

83-#355-#11203

BRANDY RESOURCES INC.  
GEOPHYSICAL REPORT  
ON AN  
AIRBORNE VLF-ELECTROMAGNETOMETER AND  
MAGNETOMETER SURVEY  
SKI 1,2 CLAIMS, SLOCAN M.D.  
LAT. 50°05'N, LONG. 117°36'W  
N.T.S. 82K/4E  
AUTHORS: E.TRENT PEZZOT B. Sc.  
GLEN E. WHITE B. Sc., P. Eng.  
DATE OF WORK: NOVEMBER 1982  
DATE OF REPORT: APRIL 21, 1983

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

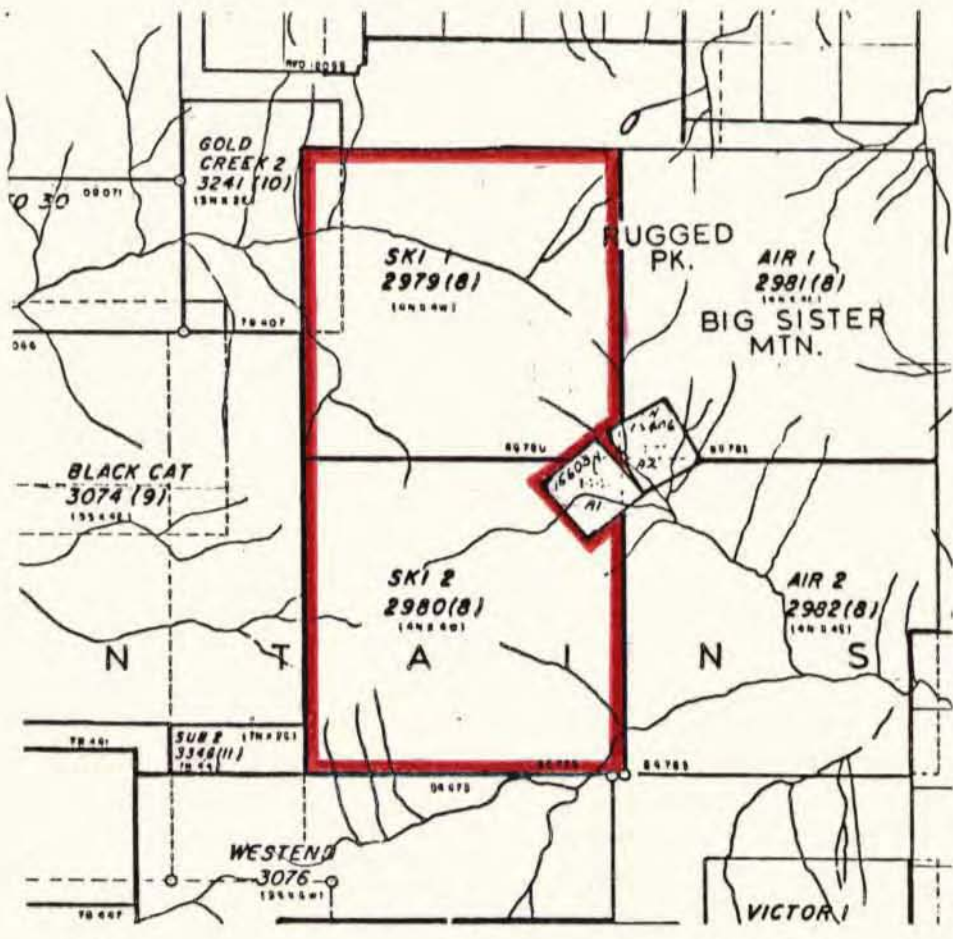
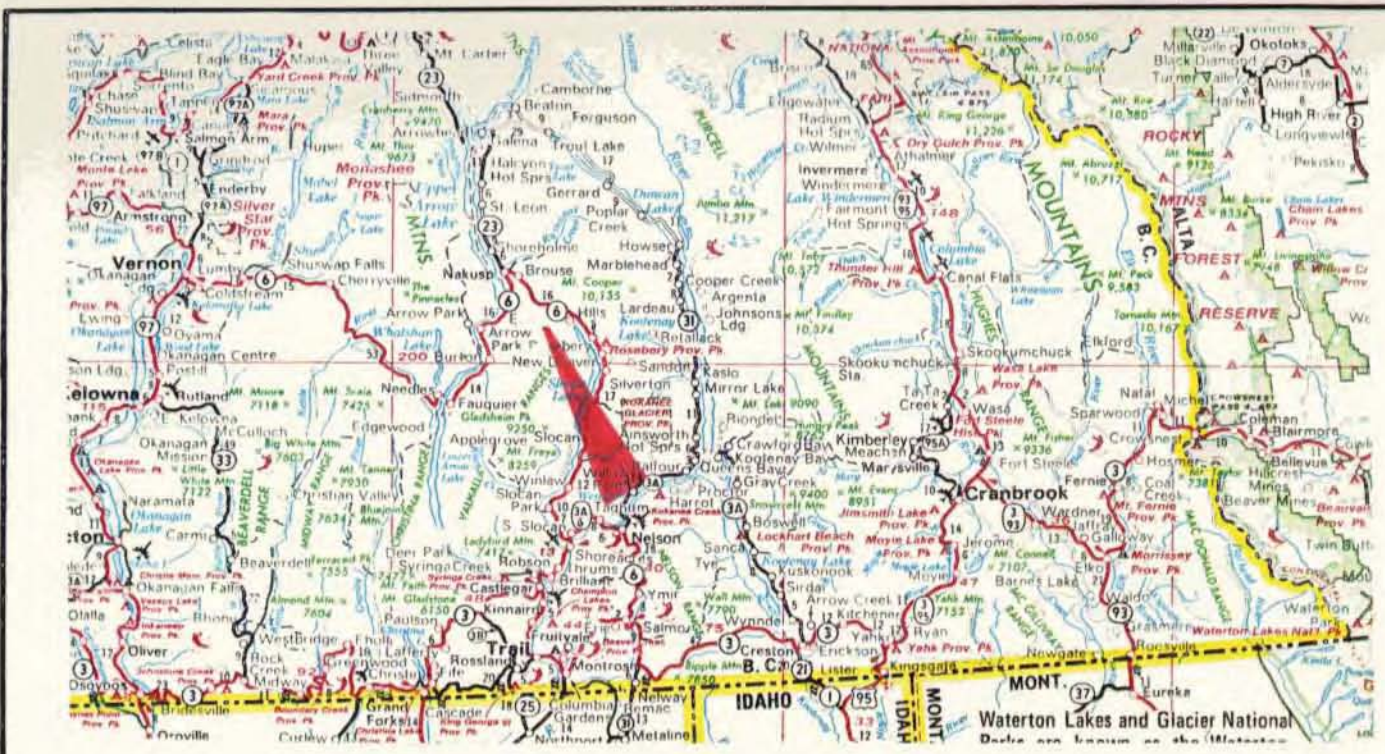
**11,203**

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BRANDY RESOURCES INC.

—SKI CLAIMS—

LOCATION AND CLAIMS MAP



FIGURE 1

## INTRODUCTION

Western Geophysical Aero Data Ltd. conducted a regional magnetic and VLF-EM survey in the Tillicum Mountain Gold prospect area in the month of November, 1982. The data was recorded digitally on magnetic tape and has been processed to examine in detail the area of the SKI claims on behalf of Brandy Resources Inc.

