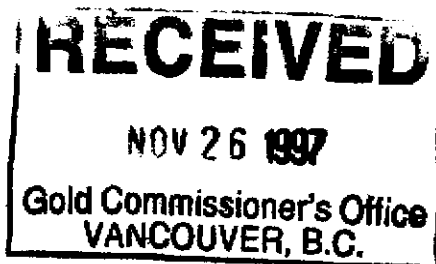


COMINCO LTD.

EXPLORATION

WESTERN CANADA

NTS: 92E/16; 92F/13



ASSESSMENT REPORT

MAGNETIC/HLEM SURVEY
AND SOIL SAMPLING ON THE
CHUMMING PROPERTY
ALBERNI MINING DISTRICT, B.C.

LATITUDE: 49° 56' N

LONGITUDE: 126° 01' W

TIME PERIOD: SEPT. 16-20, 1995

November 6, 1997

GEOLOGICAL SURVEY OF CANADA
David Vandenberg
Dave Hall
ASSESSMENT REPORT

25,248

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COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

ASSESSMENT REPORT
MAGNETOMETER SURVEY
AND SOIL SAMPLING ON THE
CHUMMING PROPERTY

I. INTRODUCTION

Between September 16 and 20, 1997 Cominco geochemical technician David Vanderkley, geophysical technician Darin Bryce and assistants Scott Billows and Jason Alardyce completed a detailed grid Mag/HLEM on the Chumming property to follow-up anomalies obtained in 1995. This survey was completed on the north-west portion of the property in an attempt to more accurately locate an airborne magnetic high outlined by a previous wide spaced mag and airborne mag/EM survey of the property. In addition, three contour and one road bank soil lines were done to extend or find new anomalies.

II. LOCATION AND ACCESS

The Chumming property is located approximately 35 km NNE of Gold River, on Vancouver Island (Figure 1). The property is accessible via logging roads from Gold River. The roads currently extend onto the eastern portion of the property. A Bell 206 helicopter, based in Gold River, was used in 1997 to access the upper portions of the western half of the property for the mag/HLEM surveys.

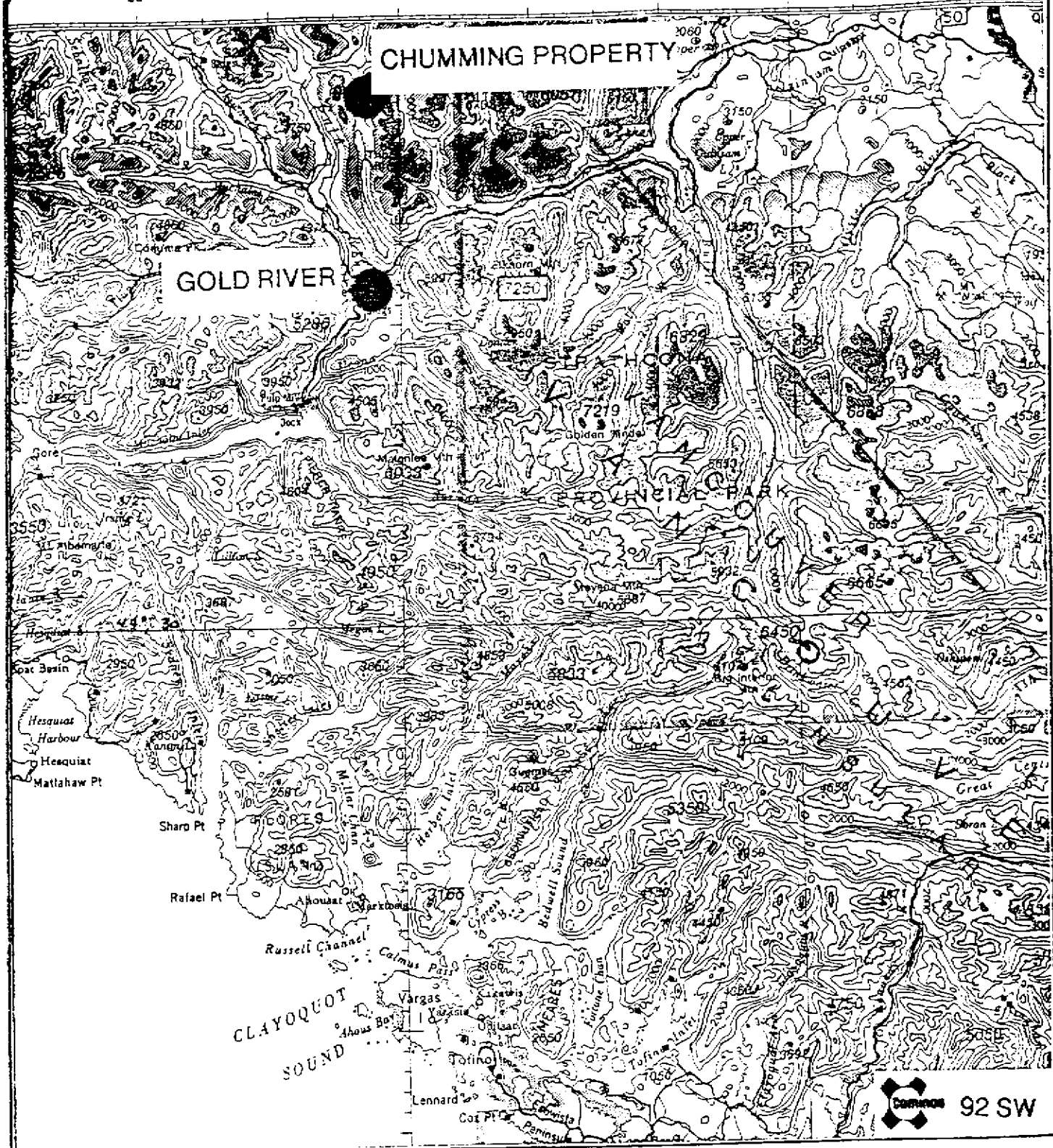
The Chumming property covers the headwaters of Horseshoe Creek which occupies a relatively narrow valley between two north-south trending mountain chains. Elevation reaches 1600 metres on the property with greater than 1 km of vertical relief (Figure 2).


