

**J. L. SANDNER & ASSOCIATES**  
**GEOLOGISTS/GEOPHYSICISTS**  
**6-815 W. HASTINGS ST.**  
**VANCOUVER 1. B. C**

*File*  
*←*  
*formerly Geo-X*

March 1, 1972.

*92I-10*

**811447**

Cyprus Exploration Ltd.,  
1101 - 510 W. Hastings Street,  
Vancouver, British Columbia.

Attention: Mr. J. P. Sawyer

Dear Mr. Sawyer:

Re: Kamloops-Afton Area, Low Level  
Detail Aeromagnetic Survey

Attached hereto is a copy of the participation contract-proposal related to a new detailed Aeromagnetic Survey to be flown before March 15th in the Kamloops-Afton area.

The project will cover approximately 1200 line miles with 1/8 mile spacing between flight lines. Readings will be taken approximately 150 feet apart. Data will be gathered both on analogue and digital record. The survey vehicle is a 206 Jet Ranger equipped with Varian + 1 gamma proton magnetometer.

As detailed on the attached sheets, the final product will include a base airphoto mosaic, the isomagnetic overlay and a detailed geological map of the area. Scale will be 1/4 mile to 1".

The geologic conditions and experience in the area indicate this survey should reveal the important mineralized trends, structure and volcanic-intrusive relationship.

We may very well see an association with mineralization and magnetite. Perhaps phases of the intrusive may also be revealed.

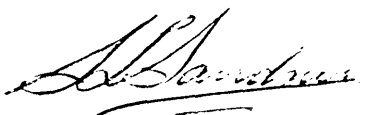
Survey coverage of this type and size would cost in the order of \$20,000 plus the geologic mapping. Under the proposed system, \$2,500 per participant is an excellent value.

Each copy will be delivered under a proprietary number available only to participants. The full \$2,500 can be applied as assessment work in this current year. Flying will be done before March 15th. Completed maps should be available during the first week in April.

We trust you find the foregoing of interest, and participate with us in this very worthwhile project.

Yours very truly,

SANDNER & ASSOCIATES



S. L. Sandner,  
President.

SLS/mjr

Attachments



AGREEMENT FOR AIRBORNE MAGNETOMETER SURVEY

Between: S.L. SANDNER & ASSOCIATES,  
6 - 815 West Hastings Street,  
Vancouver, B.C. (hereinafter called SANDNER)

and:

(hereinafter called CLIENT)

SANDNER agrees to conduct a total field airborne magnetometer and photographic control over the following area:

An area approximately 17 x 7 miles centered approximately 8 miles west of the city of Kamloops, B.C. As shown on the accompanying map "Appendix A".

SANDNER agrees to do and provide the following:

1. Helicopterborne aeromagnetic survey coverage of the area outlined on accompanying map with flight line spacing of approximately 1/8 mile, to be flown at lowest safe flight elevation (~350') above mean ground level. Flight path to be east-west.
2. Analogical and digitally recorded magnetometer, time, identification, fudicial and radar altimeter.
3. Mobilization and demobilization for SANDNER personnel and equipment to and from the survey area.
4. 35 m.m. airphotos of flight path.
5. Semi-controlled photomosaic of entire survey area.
6. Geological map of the area showing known drilling locations and other pertinent data.
7. Reduction and processing of data into the form of a computer plotted isomagnetic contour plan. Scale of mosaic & maps 1/4 mi:1".
8. Outline of data gathering and processing procedure and report by a qualified geophysicist and geologist with their comments on the results of the survey. Report suitable for Government assessment filing.
9. Further data processing by computer to be negotiated separately.

The above (1 - 8) for a total price of Two Thousand Five Hundred Dollars (\$2,500.00).

Payment by CLIENT to be as follows:

1. Deposit of \$1,250.00 to accompany this signed Agreement. On receipt of such deposit and signed Agreement, SANDNER will undertake to carry out work detailed above.
2. Interm progress payment of \$625.00 upon notification of flying completion.
3. The balance of \$625.00 is due and payable on delivery of completed survey maps and reports.

Signed \_\_\_\_\_  
FOR S.L. SANDNER & ASSOC.

