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**GEOLOGICAL  
ASSESSMENT REPORT**

on the

**MG MINERAL CLAIMS**

for

**Carlotte Warke**

**Alberni Mining Division**

**NTS 092L02W**

**GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT**

**26,454**

**Vancouver, B.C.  
January 15, 2001**

**Sookochoff Consultants Inc.  
Laurence Sookochoff, P.Eng**

*Sookochoff Consultants Inc.*

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**Table of Contents**

	page
Introduction -----	1.
Summary -----	1.
Property -----	1.
Location and Access -----	3.
Physiography -----	3.
History -----	3.
Geology -----	3.
Conclusions -----	7.
Selected References -----	8.
Certificate -----	9.
Statement of Costs -----	10.

**Illustrations**

Figure 1	Location & Claim Map -----	2.
Figure 2	MG 2009 & MG 2011 claims and F.L., Ridge And Cordova magnetite deposits -----	4.
Figure 3	Lineaments on and peripheral to the MG claims -----	5.
Figure 7	Rose Diagram showing the 90 lineament plots -----	6.

## Geological Assessment Report

on the

### MG Mineral Claims

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#### Introduction

A lineament array analysis was completed on the three MG mineral claims located in the Zeballos area of northwestern Vancouver Island. The purpose of the survey was to determine the potential structural controls to the skarn ore formations located on the northern two claims of the MG claim group.

Information for this report was obtained from sources as cited under Selected References and from the writers' completion of, and the compilation of results from, the lineament array analysis as reported on herein.

#### Summary

The MG mineral claims, located six km north of Zeballos, cover the B zone of the formerly designated F.L. magnetite deposit. From 1962 to 1969 1,681,283 tons of magnetite ore were mined from the A and the B zones of the deposit. The claims also cover the Ridge magnetite deposit where 50,000 tons of magnetite mineralization was delineated. The Cordova magnetite showing, consisting of small lenses of massive magnetite, is also within the claim boundaries.

The structural array analysis has revealed a 500 metre fault on one of the MG claims trending at 30° and extending northward from the Blacksand canyon structure which was reported to limit the F.L. deposit to the north. This 30° structure is indicated as mineral controlling and may have associated gold bearing zones and/or F.L. type magnetite deposits.

#### Property

The MG claims consist of three located two-post claims; two contiguously located claims designated as the northern claims and one located claim one kilometer to the south designated as the southern claim. Particulars are as follows:

<u>Claim Name</u>	<u>Tenure No.</u>	<u>Expiry Date</u>
<u>Northern Claims</u>		
MG 2009	361341	February 7, 2003
MG 2011	361342	February 7, 2003
<u>Southern Claim</u>		
MG 1	361340	February 7, 2003

