

MINERAL TITLES BRANCH
FEB 23 2001
VANCOUVER, B.C.

BIOGEOCHEMICAL
ASSESSMENT REPORT

on the

L CLAIM GROUP
CLINTON AREA
KAMLOOPS AND CLINTON MINING DIVISIONS

by

MURRAY S. MORRISON, B. Sc.

CLAIMS: L 1-4 and Hart 1-6 (10 units)
LOCATION: The L Claim Group is situated on Hart Ridge,
12 km southeast of Clinton, B.C.
Lat. 51°00'; Long. 121°30';
N.T.S: 92-I-13E & 14W and 92-P-3W & 4-E
OWNER: M. S. Morrison
OPERATOR: M. S. Morrison
DATE STARTED: November 19, 2000
DATE COMPLETED: November 19, 2000

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

Kelowna, B.C.

February 12, 2001

26,496

TABLE OF CONTENTS

	<u>PAGE</u>
Summary	1
Introduction	4
Location and Access	5
Physical Features and Climate	7
Claim Status	8
History	9
Regional Geology	11
Property Geology	12
Biogeochemical Survey - 2000	14
Grid	14
Sampling	14
Results	15
The Effects of Using Different Sample Material	15
Comparison of the 1998 Results with the 1999 & 2000 Survey Results	16
The Concentration, Distribution and Correlation of Elements	17
Silver	18
Lead	18
Copper	18
Molybdenum	19
Iron	19
Nickel	19
Vanadium	20
Zinc	20
Other Elements	20
Discussion	26
Conclusions and Recommendations	28
References	29
Appendix A Statement of Qualifications	31
Appendix B Statement of Expenditures	32
Appendix C Certificate of Analysis	33

ILLUSTRATIONS

		<u>PAGE</u>
Figure 1	Location Map (British Columbia)	3
Figure 2	Claims and Access L Property	6
Map L-01-1	Biogeochemical Survey - Silver & Lead Hart 3 Mineral Claim	21
Map L-01-2	Biogeochemical Survey - Copper & Molybdenum Hart 3 Mineral Claim	22
Map L-01-3	Biogeochemical Survey - Iron & Nickel Hart 3 Mineral Claim	23
Map L-01-4	Biogeochemical Survey - Vanadium Hart 3 Mineral Claim	24
Map L-01-5	Biogeochemical Survey - Zinc Hart 3 Mineral Claim	25

SUMMARY

The L Claim Group covers a gold prospect on Hart Ridge, 2 km north of Highway #97, 25 km northwest of Cache Creek, B.C. The property was staked by the writer over a period of years (1982-98), and it is presently 90% owned by the writer and 10% by Doublestar Resources Ltd. of West Vancouver, B.C.

The property, comprised of 10 contiguous 2-post mineral claims covers a succession of Permian Age Cache Creek Group metasediments that strike northwest and dip moderately to steeply towards the southwest.

Immediately north of the highway and 2 km southeast of the L Claim Group, a large (700 metre by 50 metre) interbed of mafic tuff has been selectively replaced by quartz, carbonate and mariposite. Locally, the replacement zone (the Highway Showing) has been disrupted by faulting and mended with late quartz, ankerite and dolomite veinlets. The rock contains anomalous values of arsenic (up to 1155 parts per million) and antimony (up to 16 ppm).

Two kilometres northwest of the Highway Showing a drill hole drilled by Cordilleran Engineering on the Paw/Ranger mineral claims of Peyto Oil Ltd. in 1973 returned 15 grams of gold per ton from a 3 metre intersection of quartz-carbonate replaced rock. A program of follow-up drilling conducted by Cordilleran Engineering in 1974 failed to locate the gold-bearing quartz-carbonate unit in three widely-spaced drill holes drilled between the 1973 discovery hole and the Highway Showing.

In 1985, Esso Minerals conducted a diamond drilling program in the immediate vicinity of the 1973 gold discovery (i.e. Percussion Drill Hole 73-7). A total of 186.5 metres were drilled in three vertical diamond drill holes and one of the drill holes, DDH 85-1, of 68.3 metres length, "twinned" PDH 73-7.

SUMMARY (continued)

The twinned drill hole, DDH 85-1, returned 430 parts per billion gold over 2.4 metres from 44.8 to 47.2 metres (presumably the same zone intercepted in PDH 73-7). The core recoveries were not good (35%) for DDH 85-1 and no sludge was collected for assaying, and therefore, the test was not conclusive in this writer's opinion. The other two diamond drill holes, DDH 85-2&3, were drilled 50 metres northwest and 50 metres southeast of DDH 85-1, respectively. These two drill holes returned negligible amounts of gold and Esso Minerals terminated their option.

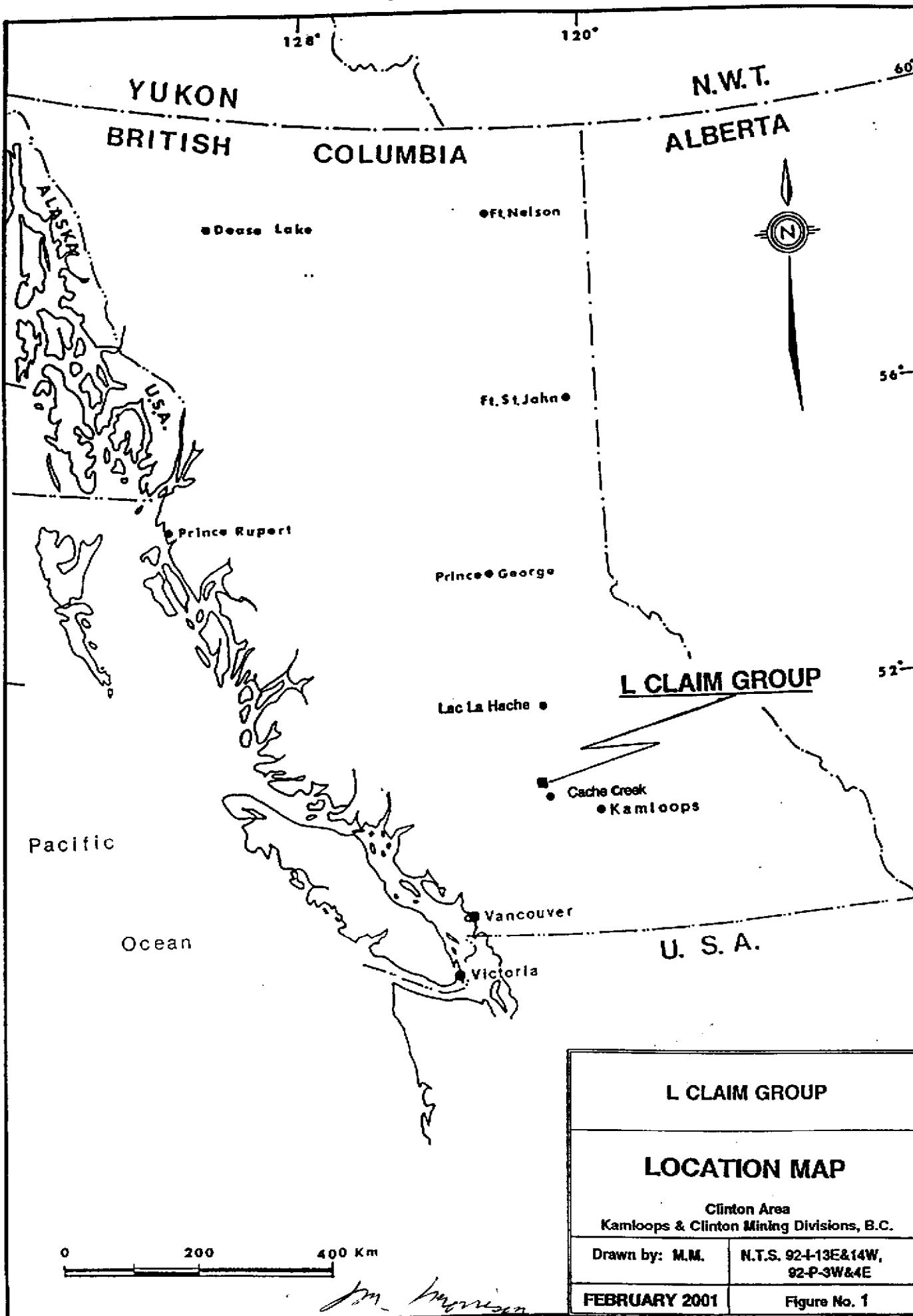
Throughout the years, the writer has conducted several geophysical surveys (i.e. ground magnetometer and VLF-EM) over portions of the property, but these surveys have had little success in tracing quartz-carbonate replacement zones under the thick cover of drift (Morrison, 1992, 95-97).

The drift contains an intriguing amount of quartz vein and quartz-carbonate vein material (2-5%), and in 1998 an experimental biogeochemical survey was conducted over a portion of the Claim Group in an effort to locate the source of the float.

