

84-1263 - 13105

12/85

1984 Assessment Report

Geophysical Survey

**Claim:** HILL, HILL No. 2

**Commodity:** Silver, Gold, Copper

**Location:** Hunts Creek - Nanaimo M.D.  
60 km north of Nanaimo  
92F 7E 49° 22'N 124° 43'W

**Consultant** L. Sookochoff, P.Eng.  
**and** Sookochoff Consultants Inc.

**Author:** 311-409 Granville Street  
Vancouver, B.C., V6C 1T2

**Owner and** BLACK SHEEP VENTURES INC..  
1052 Robson Street

**Operator:** Vancouver, B.C.  
V6E 1A7

**Work Dates:** June 12, 1984 - July 6, 1984

**Submittal Date:** December 11, 1984.

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

13,105

## TABLE OF CONTENTS

INTRODUCTION -----	1.
SUMMARY -----	1.
PROPERTY -----	2.
LOCATION AND ACCESS -----	3.
PHYSIOGRAPHY -----	3.
WATER AND POWER -----	3.
HISTORY -----	3.
GEOLOGY -----	4.
GEOPHYSICAL SURVEY -----	6.
CONCLUSION -----	8.
RECOMMENDATIONS -----	8.
CERTIFICATE -----	9.
BIBLIOGRAPHY -----	10.
STATEMENT OF COSTS -----	11.

### ILLUSTRATIONS

### SCALE

FIGURE 1	LOCATION	1:50,000
FIGURE 2	GEOLOGY AND SAMPLE RESULTS	1: 480
FIGURE 3	VLF-EM SURVEY	1: 3,000
FIGURE 4	MAGNETOMETER SURVEY	1: 3,000

**1984 Assessment Report**

**on the**

**Geophysical Survey**

**on the**

**Hill Claim Group**

**PART A**

**INTRODUCTION**

During the period of June 26, 1984 to July 6, 1984 a magnetometer and VLF-EM Survey was carried out on the Hill Claim Group. The geophysical survey was part of the STAGE I recommendations as set out in the writers July 30, 1984 report. The recommendations also included a trenching and sampling program which was completed and reported on in a separate report by the writer dated August 27, 1984.

**SUMMARY**

The HILL claim group incorporates old exploratory workings from which assay results of up to "20% Zn over eight feet" are reported.

The property is located 60 km north west of Nanaimo adjacent to Horne Lake and covering Mt. Mark where elevations reach 965 meters above sea level.

Access is provided by the secondary Horne Lake road to within 700 meters of the workings which are at an elevation of 400 meters.

The workings consist of three shafts up to 30 meters deep and numerous trenches which explore a series of northerly trending massive sulphide zones exposed over a length of 122 meters and a width of 24 meters.

The exposed zones are up to 0.5 meters wide and consist of predominantly sphalerite with accompanying pyrite and arsenopyrite mineralization. The individual zones are reported to be up to seven and one half meters wide.



BLACK SHEEP VENTURES INC. has completed a blasting program of the old trenches and a localized VLF-EM and Magnetometer survey covering the known sulphide showings.

Samples from a 0.5 meter zone returned 34.34% Zn, .12% Cu and .41 oz Ag/ton. Grabs from the blasted zones returned up to 3.21% Zn, .06% Cu and .41 oz Ag/ton.

The VLF-EM and Magnetometer surveys carried out in June and July 1984 over a localized area centered by the exploratory workings were successful in that the magnetometer results delineated the dark gray and the light gray contact along which the known mineralization occurs.

The magnetometer survey expressed a sharp mag HI-mag LO break along the contact in the mineralized area and is concluded that the magnetometer survey results could indicate similar areas of mineralization along the mag HI-mag LO zones.

The VLF-EM results were inconclusive insofar as the mineralized zone however an east-west trending anomalous zone trends through the workings area. This zone could indicate a structural break to which the mineralization could be related. An air photo structural analysis could confirm this relation.