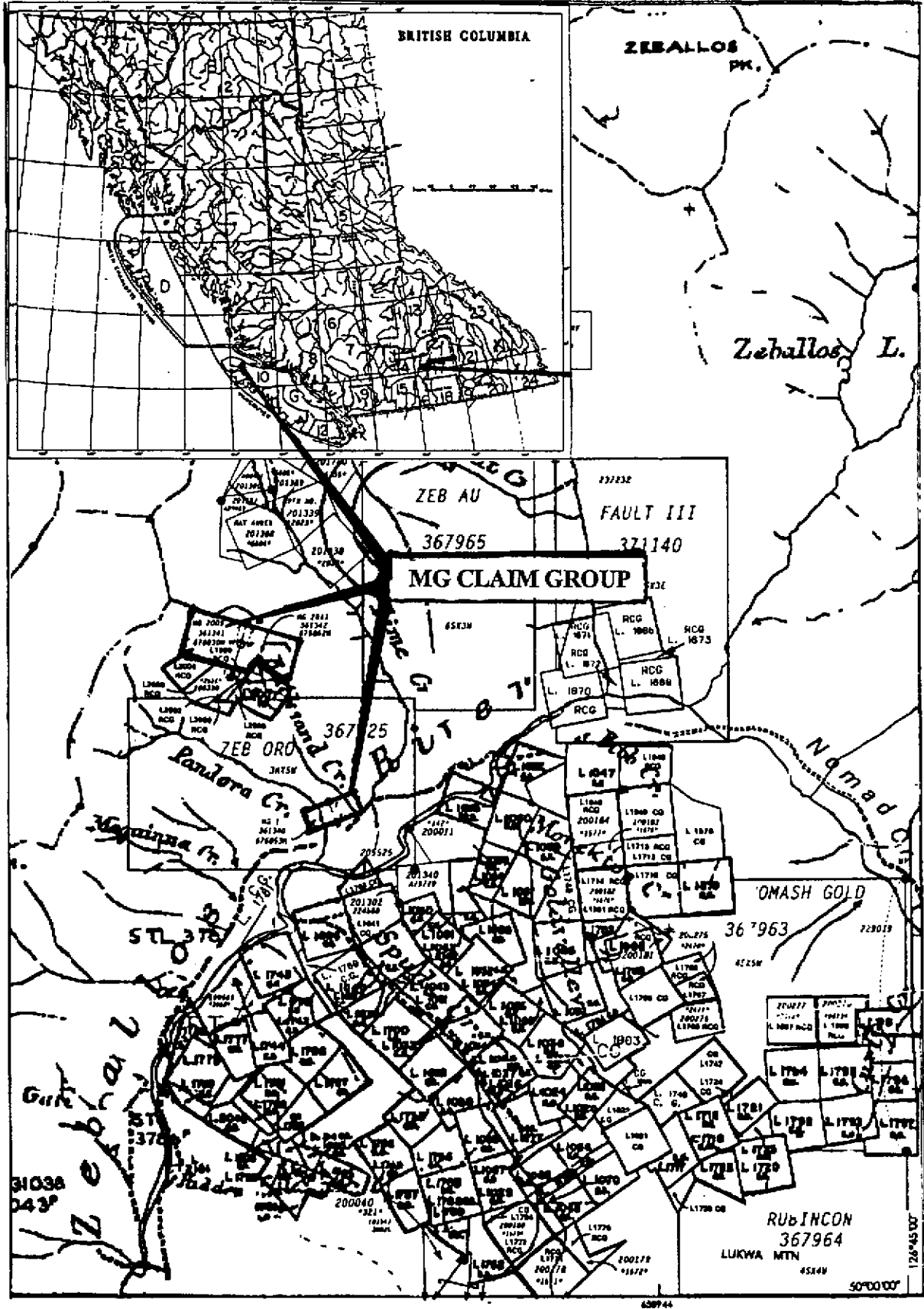


Figure 1. MG Claims: Location & Claim Map. (Claim Map is Ministry of Energy, Mines & Petroleum Resources Map 092L/02W)

### Location and Access

The property is located six km north of Zeballos, on the northwest side of Zeballos River adjacent and north of Blacksand Creek.

Access to the claims is by gravel road for six km north from Zeballos. From this point, the MG 1 claim is accessible by a dirt road northward for 200 metres. The one km distant northern claims are accessible from the northern boundary of the MG 1 claim by trail.

### Physiography

The topography of the southern claim, located at the base of a mountain, is relatively gentle with relief in the order of 50 metres. The northern claims are at an elevation 500 to 875 metres with steep to rugged topography.

### History

The F.L. magnetite deposit, which was held under a royalty option agreement from Falconbridge Nickel Mines Limited by Zeballos Iron Mines Limited, was covered by the F.L., F.L. No. 2, F.L. No. 3, F.L. No. 4, Extension No.2, and Extension No.4 Crown-granted mineral claims. The F.L.ore body is comprised of the A zone south of Blacksand canyon and located on F.L. No 2 claim, and the B zone located on the Extension No. 4 claim. The Ridge and Cordova deposits were also covered by the Extension No. 4. In 1978, the Extension No. 2 and No. 4 crown grants lapsed and were staked by located mineral claims MG 2009 and MG 2011 of the MG claim group.

Zeballos Iron Mines Limited commenced work on the F.L. property in 1959 with open pit mining commencing in 1962 and continuing in 1963. From 1963 to the end of production in 1969, underground methods were used in the mining operation. Between 1962 and 1969 the deposit produced 1,282,233,396 kilograms of iron concentrate from 1,681,283 tonnes mined.

### Geology

The geology of the F.L. magnetite deposit is herein summarized from GSC Memoir 272 by J.W. Hoadley and from the Minister of Mines and Petroleum Resources 1962 Annual Report.