Vegetation on the property is mainly large fir and cedar with limited underbrush, except along the numerous creeks where devil's club and alders reaching heights of six to eight feet are common.

20' 10' 126° 50' 40' 30' 20'

CHUMMING PROPERTY

GOLD RIVER

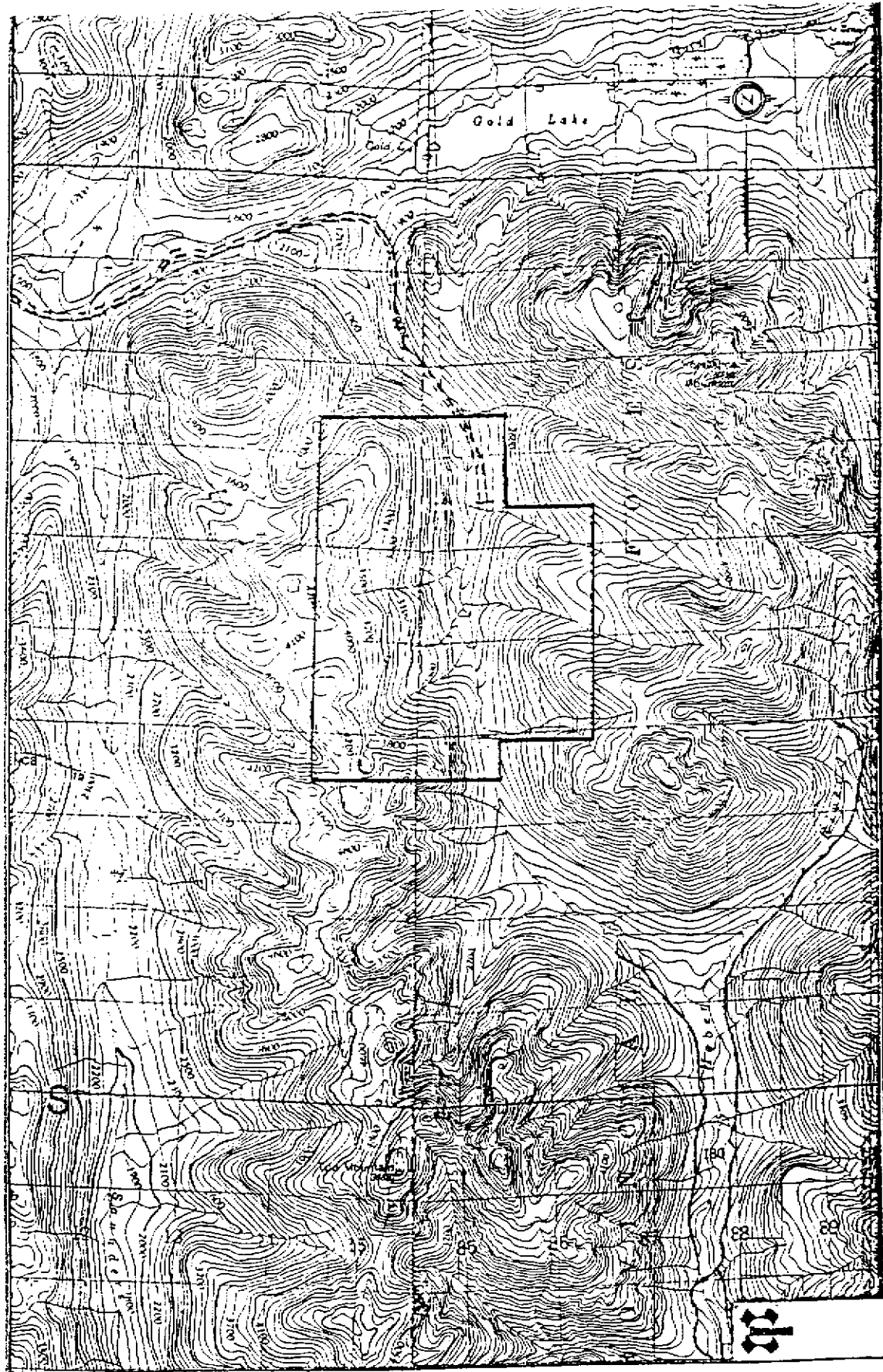


 92 SW

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Revised by	Date	Revised by	Date

LOCATION MAP

Scale: 1:500,000 Date: Plate: 1



Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

CHUMMING PROPERTY

Scale: 1 : 50,000

Date:

Plate: 92 E16 F13

The Chumming property consists of twenty two-post claims (Chum 1-20; Tenure Numbers 322099-322118) and three four-post claims (Don 1-3; Tenure Numbers 331189-331191). The two-post claims were recorded Oct. 18/93 and the four-post claims on Sept. 26/94. All claims are due on the same dates in 1998. The claims are 100% owned by Cominco Ltd., 700-409 Granville St., Vancouver, B.C.; V6C 1T2.

IV. GEOLOGY

Outcrop on the Chumming property is mainly limited to steep-sided exposures in Horseshoe Creek and its tributaries. Hillside exposures are present in some of the steeper areas (Figure 3).

The majority of the Chumming property is underlain by grey-green weathering, quartz-calcite amygdaloidal basalt of the Upper Triassic Karmutsen Group. Regional 1:125,000 scale mapping (Muller, 1965) indicates that the property straddles a NW-striking upright anticline. Little in the way of top indicators or bedding measurements are available on the property. One bedding measurement from just north of the property, however, exhibited a similar strike to that indicated by Muller (138°) and a shallow (5°) south-westward dip.