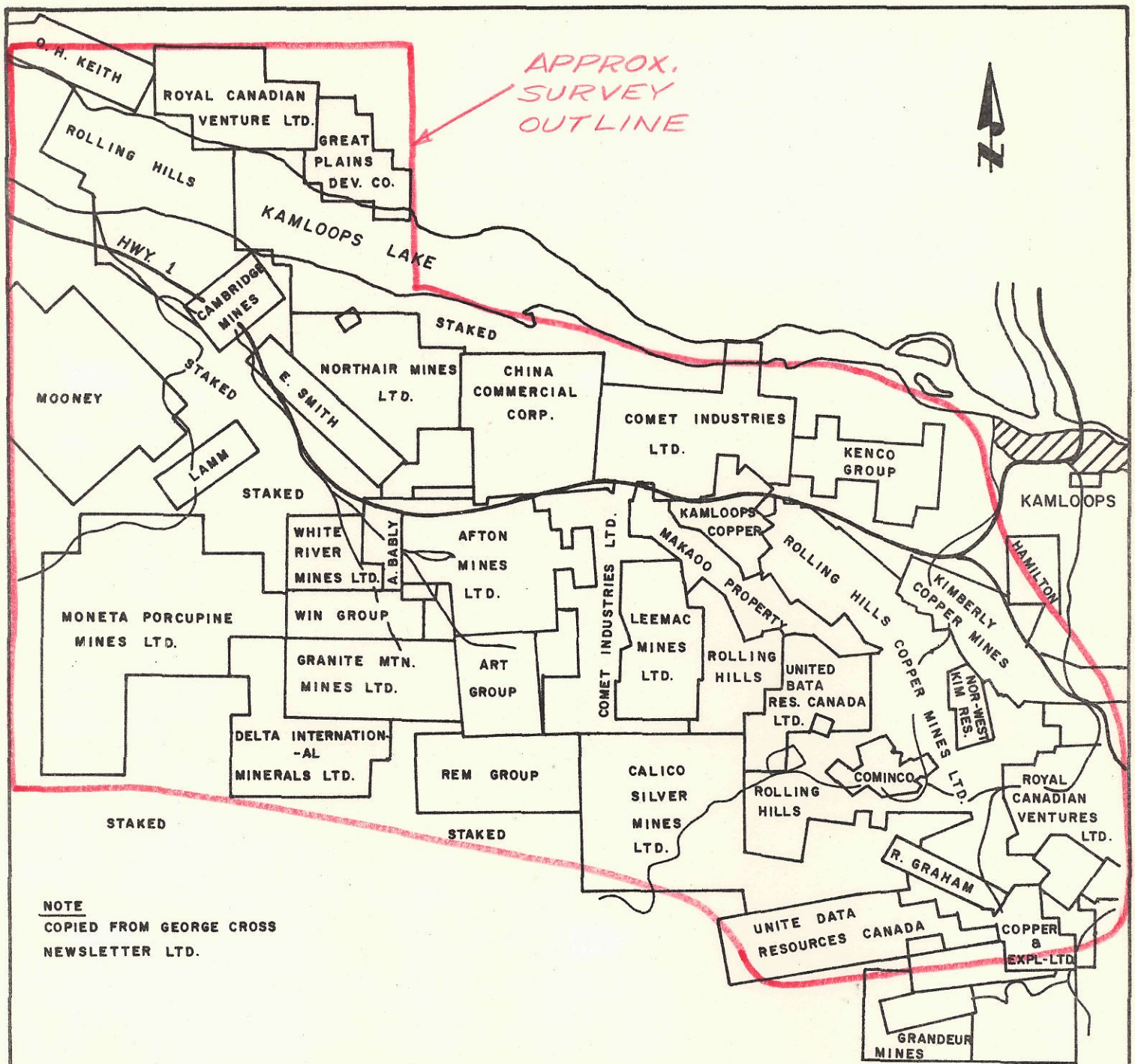
Signed \_\_\_\_\_

Per: \_\_\_\_\_

Position \_\_\_\_\_

Date Accepted February \_\_\_\_ 1972

# "APPENDIX A"



APPROX.  
SURVEY  
OUTLINE

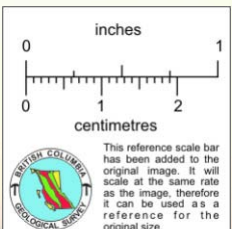


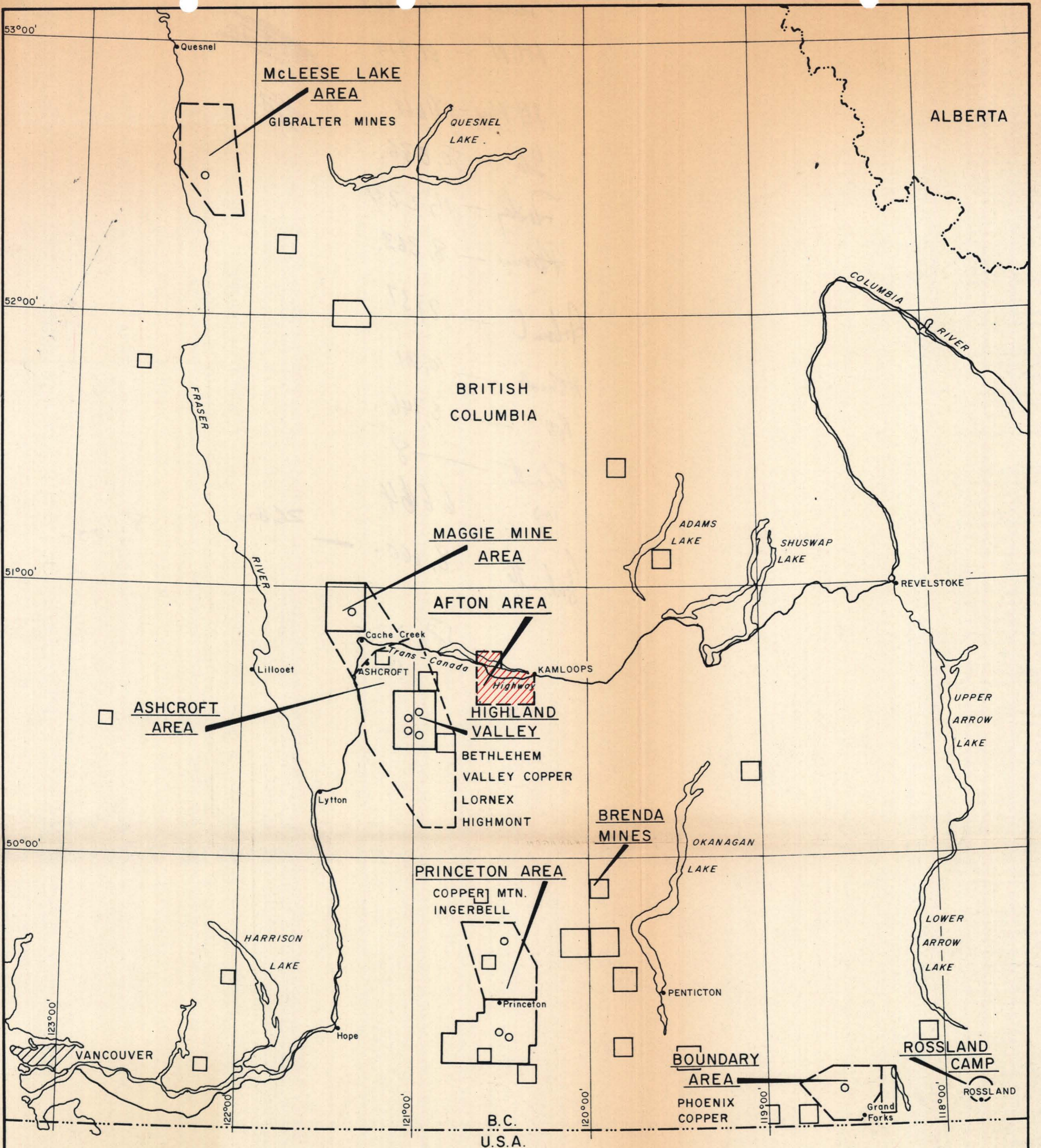
**NOTE**  
COPIED FROM GEORGE CROSS  
NEWSLETTER LTD.