The intention of the survey was to map variations in magnetic intensity and near surface conductivity which would assist in the exploration for gold or massive sulphide mineralization.

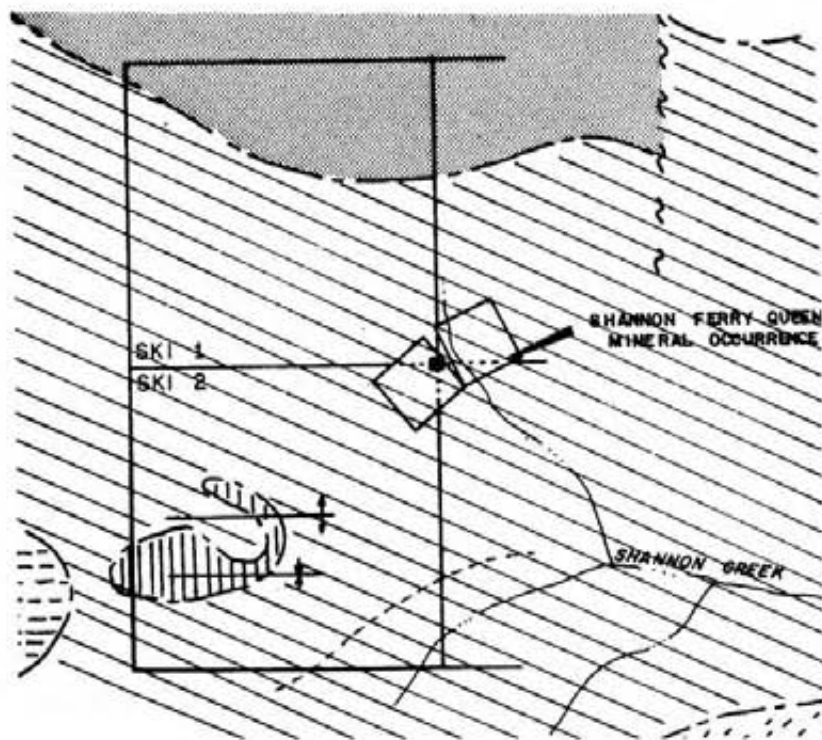
## PROPERTY

The properties examined in this report consist of the SKI 1 and SKI 2 claims (record numbers 2979 and 2980 respectively) each staked as 4 units x 4 units as illustrated on Figure 1. Crown grants numbered 15605 and 15606 located along the eastern claim boundaries cover the old Shannon-Fairy Queen showings and are excluded from this company's holdings.






## LOCATION AND ACCESS

The SKI claims are located approximately 21 kilometers northeast of Burton, B.C. in the Slocan Mining Division and N.T.S. 82K/4E. Approximate geographical co-ordinates are Lat.  $50^{\circ}05'N$  and Long.  $117^{\circ}36'W$ .

Vehicle access to the property is available via two routes. Both depart from B.C. Highway #6 and consist of good quality gravel and logging roads. The more direct route follows Shannon Creek and approaches the property from the south. The second originates from Highway #6 in Summit Lake Provincial Park and approaches the property from the northwest.



**LEGEND:**

-  *Pelitic to silty phyllite and slate, argillite; shale to siltstone, tuff*
-  *Aegirine-augite leucoquartz monzonite; minor leucosyenite and leucogranite*
-  *Meta-andesite and meta-basalt flows and tufts, greenstone*
-  *Pelitic schist, quartzite, metasandstone, psamite, calc-silicate metasedimentary rocks*
-  *Marble*

**GENERAL GEOLOGY**



### GENERAL GEOLOGY

The general geology of the area is of the Triassic Slocan group of metavolcanics and sediments including limestones, argillites and quartzites forming a northwest-southeast trending Slocan Syncline. These rocks are enveloped to the north and south by quartz monzonite, diorite and granodiorite intrusives of Jurassic and/or Cretaceous age. The northern portion of the property as mapped by the Geological Survey of Canada (Plate 1) is underlain by meta-andesite, basalt flows, tuffs and greenstones of the lower Jurassic Rossland Group. Located in the southwest corner of the claim area is an outcrop of marble mapped as part of the Shuswap Metamorphic complex and has been folded along east-west trending axes.

The property partially envelops the old Shannon-Fairy Queen showings on which auriferous copper-lead-zinc mineralization has been found along northeast trending quartz flooded structures.

## AIRBORNE VLF-ELECTROMAGNETIC AND MAGNETIC SURVEY

This survey system simultaneously monitors and records the output signal from a proton precession magnetometer and two VLF-EM receivers installed in a bird designed to be towed 100 feet below a helicopter. A gimbal and shock mounted TV camera, fixed to the helicopter skid, provides input signal to a video cassette recorder allowing for accurate flight path recovery by correlation between the flight path cassette and air photographs of the survey area. A KING KRA-10A radar altimeter allows the pilot to continually monitor and control terrain clearance along any flight path.

Continuous measurements of the earth's total magnetic field intensity and of the total horizontal VLF-EM field strength of two transmission frequencies are stored in three independent modes: an analogue strip chart recorder, digital magnetic tapes and a digital video recovery system. A three-pen analogue power recorder provides direct, unfiltered recordings of the three geophysical instrument output signals. A Hewlett-Packard 9875 tape drive system digitally records all information as it is processed through an on-board micro-computer. The magnetic and electromagnetic data is also processed through the onboard micro-computer, incorporating an analogue to digital converter and a character generator, then superimposed along with the date, real time and terrain clearance upon the actual flight path video recording to allow exact correlation between geophysical data and ground location. The continuous input magnetic signal is processed at the maximum A/D converter rate, averaged and updated on the video display every second. Correlation between the strip chart, digital tape and the video flight path recovery tape is controlled via fiducial marks common to all systems. Line identification, flight direction and pertinent survey information are recorded on the audio track of the video recording tape.

### DATA PROCESSING

Field data is digitally recorded on magnetic cassettes in a format compatible with the Hewlett-Packard 9845 computer. The flight path locations are digitized, thus the information can be processed as either time series or space point data.

Total field intensity magnetic information is routinely edited for noise spikes and corrected for any diurnal variations recorded on a base magnetometer located in the survey area.

Total field intensity VLF-EM signals are sensitive to topographic changes and receiver oscillation. Oscillation effects can be removed by filters tuned to the dominant period. Long period terrain effects can be removed by subtracting a polynomial fitted base level from the data. The degree of the polynomial can be selected to best represent terrain variations observed in the survey area.

Short period terrain effects often have similar response parameters to target conductive features. An interpretational technique often useful in distinguishing between terrain anomalies and conductor anomalies is to observe the difference between the responses from two transmitter stations. Terrain variations normally affect both data sets to a similar degree and are much reduced on a difference plot. The amplitude of the response due to a conductive body is dependent upon the relationship between the conductors' strike and direction to the transmitter station. In most instances the anomalous responses will vary between frequencies and therefore remain evident on the difference plot.



## DISCUSSION OF RESULTS

Approximately 54 line kilometers of survey was recovered to examine the SKI claims. The data is presented on planimetric base maps of the area as Figures 2-5. Figure 6 is a photomosaic illustrating the area of interest and interpretational features.