The Karmutsen basalt sequence is cut by five distinct intrusive suites, which include; lamprophyre dykes, medium-grained, equigranular granodiorite dykes, strongly feldspar-hornblende porphyritic dykes of intermediate composition, a fresh, hornblende granodiorite stock of likely Early Cretaceous age and a small, poorly exposed stock, or dyke, of dioritic composition near the north-west corner of the property.

Altered basalt in the main Horseshoe Creek valley is associated with very strong disseminated and vein pyrite mineralization. Chalcopyrite is observed sporadically throughout the altered basalt sequence, as is molybdenite. Both these minerals are most abundant in a series of 3-5 cm wide white quartz veins which are found along the southern and eastern margin of the area of altered basalt.

In 1995 several 10-60 cm semi-massive sulphide boulders/cobbles were discovered in Dahl and Silver creeks which drain the west side of the property (Fig. 3). These boulders are comprised of varying quantities of pyrite, pyrrhotite, magnetite, chlorite, Fe-carbonate, quartz, epidote and chalcopyrite.

V. SOIL SAMPLING

Thirty one B horizon soil samples were collected from three contour soil lines along the western side of Horseshoe Creek and one along the east side of the creek, as indicated on Figure 3. The 1997 lines on the west side of Horseshoe Creek are the three southernmost. Sampling depth was extremely variable owing to the variable vegetation cover on the property. All samples were analysed by 27-element ICP after hot reverse aqua regia digestion, with Au analysis by solvent extraction/AAS after aqua regia decomposition and Ba by loose powder XRF. Results are included in Appendix 1.

The soil sampling results indicated the presence of sporadically elevated copper (to 303 ppm), molybdenum (to 16 ppm), iron (to 14.81%), gold (to 50 ppb) and manganese (to 1405 ppm) values

VI. ROCK SAMPLING

Three bedrock samples were taken at the most anomalous uncorrected mag site located on line 500E/820N . The samples are a dark fine-grained basalt with fine cross cutting fractures filled with minor amounts of pyrite, pyrrhotite and epidote. All three samples were analysed by 27 element ICP after hot reverse aqua regia digestion and Au analysis by solvent extraction/AAS after aqua regia decomposition. Results are included in Appendix II. The results indicate low levels of Cu (to 864ppm) and medium levels of Pb (to 203ppm)

VII. MAGNETIC SURVEY

The instrumentation for the magnetic survey consisted of a pair of OMNI PLUS magnetometers, one set up as a recording base station and the other taking measurements at each point of the survey grid. Readings were taken every 12.5 metres, which was decreased to every 5 metres in locations where the magnetic response changed rapidly. At the end of a survey day the two units were connected to a computer and the day's data was transferred to the computer memory. Corrections for diurnal magnetic field variations were applied to each survey station value before plots were made. The total field magnetic data is presented in stacked profile form and as a contour plan at a scale of 1:5000.

GEOPHYSICS

The purpose of the geophysics was to define an airborne magnetic survey anomaly on the ground and test for conductivity in the vicinity.

Previous Cominco work (1995) included a coarsely spaced (100 m) magnetic survey along contour lines which indicated a 1500 nT

high near the up-slope edge of a soil geochemical anomaly. During the period September 16 to 20, 1997 the crew established a more detailed grid covering this anomaly and read at a 12.5 m station interval on lines 100 m apart. Some detailed magnetic surveying was carried out at 5 m intervals over selected areas. In addition, one 75 m wide magnetic high (2000nT) on line 500E at 800N was covered by a horizontal loop electromagnetic survey to test for conductivity. The steepness of the terrain presented difficulties in carrying out the geophysics and deeply incised gullies prevented extending coverage to fully cover anomalies.

Results of the magnetic survey indicate a high degree of variability in the magnetic response. However a roughly 200 m long by 100 m wide zone located on lines 200E and 300E is apparent which is elevated 1500 nT above surroundings. This corresponds to the high mag defined in 1995. The isolated high on line 500E that was covered by HLEM does not show any conductivity which probably indicates a disseminated nature for the mineralization. In fact, hand trenching at the site of the anomaly uncovered disseminated pyrite and pyrrhotite in basalt.

Time constraints did not allow evaluation using HLEM of the elevated magnetic feature on lines 200E and 300E (500N to 700N).

This should be done in future to test for massive sulphide potential. Also a test line using I.P. across this feature would be useful to further define the target.

VIII. CONCLUSIONS AND RECOMMENDATIONS

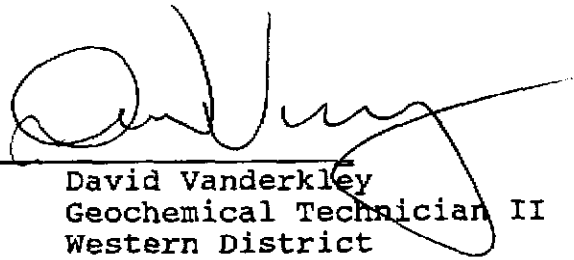
A Cominco crew established a 5.0 km grid on the Chumming Property during the period Sept. 16-20 and completed 4.2 km of total field magnetic survey. In addition, a narrow 2000 nT magnetic feature was covered with HLEM to test for conductivity. Hand trenching and sampling was also carried out at this site to determine the nature of the mineralization.

Further work should include the use of I. P. to delineate mineralization and HLEM to test for conductivity in the vicinity of the elevated magnetic response on lines 200E and 300E from 500N to 700N.


VII. REFERENCES

Muller, J.E. 1965. Geology of the Comox Lake Area. GSC Map 2-1965.

Sheldrake, R.F. 1981. Helicopter Magnetic and Electromagnetic Survey on the Vanhall and Shannon Claims. Assessment Report 9151.

