GEOPHYSICAL REPORT

ON A

VLF-EM SURVEY

OVER THE

MARGIE CLAIM

SCHKAM LAKE, HOPE AREA

NEW WESTMINSTER MINING DIVISION

BRITISH COLUMBIA

PROPERTY	: 1.5 km due north of Hope, B.C. : 49° 25' N Latitude 121° 26' W Longitude : N.T.S. 92H/6W
WRITTEN FOR	: E. AMENDOLAGINE 4550 Harriet Street Vancouver, B.C., V6V 4I
WRITTEN BY	: David G. Mark, Geophysi GEOTRONICS SURVEYS LTD. #403-750 West Pender St Vancouver, B.C., V6C 2T
DATED	: March 19, 1985

GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST

AUTHOR(S) David G. Mark SIGNATURE(S)

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED Dec. 20, 1984 YEAR OF WORK 1984

PROPERTY NAME(S) Margie Claim

COMMODITIES PRESENT Gold, silver, copper, lead and zinc.

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN

MINING DIVISION New Westminster NTS 92H/6W

LATITUDE 49° 25' LONGITUDE 121° 26'

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

Margie Claim 12 units

OWNER(S)

(1) E. Amendolagine (2)

MAILING ADDRESS

4550 Harriet Street
Vancouver, B.C., V6V 4K5

OPERATOR(S) (that is, Company paying for the work)

(1) N/A (2)

MAILING ADDRESS

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

Pyrite, chalcopyrite, pyrrhotite, sparse galena and some scheelite within quartz within volcanics and possibly sedimdents of Chilliwack Group of Carboniferous Age or possibly Hozameen Group of Carboniferous or Permian Age. These rocks occur within a 5 km band of acid intrusives of Jurassic Age which outcrops as plugs within sediment and volcanics.

REFERENCES TO PREVIOUS WORK 1980 - Shallow drill sampling, results in report by E. Amendolagine, 1981 - Soil geochemical survey, results in report by E. Amendolagine.

(over)

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	COST APPORTIONED
GEOLOGICAL (scale, area)			
Ground			
Photo			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic	3.	Margie Claim	$2,825.00
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for ....)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralogic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Legal surveys (scale, area)			
Topographic (scale, area)			
Photogrammetric (scale, area)			
Line/grid (kilometres)			
Road, local access (kilometres)			
Trench (metres)			
Underground (metres)			
		TOTAL COST	$2,825.00

FOR MINISTRY USE ONLY	NAME OF PAC ACCOUNT	DEBIT	CREDIT	REMARKS:
Value work done (from report)				
Value of work approved				
Value claimed (from statement)				
Value credited to PAC account				
Value debited to PAC account				
Accepted ..... Date	Rept. No.			Information Class

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SUMMARY

A VLF-EM survey was carried out over a portion of the Margie Claim owned by E. Amendolagine of Vancouver, B.C., during December, 1984. The claim is located on the Fraser River, 1.5 km due north of the town of Hope, B.C. Access is easily gained by a two-wheel drive vehicle. The terrain consists of mainly gentle to moderate slopes forested with moderately dense coniferous trees and thick underbrush. The purpose of the survey was to aid in the mapping of geology as well as to locate probable areas for exploration of gold/sulphide mineralization.

The property is mainly underlain by volcanics and sediments of Carboniferous and Later Age. A narrow band of Jackass Mountain sediments occur along the western border. Acid intrusives of Jurassic Age intrude the sediments and volcanics. The mineralization occurs on the east side of the property and consists of quartz veins containing pyrite, chalcopyrite, pyrrhotite and sparse galena, as well as possibly gold.

The VLF-EM readings were taken every 25 meters on 150-meter separated north-south lines. They were then Fraser-filtered, plotted and countoured.

CONCLUSIONS

1. The VLF-EM anomalies have reflected at least four easterly-striking conductors that are probably geological structure such as faults, shears and contacts.