Two well defined magnetic dipoles are observed in the southwest section of the map area, between lines 42 and 41 and again between lines 40 and 39. These responses correlate with the mapped marble outcrops. A third, weaker dipole is observed to the northeast along strike on line 36. This suggests the limy horizon might extend further north than presently mapped and could develop into a skarn type environment in the metasediments. Relatively weak but well defined VLF-EM conductivity anomalies correlate with all three magnetic dipoles.

Higher magnetic values are observed across the northwestern portion of the property. These values are reflecting the presence of the underlying Rosslund group volcanics. The contact between the metasediments and volcanics becomes less distinct in the northeast section of the claims, possibly indicating a gradational or shallow-dipping contact in the area. The weak magnetic high on this northeast corner may be of some interest.

A similiar isolated magnetic high is observed due south of the Shannon-Fairy Queen showings. These features may relate to volcanic tuffs or flows of higher magnetic susceptibility or small intrusive plugs which have formed magnetite bearing skarns. The relationship between these anomalies and known mineralization should be investigated.

The magnetic data shows two distinct trend orientations, northwest-southeast and northeast-southwest. The former parallels the Slocan Syncline axis and the latter conforms with mapped local geology. Complex intersections of these patterns, particularly in the area of the Shannon-Fairy Queen showings, suggests significant structural deformation has occurred which could likely be mapped by a detailed surface magnetometer survey.


In addition to the VLF-EM anomalies associated with the magnetic dipoles, additional weak trends are observed. Two north-northeast trends are observed along the western claim boundary. Also, immediately north of the claims, two southeasterly trending anomalies are observed within the volcanic horizon.


CONCLUSIONS AND RECOMMENDATIONS

The airborne magnetic and VLF-EM survey detected five areas which show significant magnetic and/or conductivity anomalies to warrant ground investigations. Three magnetic dipole responses suggest an extension to the northeast of the limy horizons noted in the southwest quadrant of the SKI 2 claim. This trend runs into an area of complex structural deformation possibly related to the mineralization observed at the Shannon-Fairy Queen showings. Correlation with weak VLF-EM anomalies could indicate magnetite or pyrrhotite in association with graphitic or sulphide mineralization. The two isolated magnetic anomalies observed in the northeast corner and immediately south of the old crown grant claims appear to be lense-like in nature and occur in areas of tectonic interest.

It is recommended that these areas be investigated by normal ground exploration techniques.

Respectfully Submitted

  
E. Trent Pezzot, B.Sc.  
Geophysicist

  
Glen F. White, B.Sc., P. Eng.  
Consulting Geophysicist

INSTRUMENT SPECIFICATIONSBARRINGER AIRBORNE MAGNETOMETER

**MODEL:** Nimbin M-123  
**TYPE:** Proton Precession  
**RANGE:** 20,000 to 100,000 gammas  
**ACCURACY:** + 1 gamma at 24 V d.c.  
**SENSITIVITY:** 1 gamma throughout range  
**CYCLE RATES:**  
     Continuous 0.6, 0.8, 1.2 and 1.9 seconds  
     Automatic 2 seconds to 99 minutes in 1 second steps  
     Manual Pushbutton single cycling at 1.9 seconds  
     External Actuated by a 2.5 to 12 volt pulse longer than 1 millisecond.

**OUTPUTS:**  
     Analogue 0 to 99 gammas or 0 to 990 gammas  
             - automatic stepping  
     Visual 5 digit numeric display directly in gammas

**EXTERNAL OUTPUTS:**  
     Analogue 2 channels, 0 to 99 gammas or 0 to 990 gammas at 1 m.a. or 1 volt full scale deflection.  
     Digital BCD 1, 2, 4, 8 code, TTL compatible.

**SIZE:** Instrument set in console  
           30 cm X 10 cm X 25 cm

**WEIGHT:** 3.5 Kg

**POWER REQUIREMENTS:** 12 to 30 volts dc, 60 to 200 milliamps maximum.

**DETECTOR:** Noise cancelling torroidal coil installed in airfoil.



Instrument SpecificationsSABRE AIRBORNE VLF SYSTEM

- Source of Primary Field: VLF radio stations in the frequency range of 14  $\text{KH}_z$  to 30  $\text{KH}_z$ .
- Type of Measurement: - Horizontal field strength
- Number of Channels: - Two; Seattle, Washington at 18.6  $\text{KH}_z$   
- Annapolis, Maryland at 21.4  $\text{KH}_z$
- Type of Sensor: - Two ferrite antennae arrays, one for each channel, mounted in magnetometer bird.
- Output: - 0 - 100 mV displayed on two analogue meters (one for each channel)  
- recorder output posts mounted on rear of instrument panel
- Power Supply: - Eight alkaline 'AA' cells in main instrument case (life 100 hours)  
- Two 9-volt alkaline transistor batteries in bird (life 300 hours)
- Instrument Console: - Dimensions - 30 cm x 10 cm x 25 cm  
- Weight - 3.5 Kg.

INSTRUMENT SPECIFICATIONSFLIGHT PATH RECOVERY SYSTEMi) T.V. Camera

Model: RCA TC2055 Vidicon  
Power Supply: 12 volt dc  
Lens: variable, selected on basis of expected terrain clearance  
Mounting: Gimbal and shock mounted to housing  
- housing bolted to helicopter skid

ii) Video Recorder

Model: Sony SLO - 340  
Power Supply: 12 volt dc / 120 volt AC (60Hz)  
Tape: Betamax ½" video cassette - optional length  
Dimensions: 30 cm X 13 cm X 35 cm  
Weight: 8.8 Kg  
Audio Input: Microphone in - 60 db low impedance microphone  
Video Input: 1.0 volt P-P, 75Ω unbalanced, sync negative from camera

iii) Altimeter

Model: KING KRA-10A Radar Altimeter  
Power Supply: 27.5 volts dc  
Output: 0-25 volt (1 volt /1000 feet) dc signal to analogue meter, 0-10 v (4mv/ft) analogue signal to microprocessor  
Mounting: fixed to T.V. camera housing, attached to helicopter skid

## INSTRUMENT SPECIFICATIONS

### DATA RECORDING SYSTEM

#### i) Chart Recorder

Type: Esterline Angus Miniservo III Bench AC Ammeter -  
Voltmeter Power Recorder

Model: MS 413 B

Specification: S-22719, 3-pen servo recorder

Amplifiers: Three independent isolated DC amplifiers  
(1 per channel) providing range of acceptable input signals

Chart: 10 cm calibrated width 2-fold chart

Chart Drive: Multispeed stepper motor chart drive,  
Type D850, with speeds of 2, 5, 10, 15,  
30 and 60 cm/hr. and cm/min.

Controls: Separate front mounted slide switches for  
power on-off, chart drive on-off, chart  
speed cm/hr - cm/min. Six position chart  
speed selector. Individual front zero  
controls for each channel.

Power Requirements: 115/230 volts AC at 50/60 Hz  
(Approximately 30 VA)

Writing System: Disposable fibre tipped ink cartridge  
(variable colors)

Dimensions: 38.6 cm X 16.5 cm X 43.2 cm

Weight: 9.3 Kg

#### ii) Digital Video Recording System

Type: L.M. Microcontrols Ltd. Microprocessor Control  
Data Acquisition System

Model: DADG - 68

Power Requirements: 10-14 volts dc, Maximum 2 amps

Input Signal: 3, 0-100 mvolt dc signals  
1, 0-25 volt dc signal

Microprocessor: Motorola MC-6800

CRT Controller: Motorola MC-6845

Character Generator: Motorola MCM-6670

Analogue/Digital Converter: Intersil 7109

Multiplexer: Intersil IH 6208

Digital Clock: National MM 5318 chip  
9 volt internal rechargeable nickle-  
cadmium battery

Fiducial Generator: Internally variable time set controls  
relay contact and audio output

Dimensions: 30 cm X 30 cm X 13 cm

Weight: 3 Kg

DATA RECORDING SYSTEM (CON'T)iii) Digital Magnetic Tape

Type: Hewlett Packard cartridge tape unit

Model: 9875A

Power Requirements: 24 volt d.c.