Deadwood twigs of Douglas fir trees were used as a sample medium, and the survey successfully outlined biogeochemical patterns which suggested that there are local concentrations of vein material in the drift.

The results of a follow-up survey in 1999, northwest of the first, indicate that the bedrock source area of the float material may have been found, and the results of this year's biogeochemical survey conducted in the same region (on intermediate grid lines) confirm the results of the 1999 survey.

A trenching program is recommended to test the bedrock for quartz and quartz-carbonate veining in the region of the biogeochemical anomalies outlined by the 1999 and 2000 survey results.



INTRODUCTION

This report, written for government assessment work credits, discusses the results of a biogeochemical survey conducted over portions of the Hart 3 mineral claim of the L Claim Group by the writer on November 19, 2000.

The L Claim Group is comprised of 10 contiguous 2-post mineral claims, 90% owned by the writer, M. Morrison, of Kelowna, B.C., and 10% owned by Doublestar Resources Ltd. of West Vancouver, B.C.

The property, located 25 km northwest of Cache Creek, B.C., extends for 2500 metres along the crest of Hart Ridge, 2 km north of Highway #97.

The property is underlain by highly disrupted argillites, cherts, limestones and tuffs of the Permian Age Cache Creek Group. Locally, the tuffs have been selectively replaced with ankerite, quartz and mariposite. On such replacement zone (now covered by the L2 mineral claim) returned an impressive assay of 15 gpt gold over 3 metres during a 1973 Percussion Drilling Program by Cordilleran Engineering (Sanguinetti, 1974).

In 1985, Esso Minerals "twinned" the successful 1973 percussion drill hole with a diamond drill hole. The 1985 hole returned only 430 parts per billion gold from the same interval that had yielded gold in 1973, but core recovery was poor and no sludge was collected. The test was inconclusive and in the writer's opinion there remains an intriguing gold target on the property below a heavy cover of till.

A considerable amount of quartz vein and quartz-carbonate vein material (2-5%) occurs within the drift across the northern portion of the L Claim Group. The source of this vein material has never been located.

INTRODUCTION (continued)

In 1998, and again in 1999, biogeochemical surveys, using the deadwood branches of Douglas fir trees, were conducted in an attempt to locate the source of the vein material found in the drift.

The results of the 1998 survey outlined elevated biogeochemical values for silver, lead, cadmium and iron in an area of known deep glacial drift on the L 1-4 mineral claims (Morrison, 1998). The results of the 1999 survey yielded elevated values for the same elements plus several others for distances of up to 900 metres "up-glacier" from the 1998 survey area. The pattern of the elevated values of the elements outlined by the 1999 survey is thought to represent a near bedrock source and a trenching program was recommended (Morrison, 1999).

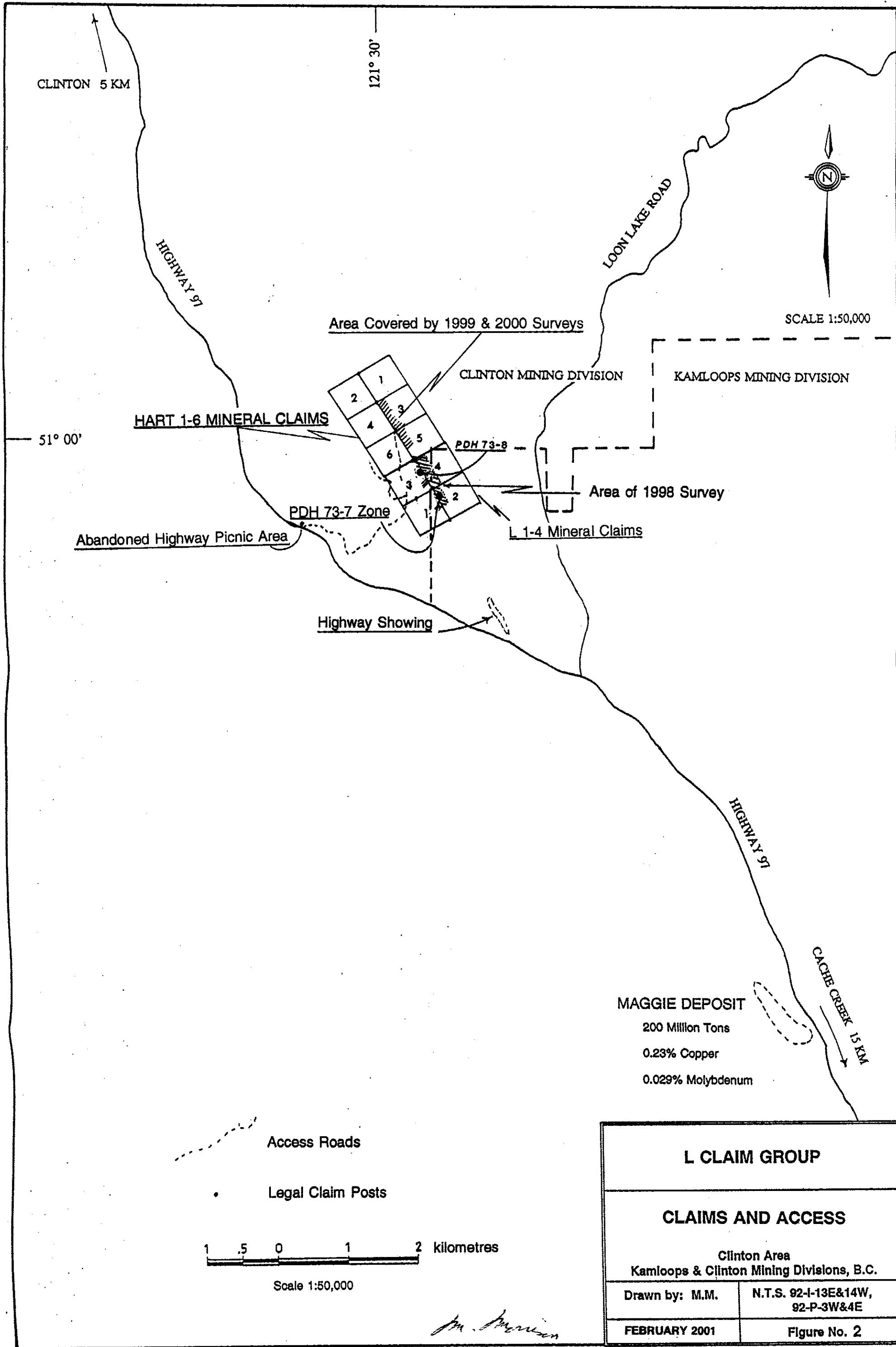
This year, five intermediate grid lines were established between the 1999 grid lines. The purpose of this year's survey was to give more definition to the trenching targets before the recommended program is commenced.

The biogeochemical survey maps of the 1999 Assessment Report have been revised with this year's new data. The maps (Maps L-01-1 to 5) display the values of eight elements which were selected from the Certificate of Analysis (see Appendix C).

LOCATION and ACCESS

The L Claim Group lies 2 km north of Highway 97, 25 km northwest of Cache Creek, or 12 km southeast of Clinton, B.C. (Lat. 51°00'; Long. 121°30'; N.T.S. Maps 92-I-13E & 14W and 92-P-3W & 4E).

Access to the L 1-4 and Hart 1-6 mineral claims is via a dirt logging road which leaves Highway 97 at an abandoned highway picnic site 3.8 km west of the Loon Lake road turn-off (please see Figure 2).



PHYSICAL FEATURES AND CLIMATE

The L Claim Group straddles the southern end of Hart Ridge - a spur of land that separates the Bonaparte River Valley on the east from the valley of Maiden Creek on the southwest.

The upland surface of Hart Ridge is covered with deep glacial drift and most of the rock exposures on the L Claim Group are restricted to the flanks of the ridge adjacent the two main valleys.

The L Claim Group lies near the northern end of the Cache Creek - Ashcroft desert. The sagebrush of the Bonaparte River Valley at 580 metres elevation gives way to a forest of Douglas Fir along Highway 97 as it climbs away from the valley towards Clinton. The L property lying 2 km north of the highway is forested with Douglas Fir. (The mean elevation of the property is 1000 metres above sea level.)

The Douglas Fir has been selectively logged from portions of the property. Elsewhere, a severe caterpillar infestation of several years ago has killed half of the forest. Some of the dead forest still stands, but much of it has fallen in recent years to rot on the forest floor.

The property receives approximately 40 cm of precipitation annually. Winter snow generally covers the property from early November until mid-March and can reach up to 70 cm in depth.

The climate is moderate with winter temperatures seldom below -30°C and summer temperatures rarely above 35°C . Spring and autumn temperatures are often a comfortable 20 to 25°C .

CLAIM STATUS

The mineral claims comprising L Claim Group are owned 90% by the writer, M. Morrison of Kelowna, B.C. and 10% by Doublestar Resources Ltd. of West Vancouver, B.C.