#### PROPERTY

The property is comprised of two located adjacent grid claims totaling 24 units. Particulars are as follows:

<u>Claim Name</u>	<u>Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
HILL 1988	16	1306	January 31,
HILL No.2	8	1788	June 26, 1988

### LOCATION AND ACCESS

The property is located 60 km northeast of Nanaimo adjacent and north of Horne Lake in the Nanaimo Mining Division.

Access is gained via Highway 19 for 57 km north of Nanaimo to the Horne Lake all weather secondary road branching off to the west. A poor secondary road at 10 km along the Horne Lake road provides access to the property which is six km distant. The showings are within 700 meters from the end of the road.

### PHYSIOGRAPHY

Moderate forested slopes prevail from Horne Lake at an elevation of 120 meters to 965 meters on Mt. Mark. The showing are at the center of the property at an elevation of 400 meters.

### WATER AND POWER

Water for all phases of the exploration and development program would be available from Hunts Creek, the headwaters of which extend into the property or from Horne Lake along the southern periphery.

### HISTORY

The first mention of the property is in the 1927 Minister of Mines Report when several workings were reported including a 30 meter shaft and several trenches.

Cominco carried out an exploration program of mapping and sampling with four diamond drill holes for 323 feet reportedly drilled in 1964.

BLACK SHEEP VENTURES INC. acquired the property in June of 1984 and completed some blasting of the old overgrown trenches.

### Hill Claim Workings

The workings on the property (Figure 2) from north to south consist of a shaft reportedly 12 meters deep.

Two other shafts 55 meters south and five meters apart are reportedly in the order of 30 meters deep with a crosscut from the western shaft. The shafts are all overgrown and not accessible.

Old trenches are present and located as indicated on Figure 2.

### GEOLOGY AND MINERALIZATION

The predominant formation is of the Permian Sicker Group crystalline limestone in contact with the Vancouver volcanics north of the exploratory workings.

The limestone is divided into a northerly contact with white to light gray crystalline and dark gray to black limestone. The showings are all in the white limestone.

The mineralization consists of lenses and pods of predominantly massive sulphides and disseminated sphalerite. Occasional pods and disseminations of pyrite and arsenopyrite also occur hosted by white to light gray crystalline limestone.

The character of mineralization is evident in an old trench (D) at the southern end of the workings area. Two massive sulphide zones striking at 25° and dipping 70° to 90°W are in sharp contact with the limestone.

Two meters of barren limestone separate the massive sulphide zones with the western zone 0.5 meters wide and consisting of massive sulphides and limestone fragments. The fragments, like the contact, are unaltered and are enveloped by sphalerite. A sample across the zone returned 21.98% Zn, .39% Cu and 1.28 oz Ag/ton over 0.5 meters.

Similar mineralization occurs at trench B where due to recent blasting is only evident in loose variably sized fragments of rock overlying bedrock. Fragments within the west side of the trench indicate a heavy sphalerite zone with massive sulphides of pyrite and lesser arsenopyrite. A grab sample from this zone returned 0.47% Zn and 0.17 oz Ag/ton.

In trench A where blasting has developed a rubble zone, massive sulphides consisting generally of 90% pyrite and 10% sphalerite are hosted by light gray pseudo brecciated limestone.

Locally the sphalerite forms an envelope peripheral to and across pyritic massive sulphides.

On the east portion intermittent pockets of massive sulphides in addition to ankerite veinlets are scattered throughout the rubble.

Breccia is also evident with massive sulphides cementing fragments of limestone.

The overall zone of exposed massive sulphides occurs over a width of up to 24 meters and a length of up to 122 meters.

The mineralization is indicated to be entirely hosted by the light gray to white fine grained limestone which is in contact with a dark gray crystalline limestone to the west.

In 1927 Minister of Mines Report report assays of 2% Zn, Tr.Au., Tr.Ag across "14 feet" and an adjacent "10.5 foot" section of Tr.Au., Tr.Ag., and Tr.Zn.,

Also reported is a 20% Zn sample across "8 feet" which was "taken by the owners".