## PROPOSED - HELICOPTER - BORNE AEROMAGNETIC SURVEY KAMLOOPS-AFTON AREA B.C.

SCALE : 1" = 2 MILES

FEB. 7, 1972

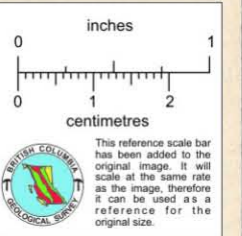




**LEGEND**  
 — COMPLETED  
 - - - PROPOSED

**LOCATION MAP**  
**DETAILED REGIONAL AEROMAGNETIC COVERAGE**  
**COMPLETED & PROPOSED**

SEPT 1971      SCALE: 1" = 20 MILES



Scenic - 49,249

Mt. W. - 31,919

~~250,000~~

Mt. Myle - 18,668

Ida - 50,036

Friday - 117,224

Rasmus - 8,363

Arboul - 2737

Ashuola - 10,531

Bo - 3,746

Tchitto - 8

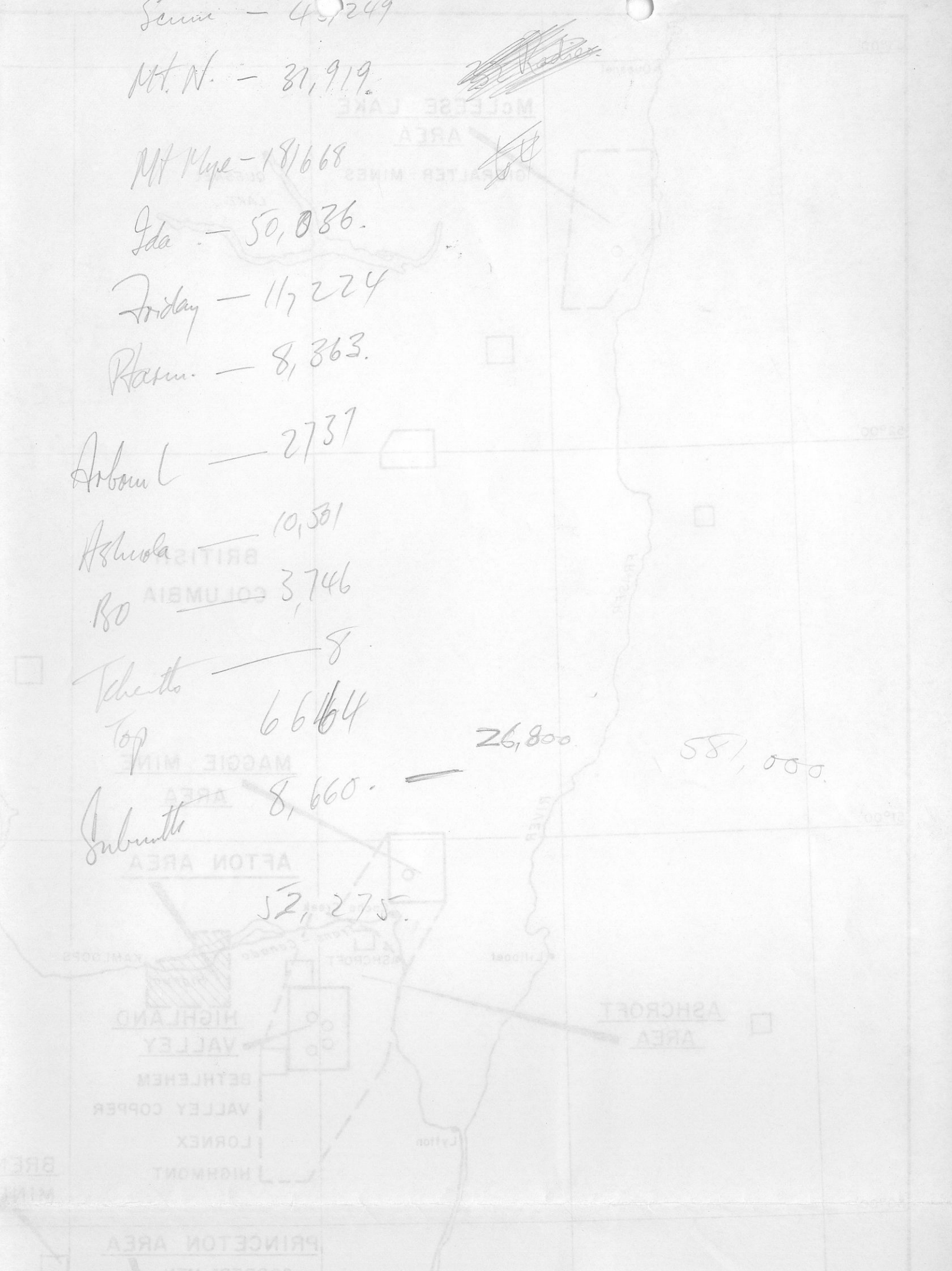
Top - 66,664

26,800

581,000

Submitts - 8,660

52,275



**SANDNER**  
**ASSOCIATES**

*Stanley L. Sandner*  
GEOLOGIST/GEOPHYSICIST

SUITE 6  
815 WEST HASTINGS STREET  
VANCOUVER 1, B. C.

PHONE 604-687-1115  
687-0201  
TELEX 04-54474

FROM THE DESK OF . . .

**STAN SANDNER**

---

*With the compliments of  
S. L. Sandner.*

*Your copy of maps (1/4 mi/1")  
and report will be  
forwarded shortly.*

RECEIVED  
JUN 22 1972  
RECEIVED

May 8, 1972

C. A. Mark

Ref. 1733-CVL

J.B.P. Sawyer

AEROMAG SURVEY - AFTON AREA

I enclose herewith copies of a letter and proposal covering Low Level Aeromagnetic Surveying which has been carried out in the Afton Area of British Columbia. The letter is self-explanatory.

Although I suppose this gets classed as "grass roots", the area is certainly an interesting one and it would be interesting to have this information to correlate with the Government aeromag survey and also known geology, etc. If Sanders' selling line regarding the preliminary results is valid, it might even have some practical use. I would be inclined to invest \$2,500 of our prospect examination budget on acquiring a set of this data, and would like to have your approval and/or other comments regarding this.

JBPS/jel

Encl.



Friday noon <sup>OK</sup>  
Done

Phone Sandner

w'd  
got proposal on  
afternoon flying proposal  
would like to  
participate

all men out of town  
but will have signed  
agreement + cheque  
over to him early <sup>next</sup> week

OK Done

Phone Mr Mark +  
Mr Seery

wire up or mail  
us \$1,250

need by Monday  
for sure  
payable to Sandner Assoc

Also Available

Wall Map

Mosaic Type

Scale  $\frac{1}{2}$  mi = 1"

for additional  
\$25<sup>00</sup>

AGREEMENT FOR SALE

Re: Kamloops-Afton Aeromagnetic Survey Data

Cyprus Exploration  
I/We Cyprus Exploration Corporation, Ltd., ~~representing~~  
hereby agree to purchase One set(s) of Kamloops-Afton Helicopter-  
borne Aeromagnetic Survey data including the following (at 1/4 mile:  
1" scale):

- a) Base mosaic with Isomagnetic contours.
- b) Detailed geologic map of the area.
- c) Report including interpretive comments of the results suitable for assessment filing.

I/We understand that, clean base mosaic and/or base mosaic showing flight lines, digital and analogue flight records, 35mm film strips, etc., are available at a nominal additional charge upon request.

I/We understand and agree the said data, items a, b, c and other flight data listed above, is proprietary and will not be copied or reproduced nor sold in part or in whole without written permission from Sandner Associates. Each set of data sold will bear an assigned number to the name of the purchaser.

Terms:

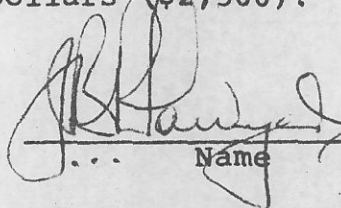
One Thousand Two Hundred Fifty Dollars (\$1,250) to be paid with order.

Balance of One Thousand Two Hundred Fifty Dollars (\$1,250) to be paid upon delivery of the finished maps and report.


Total price: Two Thousand Five Hundred Dollars (\$2,500).

Signed: SANDNER ASSOCIATES

SIGNED:

  
... Name

Per:

  
S. L. Sandner

for Cyprus Exploration Corporation,  
Company Ltd.