On May 1, 2000, the 10 contiguous 2-post mineral claims of the L Claim Group were granted a Common Anniversary Date of November 20.

Specifics related to the mineral claims are listed below:

<u>CLAIM NAME</u>	<u>UNITS</u>	<u>DATE OF RECORD</u>	<u>TENURE NUMBER</u>	<u>MINING DIVISION</u>	<u>EXPIRY* DATE</u>
L1	1	May 12/94	325709	Kamloops	Nov. 20/2001
L2	1	May 12/94	325710	Kamloops	Nov. 20/2001
L3	1	May 12/94	325711	Kamloops	Nov. 20/2001
L4	1	May 12/94	325712	Kamloops	Nov. 20/2001
Hart 1	1	May 6/98	362417	Clinton	Nov. 20/2001
Hart 2	1	May 6/98	362418	Clinton	Nov. 20/2001
Hart 3	1	May 6/98	362419	Clinton	Nov. 20/2001
Hart 4	1	May 6/98	362420	Clinton	Nov. 20/2001
Hart 5	1	May 6/98	362421	Clinton	Nov. 20/2001
Hart 6	1	May 6/98	362422	Clinton	Nov. 20/2001

*** Note:** The new Expiry Dates are based on the acceptance of this report for assessment work credits.

HISTORY

The discovery of the Maggie Mine copper-molybdenum porphyry deposit by Bethlehem Copper Corporation in 1970, 15 km northwest of Cache Creek, B.C., sparked a staking rush that extended for several kilometres north and south of the discovery. The southern spur of Hart Ridge, now covered by the L Claim Group was covered during the Maggie staking rush by the Ranger and Paw mineral claims owned by Calgary-based Peyto Oil Ltd.

The large Ranger-Paw property, consisted of 159, 2-post mineral claims and was explored for its porphyry copper-molybdenum potential from 1970 until 1973 in the wake of the Maggie discovery. Exploration surveys included: geological mapping, geochemical soil sampling (for copper and molybdenum only), magnetometer surveying and induced polarization surveying carried out under the direction of Cordilleran Engineering and others. The geochemical results were negligible, but in 1973, fifteen percussion drill holes were drilled to test several of the induced polarization survey anomalies. No significant copper-molybdenum mineralization was discovered, but percussion drill hole 73-7 did intercept 3 metres of 15 grams of gold per tonne from 42.7 to 45.7 metres. The gold occurred with pyritic, quartz-carbonate material.

In 1974 the original 159 claim property was reduced to 17 claims (covering some of the same country that is now covered by the L Claim Group). Four widely separated percussion drill holes were drilled in an attempt to extend the gold zone discovered in PDH 73-7. No gold was found and the property was allowed to lapse (Sanguinetti, 1974).

The ground remained open until 1982 when the J 1-4 mineral claims were staked by the writer to cover a quartz/carbonate/mariposite replacement zone 500 metres north of Highway #97, 1 km west of the Loon Lake road turnoff. In 1984, the J 5 mineral claim was added to the northwest of the J 1-4 mineral claims.

HISTORY (continued)

A VLF-EM ground survey was conducted over the central portion of the J 5 mineral claim in early 1985 (Morrison, 1985) and later the same year Esso Minerals drilled 3 diamond drill holes, totalling 186.5 metres, in the vicinity of PDH-73-7 (with one of the diamond drill holes "twinning" the 1973 drill hole). The best intercept was only 430 parts per billion gold over 2.4 metres from the "twinned" drill hole. Core recoveries were poor and no sludge was collected, but the drill test was considered negative by Esso Minerals and they returned the property to the writer (Melnik, 1985).

A ground magnetometer survey was conducted over the central portion of the J 5 mineral claim by the writer in 1992. The magnetic character of the property, however, proved to be weak.

The J 5 mineral claim subsequently lapsed and the L 1-14 mineral claims were staked by the writer in 1994 & 95 to cover some of the area previously covered by the J 5 mineral claim.

In 1995, a VLF-EM ground survey was conducted on the L 9-14 mineral claims northwest of the 1985 survey, and in 1996 a detailed VLF-EM ground survey was conducted over portions of the L 1-4 mineral claims. In 1997, the 1996 VLF-EM ground survey was repeated using the stronger Seattle signal station (Morrison, 1997).

The L 9-14 mineral claims were allowed to expire March 29, 1997 and this ground was restaked by the writer with the Hart 1-6 mineral claims, May 6, 1998.

An experimental biogeochemical survey was conducted over portions of the L 1-4 mineral claims by the writer in 1998, and this survey was extended another 900 metres to the northwest across portions of the Hart 1 & 3 mineral claims in 1999 (Morrison, 1998 & 99).

REGIONAL GEOLOGY

The Geological Survey of Canada, 1"=4 mile scale geological maps, 1010A - Ashcroft Area and 1278A - Bonaparte Area by Duffell and McTaggart (1952) and Campbell and Tipper (1971), respectively, outline a 10 by 75 km belt of Permian Cache Creek Group rock which is centred at Cache Creek and extends south to Martel and north to Clinton. The sedimentary and volcanic rocks of the Cache Creek Group are highly faulted and generally disrupted throughout much of the belt, and they are locally intruded by small bodies of ultrabasic intrusions which are serpentized.

The L Claim Group, located near the northern end of the belt, covers highly disrupted Cache Creek Group sediments and meta-volcanics 9 km northwest of the well-known Maggie copper-molybdenum deposit.

The Maggie deposit, with published reserves of 200 million Tons of 0.23% copper and 0.029% molybdenum, is associated with an elongate Tertiary intrusive of biotite-quartz monzonite porphyry which strikes 143 degrees and intrudes the Cache Creek Group rocks.

A quartz-carbonate replacement zone 2 km southeast of the L Claim Group is called the Highway Showing on Figure 2. This zone strikes 150 degrees; semi-conformable with the general shearing/bedding in the district.

PROPERTY GEOLOGY

The L Claim Group is believed to be underlain by a succession of Permian Cache Creek Group sedimentary rocks which include interbedded pyroclastic rocks. The general bedding appears to strike at 150 degrees and dip 60 to 70 degrees southwest although on the bluffs north of Highway 97 (on the old J 2-4 mineral claims; see History) the rocks are locally warped, drag-folded and generally dislocated by strong faulting and a wide range of bedding attitudes are displayed.

The dominant rock unit on the property is a black, thin-bedded argillite which is sometimes cherty and often graphitic. The argillite is highly foliated and erodes easily. Limestone is known to be interbedded with the argillites and at grid 26+50N, 17+65W (1992 survey) a mass of limestone 30 metres thick is exposed.

Dacitic to andesitic tuff is locally interbedded with the argillites also, and at the Highway Showing (see Figure 2) these tuffs have been selectively replaced with quartz, carbonate and mariposite.

The main carbonate replacement zone north of the highway (i.e. the Highway Showing) was traced for 700 metres during a 1983 prospecting program (Morrison, 1983). The central part of the lense-shaped zone has been particularly disrupted by drag-folding and over a distance of a few metres the original rock is brecciated and entirely replaced with ankerite/dolomite (65%), quartz (30%) and mariposite (5%). A sample of this rock was found to contain 1155 parts per million arsenic in 1983.

Two kilometres northwest of the Highway Showing a second quartz-carbonate replacement zone was found within Cache Creek Group argillites at a depth of 42.7 metres in a percussion drill hole drilled in 1973. PDH 73-7, drilled by Cordilleran Engineering, returned 15 grams of gold per tonne from the 3 metre quartz-carbonate zone.

PROPERTY GEOLOGY (continued)

Attempts by Cordilleran Engineering to trace the PDH 73-7 gold-bearing replacement zone back towards the Highway Showing with a series of three widely spaced drill holes along Hart Ridge in 1974 failed. The 1974 drill program was hampered by overburden and this writer believes that the follow-up drill holes were all drilled too far to the east of the projected strike of the replacement zone. The 1974 drill holes intercepted interbedded argillites and cherts of the Cache Creek Group.

Another drill hole of the 1973 program, PDH 73-8, located 435 metres northwest of PDH 73-7, returned an average of 23 parts per billion gold over the 76 metre bedrock interval of the drill hole. None of the 1974 follow-up drilling was conducted in the vicinity of PDH 73-8 by Cordilleran Engineering.

The thick cover of drift continues to impede exploration on the property. Geology can be mapped on the flanks of Hart Ridge, but due to the high degree of faulting cannot with any certainty be projected to the centre of the property. For example, a large outcrop of Limestone mapped at grid 26+50N, 17+65W has a 010/vertical foliation, and a chloritic argillite observed at grid 30+50N, 17+25W has a 015 to 020/80NW foliation. These attitudes are at odds with the general northwest strike and southwest dip at the Highway Showing.

Mapping on the bluffs north of Highway 97 revealed that late northeast and northwest transverse faults offset beds of the Cache Creek Group a few metres here and there across the countryside.

