

85-368-1367;
3186

VLF-EM 16 GROUND SURVEY

ASSESSMENT REPORT

on the

GOLDEN RING 1 MINERAL CLAIM

KAMLOOPS LAKE AREA

KAMLOOPS MINING DIVISION

by

MURRAY MORRISON, B.Sc.

Claim: Golden Ring 1 (4 units)

Location: The Golden Ring property is situated 25 km west of Kamloops, B.C., or 5 km south of the Savona Lookout on the Trans Canada Highway. Lat. 50°42'; Long. 120°43'; N.T.S. 92-I-10E.

Owner: Murray Morrison

Operator: Murray Morrison

Date Started: February 28, 1985

Date Completed: March 14, 1985

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

Kelowna, B.C.

March 15, 1985

13,677

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SUMMARY

The Golden Ring property situated south of Kamloops Lake, 25 km west of Kamloops, B.C. lies within the Savona Mercury Belt. The Mercury Belt has received the attention of several large exploration companies in recent years as a potential epithermal gold environment. Companies such as Placer Development, Newmont, Selco, Inco and Asarco have concentrated exploration efforts on mercury-bearing carbonate alteration zones within Upper Triassic Nicola Group rocks. It is believed that these alteration zones represent the upper levels of epithermal systems that may be gold and silver bearing at depth.

Newmont Exploration has discovered gold, silver, lead and antimony mineralization associated with silica and pyrite near the centre of one such carbonate alteration zone 1 km north of the Golden Ring property.

It is believed that Early Tertiary Intrusives related to the Copper Creek Intrusions are responsible for the alteration zones, and that the emplacement of the intrusives is partially controlled by faulting.

A VLF-EM 16 ground survey was conducted over the Golden Ring property in an effort to define fault structures that in turn might outline zones of carbonate alteration. Two major fault zones striking northwesterly across the Golden Ring property were delineated by the VLF-EM survey. Some carbonate alteration zones are already known to be coincident with portions of these fault zones. Detailed geological mapping of the property is recommended in order to locate and outline additional carbonate alteration zones. It is further recommended that lithogeochemical samples be collected from any carbonate alteration zones located during mapping and that the samples be analyzed for gold, silver and arsenic.

Continued . . .

SUMMARY - Continued

It is believed that the geochemical survey conducted over the property by Placer Development in 1981 was inadequate to properly appraise the gold bearing potential of the Golden Ring property.