## GEOPHYSICAL SURVEY

### VLF-EM Survey

A sabre Model 27 series 269 VLF-EM Receiver instrument manufactured by Sabre Electronics of Vancouver was utilized in the VLF-EM survey.

The VLF-EM Receiver measures the amount of distortion produced in a primary transmitted magnetic field - in this case Seattle at a frequency of 24.6 Khz - and a secondary magnetic field which may be induced by a conductive mass such as a sulphide body. The VLF-EM unit - due to its relatively high frequency - can detect low conductive zones such as fault or shear zones, carbonized sediments or lithological contacts.

The major disadvantage of the VLF method, however is that the high frequency results in a multitude of anomalies from unwanted sources such as swamp edges, creek and topographical highs.

A grid system of east-west lines spaced at 50 meter intervals was centered over the old workings area. Twelve grid lines were established for up to 850 meters. Readings were taken at 25 meter intervals with the station flagged and the appropriated grid co-ordinate marked thereon.

### Magnetometer Survey

The magnetometer survey was carried out utilizing a Model G-110 fluxgate magnetometer, serial No. M1005, manufactured by Geotronics Instruments of Vancouver.

All rocks contain some magnetite from very small fractions of a percent up to several percent, and even several tens of percent in the case of magnetic iron deposits. The distribution of magnetite or certain characteristics of its magnetic properties may be used in exploration or mapped for other purposes.

The anomalies from naturally occurring rocks and minerals are due chiefly from the presence of the most common magnetic mineral magnetite or of related minerals including limonite and pyrrhotite (with sulfide mineralization).

Magnetic anomalies in the earth's magnetic field are caused by two different kinds of magnetism: induced and remanent. Induced magnetization refers to the action of the field on the material wherein the ambient field is enhanced and the material itself acts as a magnet.

The proportion of magnetism is related to the magnetic susceptibility of the material. Typically, more basic igneous rocks have a higher susceptibility than the acid igneous rock; the latter in turn have a higher susceptibility than sedimentary rocks.

The remanent magnetization is often the predominant magnetization (relative to the induced magnetization) in many igneous rocks. The remanent mineralization is important in geological mapping.

Magnetic minerals may also occur in association with sulphide zones or may be decomposed through the action of dynamic or thermal metamorphism. Thus the survey results could indicate lithology structure, alteration patterns and most significantly, mineral zones in a favorable geological environment.

From the field data, an average determined value of 55,110 gammas was subtracted from each reading and the results were contoured at 10 gamma intervals.

### CONCLUSIONS

The geophysical survey was successful in general, delineating the contact between the white and dark grey to black limestone in the workings area.

The magnetometer survey results indicated a northerly trending mag HI-mag LO in the vicinity of the workings. The mag LO area is indicated by the dark grey to black crystalline limestone with the mag HI by the light grey to white fine grained limestone. As mineralization and workings are known to be restricted to the "contact" zone the mag HI-mag LO zone should be examined for other mineral zones.

The VLF-EM results indicated an east-west trending anomalous zone in the workings area. Thus the results are inconclusive however with additional geological information and perhaps air photo interpretation, the VLF-EM results could be more meaningful.

### RECOMMENDATIONS

STAGE I of the recommendations as set out in the writer's July 30, 1984 report should be initiated. The recommendations include detailed IP surveys in the workings area, additional recce geophysical surveys and geological mapping samplings and prospecting over the survey area which is discussed in the reports. An air photo structural analysis should also be completed.

Test diamond drilling would follow to test the prime anomalous areas.



L. Sookochoff, P. Eng.  
Consulting Geologist

December 11, 1984  
Vancouver, B.C.

CERTIFICATE

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

That I am a Consulting Geologist with offices at 311-409 Granville Street, Vancouver, B.C., V6C 1T2.