2. All of these anomalies correlated fairly well with anomalous soil geochemistry results in copper, lead, zinc, silver, arsenic, nickel, cobalt and gold, suggesting structurally-controlled mineral zones.

3. Conductor 'a' is the most prominent anomaly because of its minimum length of 850 m, and because of its excellent correlation with strong soil results.

RECOMMENDATIONS

Mainly because of budget restraints, the exploration work has been quite limited so far. The following program is recommended, however, assuming financing is available.

1. The VLF-EM survey method has worked very well and therefore should be continued over the rest of the property.

2. The soil sampling previously done is very reconnaissance in nature. A more detailed survey should be carried out, say 25-meter samples on 100-m lines. In the previous survey, the gold results were quite minimal which may be a result of screening the soil sample to -80 mesh. Therefore, in the lab, the total sample should be pulverized, and not screened at all in order to preclude the screening out of coarser gold. The anomalous samples should then be followed up by sampling on a tight grid, say 10 m centers on a grid, 200 m square.

3. At the same time, careful geological mapping should be carried out. A magnetic survey may be useful to aid in defining rock units and structure.

4. The defined soil anomalies should then be 'cat' trenched.

5. Resistivity - IP mapping and/or MaxMin EM should then be considered in order to optimize drill targets.

6. Diamond drilling should then be carried out. A large diameter drill and a face discharge bit may be necessary if gold mineralization is expected.

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INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data and the interpretation of a VLF-EM survey carried out over the southern portion of the Margie Claim during the period of December 13th to 16th, 1984.

The survey was carried out by Geotronics Surveys Ltd. under the supervision of Z.A. Szybinski, geologist. A total of 4.6 line km of VLF-EM survey were done.

The primary purpose of the VLF-EM survey was to delineate geological structure as an aid in the exploration for gold/sulphide mineralization with the secondary purpose being to map sulphides directly.

PROPERTY AND OWNERSHIP

The property consists of one 12-unit claim staked within the New Westminster Mining Division as shown on Map 1 and as described below:

Claim Name	No. Units	Record No.	Expiry Date
Margie	12	752	December 12, 1985

The expiry date shown takes into account the survey under discussion as being accepted for assessment credits.

The claim is owned by E. Amendolagine of Vancouver, British Columbia.

LOCATION AND ACCESS

The legal corner post at the southwestern corner of the property is located 1.5 km due north of the town of Hope, B.C. The property is located on the western side of the southerly-flowing Fraser River.

The geographical coordinates are 49° 25' north latitude and 121° 26' west longitude.

Access is gained by a travelling 2.5 km north of Hope on Highway #1 which runs northeasterly through the northern portion of the property. Gravel roads and trails give some access to the rest of the property.

PHYSIOGRAPHY

The property lies at the southeastern end of the physiographic division known as the Coast Mountains, of which the terrain is fairly rough with mostly steep slopes.

The property itself, however, occurs in an area where the terrain is relatively gentle to moderate. A northeasterly-trending ridge runs through the center of the property.

Elevations vary from 40 meters a.s.l. on the Fraser River at the southeastern corner of the property to 500 meters a.s.l. at the northwestern corner of the property.

The main water sources would be the Fraser River which flows southerly along the eastern part of the property, and Schkam Lake which is located on the western edge of the property.

The forest cover consists largely of coniferous trees which are probably Douglas fir, cedar and possibly hemlock and spruce. The undergrowth is fairly thick.

PREVIOUS WORK

The property has been described as the "oldest lode deposit known on mainland British Columbia" but was only first reported on in the Minister of Mines reports in 1902. What work has been done prior to Amendolagine's ownership is unknown to the writer, but some trenching has been carried out.

In November of 1980, Amendolagine had 29 percussion holes drilled to a depth of 1.6 meters in the area of the 2 trenches. The cuttings were then assayed for copper, molybdenum, lead,

zinc, silver and gold. Anomalous results were encountered in all six metals.

In the fall of 1981, wide-spaced soil sampling was carried out and the samples tested for gold, arsenic, silver, lead, zinc, copper, molybdenum, nickel and cobalt. Anomalous results were encountered in all these metals as well.