Manager - Canadian Exploration  
Position

1101 - 510 W. Hastings Street  
VANCOUVER 2, B.C.  
Address

Dated: May 15<sup>th</sup> 1972

AGREEMENT FOR SALE

Re: Kamloops-Afton Aeromagnetic Survey Data

Cyprus Exploration  
I/We Cyprus Exploration Corporation, Ltd., ~~representing~~  
hereby agree to purchase One set(s) of Kamloops-Afton Helicopter-  
borne Aeromagnetic Survey data including the following (at 1/4 mile:  
1" scale):

- a) Base mosaic with Isomagnetic contours.
- b) Detailed geologic map of the area.
- c) Report including interpretive comments of the results  
suitable for assessment filing.

I/We understand that, clean base mosaic and/or base mosaic showing  
flight lines, digital and analogue flight records, 35mm film strips,  
etc., are available at a nominal additional charge upon request.

I/We understand and agree the said data, items a, b, c and other  
flight data listed above, is proprietary and will not be copied or  
reproduced nor sold in part or in whole without written permission  
from Sandner Associates. Each set of data sold will bear an  
assigned number to the name of the purchaser.

Terms:

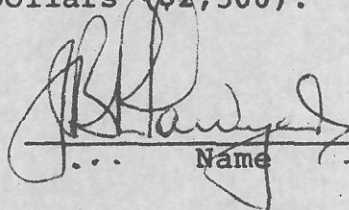
One Thousand Two Hundred Fifty Dollars (\$1,250) to be paid with  
order.

Balance of One Thousand Two Hundred Fifty Dollars (\$1,250) to be  
paid upon delivery of the finished maps and report.

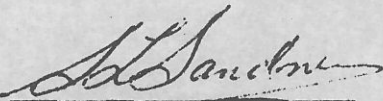
Total price: Two Thousand Five Hundred Dollars (\$2,500).

Signed: SANDNER ASSOCIATES

SIGNED:

  
Name

Per:

  
S. L. Sandner

for Cyprus Exploration Corporation,  
Company Ltd.

Manager - Canadian Exploration  
Position

1101 - 510 W. Hastings Street  
VANCOUVER 2, B.C.  
Address

Dated: May 15<sup>th</sup> 1972

# STANDNER ASSOCIATES

May 5, 1972.

Mr. J. P. Sawyer,  
Cyprus Exploration Ltd.,  
1101 - 510 West Hastings Street,  
Vancouver, British Columbia.

Dear Mr. Sawyer:

Re: Detailed Helicopterborne  
Aeromagnetic Survey Data,  
Kamloops, Afton Area

You will note from the attached data sheet showing a reduced copy of the base mosaic and general specifications that another very important detailed coverage has been flown. Extreme care and expensive low-level helicopter (Jet Ranger) techniques were employed during data acquisition.

Final data processing and isomagnetic maps are now being prepared. The finished product will be released in approximately ten days.

Preliminary observations and interpretations noted during data evaluation show a number of important features not revealed by either government or private work to date. Due to very interesting results over this area, we plan to extend the coverage in at least two directions.

The present package includes some 1,200 line miles of detailed coverage consisting of the following at 1/4 mile (1,320') to the inch scale:

- (a) Base Mosaic
- (b) Detailed geologic map of the area
- (c) Isomagnetic map
- (d) Report including interpretive comments on the results.

Normally, coverage of this type and area would cost in the order of \$20,000. Price per proprietary numbered set of the data is only \$2,500 (100% of which can be applied to assessment work). Terms are \$1,250 with the order and the balance on delivery of maps and report.

We are sure you will be pleased with the results.

Excellent quality wall map mosaics are available on a scale of 1/2 mile (2,460') to the inch. Map size approximately 2-1/2 x 4 feet. These are being offered for \$25.00 each.

A copy of our current airborne capability is enclosed for your perusal.

Yours very truly,

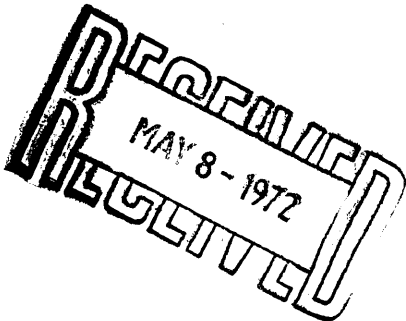
SANDNER ASSOCIATES



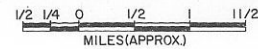
S. L. Sandner.

SLS/mjr

Enclosure



AIRPHOTO MOSAIC  
of  
KAMLOOPS - AFTON AREA



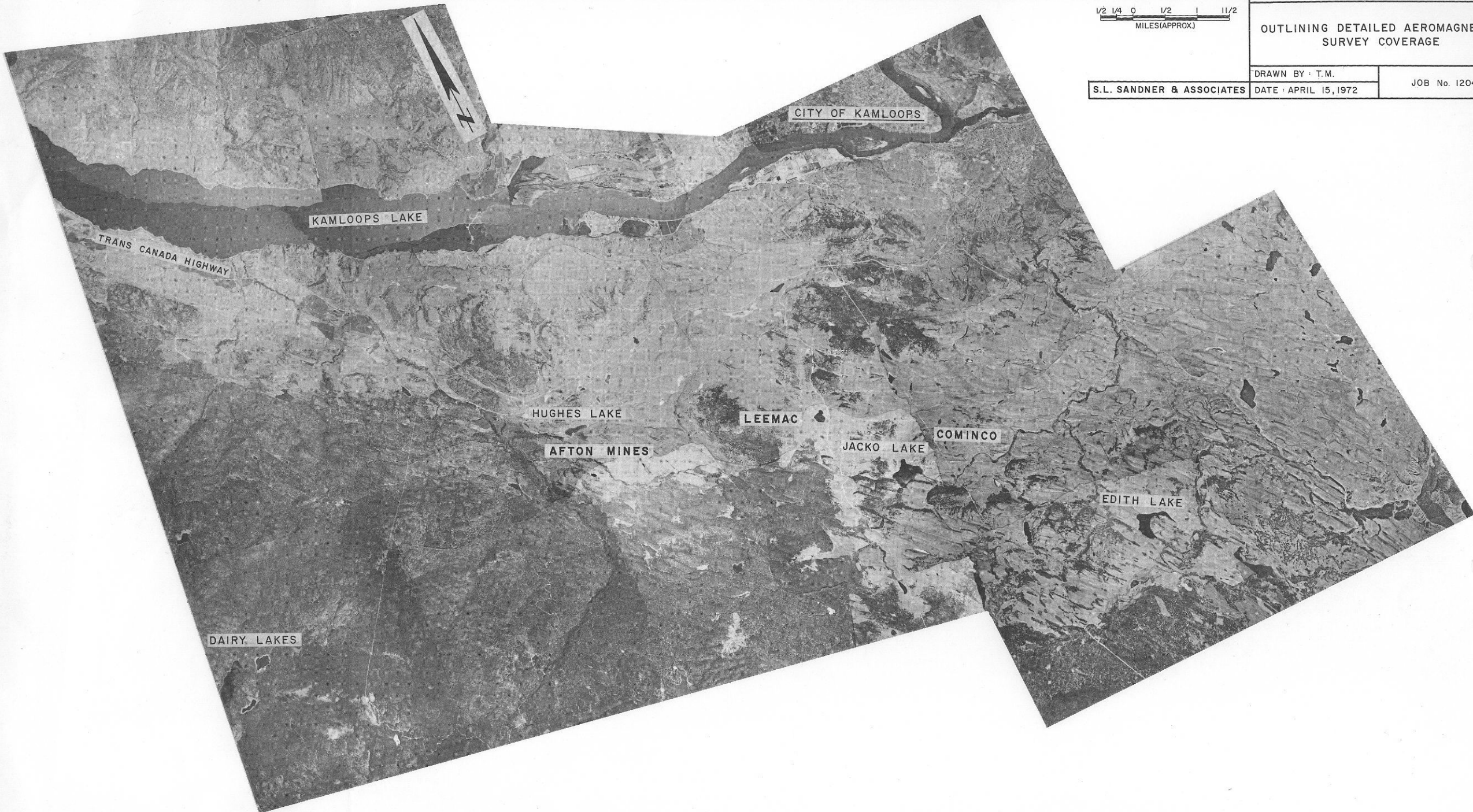
OUTLINING DETAILED AEROMAGNETIC  
SURVEY COVERAGE