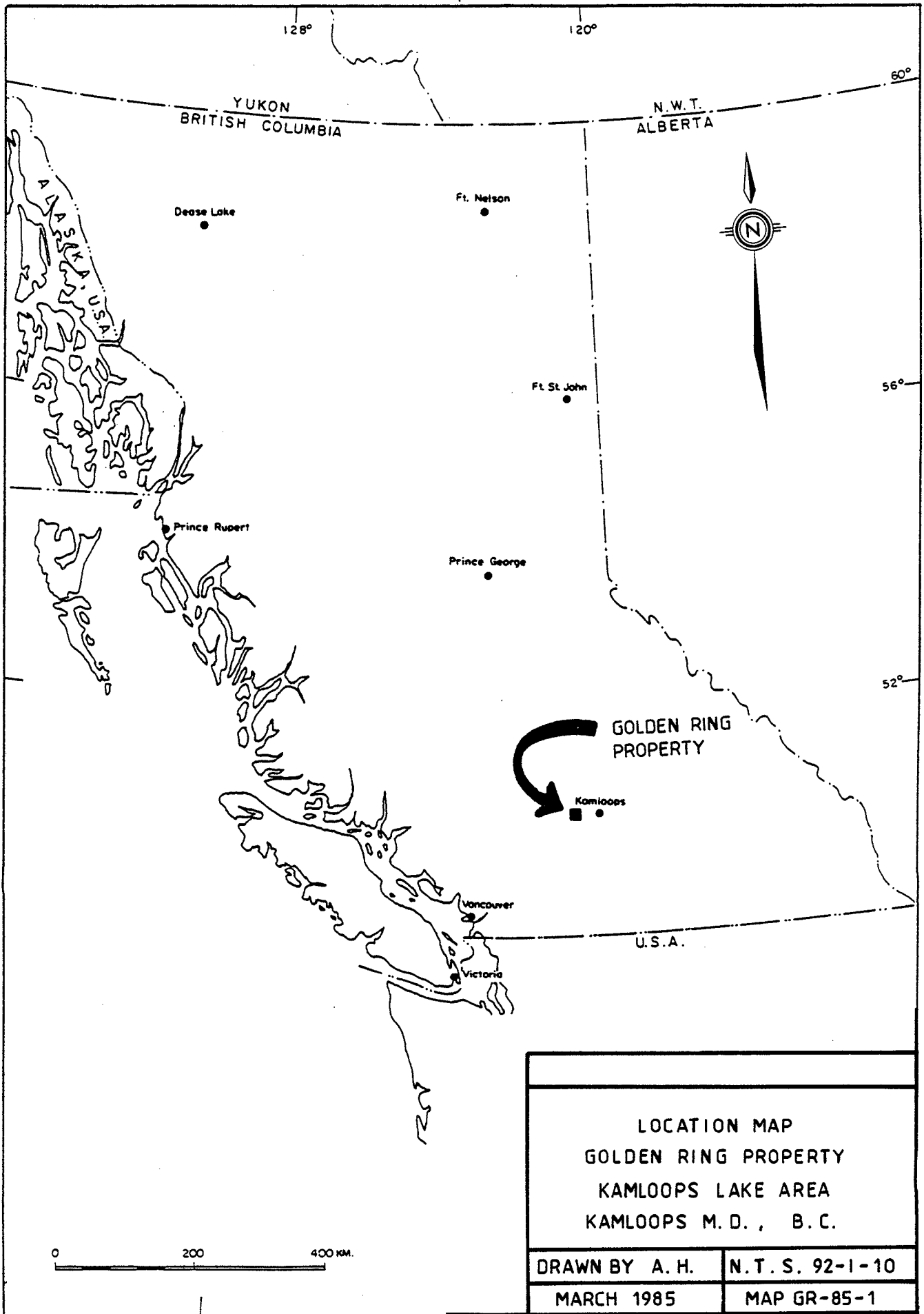
INTRODUCTION

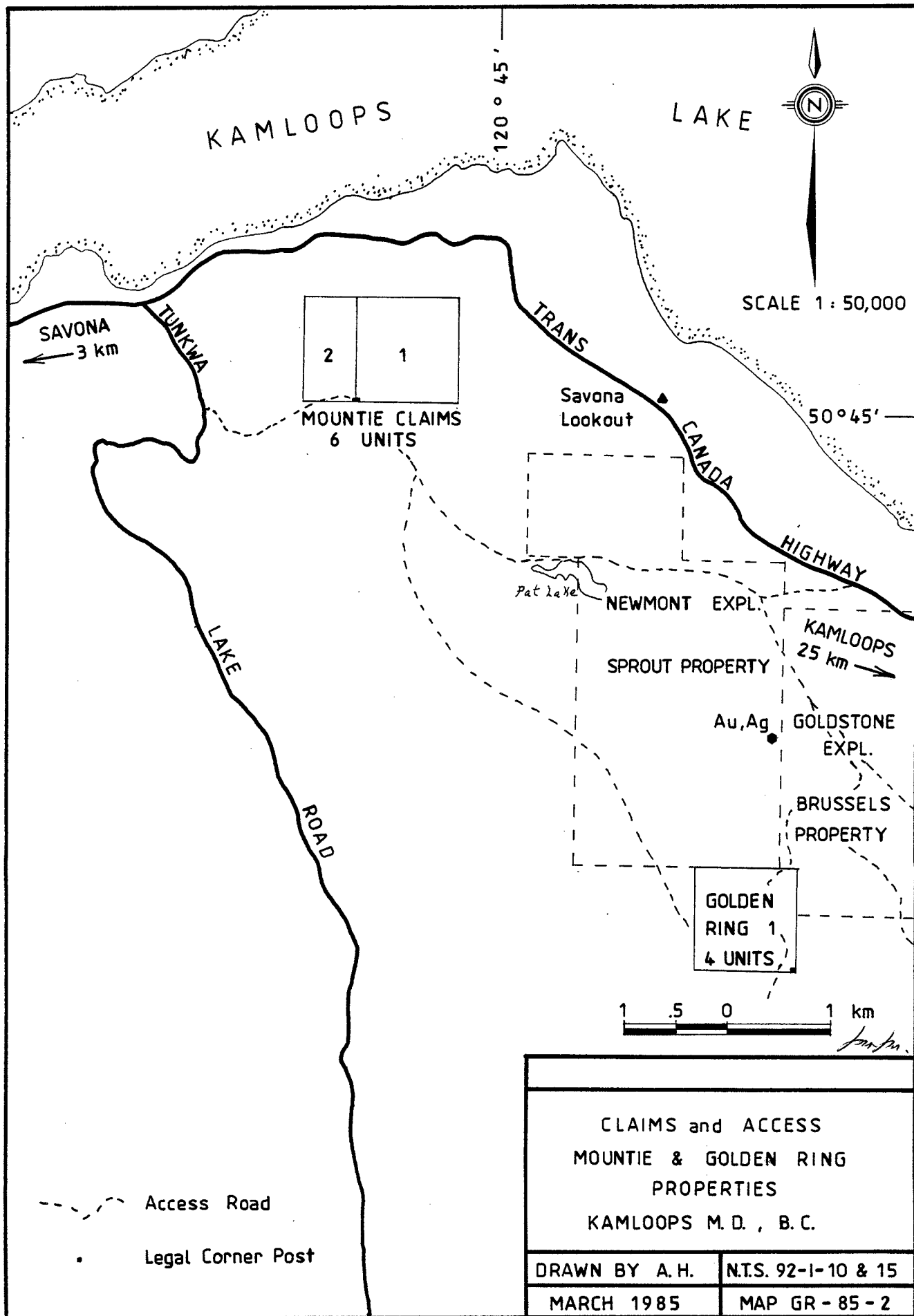
The Golden Ring 1 mineral claim, comprised of 4 units, is situated 25 km west of Kamloops, B.C., or 5 km south of the Savona Lookout on the Trans Canada Highway (Lat. 50°42'; Long. 120°43'; N.T.S. 92-I-10E). The claim was staked by the writer in 1981 to cover several zones of highly carbonate altered Upper Triassic Nicola volcanic rocks. Late epithermal quartz and chalcedony veins were observed cutting the alteration zones at the time of staking.

Placer Development Limited of Vancouver held the claim under option from May, 1981 until April, 1984, during which time they conducted a widely spaced soil geochem program. Random lithogeochemical samples were also collected for analysis. Placer Development decided that the geochemical values obtained during the survey were not of sufficient merit to warrant continued exploration on the property. The option was terminated and the property was returned to the writer.

During February and March of this year (1985) a VLF-EM 16 Ground Survey was conducted on the Golden Ring claim to satisfy Assessment Work requirements. A heavy late winter snow-pack eliminated the possibility of conducting most alternative forms of exploration. At any rate, it was considered that a VLF-EM survey would be useful in outlining major fault structures crossing the property that in turn might be related to mineralized carbonate alteration zones.

The results of the VLF-EM 16 survey conducted over 5.6 km of grid line are discussed in this report, while the three maps accompanying this report, Maps GR-85-3, 4 & 5, display the results in basic, profile, and Fraser filtered form.





KAMLOOPS

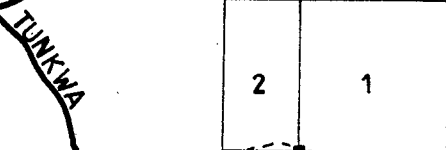
LAKE

120° 45'



SCALE 1 : 50,000

SAVONA
← 3 km



MOUNTIE CLAIMS
6 UNITS

TRANS

Savona
Lookout

CANADA

HIGHWAY

50° 45'

LAKE

ROAD

Pat Lake

NEWMONT EXPL.