Report By: 
David Vanderkley
Geochemical Technician II
Western District

Report By: 
Dave Hall
Geophysist III
Western District

Approved For Release By: 
D. W. Moore, P. Geo
Manager, Exploration
Western District

Distribution:
Mining Recorder (2)
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APPENDIX I
GEOCHEMICAL ANALYSIS OF
SOIL SAMPLES
FROM 1997 EXPLORATION ON THE
CHUMMING PROPERTY

APPENDIX II

9

GEOCHEMICAL RESULTS OF
ROCK SAMPLES
FROM 1997 EXPLORATION ON THE
CHUMMING PROPERTY

CHUMMING

Job V970938R

LAB NO	FIELD NUMBER	Cu	Pb	Zn	Ag	As	Ba	Cd	Co	Ni	Fe	Mo	Cr	Bi	Sb	V	Sn	W	Sr	Y	La	Mn	Mg	Tl	Al	Ca	Na	K	Au	Wt Au	Ba(4)
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	%	ppb	gram	ppm
R9724368	CHUM 1	567	203	59	<.4	2	18	<1	25	40	3.33	<2	31	<5	10	65	<2	<2	7	3	3	163	0.32	0.11	0.89	0.56	0.05	0.02	<10	5	
R9724369	CHUM 2	864	14	29	<.4	<2	9	<1	40	85	5.14	<2	23	<5	<5	39	3	<2	34	2	3	133	0.29	0.1	0.61	0.42	0.05	0.02	<10	5	
R9724370	CHUM 3	695	119	102	<.4	2	6	<1	35	50	3.81	<2	28	<5	<5	49	<2	<2	8	2	3	141	0.32	0.08	0.8	0.51	0.06	0.02	<10	5	

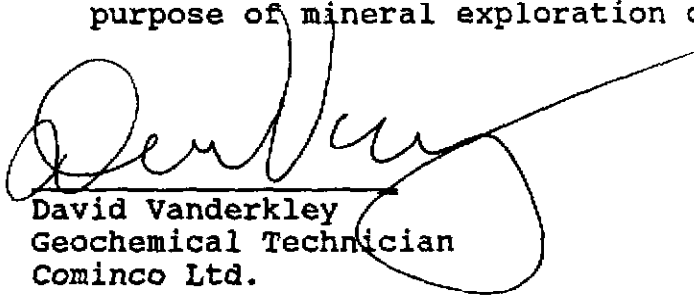
APPENDIX III

IN THE MATTER OF THE B.C. MINERAL ACT
AND IN THE MATTER OF THE MAGNETIC SURVEY
AND SOIL SAMPLING PROGRAM CARRIED OUT ON
THE CHUMMING PROPERTY,
LOCATED 35 KM NORTH OF GOLD RIVER, B.C.,
IN THE ALBERNI MINING DISTRICT OF THE
PROVINCE OF BRITISH COLUMBIA,
MORE PARTICULARLY NTS 92E/16 AND 92F/13

STATEMENT

I, David Vanderkley, of 202 9143 Saturna Drive, in the City of Burnaby, in the Province of British Columbia, make oath and say:

1. That I am employed as a Geochemical Technician by Cominco Ltd. and, as such have a personal knowledge of the facts to which I herein-after dispose;
2. That annexed hereto and marked as Exhibit "A" to this statement is a true copy of expenditures incurred during a magnetic survey and soil sampling program on the Chumming Property;
3. That said expenditures were incurred in September, 1997 for the purpose of mineral exploration on the above noted property.



David Vanderkley
Geochemical Technician
Cominco Ltd.

Dated this 21st day of November, 1997
at Vancouver, B.C.

STATEMENT OF EXPENDITURES

CHUMMING PROPERTY - SEPTEMBER 16-20, 1997

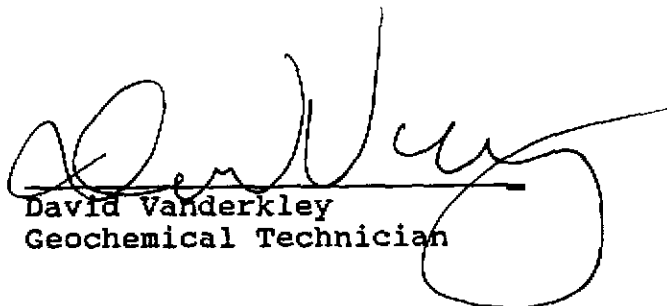
1. SALARIES :	\$4,200.00
2. DOMICILE: (hotel, food)	\$2,959.40
3. TRANSPORTATION:	
A. TRUCK (rental, fuel, etc)	\$1,309.39
B. HELICOPTER (invoice)	\$ 709.57
4. EQUIPMENT COSTS: magnetometers, maxmin unit, radios, flagging etc)	\$ 630.00
5. GEOCHEM ANALYSIS:	\$ 594.00
6. DATA ANALYSIS, REPORT WRITING:	\$ 691.50
	TOTAL
	\$11,093.86

APPENDIX V

CERTIFICATION OF QUALIFICATIONS

I, David G Vanderkley, of 202 9143 Saturna Drive, in the City of Burnaby, in the Province of British Columbia, do hereby certify:

- i. That I graduated with a Diploma of Mineral Engineering from the Northern Alberta Institute of Technology
- ii. That I have been actively practising geochemistry from 1990 to 1997 and am presently an employee of Cominco Ltd.



David Vanderkley
Geochemical Technician

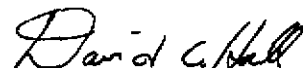
November, 1997

CERTIFICATION OF QUALIFICATIONS

13

I, DAVID C. HALL, of 3476 W. 22nd Avenue, in the City of Vancouver, in the Province of British Columbia, do hereby certify:

- i. THAT I graduated with a B.Sc., Honors in Geophysics from the University of Manitoba in 1976.
- ii. THAT I have been actively practicing Geophysics from 1976 to 1997, and am presently an employee of Cominco Ltd.

