies from 4,500 feet in the southwest corner of the property to over 7,500 feet in the northeast corner. Delano Creek, a tributary of Racing River, flows through the southern tip of the claim block. On either side of the creek there are talus slides with an incline of 30° to 45°. These slides are interspersed with rock bluffs and extend for approximately 1,500 to 3,000 feet to larger, often impassable bluffs.

Much of the property is above timberline and therefore vegetation largely varies from grass to a salal-type bush. Near the creek are evergreens and white softwood-type trees.

The climate of the area could be termed sub-arctic. Temperatures can thus dip to a minimum of -60°F in January to a maximum of 90°F in July. Freeze-up starts approximately mid-October and break-up around April or May. There are thus only four or five months of exploration season, and snow can fall anytime during these months.

HISTORY OF PREVIOUS WORK

The only work done to date on the Marg claims was an airborne magnetometer survey carried out during September of 1970.

GEOLOGY

The geology is largely taken from J.R. Vail in his M.Sc. thesis, partly from Taylor and Stott, and from the writer's own observations when he was in the area in the Fall of 1970.

Much of the general area and Vallex's property is underlain mainly by an argillite-shale. It is a grey-black rock with alternate light-dark bands of bedding which usually dip about 20° in a southerly direction. It has three sets of fractures, with one being parallel to the bedding and the strongest, usually, being approximately perpendicular to the bedding. Sometimes the fractures produce small sharp angular pieces of rock. The strike and dip vary from place to place. There are also found veinlets of calcite, and sometimes quartz, varying in width from 1/10 inch to 1 or 2 inches. This seems to be

the same rock type as the host rock for the copper ore deposits in this area. Vail feels this is of the Proterozoic age. The rock is found in outcroppings along the creeks and in the lower elevations of the mountains.

South of Delano Creek and the Marg claims is the quartzitic member of the Windermere group. Rock-types within it vary from near-shale to quartzite and in colour from grey to reddish. Calcite and quartz stringers were seen to cut through this rock-type also.

The argillite (and probably the quartzite) is cut by near-vertical green basic dykes that generally runs southwest-northeast. By the color, the probable mineral composition is that of andesite. The rock is fine-grained with the fabric of the rock generally becoming coarser in the larger dykes. In the larger dykes also, there is a strong set of fractures parallel to the strike of the dyke and a weaker set perpendicular to it, dipping approximately 75^{o} to the southwest. There are also veinlets of calcite, quartz, and epidote cutting the andesite disconcordantly. Specks of pyrite and the odd speck of chalcopyrite have been seen in the andesite. No dykes so far have been seen on the Marg claims.

Of Cambrian age is a grey limestone on the east central part of the claims.

The geology of the ore deposits of Churchill Copper, that of Davis-Keays, and that of Largo are all similar. The principle sulphide, chalcopyrite, is found in quartz-calcite veins, which in turn is in a country rock of highly contorted argillite. It seems the mineralization is associated with the near-vertical basic dykes which are usually 100 feet wide, and strike about northeast-southwest.

INSTRUMENTATION AND THEORY

The magnetic survey was carried out using a portable vertical component, Model G-110 fluxgate magnetometer manufactured by Geotronics Instruments Ltd of Vancouver, B.C. This is a visual-null type instrument using a digital dial readout with a range of 100,000 gammas and a reading accuracy of 10 gammas. The G-110 has a temperature co-efficient of 2 gammas per degree centigrade.

Only two commonly occurring minerals are strongly magnetic; magnetite and pyrrhotite. Hence, magnetic surveys are used to detect the presence of these minerals in varying concentrations. Magnetic data are also useful as a reconnaissance tool for mapping geologic lithology and structure since different rock types have different background amounts of magnetite and/or pyrrhotite.

SURVEY PROCEDURE

A base line was established along the claim line which runs in an approximate direction of N15W, for Marg 1-8 claims and marked every 100 feet by flagging tape. Crosslines were chained and compassed in at right angles to the base line (N75E), at a 200-foot separation and stations marked with flagging at a 100-foot interval. Magnetic readings were taken every 100 feet on both the baseline and the cross-lines. The magnetic diurnal change was monitored in the field by the closed-loop method and double-checked by a series of base stations.