SPROUT PROPERTY

KAMLOOPS
25 km →

Au, Ag

GOLDSTONE
EXPL.

BRUSSELS
PROPERTY

GOLDEN
RING 1,
4 UNITS

1 .5 0 1 km

A.H.

- - - - - Access Road
- Legal Corner Post

LOCATION AND ACCESS

Map GR-85-2, within this report, shows the location of the Golden Ring 1 mineral claim, 5 km south of the Savona Look-out on the Trans Canada Highway, or 25 km west of Kamloops, B.C. (Lat. 50°42'; Long. 120°43'; N.T.S. 92-I-10E). Access to the property is via the gravel and dirt roads, as illustrated on Map GR-85-2, a total distance of 4.5 km from the highway. Old logging roads provide good access within the claim boundaries as shown on Map GR-85-3 in the pocket at the back of this report.

PHYSICAL FEATURES AND CLIMATE

The Golden Ring 1 mineral claim with an average elevation of 850 metres above sea level lies 4 km south of Kamloops Lake (350 m. elv.). The property features both rolling and rugged terrain with some rocky bluffs exceeding 60 metres in height. Several narrow northwesterly trending ridges and valleys cross the property. Rock exposures are abundant.

The Kamloops Lake region is semi-arid at lower elevations with precipitation equalling less than 30 cm per year. An increase in precipitation from the lake, upwards, into the hills is marked by successive changes in vegetation from sagebrush, to Ponderosa pine, to Douglas fir. The dominant forest species on the Golden Ring property is Douglas fir which forms thick groves locally, and which has been selectively logged in recent years.

Winter snow covers the property from November until April most years, and during March of this year equalled 50 cm deep on much of the property.

CLAIM STATUS

The Golden Ring 1, 4-post mineral claim, comprised of 4 units was staked by the writer, M. Morrison, of Kelowna, B.C. in March 1981, and was recorded March 16, 1981 in Kamloops, B.C. The claim was given record number 3324.

The claim was held by Placer Development Limited of Vancouver, B.C. under an option agreement from May 1981 until April 30, 1984, when the option was terminated. On April 30, 1984 a 100% interest in the claim was transferred to the writer, M. Morrison.

The Legal Corner Post of the mineral claim was verified by a government claims inspector in 1981.

HISTORY

The historic Savona Mercury Belt, running 20 km north and south of the west end of Kamloops Lake, has, during the past four years, received the renewed attention of major exploration companies as a potential epithermal gold belt. Companies such as Placer Development, Asarco, Inco, Newmont and Selco have all acquired large properties within the belt. The Golden Ring property, covering an ankeritic alteration zone similar to others along the belt, was staked early (1981) in the staking rush, and was optioned, along with several other properties to Placer Development Limited of Vancouver on May 5, 1981 as a potential gold prospect.

Placer Development conducted a widely spaced (25x250 m) soil geochem program on the Golden Ring property in 1981 and had samples analyzed for gold, silver, arsenic, mercury, antimony, copper, zinc and molybdenum. A few widely scattered litho-geochemical samples were also collected and analyzed for the same elements. Placer Development considered the results of

Continued . . .

HISTORY - Continued

the geochemical survey to be of little interest and they transferred the property back to M. Morrison on April 30, 1984. No further work was conducted on the property until this year's (1985) VLF-EM survey.

REGIONAL GEOLOGY

Map 886A entitled "Nicola" by W.E. Cockfield of the Geological Survey of Canada illustrates the 12 km wide belt of Upper Triassic Nicola Group rocks that extends for 20 km north and south of Savona, B.C., at the western end of Kamloops Lake. The map shows numerous old mercury prospects that occur within the Nicola Group rocks and other mercury prospects that occur within later Cretaceous sedimentary and volcanic rocks.

The mercury showings at Carabine Creek are believed to be related to Tertiary Copper Creek Intrusions shown on the "Nicola" map. Quartz veins bearing gold mineralization have been found near the north end of the mercury belt at Criss Creek where Copper Creek Intrusions have also been mapped. It is, therefore, suspected that hydrothermal solutions emanating from high level intrusives related to the Copper Creek Intrusions underlie many of the mercury bearing carbonate alteration zones within the mercury belt, and that these zones may represent the upper levels of potential epithermal gold-bearing systems.

Newmont Exploration of Vancouver has recently discovered a silicified zone carrying pyrite, galena and stibnite, with values in gold and silver, associated with a carbonate alteration zone within Nicola Group volcanic zones. The Newmont showing is 1 km north of the Golden Ring 1 mineral claim.

Continued . . .

REGIONAL GEOLOGY - Continued

The Golden Ring property lies 15 km west of the well-known Afton Copper (gold and silver) Mine, and only 9 km west of the old Copper King Mine (copper, gold and silver). Late Triassic Cherry Creek Intrusives, thought by some geologists to be coeval with the Nicola Group volcanics, played a role in the mineralization at both copper mines. Although there is a large age difference between the intrusives of the Mercury Belt and the intrusives of the Copper Mines the gold and silver production at the mines does at least prove that the Nicola Group rocks south of Kamloops Lake have an apparent high genetic potential for carrying gold and silver values.

The regional strike of the geology in the west Kamloops Lake region is northwest with probable major faults aligning with Deadman River, Sabiston Creek, Carabine Creek and Durand Creek. Open File Map 980 of the Ashcroft area by J.W.H. Monger et al. of the Geological Survey of Canada shows the Carabine Creek fault to continue south of Kamloops Lake and to cut diagonally through the Golden Ring property. Several northwest and northeast striking lineaments of lesser order of magnitude also cross the countryside. Such lineaments cross the Golden Ring property, the Sprout claims of Newmont Exploration to the north, and the Brussels claims of Goldstone Exploration to the northeast of the Golden Ring property. Early Tertiary intrusives with related carbonate and siliceous alteration zones appear to align with some of these lesser order lineaments.