I 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 practising my profession for the past eighteen years.
3. I am registered with the Association of Professional Engineers of British Columbia.
4. The information for this report was obtained from sources as cited under bibliography and from a property examination carried out on June 19, 1984.
5. I have no direct, indirect or contingent interest in the property described herein or in the securities of BLACK SHEEP VENTURES INC. nor do I intend to receive any.



L. Sookochoff, P.Eng.  
Consulting Geologist.

December 11, 1984  
Vancouver, B.C.



BIBLIOGRAPHY

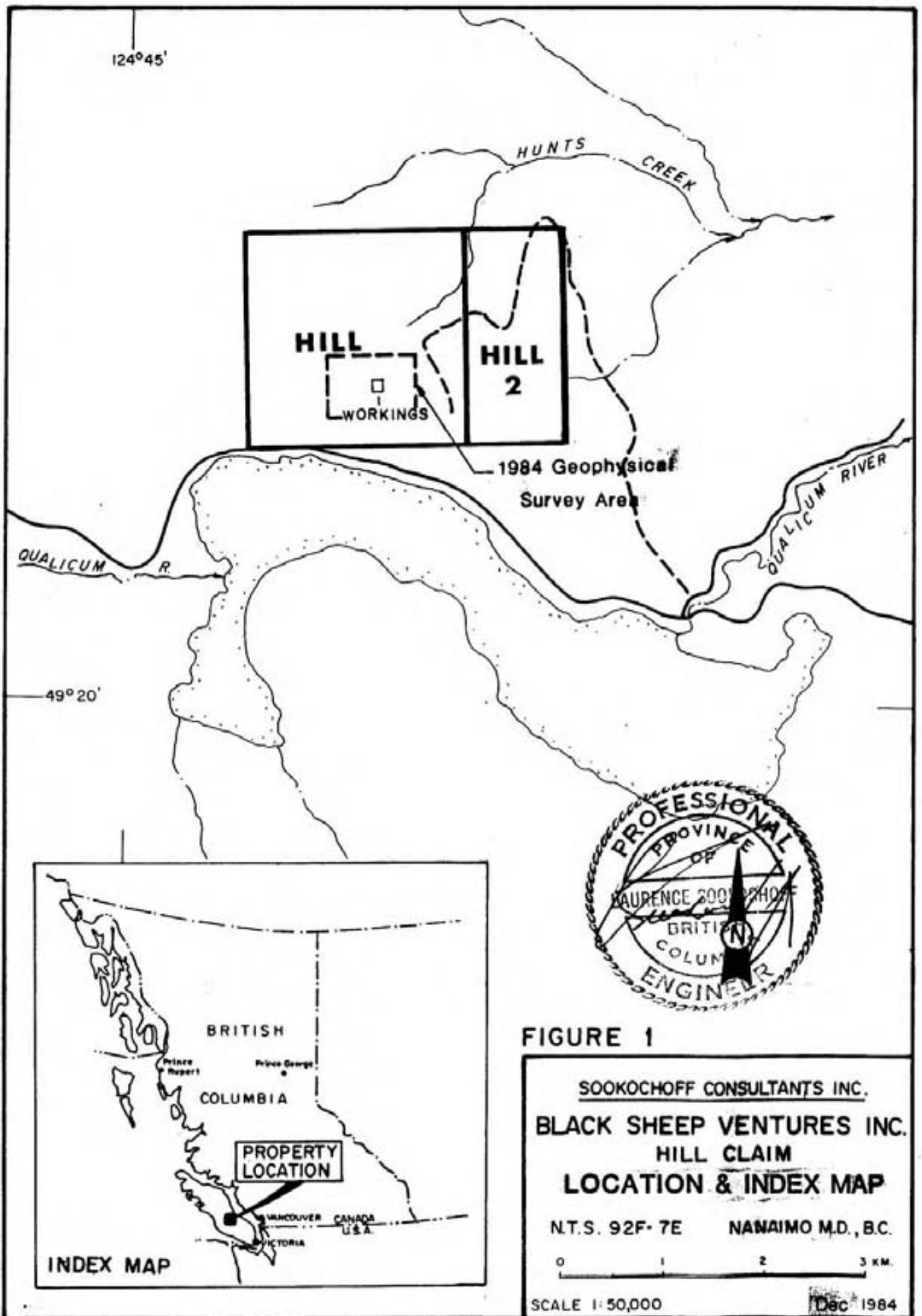
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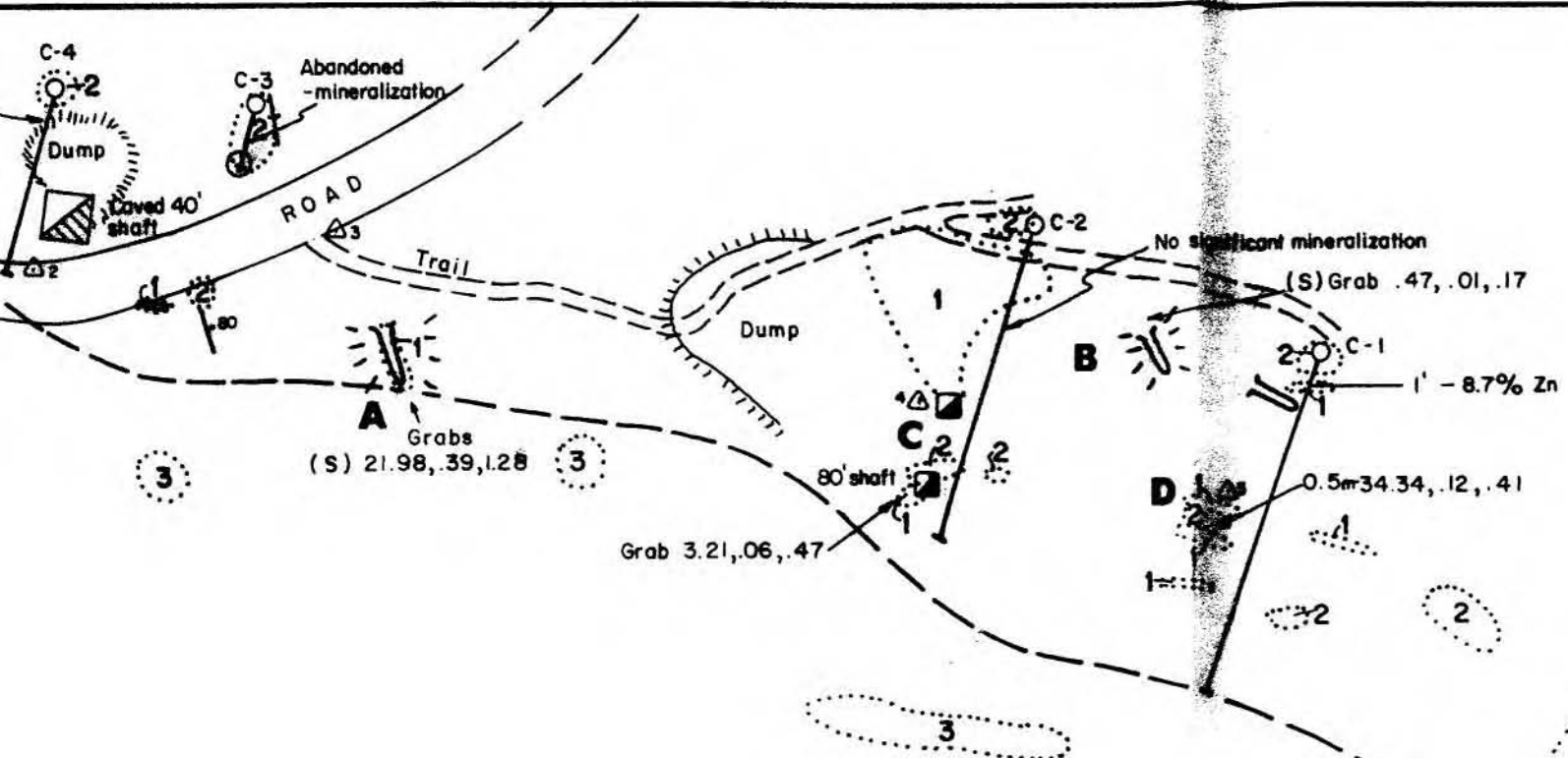
*SOOKOCHOFF, L. - Geological Evaluation Report on the Hill  
Claim Group for Black Sheep Ventures Inc., July 30,  
1984.*