Data Format: HP's Standard Interchange Format (SIF)

Tape Cartridge: HP 98200A 225K byte cartridge compatible with HP Series 9800 desktop computers.

Tape Drive: Dual tape drives providing up to 8 hours continual recording time.

Controller: Internal micro-computer provides 23 built in commands.

: External computer generated commands.



## COST BREAKDOWN.

i) Survey date- November, 1982

ii) Personnel:

Survey, E.T. Pezzot, Geophysicist-operator

J. Behenna, Operator-Navigator

M. McDermott, Navigator

Data Processing: E.T. Pezzot, Geophysicist-computer

M. McDermott

N. Porter

Report: E.T. Pezzot, Geophysicist- interpretation

Glen E. White, Geophysicist-supervisation

iii) Project Fee

This survey was processed by agreement for an all inclusive fee of #3500.00 which includes an overall proportion of helicopter charges, computer processing, report and drafting for an effective fee of approximately \$65/line kilometer.

STATEMENT OF QUALIFICATIONS

NAME: PEZZOT, E. Trent

PROFESSION: Geophysicist - Geologist

EDUCATION: University of British Columbia -  
B.Sc. - Honors Geophysics and Geology

PROFESSIONAL  
ASSOCIATIONS: Society of Exploration Geophysicist

EXPERIENCE: Three years undergraduate work in  
geology - Geological Survey of Canada,  
consultants.

Three years Petroleum Geophysicist,  
Senior Grade, Amoco Canada Petroleum  
Co. Ltd.

Two years consulting geophysicist,  
Consulting geologist - B.C., Alberta,  
Saskatchewan, N.W.T., Yukon, western  
U.S.A.

Three years geophysicist with Glen E.  
White Geophysical Consulting & Services  
Ltd.

STATEMENT OF QUALIFICATIONS

NAME: WHITE, Glen E., P. Eng.

PROFESSION: Geophysicist

EDUCATION: B.Sc. Geophysicist - Geology  
University of British Columbia.

PROFESSIONAL ASSOCIATIONS: Registered Professional Engineer,  
Province of British Columbia.

Associate member of Society of Exploration Geophysicists.

Past President of B.C. Society of Mining Geophysicists.

EXPERIENCE: Pre-Graduate experience in Geology -  
Geochemistry - Geophysics with Anaconda American Brass.

Two years Mining Geophysicist with Sulmac Exploration Ltd. and Airborne Geophysics with Spartan Air Services Ltd.

One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W.P. McGill and Associates.

Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions with Geo-X Surveys Ltd.

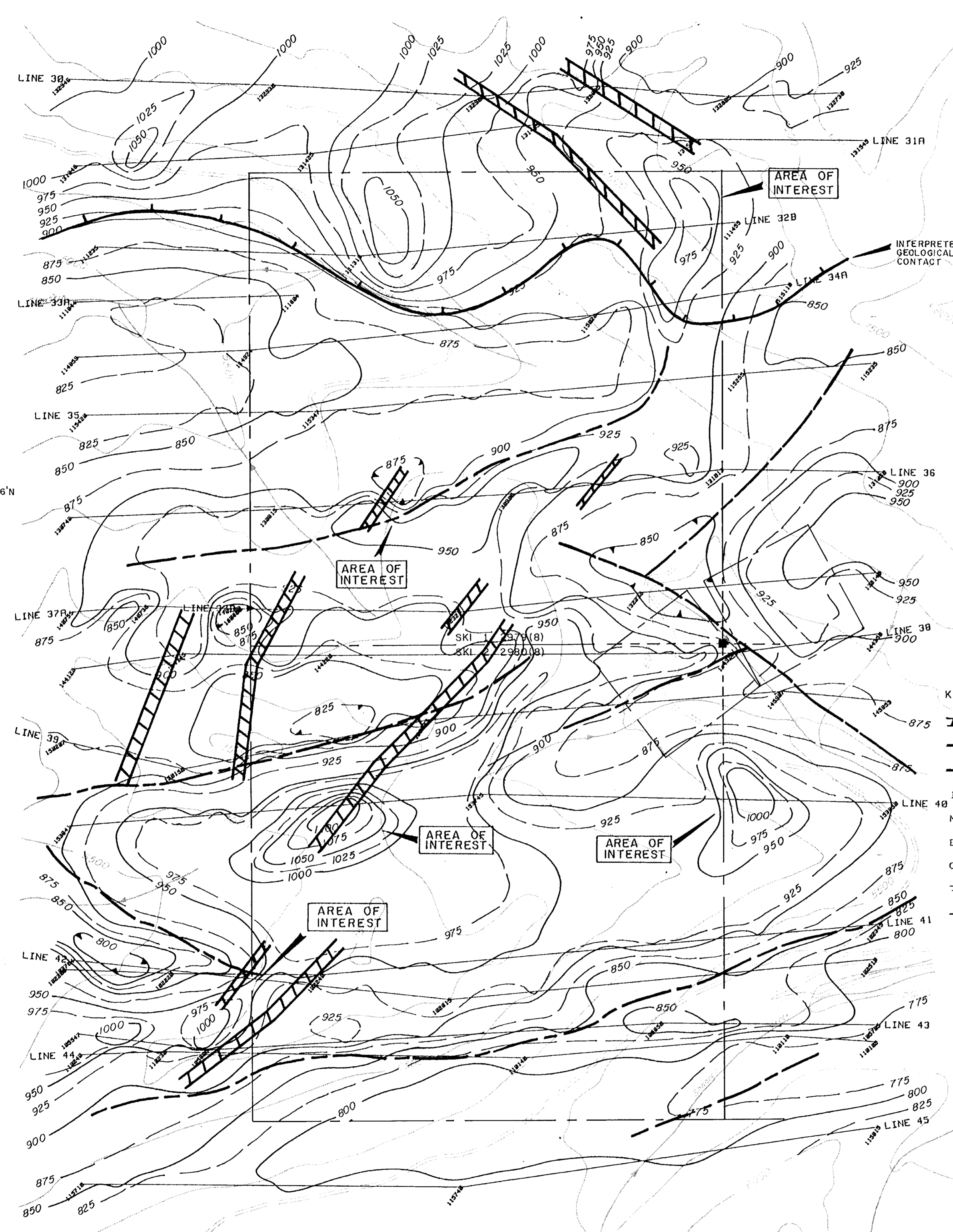
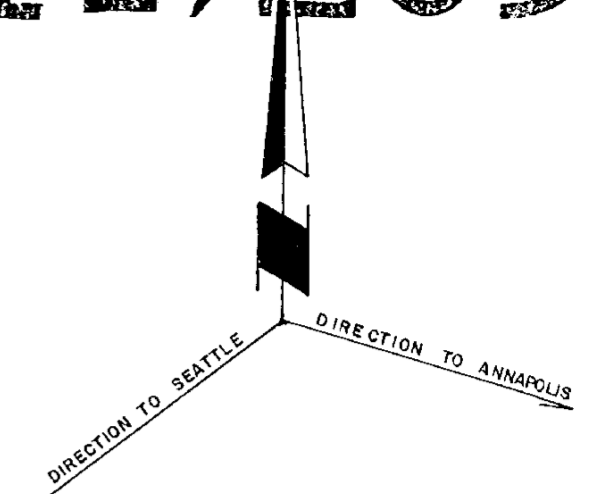
Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd.