PROPERTY GEOLOGY

The geology of the Golden Ring property has never been mapped in detail and the heavy snow cover during the March VLF-EM survey allowed only a cursory study of the bedrock. The property is underlain by Upper Triassic Nicola Group volcanics that are predominantly basalt and andesite flow rocks which have been metamorphosed to greenstones. Carbonate alteration zones within the volcanic rocks range from small or weak to large and strong. One strong zone which measures tens of metres by a few hundred metres occurs near the southeast corner of the property. The volcanic rock at this zone is almost entirely replaced by ankerite, and late quartz and chalcedonic veining, equalling 5% of the rock, cut through the ankeritic material.

1985 VLF-EM 16 GROUND SURVEY

Three man days were spent establishing a grid over part of the Golden Ring property with a Silva Ranger Compass and a Topolite belt chain. Heavy late winter snow of 50 cm depth necessitated the use of snowshoes for the entire survey. A flagged Baseline of 1.2 km was measured out at 330° across the property and flagged grid lines were then established at right angles to the baseline at 100 or 200 metre spacing. Survey stations were marked at 25 metre intervals along the grid lines as shown on Map GR-85-3 accompanying this report. The VLF-EM survey was experimental in nature and was concentrated on the southern portion of the property where a large carbonate alteration zone was known to exist.

A Geonics VLF-EM 16 instrument was used to conduct the two day geophysics survey over the entire grid area. Annapolis, Maryland was selected as the signal station best fitting the northwest trending geology on the Golden Ring property. The signal was received from 110° azimuth, and readings were taken at right angles to the signal, or at 200° azimuth. In-phase tilt angles and quadrature readings were recorded at

Continued . . .

1985 VLF-EM 16 GROUND SURVEY - Continued

each survey station. The basic VLF-EM data is displayed on Map GR-85-3, while the same data in profile form is shown on Map GR-85-4. The Fraser filtered in-phase values have been plotted on Map GR-85-5 and contoured. These three maps may be found in a pocket in the jacket of this report.

The Fraser filtering of VLF-EM data has had widespread use for several years, and a full explanation of the technique is given in the geophysical papers by Fraser, Peterson and Ronka that are listed with references at the end of this report.

The Fraser filtering technique may be briefly summarized as follows:

By means of simple mathematical operations the tilt data can be transformed into contourable form, and the effects of noise and topography can be filtered from data. By averaging pairs of stations and taking differences between pairs separated by the appropriate distance, values may be plotted and contoured in plan that transform cross-overs into peaks, and a low-pass smoothing mathematical operator reduces noise.

DISCUSSION OF THE RESULTS OF THE 1985 VLF-EM SURVEY

The axes of 9 northwest trending conductors (A to H) are shown on Map GR-85-5 accompanying this report. The conductors are mostly of weak magnitude and are thought to represent major faults striking northwesterly across the property. Such an interpretation matches well with the topography as observed in the field and as shown on government maps.

Anomaly E is the strongest VLF-EM conductor, and it crosses the property for at least 800 metres from grid line 2N to 8N.

Continued . . .

DISCUSSION OF THE RESULTS OF THE 1985 VLF-EM SURVEY - Cont.

There is a topographic expression of a fault at the northern end of this anomaly and the largest known carbonate alteration zone on the property aligns with the southern end of the anomaly. It is believed that conductor E marks the trace of a major fault zone.

Three hundred metres east of conductor E a second, subparallel, anomaly G crosses the property. This anomaly most probably also represents faulting. Carbonate alteration of Nicola Group volcanics is associated with anomaly G on L8N.

Anomaly A on L4N is moderately strong and occurs in an area of deep glacial overburden near the trace of a northwesterly striking fault.

Conductors C and D possibly represent positions along a common fault, while conductors B and H may represent two additional fault zones on the property.

CONCLUSIONS AND RECOMMENDATIONS

The VLF-EM survey proved to be very effective in defining the trace of northwesterly striking faults across the property. Two strong fault zones appear to be outlined by VLF-EM conductors E and G on Map GR-85-5. Carbonate alteration zones have been discovered along each of these zones suggesting that the VLF-EM survey is useful in defining fault zones that in turn are related to carbonate alteration zones. The carbonate alteration zones, as mentioned earlier in this report, may represent the upper horizons of epithermal gold-silver bearing systems. The nearest example of such a situation occurs on the Newmont Exploration property 1 km north of the Golden Ring property.

Continued . . .

CONCLUSIONS AND RECOMMENDATIONS - Continued

Placer Development Ltd. has conducted a widely spaced geo-chemical sampling program over the Golden Ring property with limited results. However, a linear mercury anomaly in soil does correspond with VLF-EM anomaly E. At this point it is recommended that the geology of the property be mapped in detail and that lithochemical samples be collected from any carbonate alteration zones located during mapping. These samples should be analyzed for gold, silver and arsenic.

March 15, 1985


Murray Morrison - B.Sc.

REFERENCES

Boyce, R.A.

- 1982: Geochemical Report Brussels Group (Brussels, Golden Ring and Golden Lime), Kamloops Mining Division, Placer Development Limited (Filed as an Assessment Report with the Ministry of Mines and Petroleum Resources, B.C.).

Cockfield, W.E.

- 1948: Geology and Mineral Deposits of Nicola Map-Area, British Columbia, Geological Survey of Canada, Memoir 249.

Cockfield, W.E.

- 1947: Map 886A, Nicola, Kamloops and Yale Districts, British Columbia, Geological Survey of Canada.

Fraser, D.C.

- 1969: Contouring of VLF-EM Data, Geophysics, Vol. 34, No. 6, December, 1969.

Monger, J.W.H. and McMillan, W.J.

- 1984: Bedrock Geology of Ashcroft (92I) Map Area, British Columbia, Geological Survey of Canada, Open File 980.