A narrow tongue or lobe of sedimentary and volcanic rocks that protrude southwestward into, and nearly across, the Zeballos batholith, 1.6 km northwest of Zeballos River. The rocks exposed at the base or eastern part of the lobe consists almost entirely of pure crystalline limestone of the Quatsino formation. The western part of the lobe is composed of highly altered volcanic and sedimentary rocks of the Bonanza group, which conformably overlies the Quatsino formation. It appears that the rocks that comprise the lobe have been folded into a southwesterly plunging anticline, or anticlinal flexure, which occurs on the southwestern flank of a large, northwesterly striking, southwesterly plunging drag-fold whose axis is coincident with the ridge between Lime and Fault Creeks. As a result of cross-flexure the rocks involved have been preserved as a lobate roof pendant within the surrounding diorite of the Zeballos batholith.

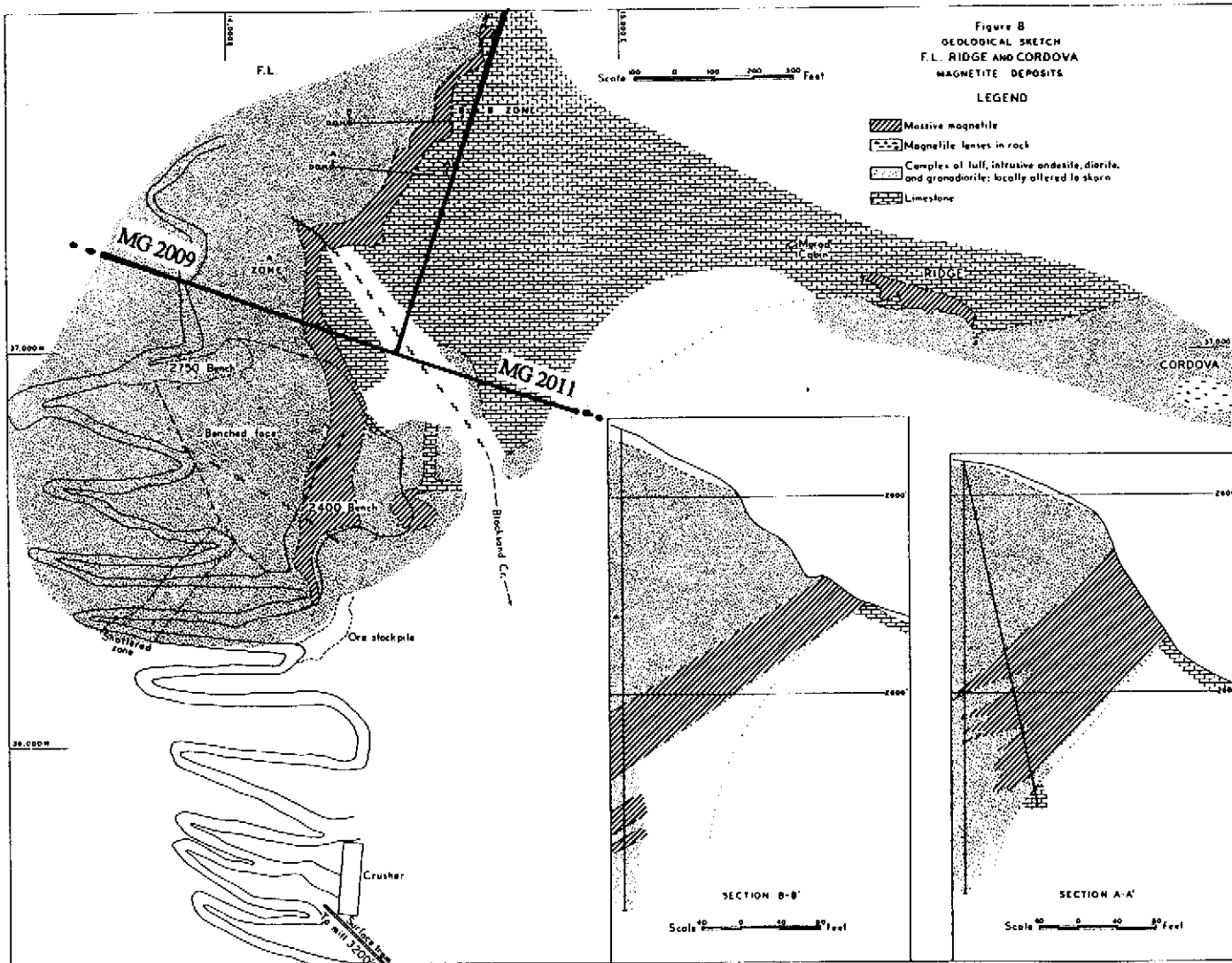
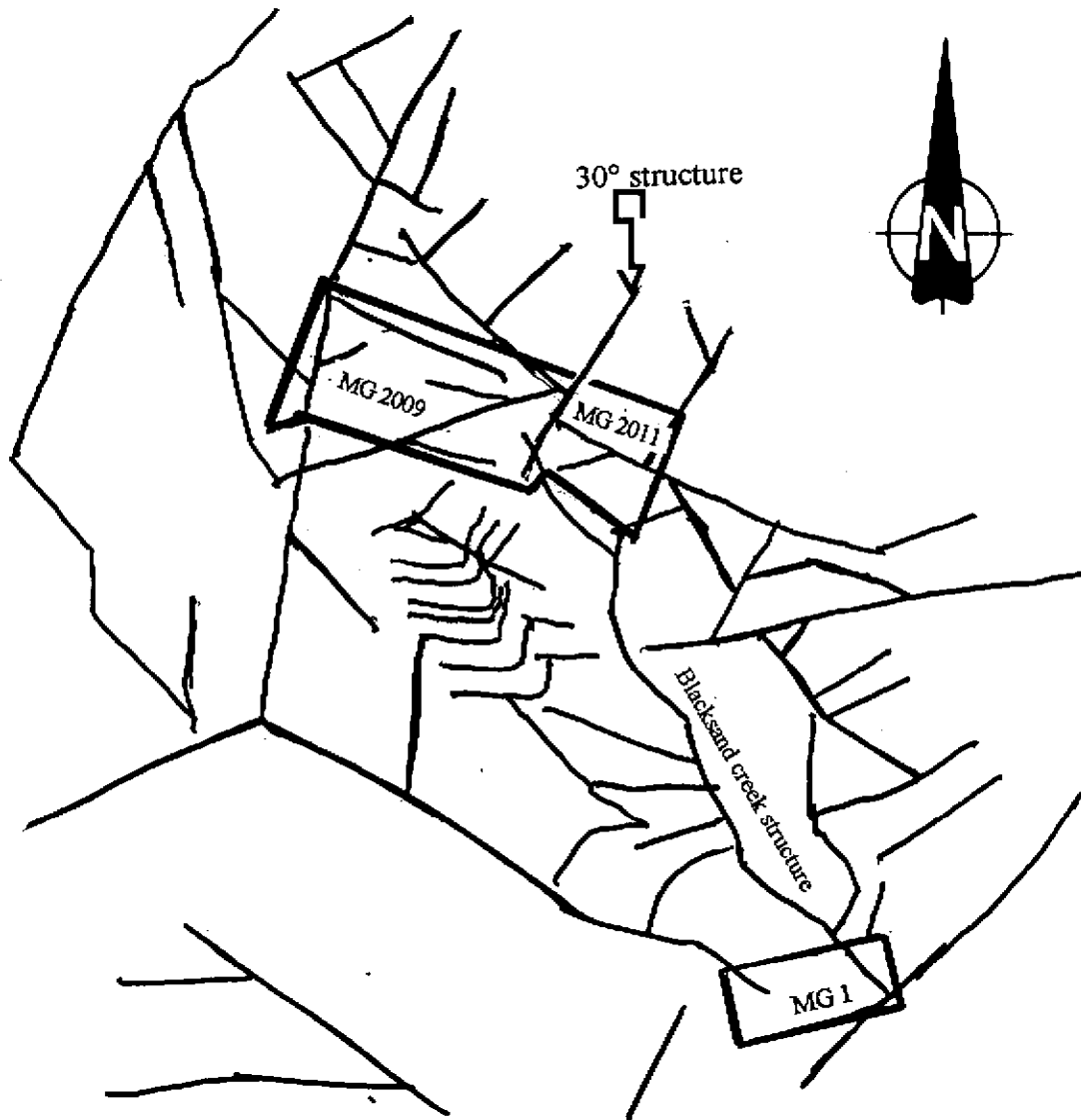


Figure 2. MG 2009 & MG 2011 claims superimposed on: Geological Sketch; F.L. Ridge and Cordova magnetite deposits (Base map from 1962 Minister of Mines Report).