Eleven years Consulting Geophysicist.

Active experience in all Geologic provinces of Canada.



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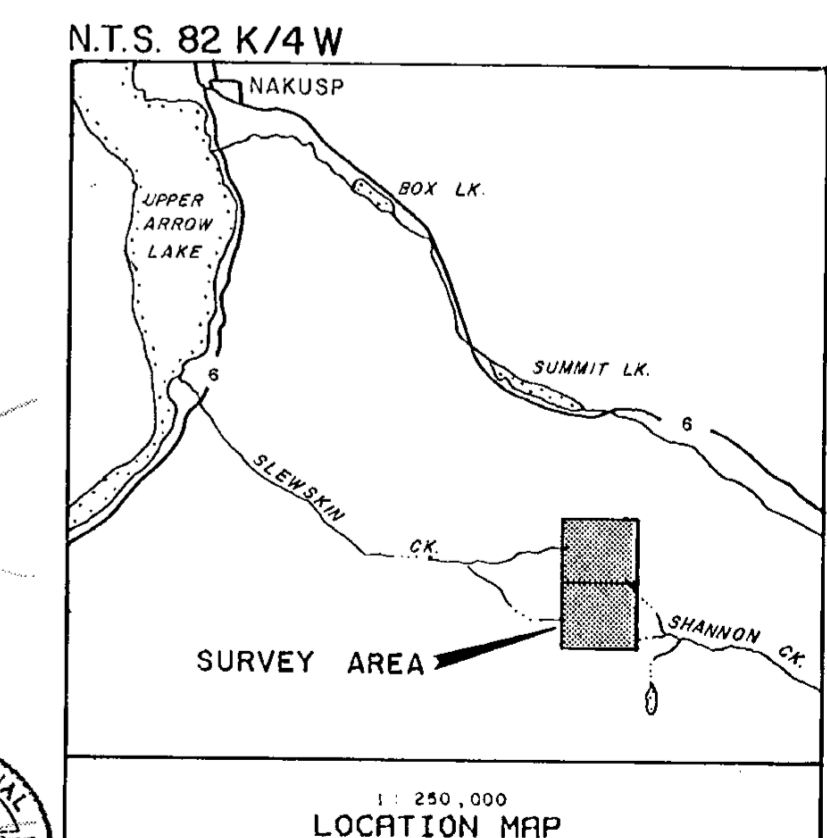


KEY:

- VLF-EM Conductor
- Magnetic Linear
- Geological Contact

INSTRUMENT: Barringer M-123 Magnetometer  
 Magnetic data corrected for diurnals  
 Base value = 57000 gammas  
 Contour interval = 25 gammas

- Roads
- Claim boundary
- Claim post



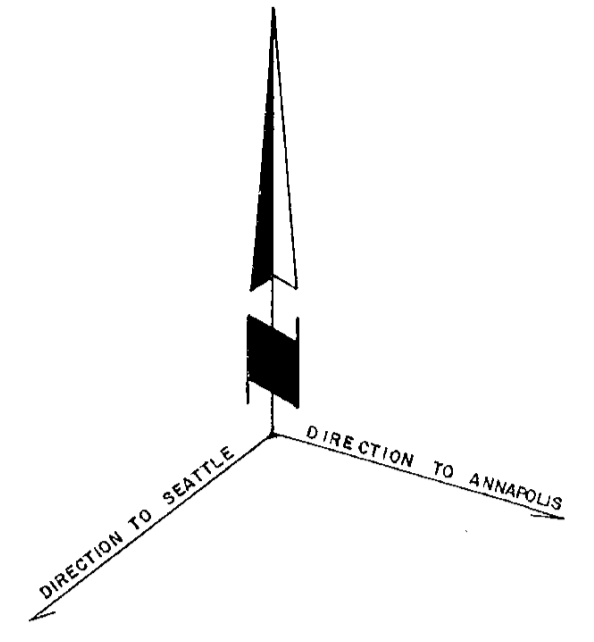
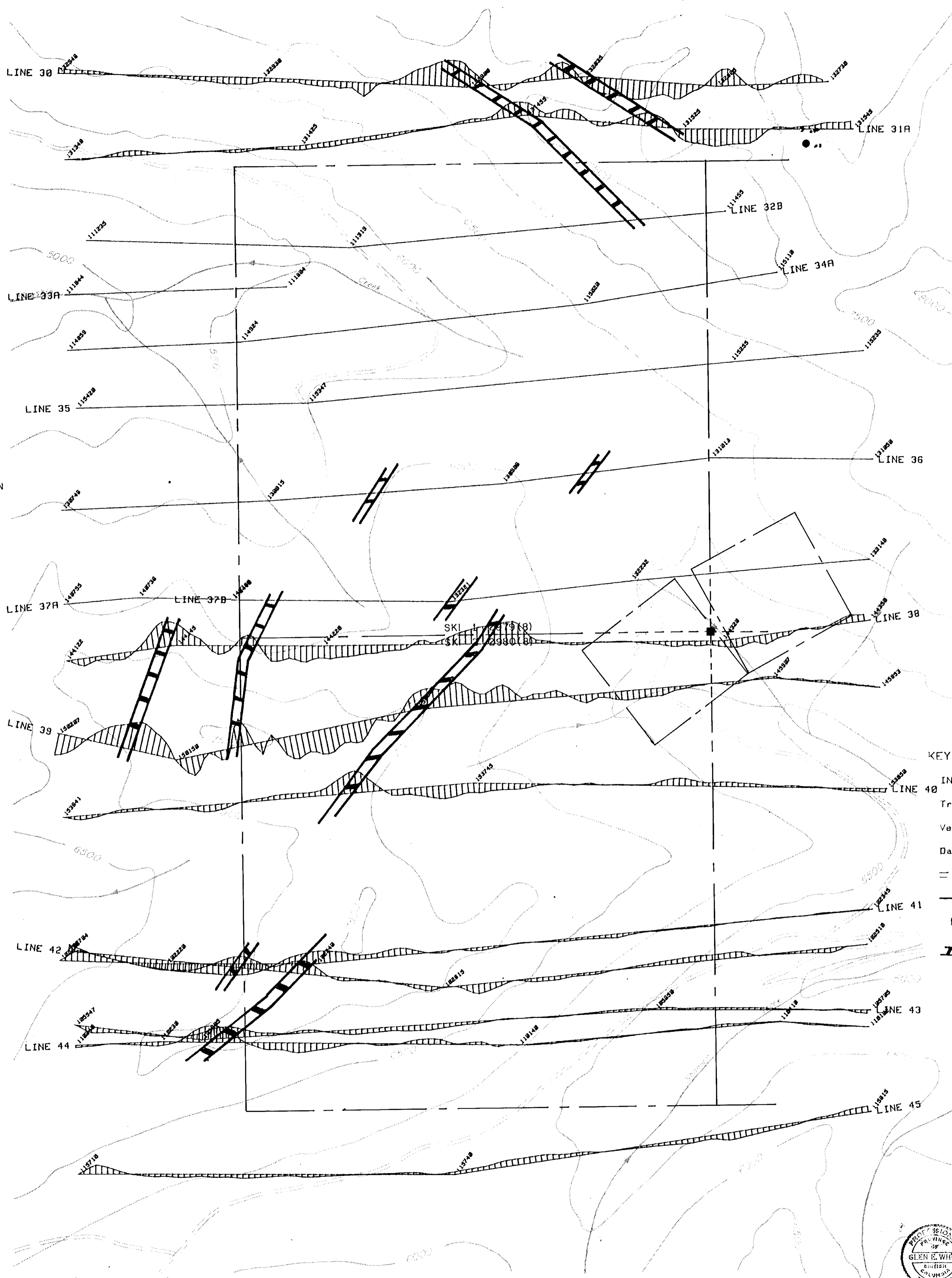
BRANDY RESOURCES INC.  
 SKI CLAIMS  
 MAGNETIC CONTOUR MAP  
 TOTAL FIELD INTENSITY (gammas)