Badly broken, thin-bedded, sandstones and grits of Jurassic (?) Age are in fault contact with Cache Creek Group rocks on the western side of the L Claim Group.

BIOGEOCHEMICAL SURVEY - 2000

Grid

The Location Line of the Hart 3 mineral claim, which runs at a bearing of 330 degrees was used as a Baseline for this year's survey. Five short flagged grid lines at 100 metre intervals were established to the northeast of the Baseline between grid lines established in 1999 as illustrated on Maps L-01-1 to 5. The 30 new sample sites of this year's survey are also indicated on these Maps.

Sampling

Deadwood twigs of Douglas fir proved to be a successful sample medium for the 1998 & 99 surveys, and this material was used again in this year's survey area. Several deadwood branches were cut from 3 to 5 trees near each sample site and then the $\frac{1}{2}$ to 1 cm diameter twigs of these branches were cut into 10 cm lengths and placed in plastic "kitchen catcher" garbage bags with identification tags. Approximately 200 grams of twigs were collected for each sample.

Trees of equal size were used wherever possible, and a size of 20 cm in diameter was the most common in the survey area. The number and size of trees that were sampled at each site were recorded in a notebook.

The deadwood twigs were used in place of "livewood" or bark, because the writer has had success in using this sample medium on several other properties in Southern British Columbia. Only one sample (37+50N, 17+75W) was collected from livewood twigs, because deadwood twigs were not available near the survey station.

In all, 30 samples were collected and shipped to Acme Analytical Laboratories in Vancouver for standard ICP analyses of 30 elements. The laboratory procedures are listed in Appendix C along with the results.

BIOGEOCHEMICAL SURVEY - 2000 (continued)

Results

The data from this year's survey has been studied in detail with respect to:

- (a) the sample material collected,
- (b) last year's survey results, and
- (c) the concentration and distribution of each element in relationship to others in the survey area (i.e. correlation).

The Effects of Using Different Sample Material

As stated earlier, the sample material was selected from Douglas fir trees of approximately 20 cm in diameter, wherever possible. However, at some sample sites, the preferred tree size was not available and either trees of larger than normal size (30 to 40 cm) or smaller than normal size (5-10 cm) were selected for sample material and a notebook entry was recorded.

The concentrations of the 30 elements analyzed have been reviewed with respect to the "off-sized" samples listed in the notebook, and out of the 30 elements only lead and iron show a variation with respect to tree size and even then only occasionally. There is an increase in lead and iron values in some of the large tree samples, while some of the small tree samples yielded less lead and iron. The most notable example occurs on L34N at 17+50W and 17+75W where the samples were from small trees (5-10 cm) and the lead and iron values are distinctly low.

In all cases, with the exception of one, deadwood twigs were used as the sample medium. The one "livewood" sample yielded decidedly lower than average values for most of the 30 elements. This sample was collected on L37+50N at 17+75W.

BIOGEOCHEMICAL SURVEY -2000 (continued)**Results** (continued)**The Effects of Using Different Sample Material** continued

The concentration of certain elements in deadwood twigs might be explained by the fact that the branches die slowly, and as they die, the movement of fluids through the wood tissue gets restricted. It would seem that in this dying phase some elements are deposited at a molecular scale at a greater rate than they are removed. (This process would not occur with live branches that are cut and then left to die before analysis.)

Comparison of the 1998 Results with the 1999 & 2000 Survey Results

The 1998 experimental biogeochemical survey, conducted to the south of the 1999 & 2000 survey area, worked well at outlining areas with concentrations of silver, cadmium, lead and iron. Because of the 1998 success, an effort was made to conduct the 1999 & 2000 surveys with materials and methods as near as possible to those used during the 1998 survey. In spite of this duplication of procedures, there are several notable differences in the data obtained from each survey area.

The 1999 & 2000 values for nickel, cobalt, chrome, arsenic, antimony, lanthanum, titanium, boron, phosphorous, and potassium are all generally higher than those values from the 1998 survey, and this is particularly true in samples collected from L35N to L40N. Cadmium values, on the other hand, are significantly lower in samples from the 1999 & 2000 surveys.

Antimony values were distinctly lower in this year's samples compared with samples collected on intermediate grid lines in 1999. All of the collection procedures were the same, and deadwood twigs are not subject to seasonal changes, so it would seem that the difference originates with the laboratory procedures.

BIOGEOCHEMICAL SURVEY - 2000 continued**Results** continued**Comparison of the 1998 Results with the 1999 & 2000 Survey Results**

The significance of the differences, between the results of the 1998 and 1999 surveys, will be covered under the title Discussion.

The Concentration, Distribution and Correlation of Elements

Silver was chosen as the key element in the review of the 1999 data. Silver is universally considered a good pathfinder element for locating gold mineralization when conducting soil or rock geochemical surveys, and the same may be true for at least some biogeochemical surveys. The 1998 survey indicated that the Douglas fir has an affinity for silver and the 1999 survey added further proof of this affinity. Several of the 1999 samples contained greater than 3.0 ppm (parts per million) silver and one sample contained 6.5 ppm silver.

A comprehensive review of all 30 elements analyzed showed that 7 yielded concentrations that were somewhat correlative with the higher silver values. These 7 elements, plus silver, have been plotted on five maps (L-01-1 to 5) accompanying this report.

The values of all 8 elements have been contoured on the five maps. There is not enough data to be treated statistically, so a value has been chosen for contouring each element that nicely separates the grouping of higher values from those of lower values. The contour line in each case, therefore, outlines zones of elevated concentrations. In some cases, a line has been drawn across the maps joining the peak values of the elements illustrated. The line which often falls near the centre of the contour outline is called the "core of peak values" on the maps.

BIOGEOCHEMICAL SURVEY - 2000 (continued)**Results** continued**The Concentration, Distribution and Correlation of Elements** continued

There is a very good correlation between the peak values of silver, lead, copper and molybdenum on Maps L-01-1 & 2. Another good correlation exists between the peak values of iron, nickel and vanadium on Maps L-01-3 & 4.

Each element selected for plotting on the five maps will be discussed under the titles that follow.

Silver (Map L-01-1)

The 3.0 ppm silver value was used for outlining zones of concentrated silver on Map L-01-1. There are two zones of note. One zone extends from L37+00N to L38+00N near the northeastern edge of the survey area. The second zone extends from 17+25W to 17+ 50W on L36+00N. Both zones fall within a broader zone of high lead values.

Lead (Map L-01-1)

The 140 ppm lead contour outlines a narrow linear zone of elevated lead values extending 500 metres across the northeastern side of the survey area from L35+00N to L40+00N on Map L-01-1. The zone correlates well with the highest silver values.

Copper (Map L-01-2)

There are three narrow, discontinuous zones of elevated copper values (i.e. greater than 260 ppm) which occur across the northeastern side of the survey area from L35+00N to L39+00N on Map L-01-2. The zones correlate very well with zones of elevated molybdenum, silver and lead values.

BIOGEOCHEMICAL SURVEY - 2000 (continued)**Results** continued**The Concentration, Distribution and Correlation of Elements** continued**Molybdenum (Map L-01-2)**

The outline of elevated molybdenum values defined by the 9 ppm contour on Map L-01-2 covers much of the same area as copper (described above).

Iron (Map L-01-3)

The 1.50% contour line for iron on Map L-01-3 outlines an area of elevated iron values 50 to 100 metres wide which extends across the survey area from L35+00N to L40+00N. The core of peak values for iron crosses the grid area 25 to 50 metres to the southwest of the core of peak values for silver, lead, copper and molybdenum.

Nickel (Map L-01-3)

An area of elevated nickel values (i.e. greater than 45 ppm) crosses the survey grid from L35+00N to 39+50W on Map L-01-3. The zone of higher nickel values covers much of the same ground that is outlined by elevated iron values. The core of peak values for nickel is correlative in part with the core of high iron values and in part with the core of high silver, lead, copper and molybdenum values.