GEOLOGY

The geology is taken from the G.S.C. map of the area by Cairnes (Map 737A).

The property is almost entirely underlain by sediments and volcanics of the Chilliwack Group of Carboniferous Age. This group consists of argillite, slate, phyllite, cherty and arenaceous beds, crystalline limestone, conglomerate; intercalated volcanic rocks; micaceous, chloritic and talcose schists. Some of these rocks could also be of the Hozameen Group of Carboniferous or Permian Age which consists of chert, argillite, phyllite, limestone and intercalated volcanic rocks. Amendolagine describes the rocks encountered in the percussion holes as andesite, dark green volcanic breccia, and altered cherty-rhyolite.

These sediments and volcanics occur within a five km band of acid intrusives of Jurassic Age consisting chiefly of gneissic granite and granodiorite. Small plugs of this group occur throughout the property.

Along the western edge of the Margie Claim is a 300 m band of the Jackass Mountain Group rocks of Upper Jurassic(?) and Lower Cretaceous Age. The rocks are conglomerate, sandstone and argillite.

West of the Jackass rocks is a large acid intrusive of Jurassic (?) and later age. The rocks are granite, granodiorite, quartz diorite and diorite.

The mineral zone is shown on the map as a gold prospect but is simply described by Monger as a quartz vein containing pyrite, chalcopyrite, pyrrhotite and sparse galena with some scheelite. The percussion drilling encountered anomalous gold, but not in significant amounts.

INSTRUMENTATION AND THEORY

A VLF-EM receiver, Model 27, manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. was used for the VLF-EM survey. This instrument is designed to measure the electromagnetic component of the very low frequency field (VLF-EM), which for this survey is transmitted at 21.4 KHz from Annapolis, Maryland.

In all electromagnetic prospecting, a transmitter produces an alternating magnetic field (primary) by a strong alternating current usually through a coil of wire. If a conductive mass such as a sulphide body is within this magnetic field, a secondary alternating current is induced within it which in turn induces a secondary magnetic field that distorts the primary magnetic field. It is this distortion that the EM receiver measures. The VLF-EM uses a frequency range from 16 to 24 KHz, whereas most EM instruments use frequencies ranging from a few hundred to a few thousand Hz. Because of its relatively high frequency, the VLF-EM can pick up bodies of a much lower conductivity and therefore is more susceptible to clay beds, electrolyte-filling fault of shear zones and porous horizons, graphite, carbonaceous sediments, lithological contacts as well as sulphide bodies of too low a conductivity for other EM methods to

pick up. Consequently the VLF-EM has additional uses in mapping structure and in picking up sulphide bodies of too low a conductivity for conventional EM methods and too small for induced polarization. (In places it can be used instead of I.P.). However, its susceptibility to lower conductive bodies results in a number of anomalies, many of them difficult to exlain and, thus, VLF-EM preferably should not be interpreted without a good geological knowledge of the property and/or other geophysical and geochemical surveys.

FIELD PROCEDURE

The survey consisted of 4.5 line km of VLF-EM survey over the southern portion of the Margie claim.

The base line was placed on a bearing of due east 500 m north of the legal corner post. It was extended for 1,500 m being well flagged with florescent orange survey flagging. The cross lines were run perpendicular due south to the base line at a 150 m spacing with the instrument readings taken at a 25 m interval facing towards the transmitter at Annapolis. Some fill-in survey lines were also run.

COMPILATION OF DATA

The VLF-EM field results, which are given in the appendix, were reduced by applying the Fraser-filter. The filtered results were subsequently plotted on Map 2 at a scale of 1:5,000 between the actual reading stations. The positive dip-angle readings were then contoured at an interval of 5°.

The Fraser-filter is essentially a 4-point difference operator,

which transforms zero crossings into peaks, and a low-pass smoothing operator which induces the inherent high frequency noise in the data. Therefore, the noisy, non-contourable data are transformed into less noisy, contourable data. Another advantage of this filter is that a conductor that does not show up as a crossover on the unfiltered data quite often shows up on the filtered data.