BLACK SHEEP VENTURES INC.  
Hill & Hill No. 2 Mineral Claims  
1984 Assessment Report  
Geophysical Surveys  
Statement of Costs

The fieldwork of the geophysical survey was carried out on the Hill Claim Group, Nanaimo M.D. from June 22, 1984 - July 6, 1984 to the value of the following:

Fieldwork: P.Crook, R.Sveen - June 22-July 6, 1984 - 30 man days @ \$125	\$ 3,750
Vehicle Rental: 15 days @ \$65	975
Gas, mileage	285
Equipment Rental Mag & Em @ \$50/day	750
Room and Board 30 man days @ \$40/day	1,200
Data Compilation, Drafting, Printing	630
Supervision: L. Sookochoff, P.Eng. - 2 days @ \$400/day	800
Associated Expenses	420
Report and associated costs	<u>1,500</u>
	\$10,310
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**LEGEND**

Mineralization - sulfides

Limestone - light grey to white, fine grained

" - dark grey, crystalline

Probable bedding - inclined, vertical

Open cut, trench

Contact

Specimen

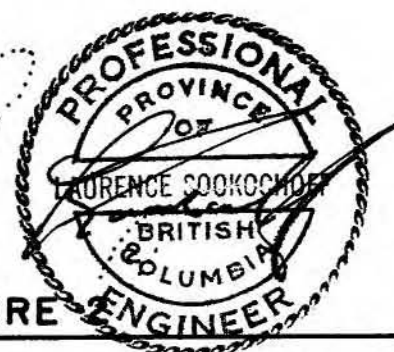
Shill hole

Outcrop

Area Blasted (1984)

S-1984 samples

.06, .47 Sample Interval - % Zn, % Cu, oz Ag/ton



**FIGURE**

SOOKOCHOFF CONSULTANTS INC.