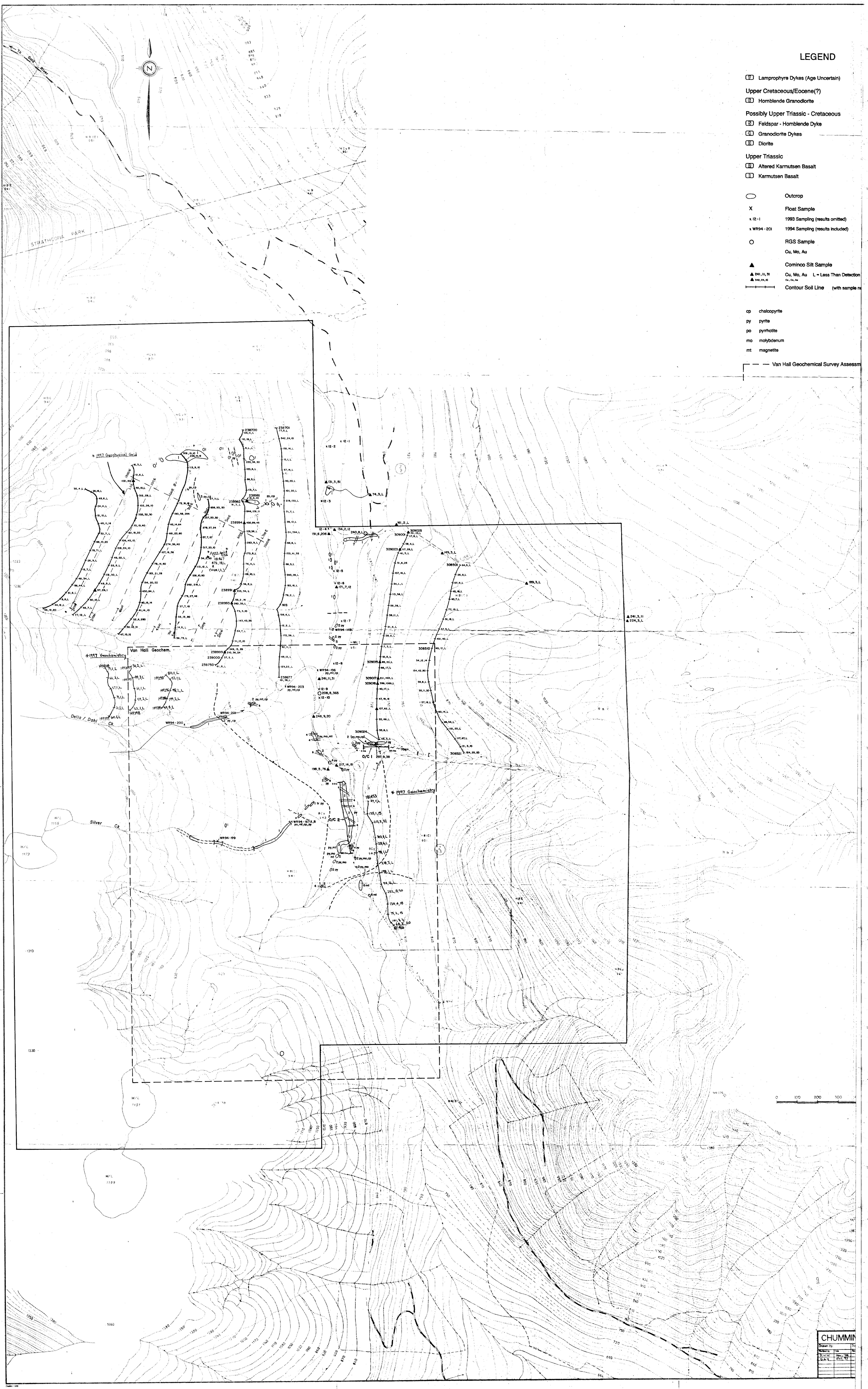

David C. Hall, B.Sc.
Geophysicist

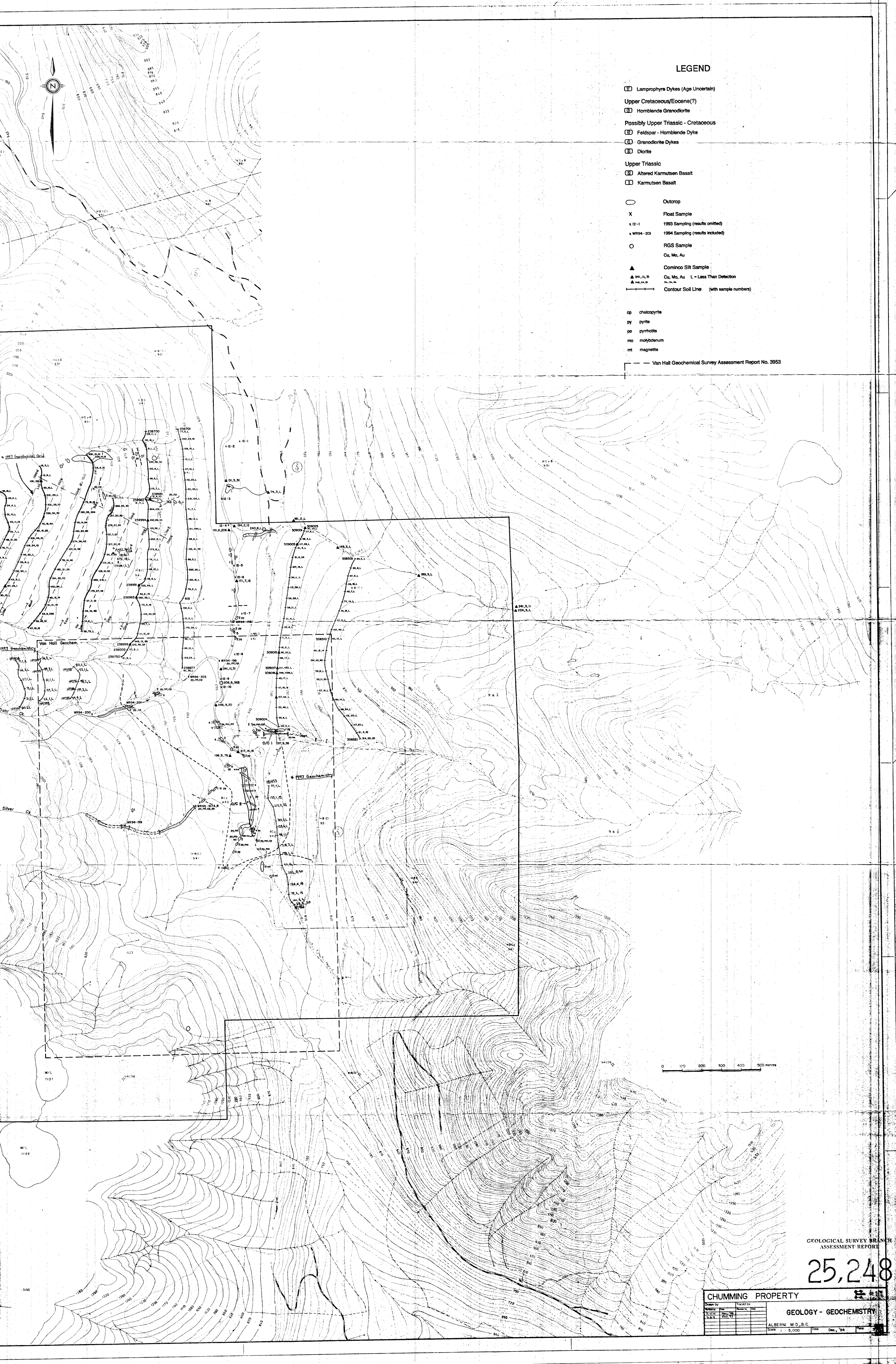
November, 1997

LEGEND

- [7] Lamprophyre Dykes (Age Uncertain)
- Upper Cretaceous/Eocene(?)
- [8] Hornblende Granodiorite
- Possibly Upper Triassic - Cretaceous
- [5] Feldspar - Hornblende Dyke
- [4] Granodiorite Dykes
- [3] Diorite
- Upper Triassic
- [2] Altered Kamutsen Basalt
- [1] Kamutsen Basalt
- Outcrop
- X Float Sample
- x 12-1 1993 Sampling (results omitted)
- x WR94-201 1994 Sampling (results included)
- RGS Sample
- Cu, Mo, Au
- ▲ Cominco Silt Sample
- ▲ 241, 11, 31 Cu, Mo, Au L = Less Than Detection
- ▲ 241, 11, 31
- Contour Soil Line (with sample)

- cp chatopryrite
- py pyrite
- po pyrrhotite
- mo molybdenum
- mt magnetite
- Van Hall Geochemical Survey Assessm