BIOGEOCHEMICAL SURVEY - 2000 (continued)**Results** continued**The Concentration, Distribution and Correlation of Elements** continued**Vanadium (Map L-01-4)**

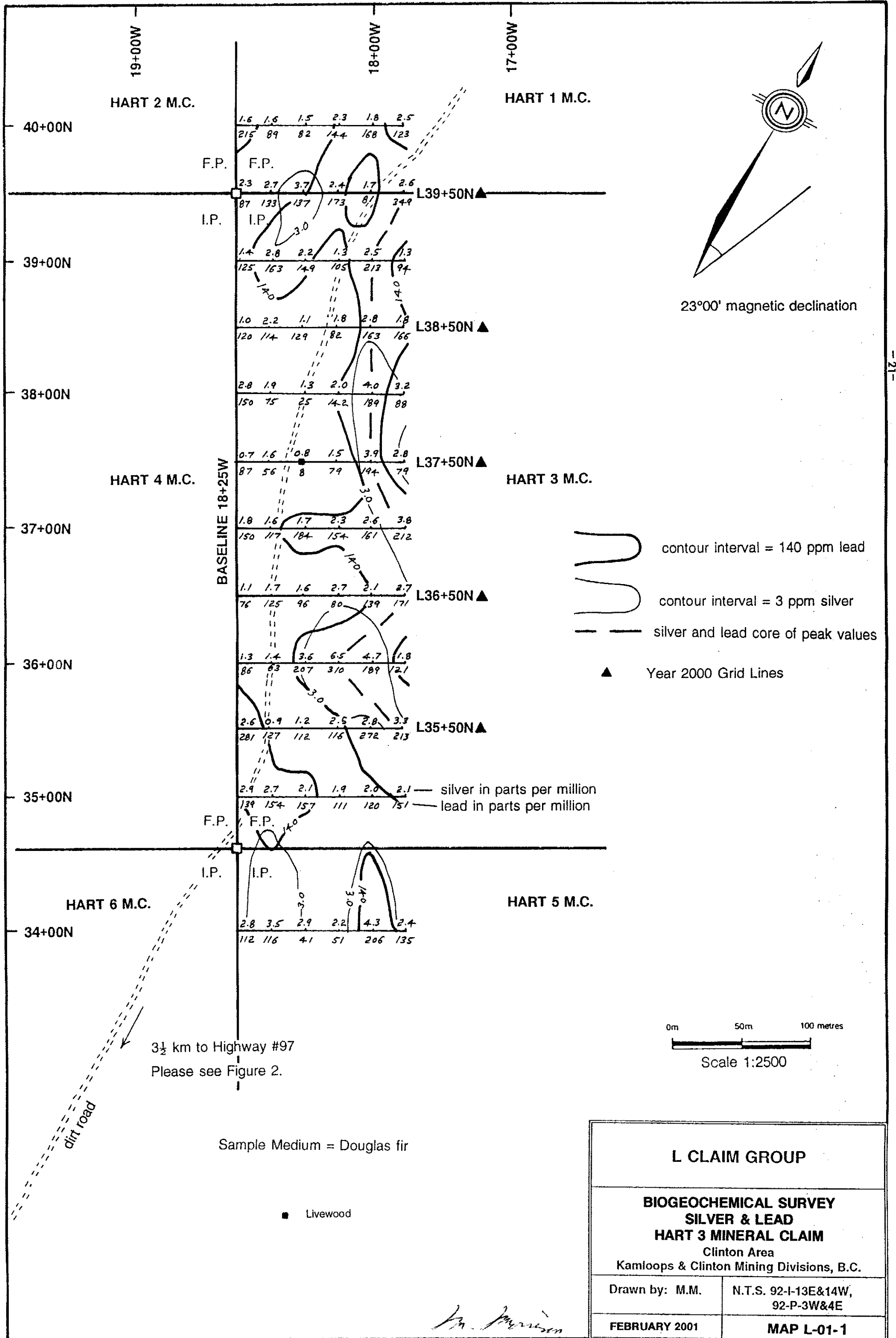
The 30 ppm contour line outlines discontinuous zones of elevated vanadium values extending from L35+00N to L39+50N on Map L-01-4. The vanadium pattern is closely associated with the zone of elevated iron values, but it is more restricted in area. The core of peak values for vanadium is entirely correlative with the core of peak iron values.

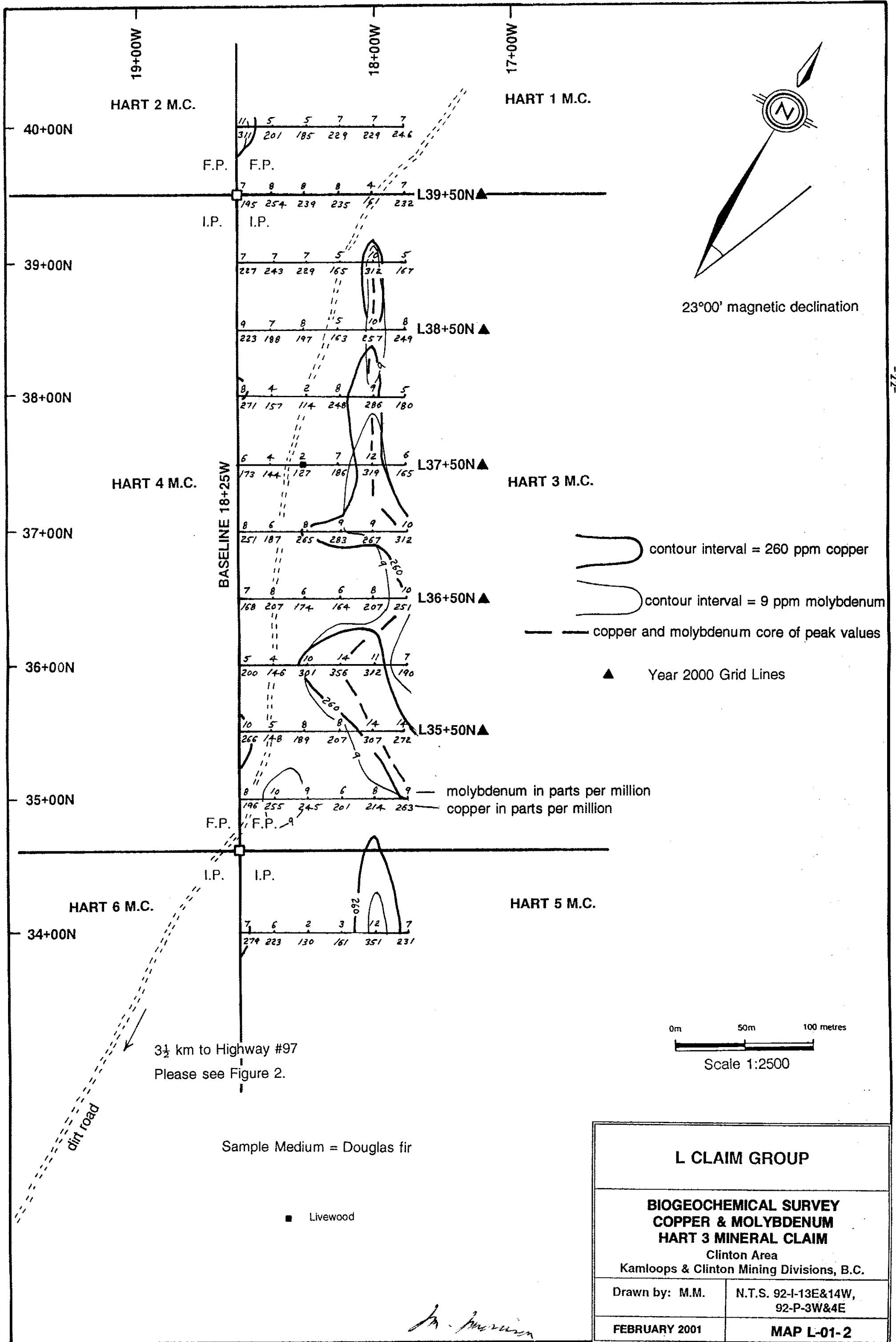
Zinc (Map L-01-5)