TREATMENT OF DATA

A cumulative frequency graph, Figure 3, was drawn from all the magnetic data and the mean background value was read off to be 57,350 gammas. For ease of drafting, 50,000 gammas was subtracted from all values which were then placed on Sheet 1. The data was then contoured at a 20-gamma interval with contours lower than 57,350 gammas being dashed and those above being solid. The 57,350 gamma contour was not drawn in since being the mean background value, it would only detract from the interpretation.

DISCUSSION OF RESULTS

The magnetic data has a very low range varying from a minimum of 57,240 gammas to a maximum of 57,410 gammas, a difference of only

170 gammas. This is a typical range for magnetic values over sedimentary rocks such as an argillite-shale.

The cumulative frequency graph (Figure 3) shows that the mean background value over the survey area is about 57,350 gammas which is taken at the 50% level. One standard deviation on either side of the mean background value occurs at the 84% and 16% levels respectively which approximates to 57,350 $\pm$ 30 gammas. Therefore, a 30-gamma contour interval was chosen.

The different breaks on the cumulative frequency graph itself indicate that there are a less than normal number of higher values and a higher than normal number of lower values. This would seem to indicate that there are no magnetite-bearing andesite dykes within the survey area. Vail noted that these dykes carried up to 15% magnetite and Taylor and Stott stated 2-3%. A 2-3% magnetite content should be enough to be detected by a portable fluxgate magnetometer over dykes of the size such as are found in this area. However, the writer did run some test lines with a similar magnetometer over known andesite dykes of 100 to 200 feet wide in the area of the confluence of Magnum and Delano Creeks. No change in values were noted over the dykes and therefore the magnetite content must have been negligible.

Nevertheless, there are four lineal magnetic highs within the survey area that quite possibly reflect andesite dykes and are marked as shown on sheet 1. They are of much lower magnetic intensity than was expected but if the dykes exist they probably contain only a marginal amount of magnetite. The lineation marked 4-4' consists of a series of small anomalies that may represent a variation in the amount of magnetite within the dyke. A similar statement may be made of the other possible dykes. They could be longer than as shown by the anomaly and thus the anomaly may reflect either an area where the dyke comes closer to the surface or a higher amount of magnetite.

The rest of the survey results reveal little about the underlying geology. The magnetic highs and lows are 'patchy' and exhibit little that may indicate such things as faults, shear zones or contacts (other than the highs revealing the possible dykes). In fact, all the results are within the noise envelope expected over sedimentary rocks.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.,

David G. Mark
Geophysicist

July 17, 1972

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
T. R. TOUGH

SELECTED BIBLIOGRAPHY

Carr, J.M. Geology of the Churchill Copper Deposit, C.I.M. Bulletin, Vol. 64, pp. 50-54, 1971.

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Williams, M.L. Geology Along the Alaska Highway, Fort Nelson to Watson Lake; Geological Survey of Canada, Paper 44-28, 1944.

RESUME OF TECHNICAL AND FIELD EXPERIENCE OF E. A. DODD

1. Presently President for Trans-Arctic Explorations Ltd.

2. Five years of applied field experience in various aspects of geophysical surveying, prospecting, blasting, sampling and geochemistry.

3. Four years contracting experience in geophysics, property management, expediting and property evaluation.

4. Instrument operator on ground and airborne magnetic surveys, Ronka EM-16, Geotronics VLF-EM, Sabre Magnetometer, Geotronics G-100 and G-110 Magnetometers, Sharpe MF-1 Magnetometer, Sharpe Ground Scintillometer, Worden Gravity Meter, Self Potential, Crone J.E.M. Shootback E.M., Sharpe Horizontal Loop E.M., Scintillators, Induced Polarization and Seismic.

5. Workable knowledge of placer gold properties.

6. Field Supervisor for Geotronics Surveys Ltd. since November 1, 1969.

7. Above mentioned experience applied in Idaho, Montana, Nevada, British Columbia but primarily in the Arctic region of the Northwest Territories and Yukon Territory.

8. Specialized in exploration in the western and eastern Arctic regions.

RESUME OF TECHNICAL AND FIELD EXPERIENCE OF R. S. SIMPSON

1. Presently Field Manager for Trans-Arctic Explorations Ltd.

2. Four and one-half years of applied field experience in various aspects of geophysical surveying, staking, prospecting, blasting, sampling and geochemistry.