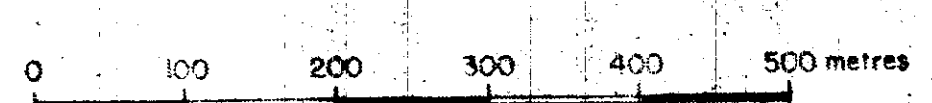


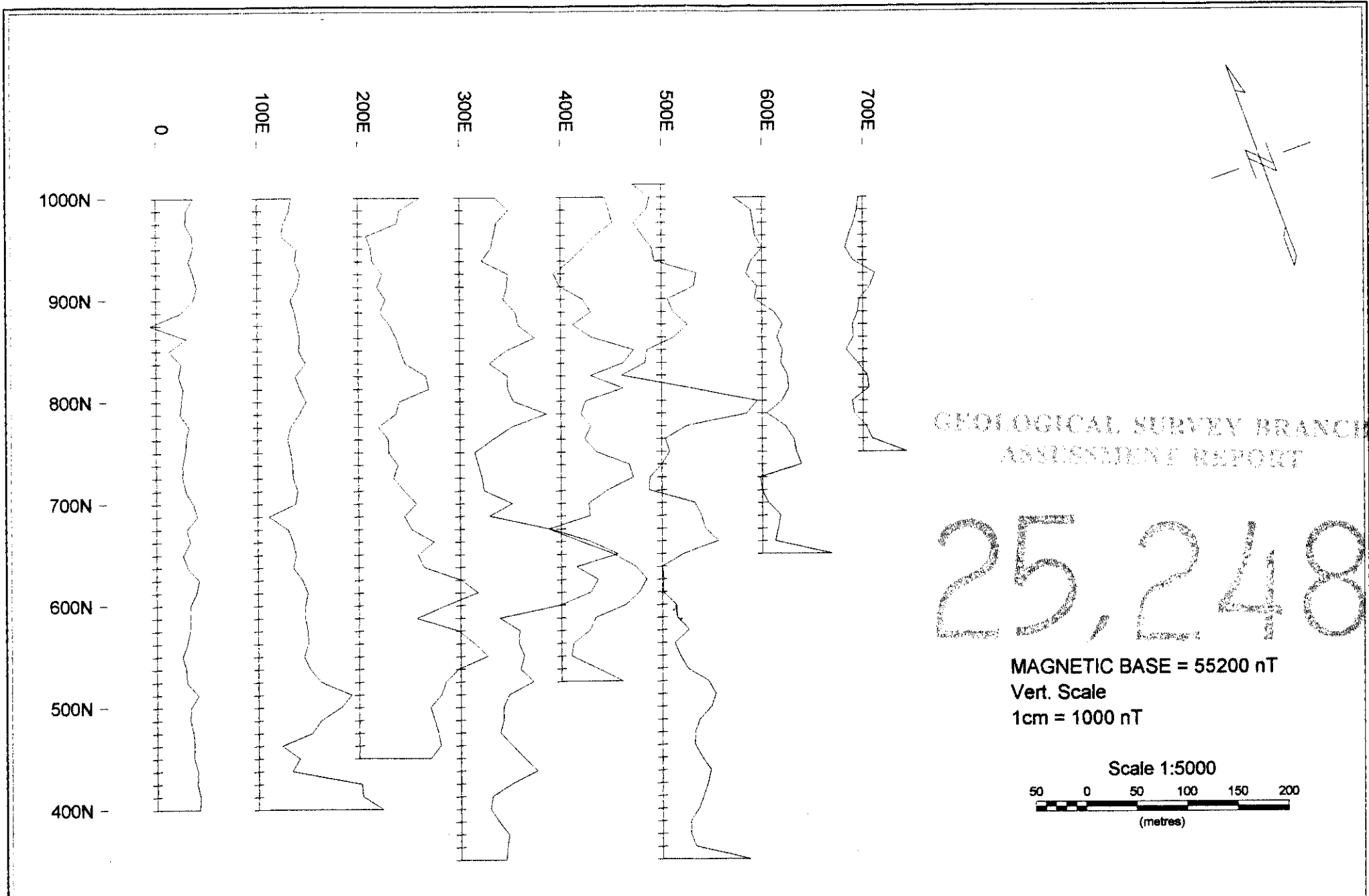
LEGEND


- Lamprophyre Dykes (Age Uncertain)
- Upper Cretaceous/Eocene(?)
- Hornblende Granodiorite
- Possibly Upper Triassic - Cretaceous
- Feldspar - Hornblende Dyke
- Granodiorite Dykes
- Diorite
- Upper Triassic
- Altered Kamutsen Basalt
- Kamutsen Basalt
- Outcrop
- X Float Sample