DRAWN BY: T.M.

S.L. SANDNER & ASSOCIATES

DATE: APRIL 15, 1972

JOB No. 1204

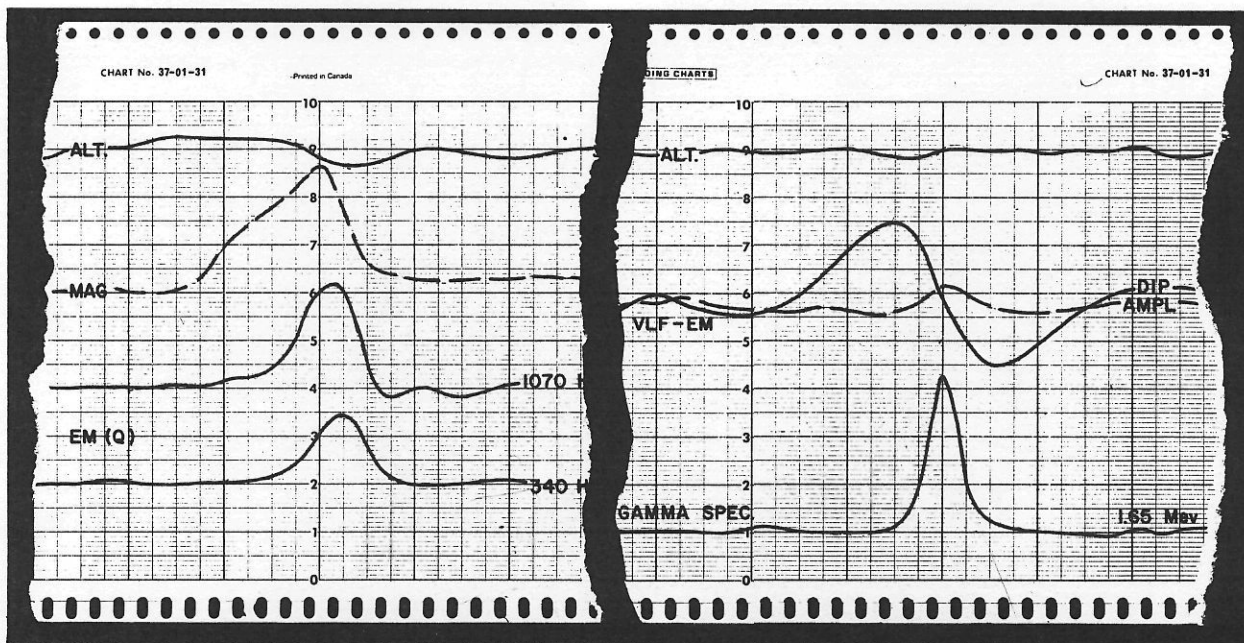


# CONSIDERING SATURATION PROSPECTING?

BEGIN WITH A

**S**ANDNER  
**A**SSOCIATES

## MULTI-PURPOSE AIRBORNE GEOPHYSICAL SURVEY



DUAL FREQUENCY EM –  
AEROMAGNETICS – ALTIMETER

RADIOMETRIC – VLF-EM –  
ALTIMETER

*Flex Corporation... Flexowriter... Justowriter*

Tx. COIL (HORIZONTAL DIPOLE)

OPERATION OF AIRBORNE EM

(MAGNETOMETER SENSOR)

55°

TRANSMITTER  
LOOP

FIELD LINES

TOW CABLE

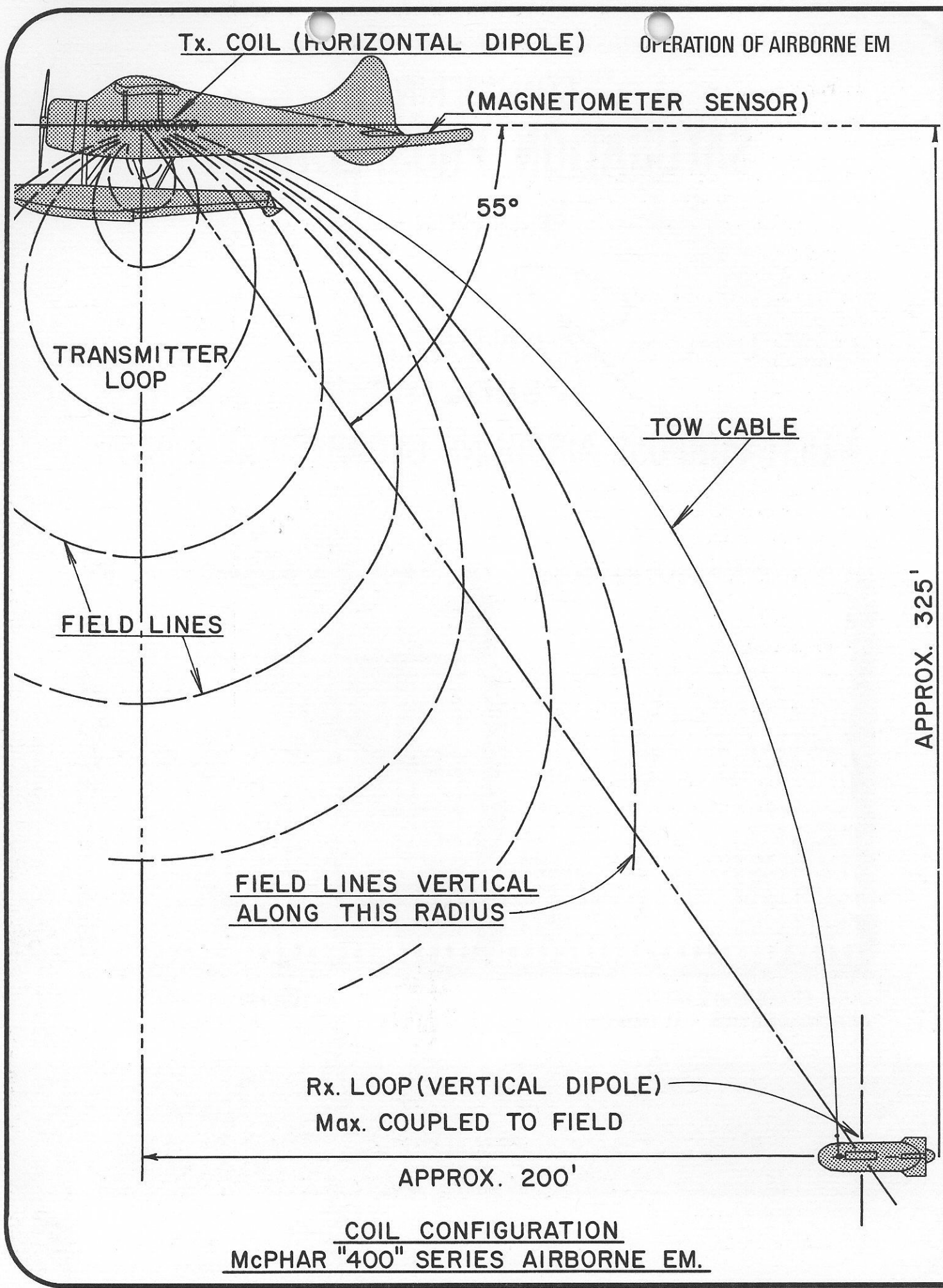
FIELD LINES VERTICAL  
ALONG THIS RADIUS