DISCUSSION OF RESULTS

The major cause of the VLF-EM anomalies, as a rule, are geologic structures such as fault, shear and breccia zones. It is therefore logical to interpret VLF-EM anomalies to likely be caused by these structural zones. Of course, sulphides may also be a causative source. But in the writer's experience, when VLF-EM anomalies correlate with sulphide mineralization, the anomalies are usually reflecting the structure associated with the mineralization rather than the mineralization itself.

The major trends of the VLF-EM anomalies, as seen on Map 2, are easterly. Considering the VLF-EM anomalies are likely reflecting structure, the major strike of structure on this property is concluded to be in this direction.

There is some variation in intensity from one VLF-EM anomaly to the next. This is not only due to the conductivity of a causative source, but also the direction it strikes relative to the direction to the transmitter. In other words, those conductors lying closer to the same direction as the direction to the transmitter (almost due east in this case), can be picked up easier than those that are lying at a greater angle. Depending upon its conductivity, a conductor may not be picked up at all if it is at too great an angle.

The writer has labelled four main conductors by the lower case letters 'a' to 'd'. These have been compared to the soil geochemistry results with there fairly good correlation. It should be remembered, however, that the soil sampling was done on 150-meter centers so that the correlation at best is approximate.

The most prominent VLF-EM conductor is 'a'. It strikes across much of the survey area with a minimum length of 850 m, being open at both the east and west ends. This anomalous zone is somewhat complex suggesting a complex structure system, which is often found around any zone of mineralization. Conductor 'a' also has the best correlation with the soil geochemistry results, some of them being the highest on the property. The soils along 'a' are anomalous in copper, zinc, silver, lead, arsenic, nickel and cobalt, predominantly at the eastern end.

It is unknown where the main showing is relative to the VLF-EM grid, though it supposedly is north of the grid. However, it is possible 'a' could be related to the showing.

Conductor 'b' occurs at the southeastern corner of the property and has a minimum length of 600 m being open to the east. It correlates with values in copper, zinc and silver, and weak values in gold and lead.

Conductor 'c' is a minimum 600-meter long anomaly within the center of the survey area and open to the west. It correlates with zinc and possibly silver results. A strong arsenic anomaly occurs along its northern edge.

Conductor 'd' occurs at the southern edge of the property having a minimum length of 300 m. It is open to the southwest. It correlates very well with arsenic results as well as with copper and silver. There is also correlation with weaker gold, cobalt,

lead and zinc results.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark,
Geophysicist

March 19, 1985

SELECTED BIBLIOGRAPHY

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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 located at #403-750 West Pender Street, Vancouver, British Columbia.

I further certify:

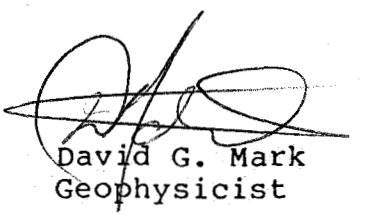
1. That I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.

2. I have been practising my profession for the past 17 years and have been active in the mining industry for the past 20 years.

3. That I am an active member of the Society of Exploration Geophysicists and a member of the European Association for Exploration Geophysicists.

4. This report is compiled from data obtained from a VLF-EM survey carried out by Geotronics Surveys Ltd. under the supervision of Z.A. Szybinski, geologist from December 13th to 16th, 1984.

5. I have no direct or indirect interest of the property mentioned within this report, nor do I expect to receive any interest as a result of writing this report.