- x 12-1 1993 Sampling (results omitted)
- x WR94-204 1994 Sampling (results included)
- O RGS Sample
- Cu, Mo, Au
- ▲ Cominco Silt Sample
- ▲ 241, 11, 31 Cu, Mo, Au L - Less Than Detection
- ▲ 144, 14, 40
- Contour Soil Line (with sample numbers)

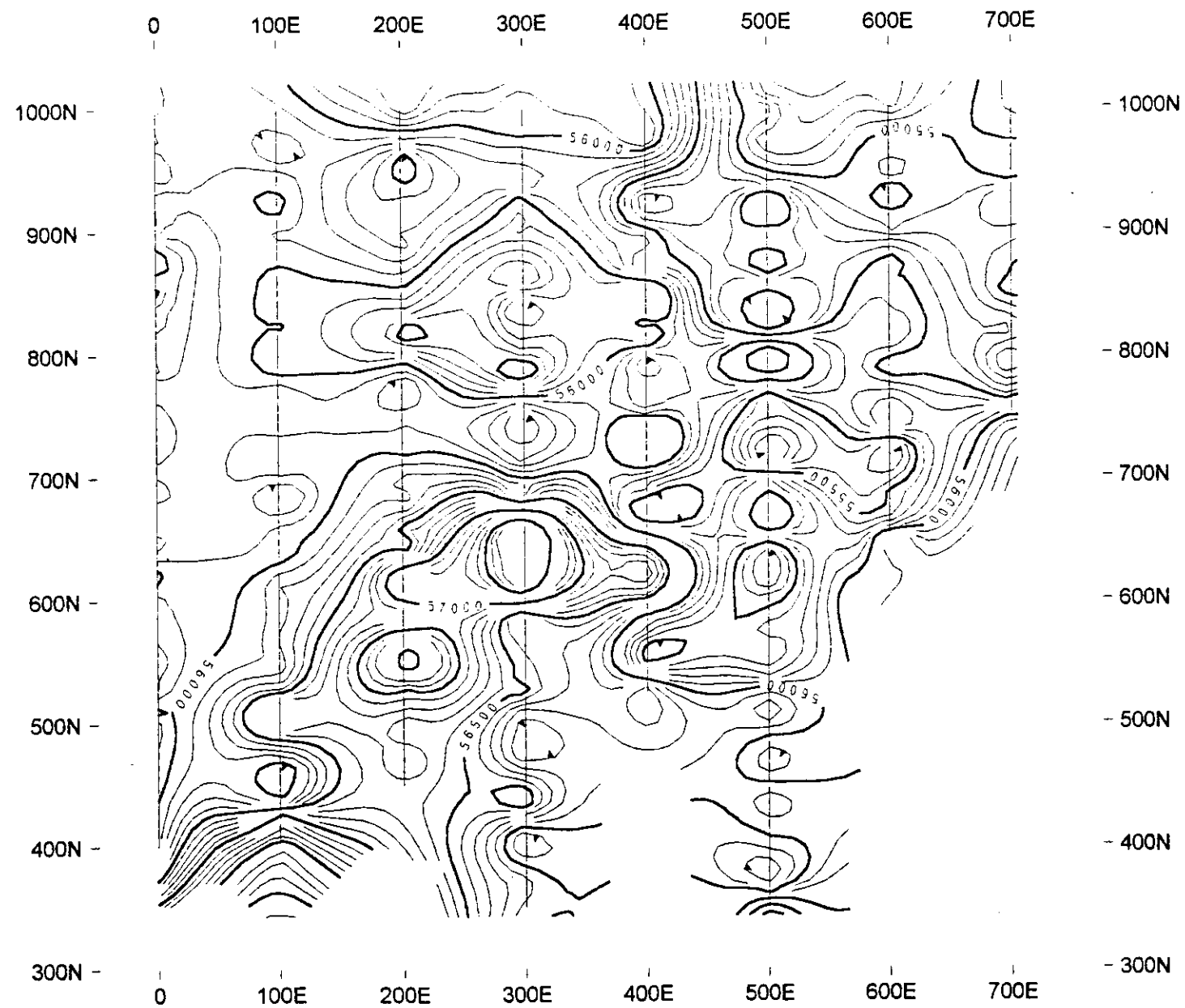
- cp chalcopyrite
- py pyrite
- po pyrrhotite
- mo molybdenum
- mt magnetite