3. Instrument operator and supervisor on ground magnetic surveys, Ronka E.M. 16, Geotronics VLF-EM, Sabre magnetometer, Geotronics G-100 and G-110 magnetometers, Sharpe MF-1 magnetometer, Sharpe ground scintillometer, Crone J.E.M. shootback E.M., Sharpe horizontal loop E.M. and Self Potential.

4. Above mentioned experience applied in the western United States and Canada but most extensively in the eastern and western Arctic regions of North America.

GEOPHYSICIST'S CERTIFICATE

I, David G. Mark, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of GEOTRONICS SURVEYS LTD, with offices at 514-602 West Hastings Street, Vancouver 2, B.C.

I further certify that:

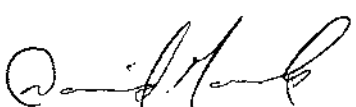
1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.

2. I have been practising my profession for the past four years and have been active in the mining industry for the past seven years.

3. I am an associate member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.

4. This report is compiled from data obtained from a magnetic survey carried out by E.A. Dodd, June 1972 on the Marg claim group, and pertinent data from published maps and reports as listed under Selected Bibliography.

5. I have no direct or indirect interest in the properties or securities of Vallex Mines Ltd (NPL), Vancouver, B.C. nor do I expect to receive any interest therein as a consequence of writing this report.



David G. Mark
Geophysicist

July 17, 1972

ENGINEER'S CERTIFICATE

I, Thomas R. Tough, of the City of Vancouver, in the Province of British Columbia, do hereby certify that:

I am a Consulting Geologist and an Associate with T.R. Tough & Associates Ltd., with offices at 519-602 West Hastings Street, Vancouver 2, B.C.

I further certify that:

1. I am a graduate of the University of British Columbia (1965) and hold a B.Sc. degree in Geology.

2. I have been practising my profession for the past six years and have been active in the mining industry for the past thirteen years.

3. I am registered with the Association of Professional Engineers of British Columbia.

4. I have studied the accompanying report dated July 17th, 1972 on a magnetometer survey submitted by Geotronics Surveys Ltd., written by David G. Mark, Geophysicist, and concur with findings therein.

5. I have no direct, or indirect interest whatsoever in the property described herein, nor the securities of Vallex Mines Ltd (NPL) and do not expect to receive any interest therein.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
T. R. TOUGH