DATE: NOV/82      FIG.: 2

Western  
 Geophysical  
 Aero Data Ltd.

To accompany the Geophysical Report on the Ski Claims

117° 36' W



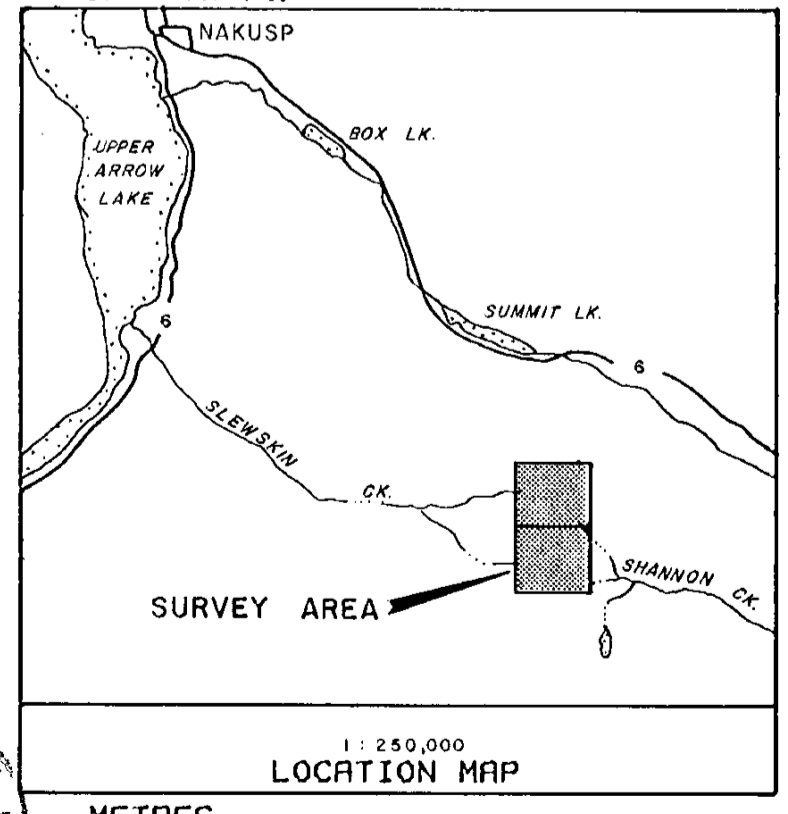
**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**11,203**

**KEY**

- INSTRUMENT: Sabre Total Field Intensity VLF-EM
- Transmitter Station, Seattle (24.8 KHz)
- Vertical Scale, 10%/cm.
- Data corrected for long period terrain effects
- Roads
- - - Claim boundary
- Claim post
- /// VLF-EM Conductor

**N.T.S. 82 K/4 W**



**BRANDY RESOURCES INC.  
SKI CLAIMS  
VLF-EM PROFILES (SEATTLE)  
TOTAL FIELD INTENSITY**

DATE: NOV/82

FIG.: 3

*Western  
Geophysical  
Aero Data Ltd.*

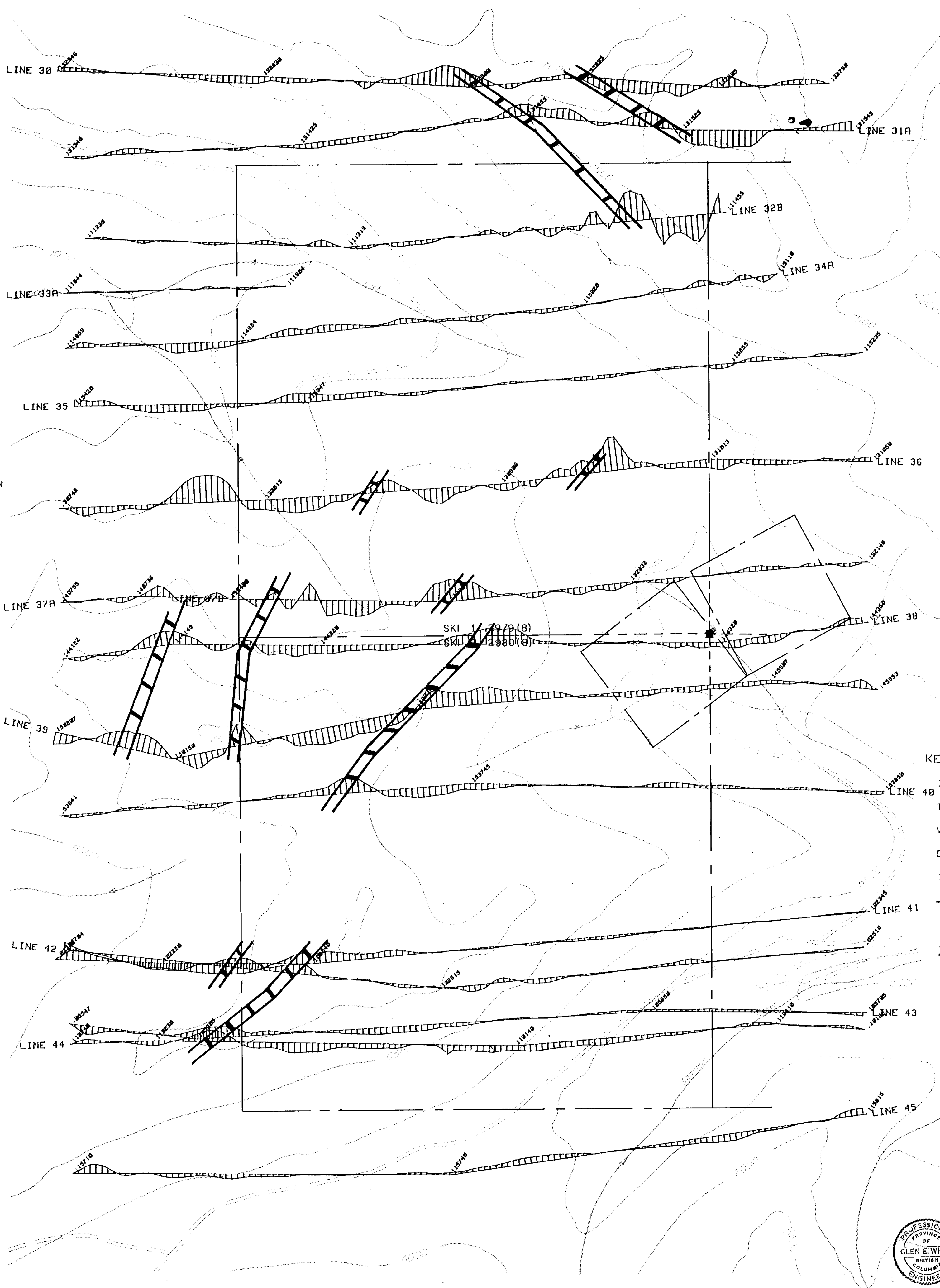
To accompany the Geophysical Report on the Ski Claims