Peterson, N.R. and Ronka, V.

- 1969: Five years of Surveying with the VLF-EM Method, a paper presented at the 1969 Annual International Meeting, Society of Exploration Geophysicists.

Wilmot, A.D. and Morrison, M.S.

- 1984: Report on the Brussels Group of Mineral Claims, Kamloops Mining Division (Filed with a Goldstone Exploration Limited Prospectus for the Vancouver Stock Exchange).

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 fifteen years.
3. During the past fifteen years, I have intermittently held responsible positions as a geologist with various mineral exploration companies in Canada.
4. I have examined many mineral properties in Southern British Columbia during the past fifteen years.
5. I personally carried out the VLF-EM 16 Ground Survey outlined in this report.
6. I own full title to the Golden Ring 1 mineral claim described in this report.

March 15, 1985
Kelowna, B.C.


Murray Morrison, B.Sc.

APPENDIX "B"

STATEMENT OF EXPENDITURES - ON THE GOLDEN RING 1 MINERAL CLAIM.

Statement of Expenditures in connection with the VLF-EM 16 Ground Survey carried out on the Golden Ring 1 mineral claim, N.T.S. 92-I-10 E, Savona, B.C., for the year 1985.

FIELDWORK - ESTABLISHING FLAGGED BASELINE (1.2km) AND FLAGGED GRID LINES (5.6 km).

M. Morrison, Labour	3 days @ \$80/day	\$ 240.
Meals and Lodging	3 days @ \$45/day	135.
Truck (4x4, incl. gasoline)	3 days @ \$60/day	180.
Flagging, belt chain thread	3 days @ \$15/day	<u>45.</u>
	sub-total	\$ 600.

FIELDWORK - VLF-EM 16 SURVEY.

M. Morrison, geologist	2 days @\$200/day	\$ 400.
Meals and Lodging	2 days @ \$45/day	90.
Truck (4x4, incl. gasoline)	2 days @ \$60/day	120.
VLF-EM instrument rental	2 days @ \$20/day	<u>40.</u>
	sub-total	\$ 650.

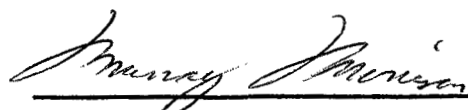
REPORT PREPARATION COSTS.

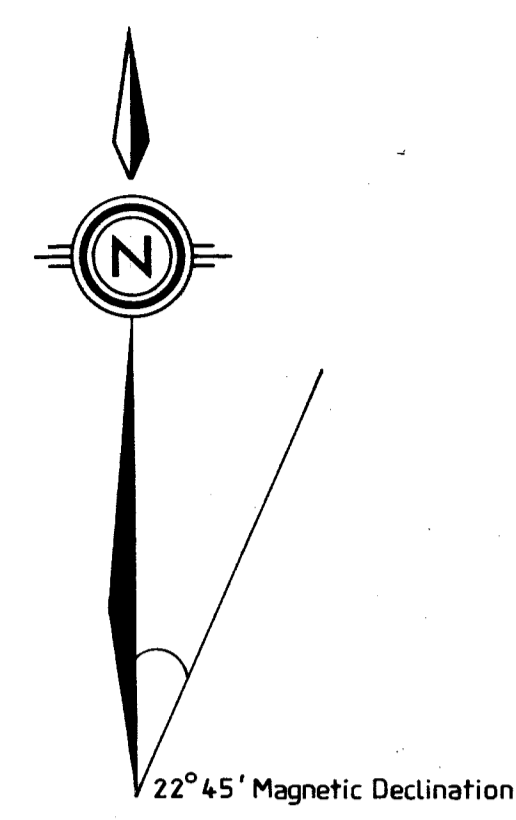
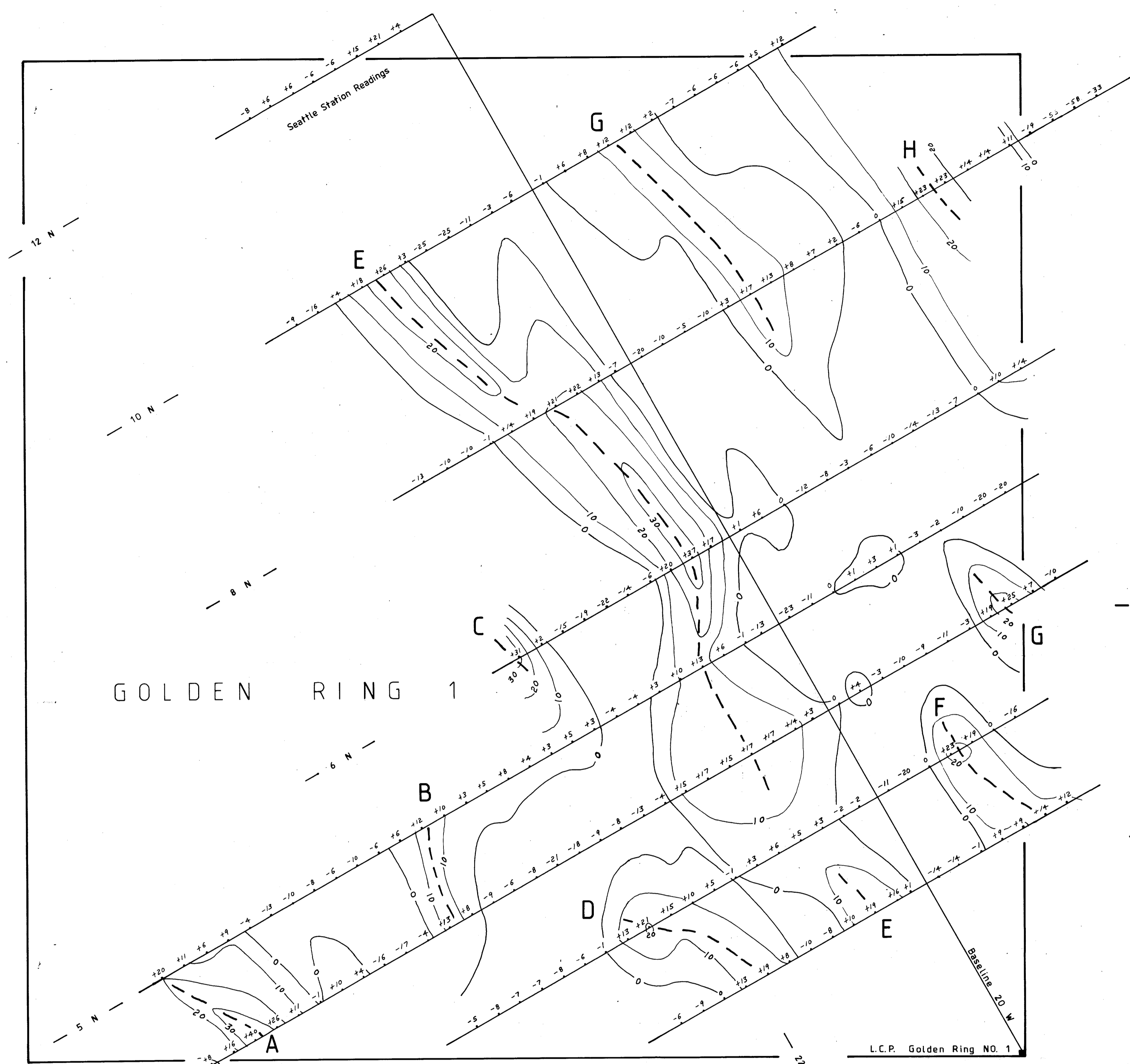
Geologist (calculations, maps and report)	1½ days @ \$200/day	\$ 300.
Drafting		60.
Typing		60.
Copying		<u>15.</u>
	sub-total	\$ 435.