The magnetite deposits occur at or near the crest of this anticlinal structure, stratigraphically just above the contact between the Quatsino limestone and the overlying sedimentary and volcanic rocks of the Bonanza group. Bodies of solid magnetite are well exposed in steep bluffs on the F.L. and Extension No. 2 (presently the MG 2009) claims. The largest and best exposure of magnetite extends southerly from Blacksand canyon. North of Blacksand Creek canyon, the orebody appears to become progressively narrower, and contains more parallel bands of skarn to where it finally ends in an area of coarsely crystalline calcite and vuggy skarn.



**Figure 3.** Lineaments on and peripheral to the MG claim group as determined from air photographs.

The main F.L. orebody is a nearly planar dyke-like body of nearly massive magnetite that in part appears to follow the Quatsino-Bonanza contact on the nose and northwest limb of the lobe. It dips about 45 degrees west and strikes due north in the A zone and north-northeast in most of the B zone.

The Ridge deposit is a small rectangular plate of almost pure magnetite lying on limestone close to its east trending contact with Bonanza tuffs. It is 300 feet long and 50 feet wide; diamond drilling has shown it to be shallow, so that it is estimated at 50,000 tons.

The Cordova magnetite showing consists of small lenses of massive magnetite in heavily pyroxenized tuffs, some 200 feet south of the limestone contact and just north of and below a small quartz diorite intrusion.

### Lineament Array Analysis

Air photographs 30BCB950361 No's 107 & 108 at a mean scale of approximately 1:20,200 were utilized for the lineament array analysis. The analysis was accomplished using a stereographic projection viewing of the air photographs and marking the lineaments on an overlay. A total of 90 lineaments were marked, compiled into a 5° class interval and plotted on a rose diagram as indicated on the accompanying Figure 4.

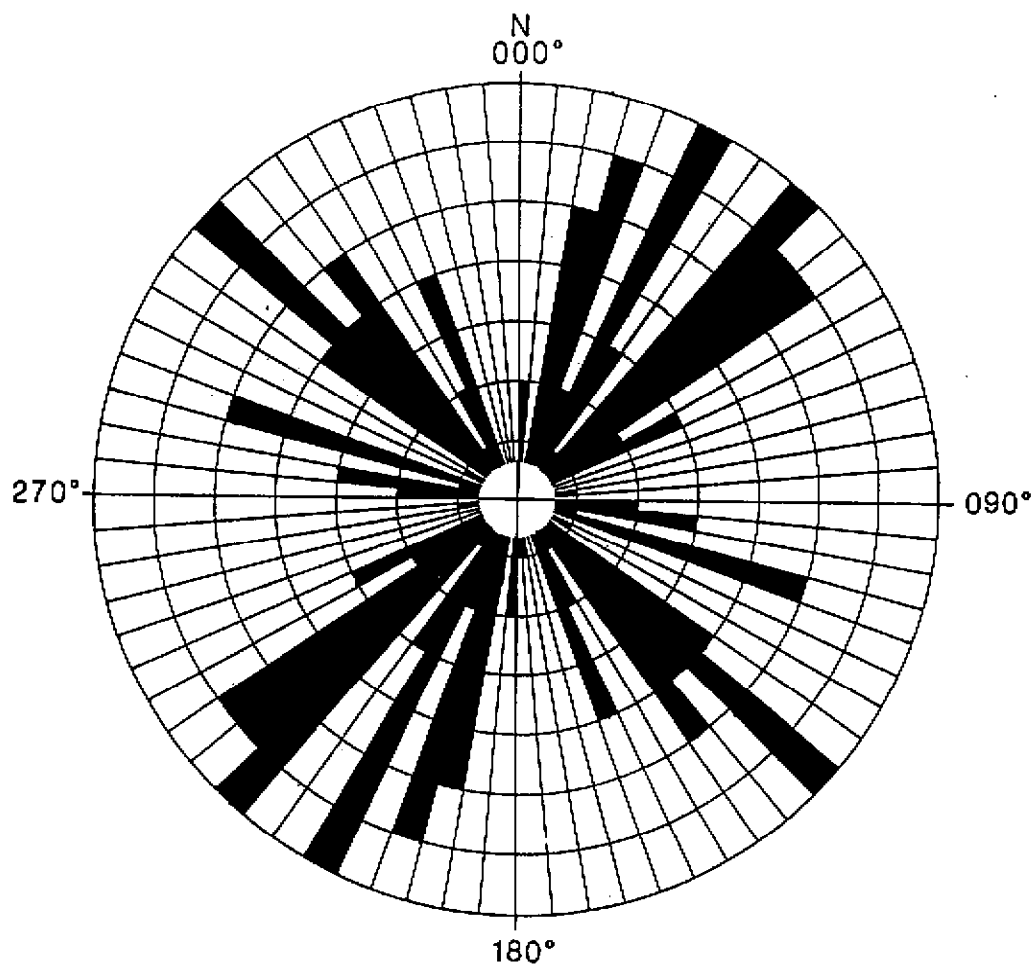


Figure 4. Rose diagram showing the 90 lineament plots.