Rx. LOOP (VERTICAL DIPOLE)  
Max. COUPLED TO FIELD

APPROX. 200'

APPROX. 325'

COIL CONFIGURATION  
McPHAR "400" SERIES AIRBORNE EM.





## AIRBORNE GEOPHYSICAL SYSTEMS INSTALLED AND OPTIONAL

### EM – PHASE MEASURING

Dual Frequency - McPhar F-400

Transmitter - 340 and 1070HZ (time sharing) at 400 watts.

Receiving coil in towed bird separated from transmitter 400 feet.

Readout is quadrature in ppm (secondary divided by primary)

Analog plot of EM at each frequency plus magnetometer, radar altimeter.

The wide coil separation allows deep penetration and broad lateral coverage from a light aircraft.

### EM – PASSIVE PHASE

McPhar K.E.M. (VLF)

Source: VLF Radio Broadcasts (10-30KHZ)

Readings: Angle and Field Strength

Receiving Coil in Wing tip.

Complements F-400EM, helping discriminate fault zones and certain types of sulphide-rich zones.

### PROTON MAGNETOMETER

Varian or Barringer Proton Magnetometer

Resolution and Accuracy: 1 Gamma

Range: 20,000 to 100,000 Gamma

Output: Analog or Digital (BCD)

Sensing Head: Mounted in bird, stinger or wing tip

### GAMMA-RAY SPECTROMETER

Exploranium DiGRS-3000<sup>o</sup> 4 channel

Detector: 3 NaI crystals (6" dia. x 4"), up to 600 cu. in. for detailed coverage for uranium search or K-40 mapping.

4 Differential single channel analysers.

Samples at 0.1 second intervals, with averages over 0.1 to 9.9 seconds.

Output: Analog or Digital (BCD)

### RECORDING SYSTEMS

Analog: 1) Exploranium (2) 12 channels (6 channel Heated Stylus)

Chart Speed: 40 to 8 1 p.m.

2) HP7100B - 2 channels, electric writing

Digital (Optional)

Varian or Incre-Data Inc. 7 track Incremental.

Input: BCD, Analog, Manual Data Entry

Output: Paper tape, Magnetic tape.

### OPTIONAL EXTRA

Infrared "Thermal Mapper" – Bendix LN3

Covers 0.2 to 13 microns wave length of infra red spectrum.

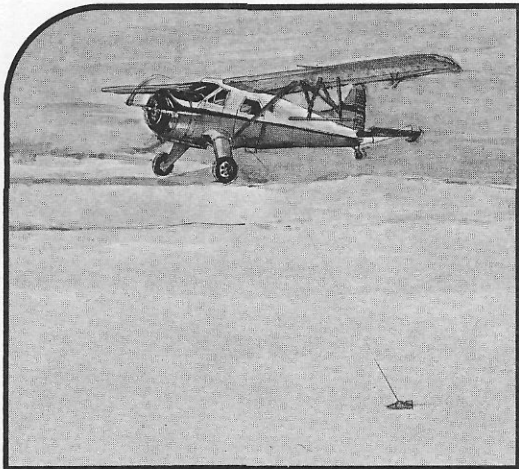
Filters for range 1.0 to 2.7 microns, 3.7 - 5.5 microns, 8.0 to 12.5 microns

Scans 120<sup>o</sup> angle along flight line

Senses differences in temperature of 0.1<sup>o</sup> to 0.15<sup>o</sup> C.

Options in Detector moduls for ranges: 0.7 to 5.5 microns, 8 to 13 microns.

The logo for Sandner Associates features a large, stylized, handwritten-style letter 'S' on the left. To its right, the word 'SANDNER' is written in a bold, uppercase, sans-serif font. Below 'SANDNER', the word 'ASSOCIATES' is written in the same bold, uppercase, sans-serif font, with the 'A' being significantly larger than the other letters.

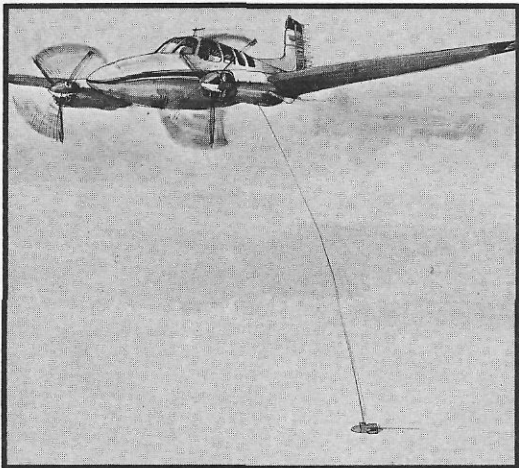


### DeHAVILLAND BEAVER DHC2

An ideal vehicle for survey, it can operate year round on wheels, skis, or floats. Uses short runways, avoids excess ferrying costs.