David G. Mark
Geophysicist

March 19, 1985

AFFIDAVIT OF EXPENSES

The VLF-EM survey was carried out from December 13th to 16th, 1984, on the Margie claim, Hope area, New Westminster M.D., B.C. to the value of the following:

FIELD

Geophysical technician & helper, 32 hours at $45/hour	$ 1,440	
Vehicle rental, including gas, 3 days at $90/day	270	
Survey supplies	40	
VLF-EM unit rental, 3 days at $25/day	75	
		$ 1,825

OFFICE

Geophysicist, 10 hours at $45/hour	$ 450	
Geophysical technician, 10 hours at $25/hour	250	
Drafting and printing	200	
Typing, compilation and photocoping	100	
		$ 1,000
		$ 2,825

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark, Geophysicist
Manager

A P P E N D I X

VLF-EM DIP ANGLE FIELD READINGS

VLF-EM DIP ANGLE FIELD READINGS

Station	3+00E	3+75E	4+50E	6+00E	7+50E	9+00E	10+50E	12+00E	13+50E	14+25E	15+00E
0+75N											- 2
0+50N											+ 5
0+25N											+ 5
0+00S	+12	+19	+16	+ 5	- 1	+ 8		+ 1	+ 3	+ 6	+ 9
0+25S	+ 8	+24	+13	+ 6	+ 1	+10	+10	+ 4	+ 3	+ 6	+10
0+50S	+ 6	+20	+11	+ 9	- 7	+14	+ 7	+ 6	+ 6	+10	+ 7
0+75S	+13	+10	+ 9	+ 3	- 4	+17	+ 7	+10	+ 3	+12	+ 9
1+00S	+17	+16	+ 8	+ 8	+ 6	+14	+ 6	+ 6	+ 6	+12	+ 8
1+25S	+20	+16	+ 9	+ 4	+ 3	+11	+ 8	+ 5	+ 5	+11	+ 9
1+50S	+14	+12	+ 4	0	+ 5	+ 7	+ 6	+ 5	+ 4	+ 4	+10
1+75S	+ 3	+ 9	+ 6	+ 2	+ 1	+ 4	+11	+ 7	+ 8	+11	+ 8
2+00S	+ 3	+ 6	+ 8	+ 1	+ 4	+ 8	+ 8	+4	+ 8	+ 7	+ 7
2+25S	+ 5	+ 8	+ 9	+ 6	+ 6	+ 6	+ 7	+12	+ 3	+10	
2+50S	+11	+ 9	+ 8	+ 7	+ 6	+ 6	+ 6	+ 8	+ 4	+ 2	
2+75S	+10	+13	+ 6	+ 7	+ 4	+ 2	+ 5	+11	+ 5	- 2	
3+00S	+10	+ 6	+ 9	+ 4	+ 4	+13	+ 7	0	+ 2	+ 3	
3+25S	+17	+10	+ 6	+ 5	0	+16	+ 2	+ 3			
3+50S	+ 9	+ 8	+ 8	+ 1	+ 2	+10	+ 3	+ 6			
3+75S	+11	+ 4	+ 4	+ 4	+ 6	+16	+ 6	+ 9			
4+00S	+ 5	+ 2	+ 5	+ 1	+ 2	+14	+ 4	0			
4+25S	+ 7	0	+ 2	- 3	+ 4	+ 5	+12	+ 5			
4+50S	+ 1	+ 3	+ 2	- 1	+ 3	+10	+14	+ 5			
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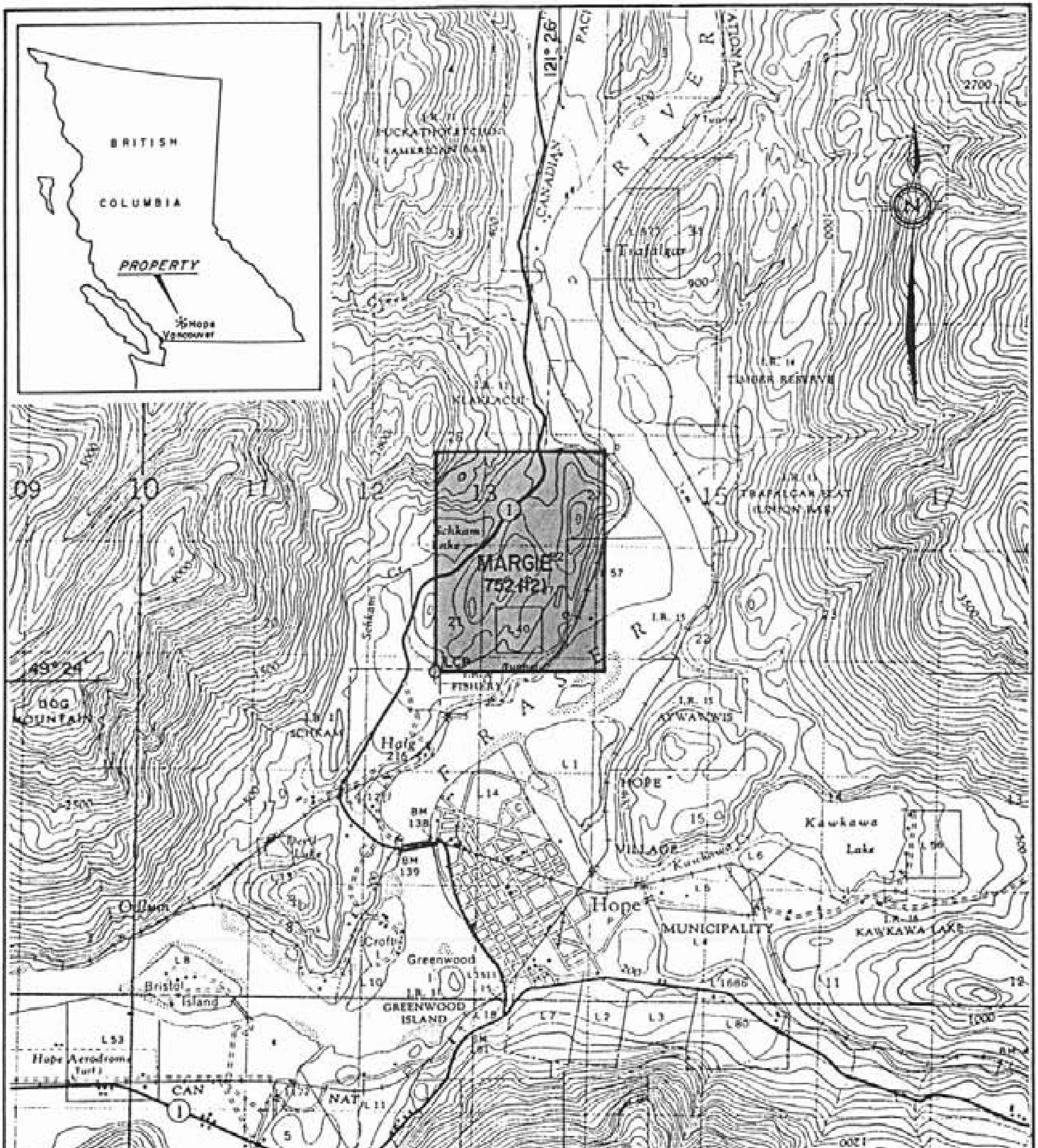