GRAND TOTAL: \$1,685.

I hereby certify that the preceding statement is a true statement of monies expended in connection with the VLF-EM 16 Survey carried out February 28 - March 14, 1985.

March 15, 1985


Murray Morrison - Geologist.



Signal Station
Annapolis, Maryland

110°

Instrument: Geonics VLF-EM 16

Contour Interval - 10 %

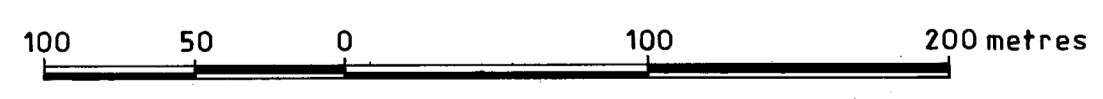
Axis of Conductor

GOLDEN RING 1

L.C.P. Golden Ring NO. 1

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

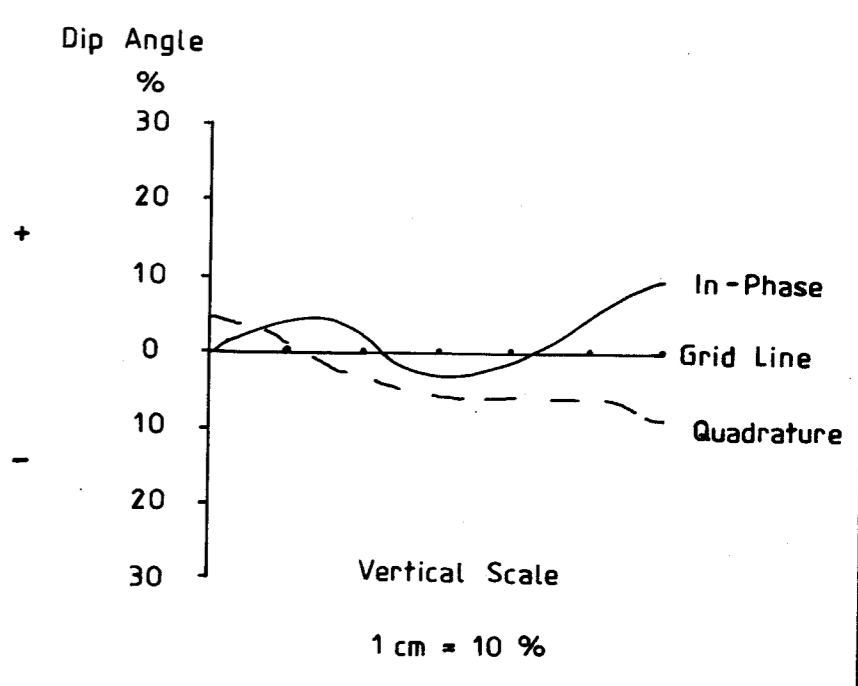
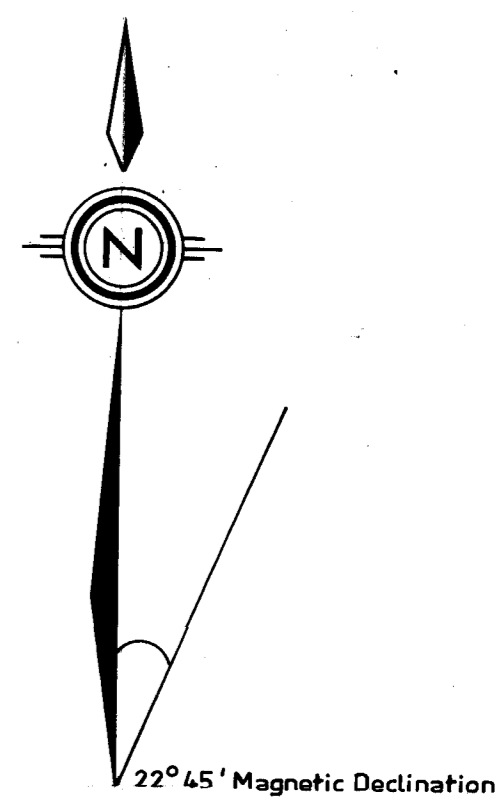
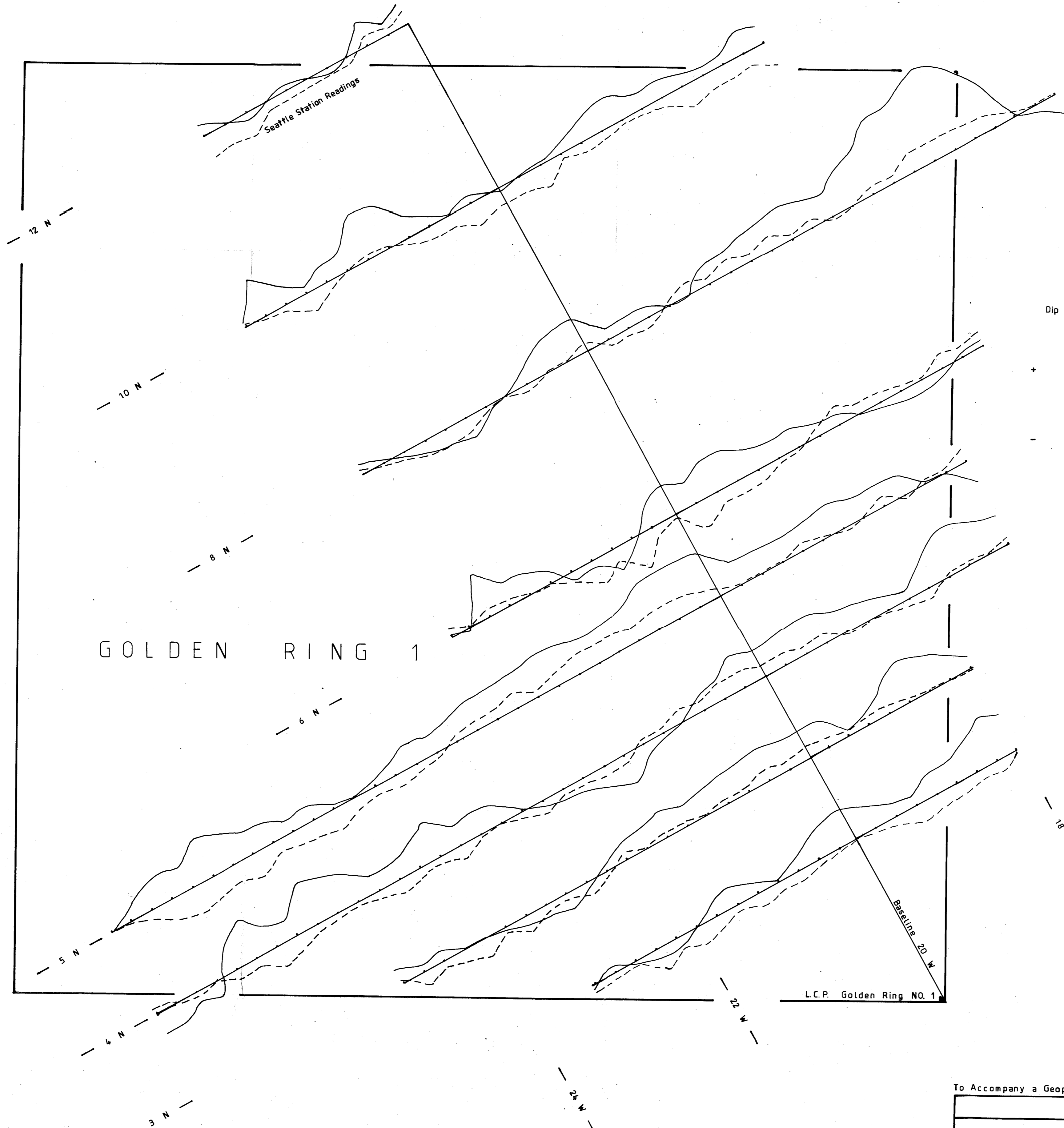
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See Map GR-85-3 for Basic VLF-EM Data.

To Accompany a Geophysical Report by M. Morrison

GOLDEN RING PROPERTY		
KAMLOOPS LAKE AREA, KAMLOOPS M. D., B. C.		
VLF-EM 16 GROUND SURVEY FRASER FILTERED DATA GOLDEN RING 1 MINERAL CLAIM		
SURVEY	M. M.	MARCH 1985
DRAFTING	MM./AH.	SCALE 1 : 2500
		N.T.S. 92-1-10 E MAP GR-85-5