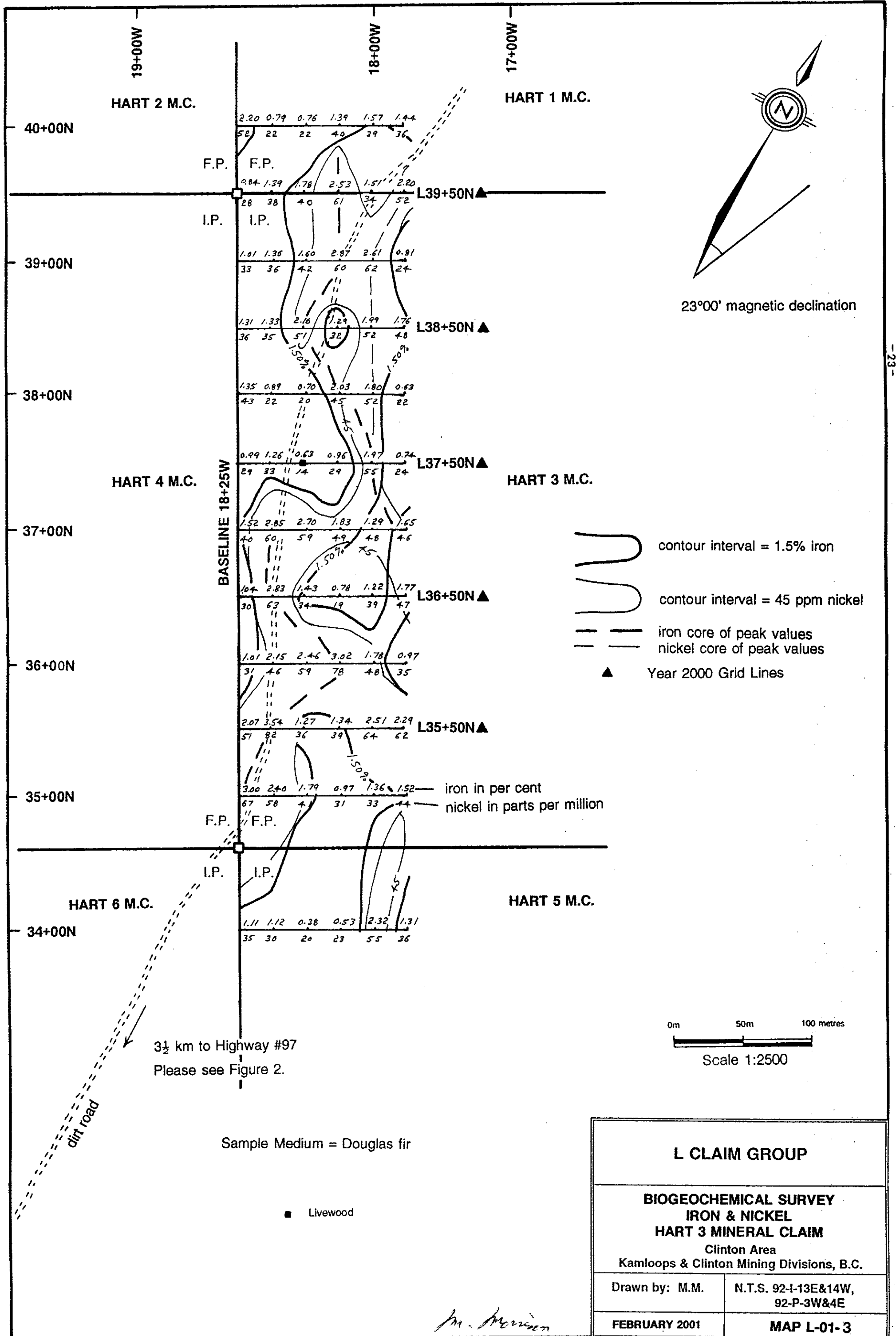
The 1400 ppm zinc contour outlines areas of elevated zinc on Map L-01-5. The zinc displays very little correlation with the other elements and some of the higher values are peripheral to the zones of higher values for the other elements.

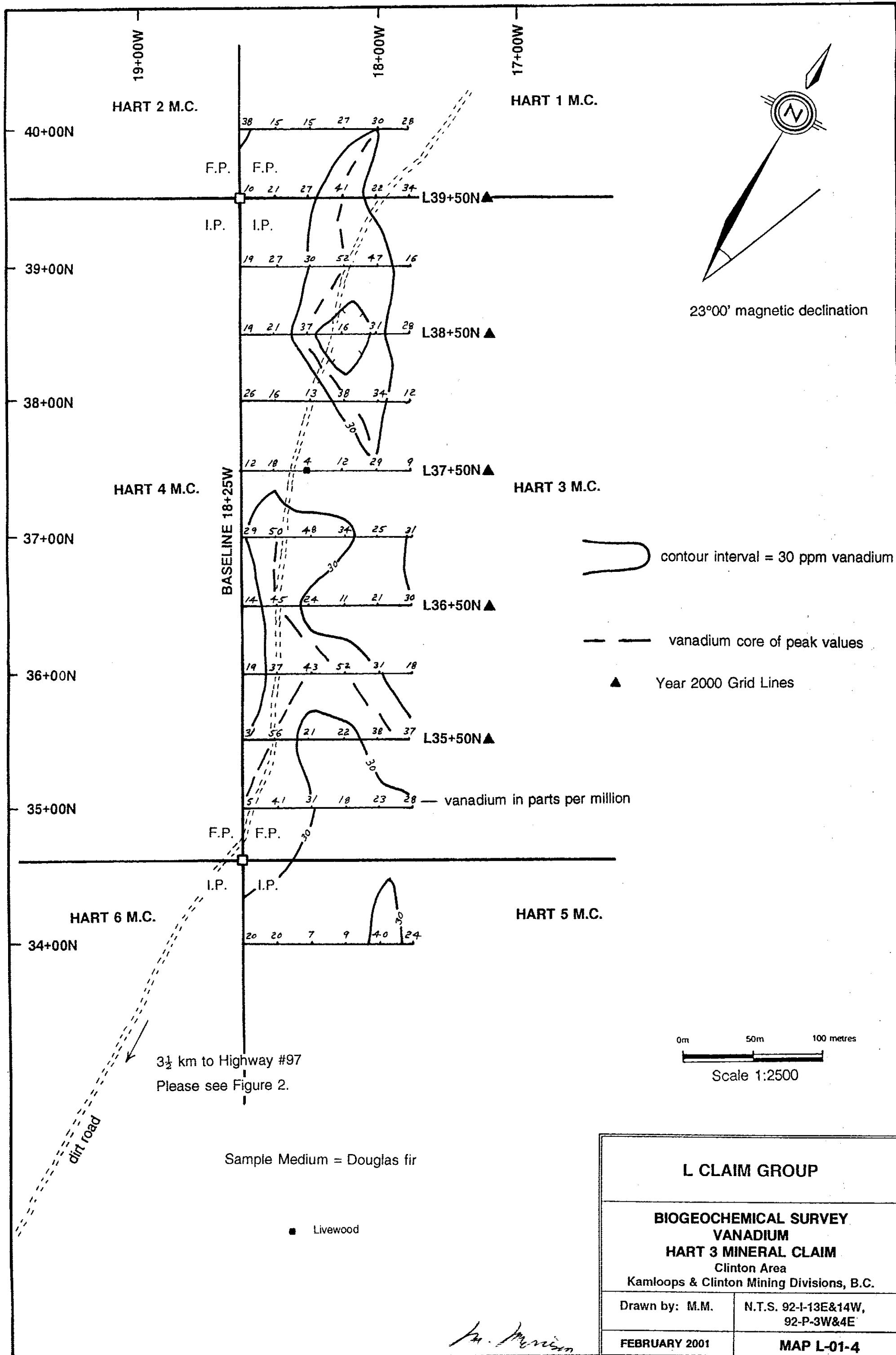
Other Elements

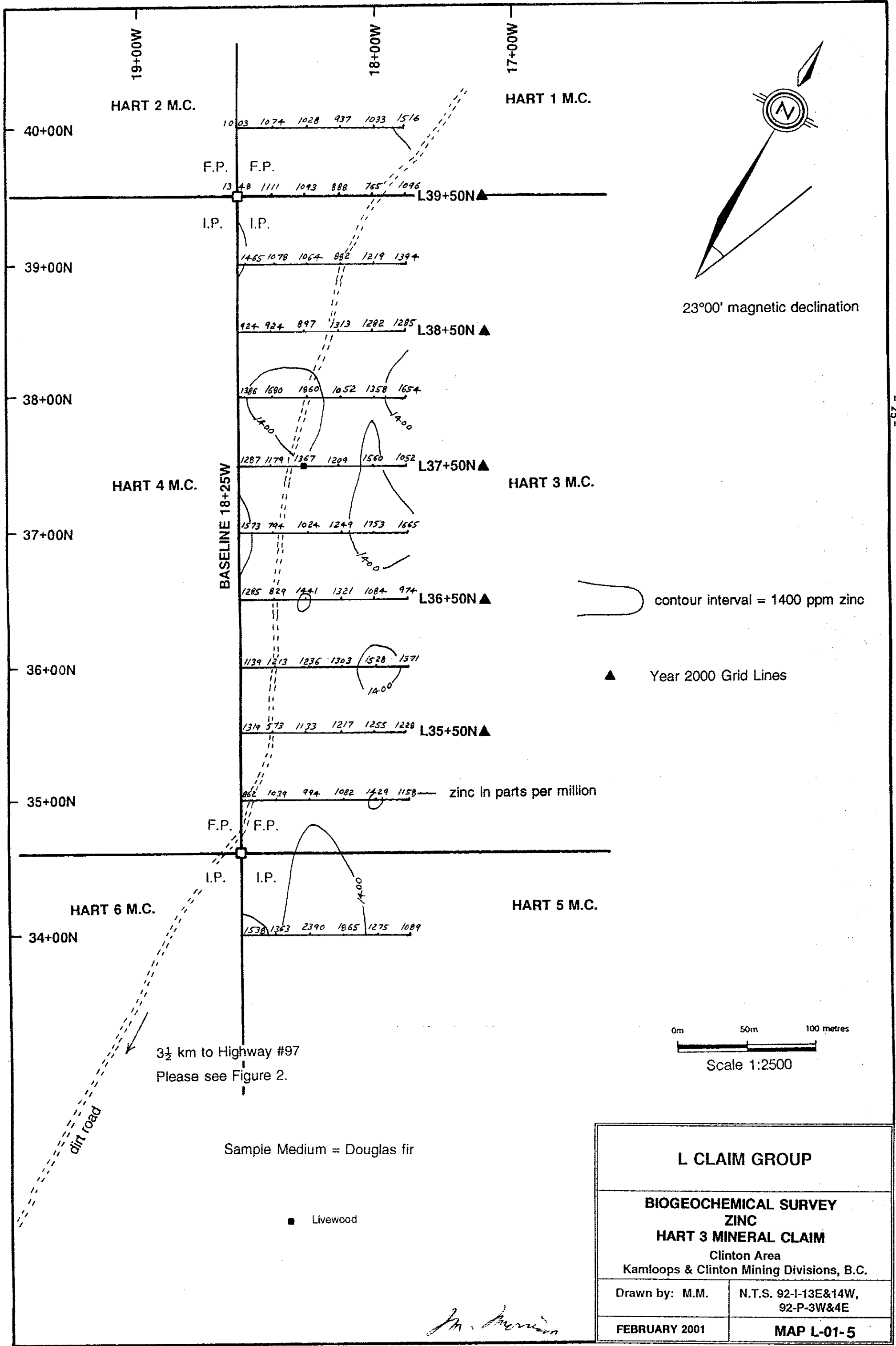
None of the other 22 elements listed in Appendix C display patterns that are considered useful for exploring for precious metals on the property.