Equipment installed or available includes:

- |  |                                       |
|--|---------------------------------------|
| 1) Dual frequency EM(F-400)                            | 3) VLF-EM (kilocycle EM)              |
| 2) Proton magnetometer with stinger or wing tip sensor | 4) Spectrometer – Gamma Ray 4 Channel |

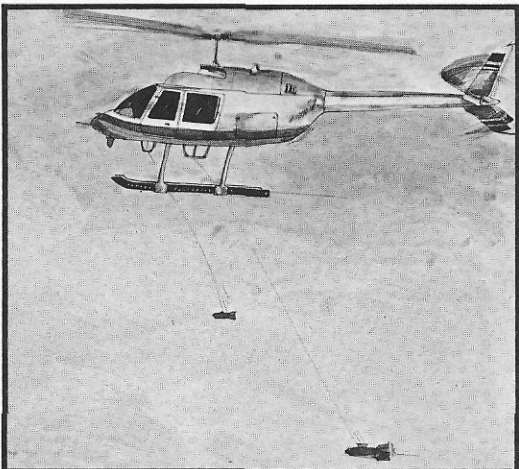


### BEECHCRAFT E50

One of best over all survey aircraft available. Supercharged Excalibur model offers fast ferry speeds, long range, improved slow flying (100 knot) and reserve power characteristics.

Equipment installed or available:

- |                                  |                           |
|----------------------------------|---------------------------|
| 1) High Sensitivity Magnetometer | 3) VLF-EM                 |
| 2) Gamma Ray Spectrometer        | 4) Full digital recording |

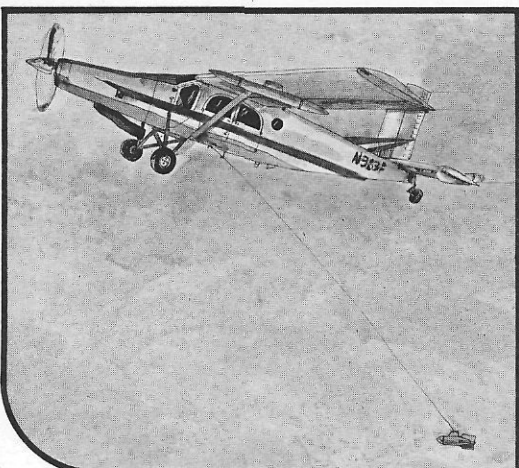


### HELICOPTER: BELL 206, FAIRCHILD F-1100 OR HIGHES 500

Specializing in detailed surveys in rugged terrain requiring high performance, beyond airplane limitations.

Equipment:

- |                            |                           |
|----------------------------|---------------------------|
| 1) F-400 dual frequency EM | 3) VLF-EM                 |
| 2) Proton Magnetometer     | 4) Gamma Ray Spectrometer |



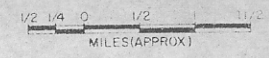
### HELIPORTER: FAIRCHILD-HILLER

Combines flying characteristics approaching those of a helicopter with fixed wing economy. This high performance STOL has flying speeds from 30 to 130 mph with over twice the endurance of a helicopter. Lands in 500 - 600 feet.

Equipment:

- |                                      |  |
|--------------------------------------|--|
| 1) Dual proton Gradiometer           | 4) Infra red Thermal mapper – Bendix LN3 |
| 2) Gamma Ray Spectrometer or F-400EM | 5) Color photography – 4 Types           |
| 3) Optional VLF-EM                   |  |

AIRPHOTO MOSAIC  
of  
KAMLOOPS - AFTON AREA

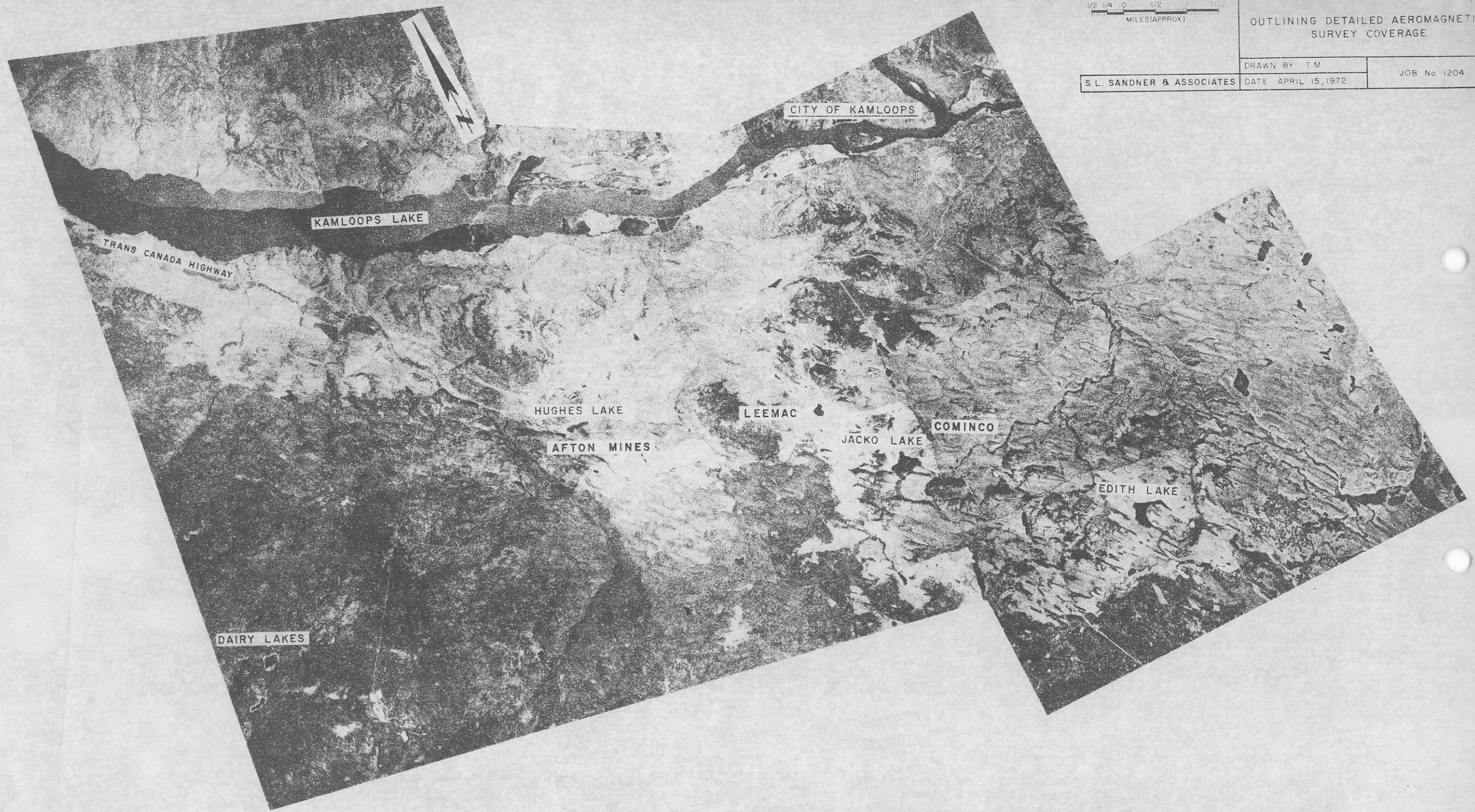


OUTLINING DETAILED AEROMAGNETIC  
SURVEY COVERAGE

DRAWN BY T.M.  
DATE APRIL 15, 1972

JOB No. 1204

S.L. SANDNER & ASSOCIATES



JGS → CCM → File  
com

CYPRUS EXPLORATION CORPORATION, LTD.