Thomas R. Tough, P.Eng.,
Consulting Geologist

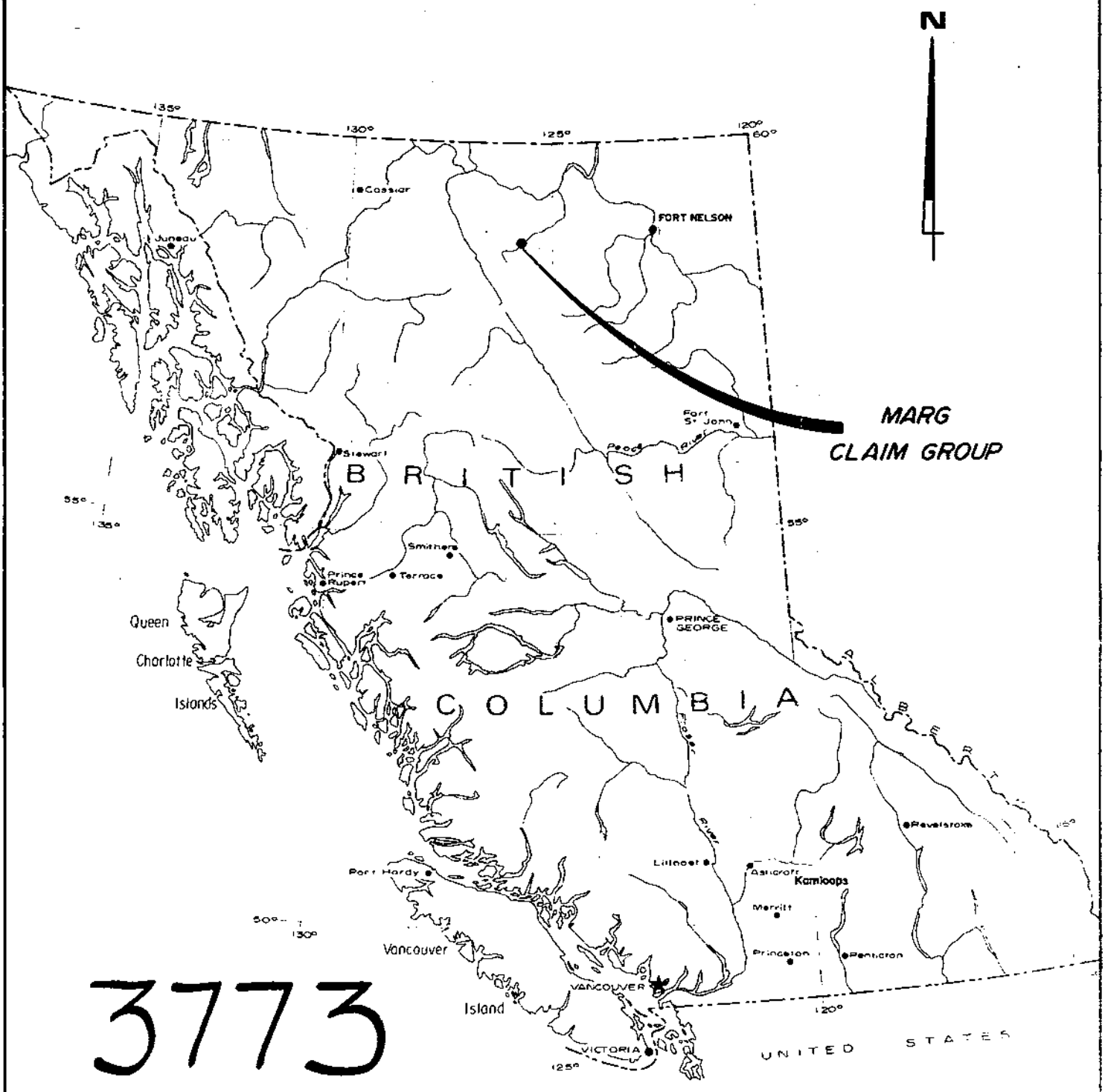
July 17, 1972

COST BREAKDOWN

Job No. 71-73
Vallex Mines Ltd.- MARG Group
Delano Creek, Racing River Area, B.C.
Liard Mining Division

June 1,1972 to June 6, 1972

Geophysical operator & field superviser & helper	6 days @ $150.00 / day	$ 900.00
Geophysicist	1 day @ $125,00 / day	125.00
Report		500.00
Engineer's fees		300.00
Instrument rental		125.00
Material & Supplies & Camp costs		275.00
		$ 2225.00



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M-1

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
T. R. TOUGH

GEOTRONICS SURVEYS LTD.

VALLEX MINES LTD.

MARG CLAIM GROUP

Delano Creek, Racing River Area, B.C.

LIARD M.D.