23°00' magnetic declination

contour interval = 1400 ppm zinc

▲ Year 2000 Grid Lines

zinc in parts per million

0m 50m 100 metres
Scale 1:2500

Sample Medium = Douglas fir

● Livewood

L CLAIM GROUP	
BIOGEOCHEMICAL SURVEY ZINC HART 3 MINERAL CLAIM	
Clinton Area Kamloops & Clinton Mining Divisions, B.C.	
Drawn by: M.M.	N.T.S. 92-I-13E&14W, 92-P-3W&4E
FEBRUARY 2001	MAP L-01-5

M. Morrison

-25-

DISCUSSION

The results of the biogeochemical survey outline a linear anomaly which extends for 500 metres across the survey area. The anomaly is comprised of seven elements with zones of elevated values which occur in continuous or discontinuous overlapping patterns from L35+00N to L40+00N between 17+00W and 18+25W. Some of the highest values for silver, lead, copper and molybdenum are very correlative and they form a distinct core of peak values across the northeastern side of the survey area. A second group of elements, iron, nickel and vanadium are also highly correlative. The core of peak values for iron crosses the survey area sub-parallel to the core of peak values for lead at a distance of 25 to 50 metres to the southwest.

It is believed that the linear zone of elevated values for the seven elements represents a bonafide biogeochemical anomaly which indicates that economic minerals occur in bedrock at a shallow depth in the survey area. This belief is based on the observation that several of the elements are correlative and that the dispersion patterns of the elements are classical geochemical patterns. For instance, silver, copper and molybdenum occur in a core zone with restricted width; lead extends out from the core for up to 25 to 40 metres; iron extends up to 75 to 100 metres to the southwest of the core; and some of the higher zinc values lie peripheral to the main anomaly.

The dispersion patterns also indicate a shallow depth of overburden. In spite of a general 5 to 8 degree rise in the slope to the northwest, the zone of anomalous values has a linear core with dispersion patterns extending southwest and northeast perpendicular to the slope. The slope appears not to have played any role in the dispersion of the elements.

It is believed that the linear biogeochemical anomaly with a strike of 150 degrees may represent a quartz-carbonate replacement zone within the Cache Creek Group of rocks underlying the Hart 3 mineral claim. A zone similar to the Highway Showing or the

DISCUSSION continued

PDH 73-7 Zone might be expected. Gold may also occur with the Zone as it does at the DDH 73-7 Zone (see History).

It is recommended that a series of backhoe trenches be excavated across the core of coincident peak values for silver, lead, copper and molybdenum as illustrated on maps L-01-1 & 2. A few trenches should also be excavated further to the southwest across the core of peak values for iron and nickel on Map L-01-3.

The trenches should be at least 5 metres long and dug deep enough to obtain bedrock samples. All quartz vein or quartz-carbonate vein material should be sampled and tested for *precious metals and the standard 30 ICP elements*.

All of the proposed trenching sites lie very near the access road illustrated on Maps L-01-1 to 5. The Douglas fir forest has been selectively logged over the years, and it should be easy to excavate trenches without much disturbance to the forest.

CONCLUSIONS AND RECOMMENDATIONS

The 1999 & 2000 biogeochemical surveys conducted on portions of the Hart 3 & 5 and L 3 mineral claims have yielded results that indicate a possible bedrock source for the quartz and quartz-carbonate vein material found in drift to the southeast.


An area, 500 metres long and 70 to 100 metres wide, with elevated values for several elements extends across the southwestern side of the Hart 3 mineral claim. Elevated values for silver, lead, copper, molybdenum, iron, vanadium, nickel and zinc all occur in the area (see Results). All of these elements are considered to be consistent with those that would be associated with quartz and quartz-carbonate veining and replacement zones.

The 1998-2000 surveys have yielded biogeochemical anomalies that align with the two known quartz-carbonate replacement zones on the property (i.e. the Highway Showing and PDH 73-7 Zone).

A series of excavator trenches is recommended to test the biogeochemical anomaly between L35N and L40N (see Discussion). All quartz and quartz-carbonate vein material should be analyzed for gold and silver.

The sites recommended for trenching are very accessible.

February 12, 2001
Kelowna, B.C.


Murray Morrison, B.Sc.

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G.S.C. = Geological Survey of Canada.

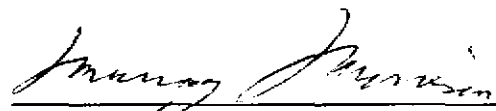
APPENDIX A

STATEMENT OF QUALIFICATIONS

I, Murray Morrison, of the City of Kelowna, in the Province of British Columbia, do hereby state that:

1. I graduated from the University of British Columbia in 1969 with a B.Sc. Degree in Geology.
2. I have been working in all phases of mining exploration in Canada for the past thirty-one years.
3. During the past thirty-one years, I have intermittently held responsible positions as a geologist with various mineral exploration companies in Canada.
4. I have conducted several geological, geochemical, and geophysical surveys on mineral properties in Southern British Columbia during the past thirty-one years.
5. I conducted the Biogeochemical survey on the Hart 3 mineral claim.
6. I own a 90% interest in the L 1-4 and Hart 1-6 mineral claims.

February 12, 2001
Kelowna, B.C.


Murray Morrison - B.Sc.

APPENDIX B**STATEMENT OF EXPENDITURES ON THE L CLAIM GROUP**

Statement of Expenditures in connection with a Biogeochemical Survey carried out on the L Claim Group, located 12 km southeast of Clinton, B.C. (N.T.S. Maps 92-I-13E & 14W and 92-P-3W & 4E) for the year 2000.

BIOGEOCHEMICAL SURVEY (600 metres)

M. Morrison, geologist	1 day @ \$300.00/day	\$ 300.
Truck, 4 x 4 (including gasoline and insurance)	1 day @ \$75.00/day	75.
Meals and Lodging	1 day @ \$70.00/day	70.
Flagging, belt chain thread, and sample bags		<u>10.</u>
	Sub-total	\$ 455.

ASSAYING COSTS

30 biogeochemical samples analyzed for 30 elements by ICP	30 @ \$10.70 each	\$ 321.
Bus express samples to lab		<u>8.</u>
	Sub-total	\$ 329.

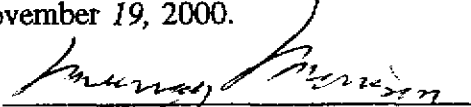
REPORT PREPARATION COSTS

M. Morrison, geologist	1½ days @ \$300.00/day	\$ 450.
Drafting		63.
Typing		87.
Copying Reports		<u>26.</u>
	Sub-total	\$626.

Grand Total **\$1,410.**

I hereby certify that the preceding statement is a true statement of monies expended in connection with the Biogeochemical Survey carried on November 19, 2000.

February 12, 2001
Kelowna, B.C.


Murray Morrison, - Geologist

**ACME ANALYTICAL LABORATORIES LTD.**

852 East Hastings,, Vancouver, B.C., CANADA V6A 1R6

Phone: (604) 253-3158 Fax: (604) 253-1716

Our GST # 100035377 RT

**MORRISON, M.S.**

684 Balsam Road

Kelowna, BC

V1W 1B9

Inv.#: **A100212**

Date: Feb 7 2001

QTY	ASSAY	PRICE	AMOUNT
30	30 ELEMENT ICP ANALYSIS @	5.95	178.50
30	ASHING UP TO 0.2 kg WET VEGETATION AT 475 DEG. C @	4.05	121.50
	GST Taxable		300.00
	7.00% GST		21.00
	CAD \$		321.00

Project: Hart
 Samples submitted by M.S. Morrison

COPIES 1

Please pay last amount shown. Return one copy of this invoice with payment.
 TERMS: Net two weeks. 1.5 % per month charged on overdue accounts.