The results indicate two dominant structural directions. The predominant structural trend is indicated at 310° to 325° with complementary structures at 15° to 25°. A second prominent two structural array set is indicated at 40° to 55° with complementary structures at 90° to 110°.



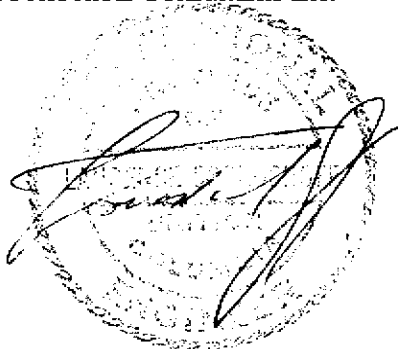
## Conclusions

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The structural array analysis revealed the two principal structural arrays, trends that are indicated to control the F.L. magnetite deposit. It is reported that the source of the mineralizing fluids for the formation of the F.L. magnetite deposit was through a fault/fracture system. The geometry of the deposit would indicate that the northwesterly trending faults (310° to 325° & 15° to 25°) would be the controlling structures to the mineralization. The northeasterly trending structures (40° to 55°) are indicated as post-mineral.

The northwesterly structures enclosing the main F.L. magnetite deposits are apparent and Blacksand Creek appears to be near the limits of the "ore-zone" to the north. A dominant complementary (?) fault on the MG 2011 claim is indicated trending northerly at 25° from the northwesterly trending Blacksand structure. Although it is difficult to establish from the photographs, it appears that the 30° structure traces the greenstone-limestone contact with its associated magnetite/skarn zones. As the 30° structure is inferred to be mineral controlling through association, under appropriate geological and chemical conditions the structure along its indicated 500 metre strike, may be the controlling factor to F.L. type magnetite zones.

Respectfully submitted  
Sookochoff Consultants Inc.

A circular stamp with a textured border is partially obscured by a handwritten signature in black ink. The signature is written in a cursive style and appears to read 'Laurence Sookochoff'.

Laurence Sookochoff, P.Eng.

Vancouver, BC  
January 15, 2001

### Selected References

**Hoadley, J.W.** – Geology and Mineral Deposits of the Zaballos-Nimpkish Area, Vancouver Island, British Columbia. Geological Survey of Canada Memoir 272.

**Minfile** – Ford 092L 028; F.L. (L1999,L2000), Extension No. 1-4 (L.2008-2011), FE (L.2007), FL.

**Minister of Mines and Petroleum Resources** – Annual Reports: 1962, pp 100-103;1968, p 102; 1969, p A52-A53.

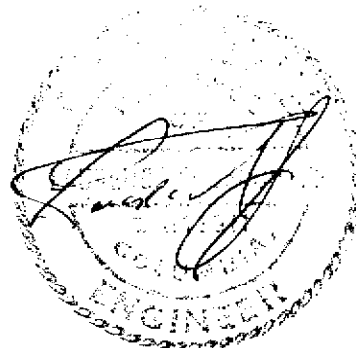
### Certificate

I, Laurence Sookochoff, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geologist and principal of Sookochoff Consultants Inc. with offices at 4463 West First Avenue, Vancouver, BC V6R 4H9.

I, Laurence Sookochoff, further certify that:

- 1) I am a graduate of the University of British Columbia (1966) and hold a B.Sc. degree in Geology.
- 2) I have been practicing my profession for the past thirty-four years.
- 3) I am registered and in good standing with the Association of Professional Engineers and Geoscientists of British Columbia.
- 4) The information for this report is based on information as itemized in the Selected Reference section of this report and from the completion of the lineament array analysis as described herein.



Laurence Sookochoff, P. Eng.

Vancouver, BC  
January 15, 2001

**MG Claims  
Alberni M.D.  
Statement of Costs**

Lineament array analysis

\$ 1,500.00