**BLACK SHEEP VENTURES INC.**

HILL CLAIM  
**GEOLOGY AND  
SAMPLE RESULTS**

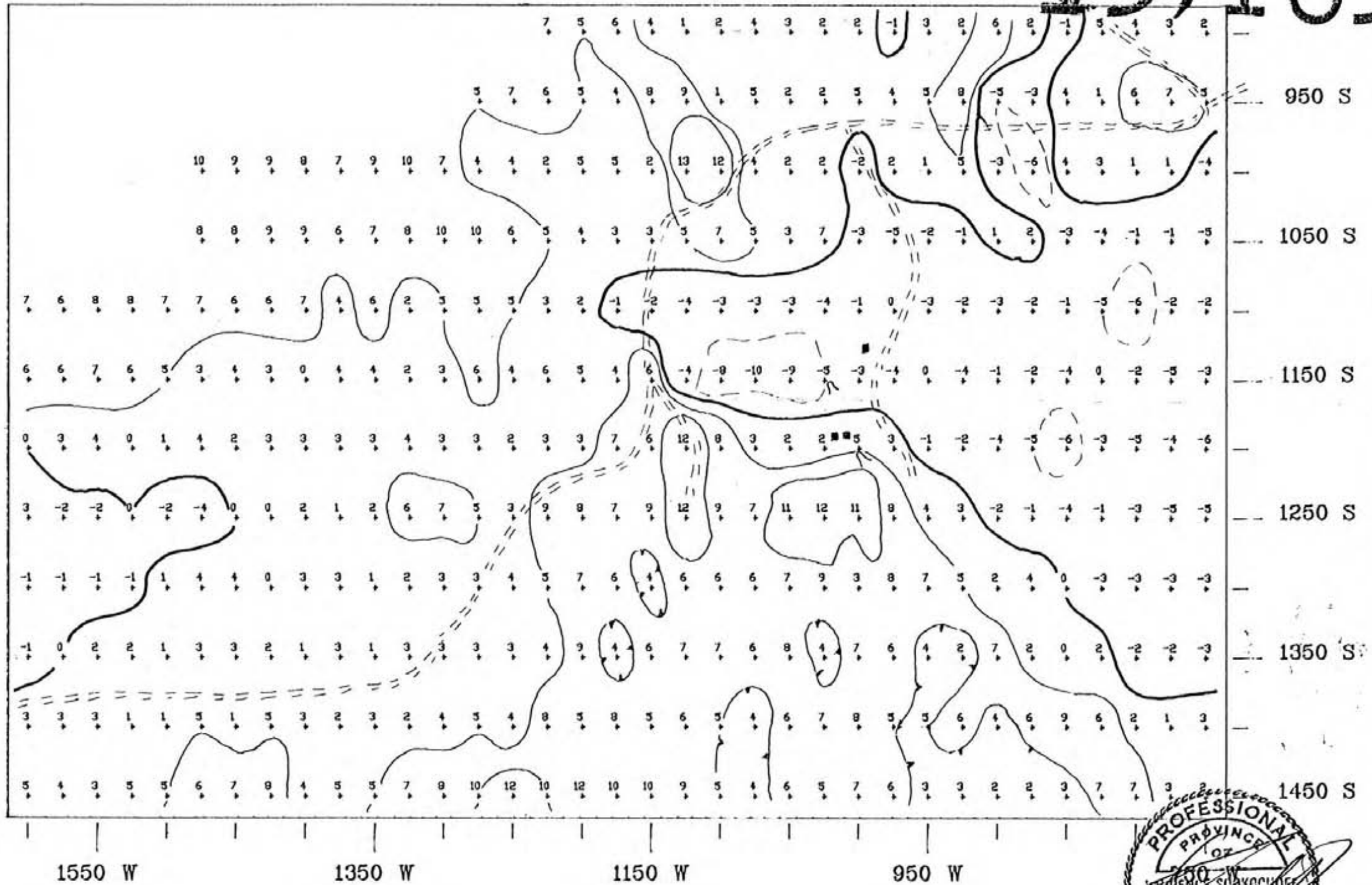
N.T.S. 92F-7E      NANAIMO M.D., B.C.

0      10      20 METRES

SCALE 1:480

Atten: Consolidated Mining & Smelting

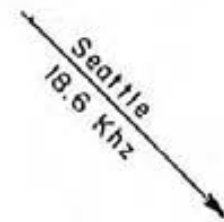
13,105



LEGEND

— 0' Contour  
— +5' Contour  
- - - -5' Contour

Open Cut  
■ Shaft  
- - - - Road



SOOKOCHOFF CONSULTANTS INC.

BLACK SHEEP VENTURES INC.