**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

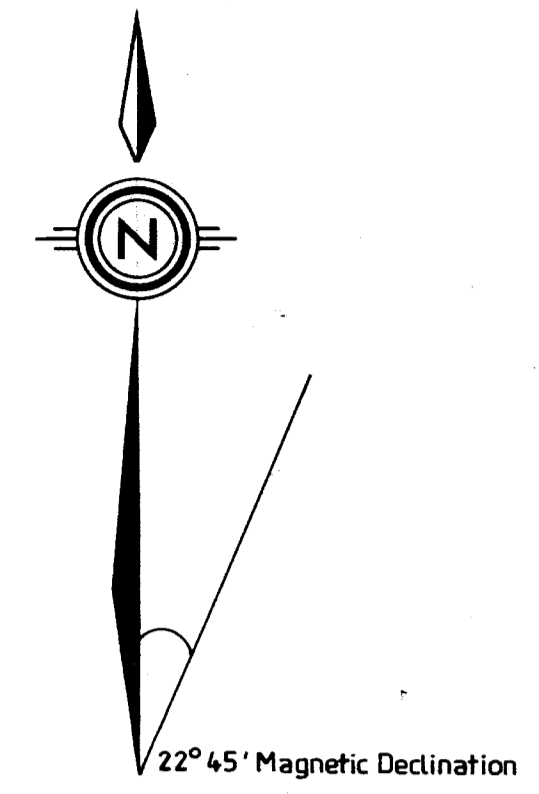
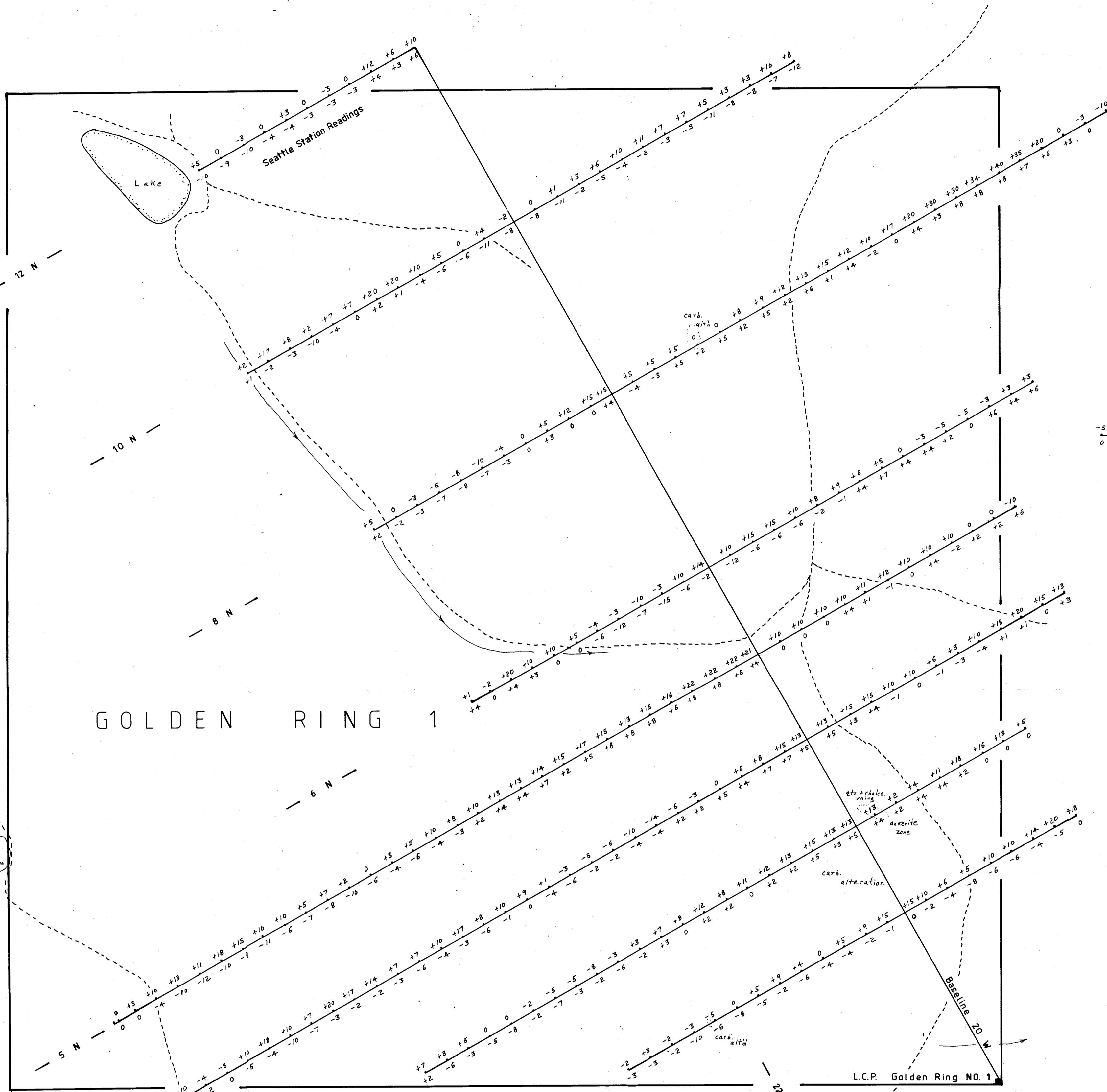
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See Map GR-85-3 for Basic VLF-EM Data.

M. Morrison
To Accompany a Geophysical Report by M. Morrison.

GOLDEN RING PROPERTY		
KAMLOOPS LAKE AREA, KAMLOOPS M. D., B. C.		
VLF-EM 16 GROUND SURVEY		
IN-PHASE AND QUADRATURE PROFILES		
GOLDEN RING 1 MINERAL CLAIM		
SURVEY	M. M.	MARCH 1985
DRAFTING	M.M./A.H.	SCALE 1 : 2500
		N.T.S. 92-1-10E
		MAP GR-85-4



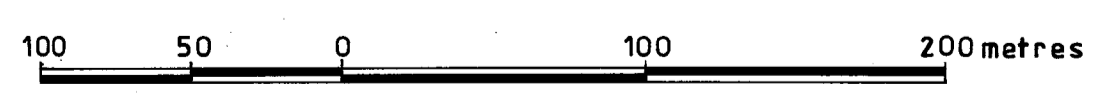
-5 -3 +3 +5 In-Phase dip angle (%)
 0 +6 +4 +6 Grid line
 Quadrature dip angle (%)
 --- Roads
 ~~~~~ Creeks

GOLDEN RING 1

L.C.P. Golden Ring NO. 1

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

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Legal Corner Post Tied in with Compass and Belt Chain.

*M. Morrison*

To Accompany a Geophysical Report by M. Morrison.

|                                         |           |                  |
|-----------------------------------------|-----------|------------------|
| GOLDEN RING PROPERTY                    |           |                  |
| KAMLOOPS LAKE AREA, KAMLOOPS M.D., B.C. |           |                  |
| VLF-EM 16 GROUND SURVEY                 |           |                  |
| IN-PHASE AND QUADRATURE BASIC DATA      |           |                  |
| GOLDEN RING 1 MINERAL CLAIM             |           |                  |
| SURVEY                                  | M.M.      | MARCH 1985       |
| DRAFTING                                | M.M./A.H. | SCALE 1 : 2500   |
|                                         |           | N.T.S. 92-1-10 E |
|                                         |           | MAP GR-85-3      |