— Van Hall Geochemical Survey Assessment Report No. 3953

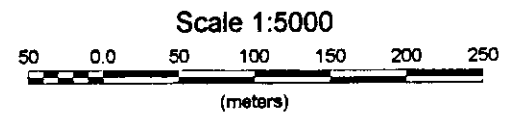




COMINCO EXPLORATION					NTS 105G
Drawn by:		Traced by:		CHUMMING PROPERTY - GOLD RIVER CHUMMING GRID TOTAL FIELD MAGNETICS SURVEY	
Revised by:	Date:	Revised by:	Date:		
Scale:		Date: JUNE 1997		Plate: Fig 4	



25.248



COMINCO EXPLORATION

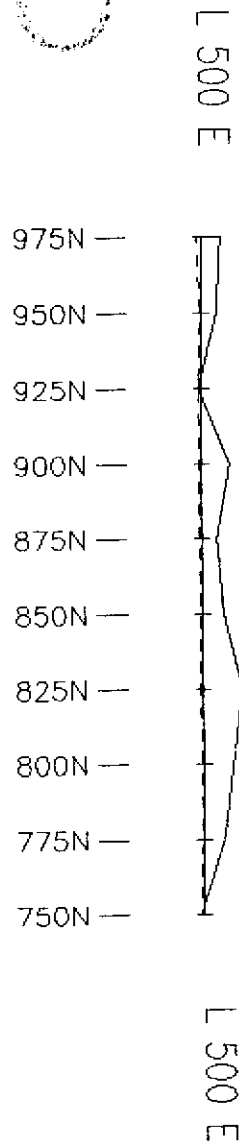



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Revised by:	Date:	Revised by:	Date:


CHUMMING PROPERTY
TOTAL FIELD MAGNETICS (nT)
CONTOUR MAP

Scale: Date: SEPT 1997 Plate: Fig 5

25,248



VERTICAL SCALE: 
 1cm = 10%

Scale 1:2500

 (metres)

OUT OF PHASE -----
 IN PHASE _____

COMINCO EXPLORATION



NTS
 105G

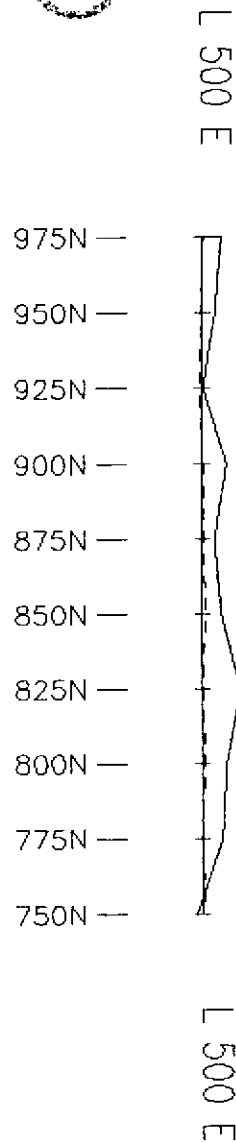
Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

CHUMMING PROPERTY
 CHUMMING GRID
 HORIZONTAL LOOP EM SURVEY: 440 Hz.
 50 metre coil spacing

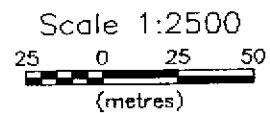
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GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

25,248



VERTICAL SCALE:
1cm = 10%



OUT OF PHASE -----
IN PHASE -----

COMINCO EXPLORATION



NTS
105G

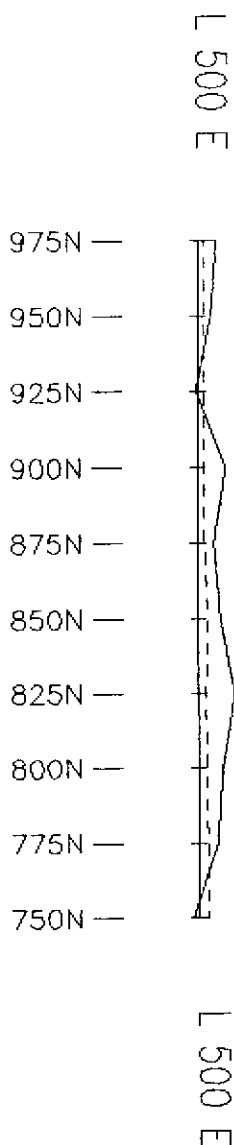
Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

CHUMMING PROPERTY
CHUMMING GRID
HORIZONTAL LOOP EM SURVEY: 1760 Hz.
50 metre coil spacing

Scale: as shown Date: SEPT 1997 Plate: Fig 7

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

25,248



VERTICAL SCALE:
1cm = 10%

Scale 1:2500
25 0 25 50
(metres)

OUT OF PHASE -----
IN PHASE _____

COMINCO EXPLORATION



NTS
1056

Drawn by:	Traced by:		
Revised by:	Date:	Revised by:	Date:

CHUMMING PROPERTY
CHUMMING GRID
HORIZONTAL LOOP EM SURVEY: 3520 Hz.
50 metre coil spacing

Scale: as shown Date: SEPT 1997 Plate: Fig 8