510 WEST HASTINGS STREET  
VANCOUVER 2, BRITISH COLUMBIA  
TELEPHONE: 683-9304

P. 10/13

March 13, 1970

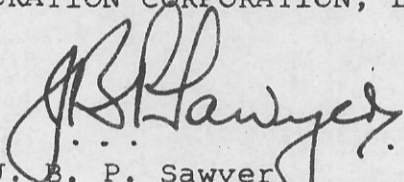
Dr. Stanley L. Sandner,  
President, Geo-X Surveys Ltd.,  
627 Hornby Street,  
VANCOUVER 1, B.C.

Dear Sir:

Enclosed please find a signed copy of the Agreement  
for Sale re Highland Valley Project data together with our  
cheque in the amount of \$500.00 as a deposit.

Yours very truly,

CYPRUS EXPLORATION CORPORATION, LTD.



J. B. P. Sawyer  
Manager - Canadian Exploration

JBPS/jel

Encl.

AGREEMENT FOR SALE

Re: Highland Valley Project

I/~~We~~ J.B.P. Sawyer, representing CYPRUS EXPLORATION CORP.  
(name) (company) LTD.

hereby place a firm order for one (1) set(s) of Highland Valley data, including: (Scale 1":1000')

- a) one only photomosaic
- b) one only total field aeromagnetic viewfoil (contour map)
- c) one only Potassium 40 viewfoil (contour map)
- d) one only general report on survey procedures.
- e) one only photomosaic white print showing flight lines if desired.

We understand that copies of the 35mm positioning photo negatives or transparent positives are available at reasonable copying costs. Also copies of the digitally recorded total field tapes and gamma ray spectrometry tapes are available at reasonable copying costs. Further detailed data evaluation over specific areas can be supplied by Geo-X Surveys upon request, at a price to be negotiated.

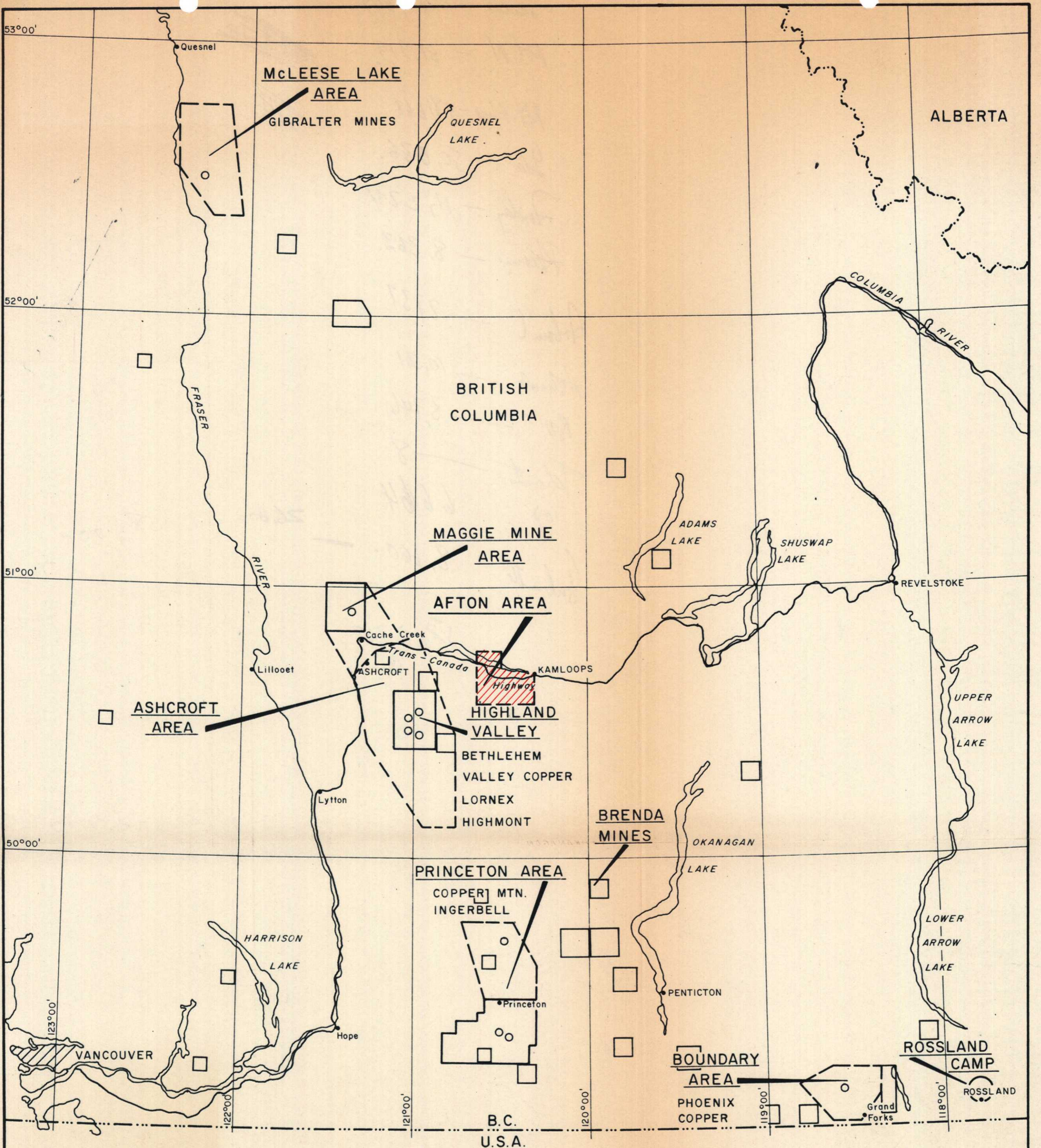
We understand and agree that the said data, items a,b,c,d and e above is proprietary and will not be copied or reproduced in part or in whole nor sold without written permission from Geo-X Surveys Ltd. until notice of the lifting of the proprietary rights is received.

We hereby enclose a five hundred dollar (\$500) deposit to obtain a priority number. The balance of one thousand (\$1,000, plus applicable taxes) shall be paid on receipt of the said data in a,b,c,d & e above, or satisfactory arrangements be made for the said balance.

Signed: Stanley L. Sandner  
Stanley L. Sandner,  
President  
  
Geo-X Surveys Ltd.  
627 Hornby Street  
Vancouver 1, B.C.

Signed: J.B.P. Sawyer  
(name)  
for Cyprus Exploration Corp. Ltd.  
(company)  
Manager - Canadian Explor.  
(position)  
510 W. Hastings St.  
(address)  
Vancouver 2, B.C.

Dated: March 12<sup>th</sup>, 1970



**LEGEND**  
 — COMPLETED  
 - - - PROPOSED

**LOCATION MAP**  
**DETAILED REGIONAL AEROMAGNETIC COVERAGE**  
**COMPLETED & PROPOSED**

SEPT 1971      SCALE : 1" = 20 MILES