[COPY 2]

APPENDIX C

Certificate of Analysis



GEOCHEMICAL ANALYSIS CERTIFICATE

Morrison, M.S. PROJECT Hart File # A100212
 684 Balsam Road, Kelowna BC V1W 1B9 Submitted by: M.S. Morrison

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Ash	Sample
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	ppm	gm	gm	
L39+50N 18+25W	7	195	87	1348	2.3	28	6	5499	.84	60	<8	<2	<2	1185	8.0	<3	<3	10	22.91	.882	3	21	1.70	134	.02	230	.55	.05	2.67	<2	3.32	198
L39+50N 18+00W	8	254	133	1111	2.7	38	10	5884	1.39	81	<8	<2	<2	914	7.5	<3	<3	21	19.30	1.071	4	32	1.68	130	.03	256	.87	.11	4.02	<2	2.48	201
L39+50N 17+75W	8	239	137	1093	3.7	40	12	6140	1.78	407	<8	<2	<2	1215	7.6	3	<3	27	16.68	1.150	6	40	1.58	170	.04	253	1.07	.10	3.20	<2	1.83	200
L39+50N 17+50W	8	235	173	888	2.4	61	14	3457	2.53	187	<8	<2	<2	838	8.2	4	<3	41	12.22	1.129	8	51	1.54	113	.06	165	1.46	.09	3.01	<2	3.01	200
L39+50N 17+25W	4	161	81	765	1.7	34	9	3276	1.51	137	<8	<2	<2	959	6.1	<3	<3	22	18.09	.773	6	31	1.29	146	.04	165	.90	.06	2.25	<2	4.55	201
L39+50N 17+00W	7	232	349	1096	2.6	52	12	3379	2.20	327	<8	<2	<2	868	11.4	6	3	34	13.31	1.090	7	47	1.73	111	.05	168	1.31	.09	2.62	<2	2.25	202
L38+50N 18+25W	9	223	120	924	1.0	36	9	4234	1.31	329	<8	<2	<2	1172	4.6	3	<3	19	19.26	1.058	4	30	1.44	192	.03	203	.81	.10	3.45	<2	2.87	203
L38+50N 18+00W	7	188	114	924	2.2	35	8	4823	1.33	226	<8	<2	<2	1105	7.0	3	<3	21	19.13	.894	5	29	1.36	146	.03	192	.83	.09	3.49	<2	3.74	199
L38+50N 17+75W	8	197	129	897	1.1	51	12	5348	2.16	227	<8	<2	<2	1054	6.5	<3	<3	37	14.65	.926	8	43	1.23	140	.06	163	1.34	.12	3.12	<2	4.61	200
L38+50N 17+50W	5	163	82	1313	1.8	32	8	4790	1.29	413	<8	<2	<2	1032	9.4	<3	<3	16	18.77	.924	4	27	2.01	131	.03	283	.79	.09	4.36	<2	4.56	200
L38+50N 17+25W	10	257	163	1282	2.8	52	13	4851	1.99	573	<8	<2	<2	1100	16.1	3	<3	31	15.52	1.120	6	43	1.80	166	.05	227	1.20	.13	3.65	5	2.38	202
L38+50N 17+00W	8	249	166	1285	1.8	48	11	5046	1.76	874	<8	<2	<2	954	9.4	4	<3	28	16.91	1.161	6	39	1.52	196	.04	168	1.14	.10	3.29	<2	2.86	203
L37+50N 18+25W	6	173	87	1287	.7	29	7	4110	.99	901	<8	<2	<2	965	11.5	4	<3	12	20.18	.959	3	19	1.93	110	.03	262	.66	.12	4.33	<2	3.98	201
L37+50N 18+00W	4	144	56	1179	1.6	33	10	4862	1.26	733	<8	<2	<2	1020	9.5	4	<3	18	19.10	.843	5	25	1.43	130	.04	227	.81	.15	3.59	<2	4.20	198
L37+50N 17+75W	2	127	8	1367	.8	14	5	6254	.63	129	<8	<2	<2	1061	7.2	5	<3	4	21.51	1.422	1	10	1.85	186	.02	362	.47	.04	5.45	6	3.70	199
L37+50N 17+50W	7	186	79	1209	1.5	29	8	4123	.96	33	<8	<2	<2	1013	12.1	3	<3	12	20.53	1.053	3	20	2.15	125	.02	231	.64	.10	4.77	<2	4.00	200
L37+50N 17+25W	12	319	194	1560	3.9	55	14	8718	1.97	49	<8	<2	<2	936	29.6	<3	<3	29	14.61	1.425	5	50	2.05	90	.04	279	1.11	.13	4.09	<2	1.29	203
L37+50N 17+00W	6	165	79	1052	2.8	24	5	5533	.74	55	<8	<2	<2	983	9.8	<3	<3	9	23.62	.669	2	19	1.51	118	.02	226	.54	.06	2.20	4	3.61	202
L36+50N 18+25W	7	168	76	1285	1.1	30	8	3972	1.04	126	<8	<2	<2	1203	8.6	<3	<3	14	20.96	.957	3	26	1.66	113	.03	218	.69	.08	3.97	<2	3.53	200
L36+50N 18+00W	8	207	125	829	1.7	63	17	3912	2.83	36	<8	<2	<2	742	8.1	3	<3	45	10.48	.976	9	57	1.74	123	.07	168	1.67	.11	3.03	<2	3.28	203
L36+50N 17+75W	6	174	96	1441	1.6	34	10	3530	1.43	138	<8	<2	<2	1399	4.5	<3	<3	24	20.43	.701	5	34	1.56	149	.04	124	.96	.06	1.03	<2	4.06	201
L36+50N 17+50W	6	164	80	1321	2.7	19	6	4453	.78	212	<8	<2	<2	1577	12.7	3	<3	11	24.62	.645	3	22	1.30	118	.02	166	.56	.04	1.34	<2	3.22	197
L36+50N 17+25W	8	207	139	1084	2.1	39	9	5745	1.22	231	<8	<2	<2	1057	13.4	<3	<3	21	21.28	.879	4	33	1.27	163	.03	222	.80	.13	3.49	5	3.30	202
L36+50N 17+00W	10	251	171	974	2.7	47	10	4707	1.77	371	<8	<2	<2	990	11.1	3	<3	30	18.51	.936	6	40	1.11	203	.04	163	1.10	.09	2.16	<2	3.08	201
RE L36+50N 17+00W	11	241	167	966	2.7	47	10	4609	1.72	367	<8	<2	<2	965	10.9	<3	<3	28	18.50	.910	5	37	1.08	215	.04	158	1.07	.09	2.09	2	-	-
L35+50N 18+25W	10	266	281	1319	2.6	51	13	4042	2.07	552	<8	<2	<2	928	8.5	<3	4	31	14.84	1.112	6	41	2.03	116	.05	211	1.23	.12	3.79	10	2.35	185
L35+50N 18+00W	5	148	127	573	.9	82	23	2630	3.54	346	<8	<2	2	541	8.0	<3	<3	56	5.83	.583	12	70	1.48	174	.09	92	2.11	.11	1.83	<2	3.84	200
L35+50N 17+75W	8	189	112	1133	1.2	36	9	4467	1.27	503	<8	<2	<2	1487	7.3	3	<3	21	21.25	.852	4	31	1.28	109	.03	177	.86	.07	1.72	<2	2.92	201
L35+50N 17+50W	8	207	116	1217	2.5	39	10	4159	1.34	689	<8	<2	<2	1100	8.9	3	<3	22	20.69	.919	4	34	1.34	226	.03	254	.87	.13	3.32	3	2.47	200
L35+50N 17+25W	14	307	272	1255	2.8	64	15	7838	2.51	1002	<8	<2	<2	763	12.5	5	<3	38	11.06	1.907	6	57	1.92	114	.05	258	1.43	.19	5.93	<2	1.44	177
L35+50N 17+00W	14	292	213	1228	3.3	62	14	6657	2.29	1029	<8	<2	<2	945	17.1	3	<3	37	14.37	1.406	6	53	1.57	114	.05	234	1.35	.14	3.66	<2	1.70	202
STANDARD C3	26	67	39	165	5.7	37	12	781	3.32	56	23	3	19	30	23.5	15	22	82	.59	.086	19	170	.61	148	.09	24	1.80	.04	.16	20	-	-
STANDARD G-2	<1	5	6	45	<3	8	4	549	2.08	<2	<8	<2	4	68	<2	<3	<3	41	.63	.095	7	79	.63	227	.13	3	.96	.08	.45	<2	-	-

GROUP 10 - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY ICP-ES.
 UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
 - SAMPLE TYPE: Vegetation VA80 Samples beginning 'RE' are Retuns and 'RRE' are Reject Retuns.

DATE RECEIVED: JAN 23 2001 DATE REPORT MAILED: Feb 5/2001 SIGNED BY: [Signature] D. TOYE, C. LEDNG, J. WANG; CERTIFIED B.C. ASSAYERS

Sample Medium = Douglas fir
 M.M.