LOCATION MAP

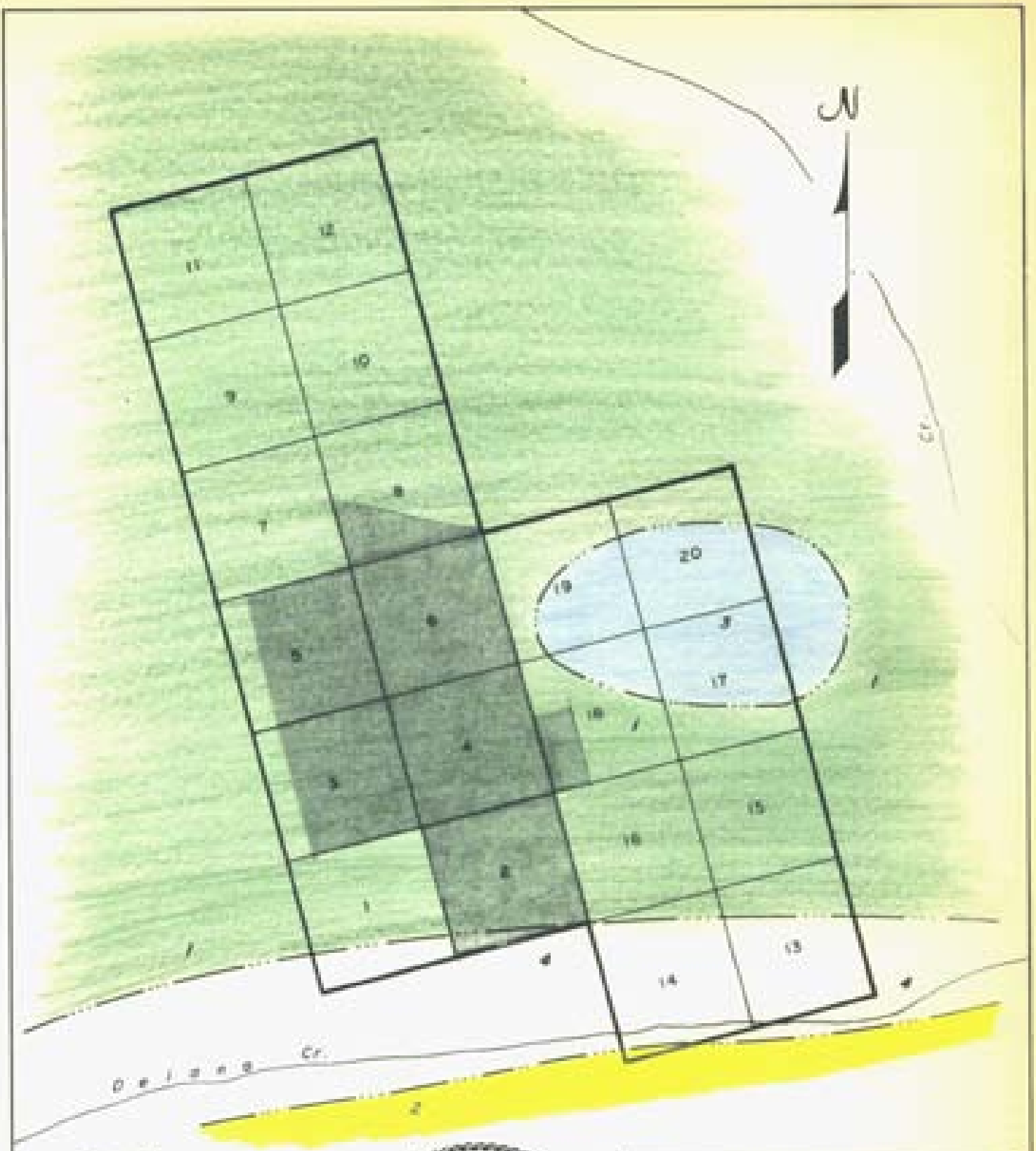
SCALE 1" = 134 mi

DRAWN. PDT	CHECKED:	DATE JULY 1972

PDT

FIG. 1

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3773 MAP #1



PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
T. R. TOUGH

GEOTRONICS SURVEYS LTD.

VALLEX MINES LTD.