GEOTRONICS SURVEYS LTD.

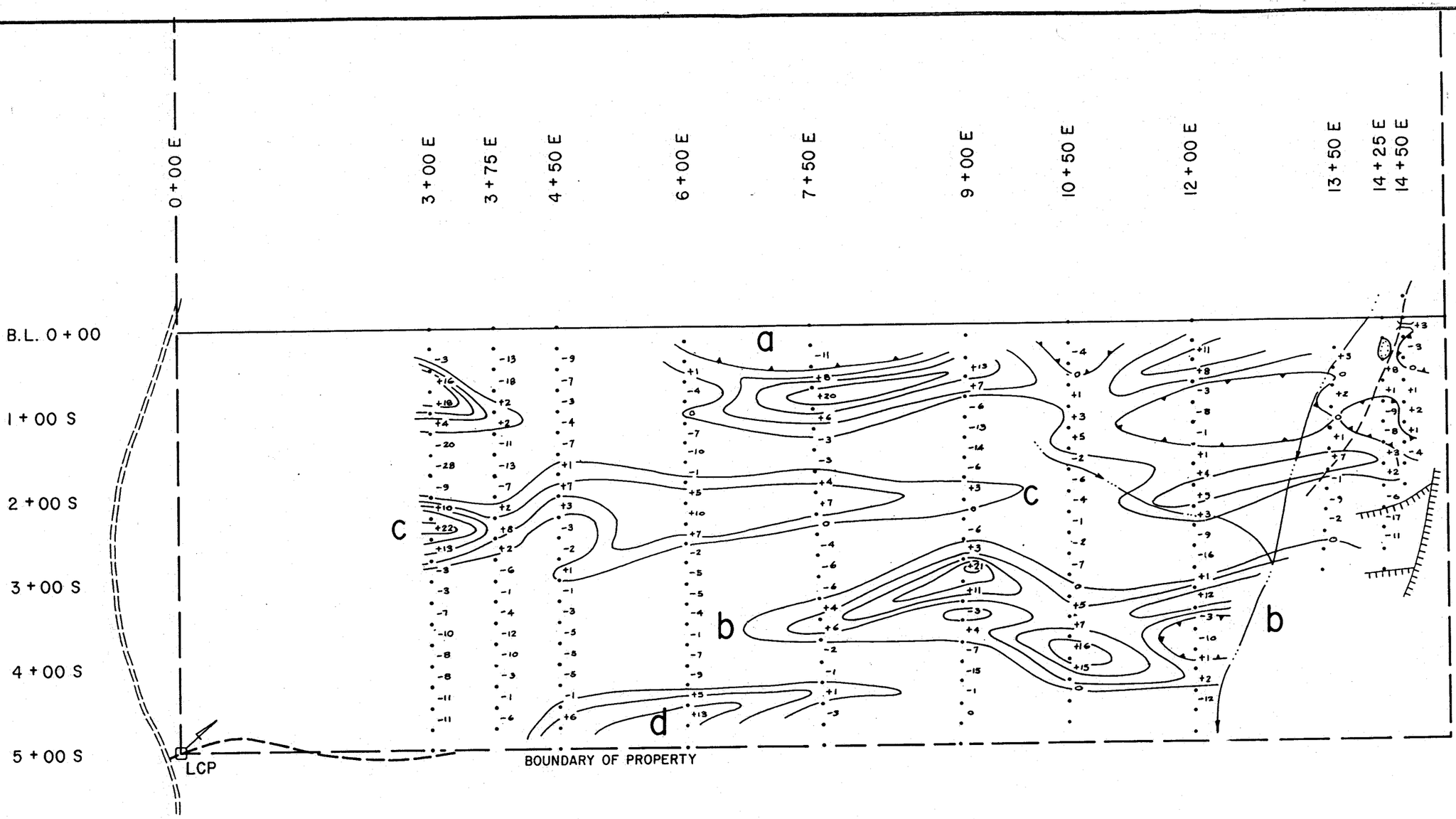
E. AMENDOLAGINE

MARGIE CLAIM

NEW WESTMINSTER M.D.

CLAIM MAP

DATE:	SCALE:	DRAWN BY:	JOB No.:	MAP No.
MAR. 1985	1:50,000	K. K.	84-59	1



LEGEND

- CREEK
- TEMPORARY CREEK
- POND
- ESCARPMENT
- TRENCH
- ROAD
- ROAD (LOOSE SURFACE)
- TRAIL

ANNAPOLIS TRANSMITTER
21.4 KHz.

CONTOUR INTERVAL - 5°

Metres
0 50 100 150 200

GEOTRONICS SURVEYS LTD.

E. AMENDOLAGINE

MARGIE CLAIM
NEW WESTMINSTER M.D.

VLF EM SURVEY FRASER FILTERED DATA AND CONTOURS

BY:	SCALE:	NTS:	JOB NO.:	MAP NO.:
Z.A. SZYBINSKI	1:5000, 1 cm = 50m	92H/6W	84 - 59	2