HILL CLAIM GROUP

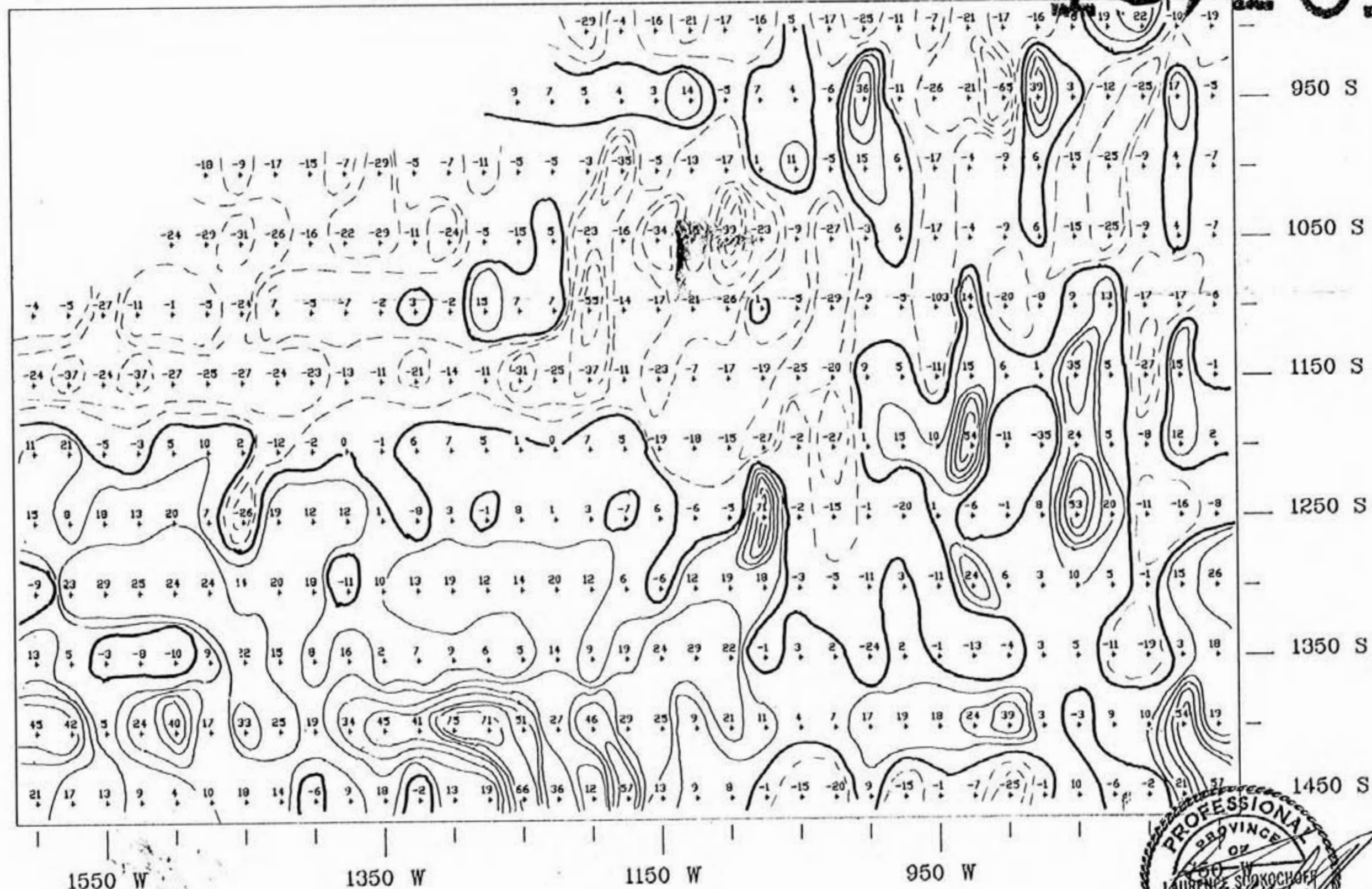
NANAIMO MINING DIVISION

VLF-EM SURVEY

TO ACCOMPANY REPORT BY LAURENCE SOOKOCHOFF, P.ENG., DATED DEC. 1984

SCALE: 1:3,000	DATE: DEC. 1984	N.T.S. 92F/7E	DRAWN BY: GEO-COMP	FIGURE: 3
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13,105



**LEGEND**

- 0 Contour = 55110 gammas
- - - +10 gamma contour
- - - -10 gamma contour



SOOKOCHOFF CONSULTANTS INC.

BLACK SHEEP VENTURES INC.

HILL CLAIM GROUP

NANAIMO MINING DIVISION

*MAGNETOMETER SURVEY*

TO ACCOMPANY REPORT BY LAURENCE SOOKOCHOFF, P.ENG., DATED DEC. 1984

SCALE: 1:3,000	DATE: DEC. 1984	N.T.S. 92P/7E	DRAWN BY: GEO-COMP	FIGURE: 4
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