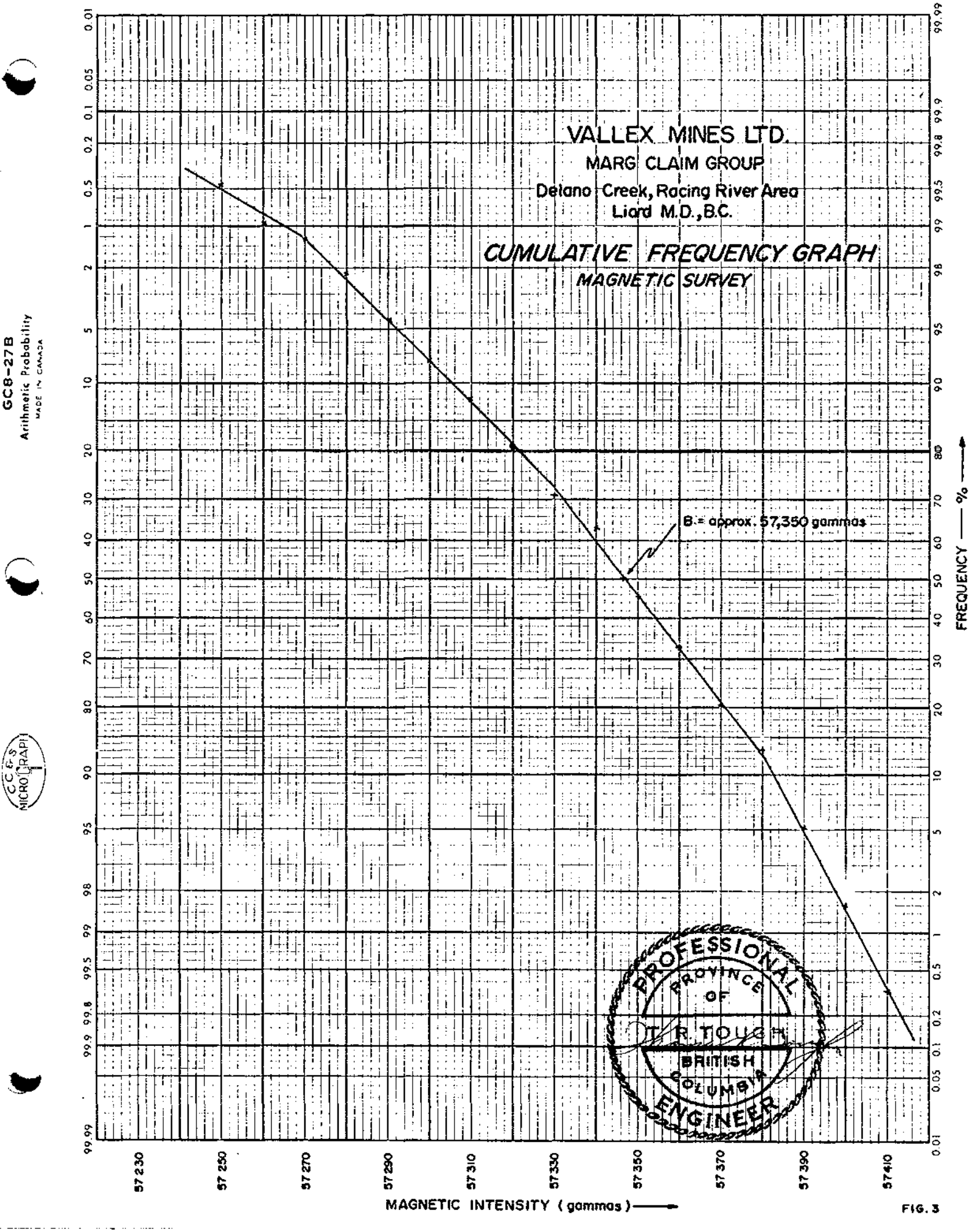
MARG CLAIM GROUP

CLAIM & GEOLOGY MAP

Delano Creek, Racing River Area
Liard M.D., B.C.

PDT	SCALE 1" = 1800'	JULY 19??

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3773 MAP #2



GC8-27B
Arithmetic Probability
MADE IN CANADA

CCS MICROGRAPH

FIG. 3

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3773 MAP #3

N

MAGNETIC DECL. 30°E

GRID

N 15° W

N 75° E

LEGEND

- SURVEY LINE
- CLAIM LINE
- (3) No. OF CLAIM
- CLAIM POST (located, assumed)
- MAIN ROAD
- TELEPHONE LINE

NOTE READINGS ARE IN GAMMAS.
50 000 GAMMAS HAS BEEN SUBTRACTED FROM ALL FIELD VALUES.

CONTOUR INTERVAL IS 30 GAMMAS.
BACKGROUND VALUE IS 57,350 GAMMAS WHICH IS NOT CONTOURED

CONTOURS ABOVE 57,350 GAMMAS
CONTOURS BELOW 57,350 GAMMAS

MAGNETIC LOW

POSSIBLE INDICATIONS OF ANDESITE DYKES 2

4E — 23E — 31E — 35E — BASE LINE 15E

L - 51 N
L - 49 N
L - 47 N
L - 45 N
L - 43 N
L - 41 N
L - 39 N
L - 37 N
L - 35 N
L - 33 N
L - 31 N
L - 29 N
L - 27 N
L - 25 N
L - 23 N
L - 21 N
L - 19 N
L - 17 N
L - 15 N
L - 13 N
L - 11 N
L - 9 N
L - 7 N
L - 5 N
L - 3 N
L - 1 N

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3773 MAP #4

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — T. R. TOUGH

TO ACCOMPANY GEOPHYSICAL REPORT BY L. G. MARK

VALLEX MINES LTD

MARG CLAIM GROUP
DELANO CREEK, RACING RIVER AREA
BRITISH COLUMBIA
LIARD M.D.

MAGNETOMETER SURVEY
DATA & CONTOURS

GEOTRONICS SURVEYS LTD	SCALE	JOB NO.	SHEET NO.
PDT DRAFTING SERVICES, JULY '74	1" = 200'	7[illegible]-13	1

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74-4