117° 56' W

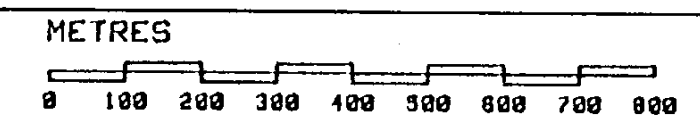
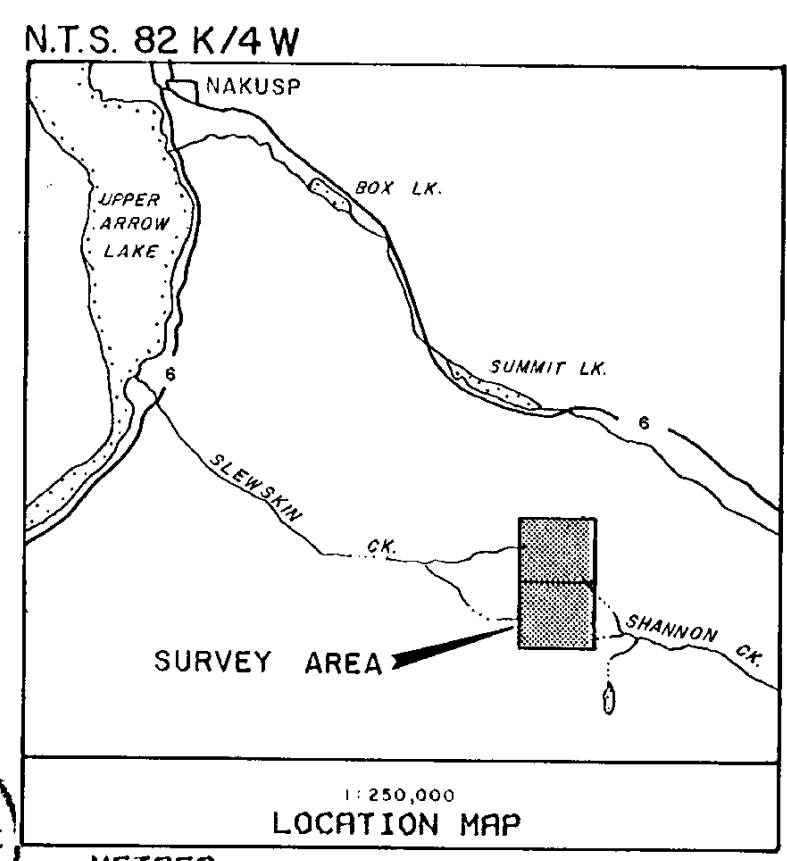
50° 06' N

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

11,203



- KEY
- INSTRUMENT: Sabre Total Field Intensity VLF-EM Transmitter Station, Annapolis (21.4 Khz)
  - Vertical Scale, 10%/cm.
  - Data corrected for long period terrain effects
  - Roads
  - - - Claim boundary
  - Claim post
  - || VLF-EM Conductor



BRANDY RESOURCES INC.  
SKI CLAIMS  
VLF-EM PROFILES (ANNAPOLIS)  
TOTAL FIELD INTENSITY

DATE: NOV/82

FIG.: 4

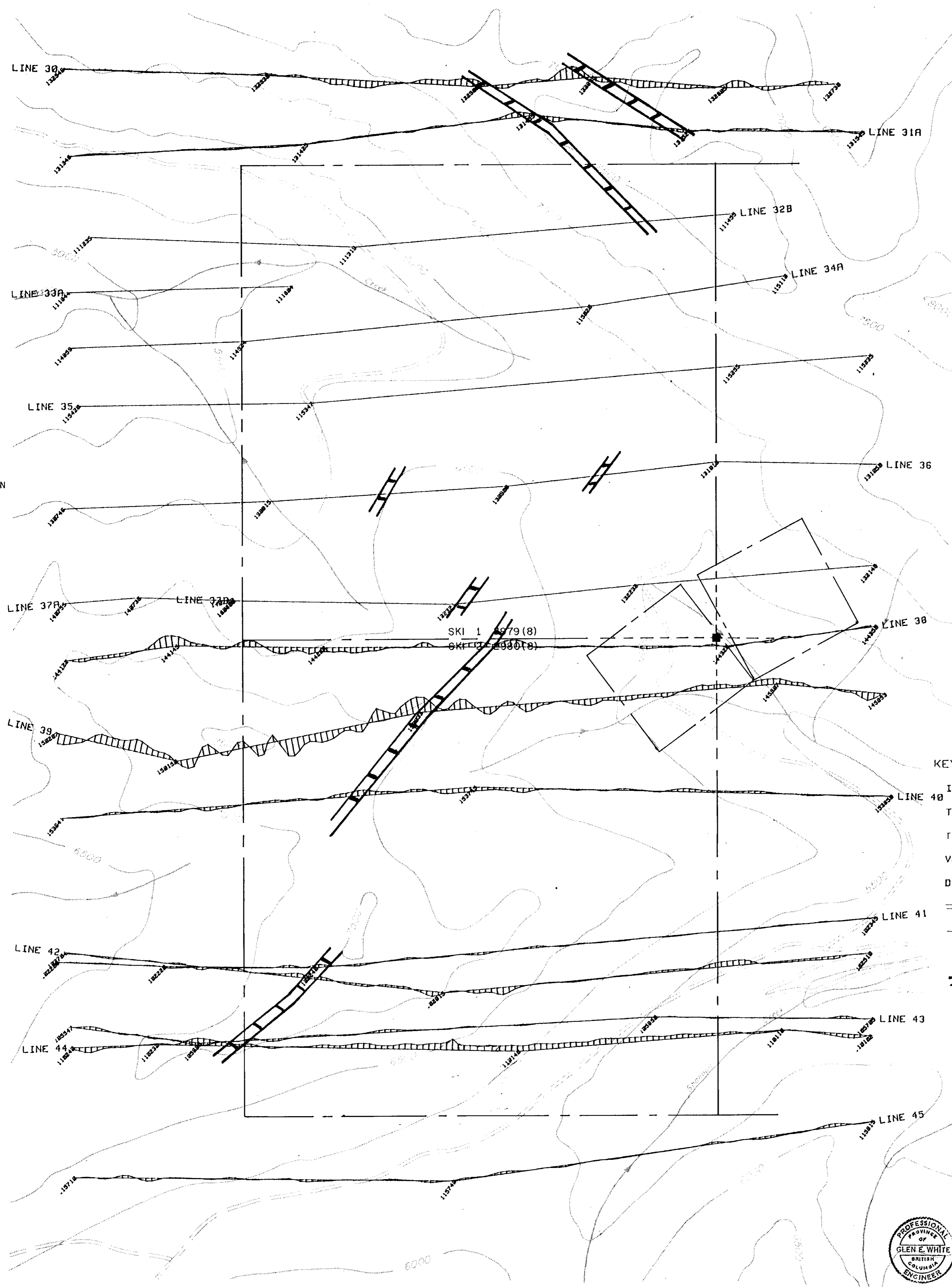
Western  
Geophysical  
Serv. Data Ltd.

To accompany the Geophysical Report on the Ski Claims

117° 36' W





50° 06' N

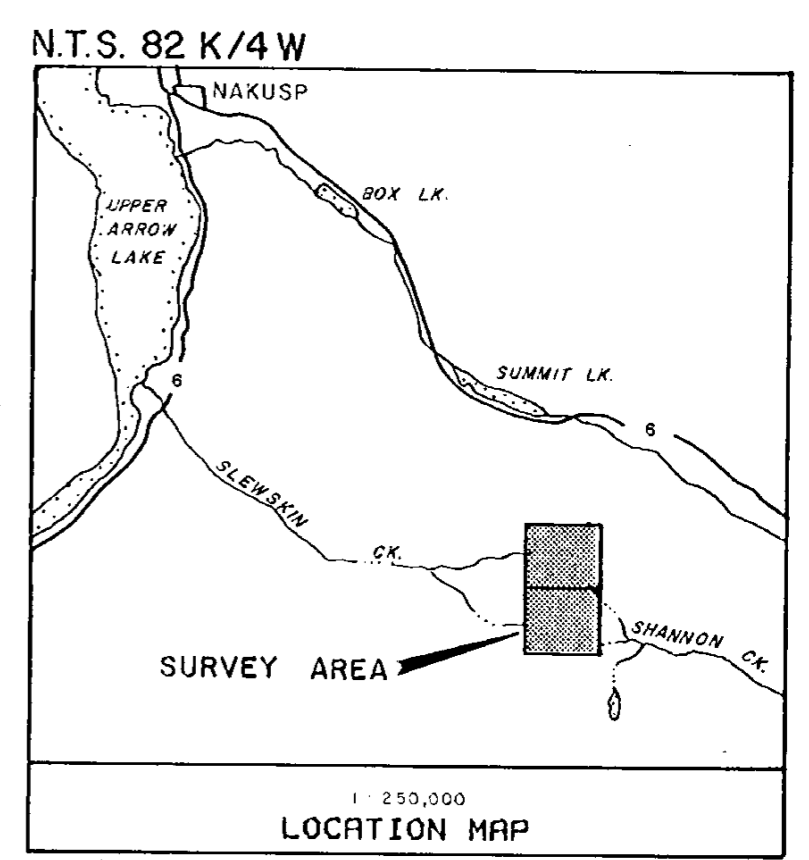
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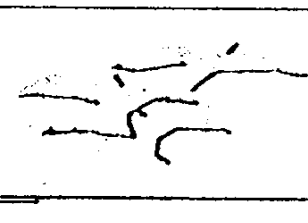


**KEY**

INSTRUMENTS: Sabre Total Field Intensity VLF-EMS  
 Transmitter Station #1, Seattle (24.8 Khz)  
 Transmitter Station #2, Annapolis (21.4 Khz)  
 Vertical Scale, 10%/cm.  
 Data corrected for long period terrain effects

 Roads  
 Claim boundary  
 Claim post  
 VLF-EM Conductor



  
 Western  
 Geophysical  
 Aero Data Ltd.

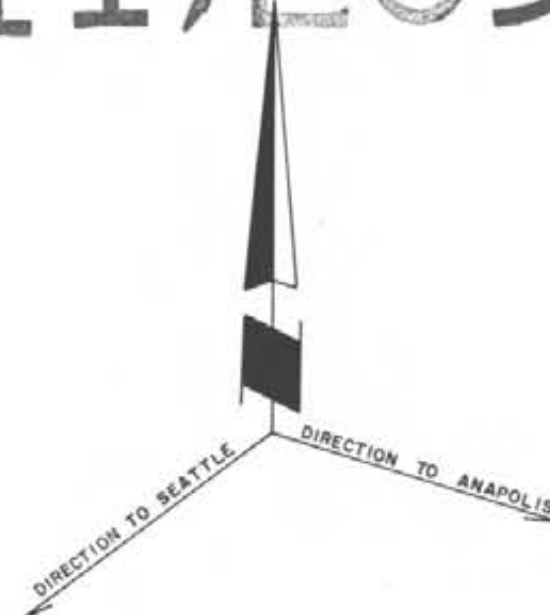
To accompany the Geophysical Report on the Ski Claims  
 — 117° 36' W

**BRANDY RESOURCES INC.**  
**SKI CLAIMS**  
**VLF-EM DIFFERENCE PROFILES**  
**(SEATTLE - ANNAPOLIS)**





DATE: NOV/82      FIG.: 5

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

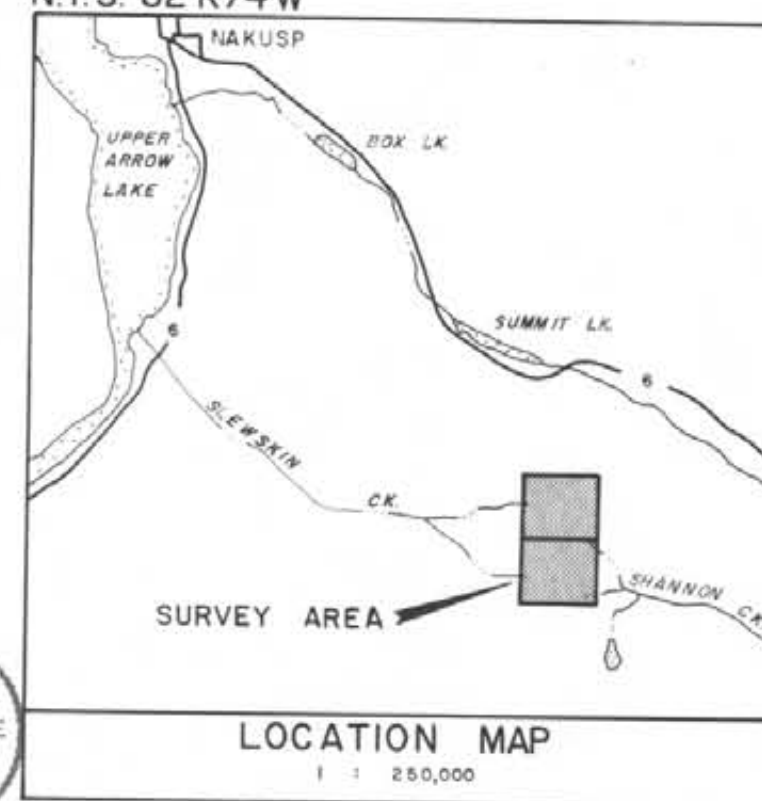
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KEY

-  VLF - EM Conductors
-  Magnetic linears
-  Interpreted geological contact
-  Magnetic contour

N.T.S. 82 K/4W



BRANDY RESOURCES INC.  
SKI, CLAIMS  
SLOCAN MINING DIVISION — BRITISH COLUMBIA

GEOPHYSICAL INTERPRETATION MAP

*Western  
Geophysical  
Aero Data Ltd.*

Interpreted By: G.E.W.  
Drawn By: FINELINE DRAFTING  
Checked By: G.E.W.  
Date: APRIL /83  
Fig. No. : 6

