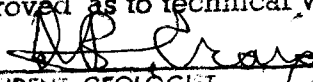
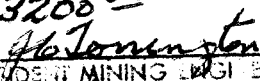
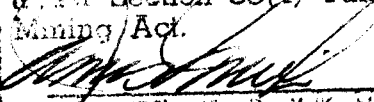


REPORT ON THE  
AIRBORNE GEOPHYSICAL SURVEY  
JAN AND MIKO MINERAL CLAIMS  
FRANCES LAKE AREA, Y.T.

\* \* \* \* \*

This report has been examined by  
the Geological Evaluation Unit.  
Approved as to technical worth by:  
  
RESIDENT GEOLOGIST  
Approved as to cost in the amount  
of: \$3200<sup>00</sup>  
  
RESIDENT MINING ENGINEER  
Accepted as representation work  
under Section 53(4) Yukon Quartz  
Mining Act.  
  
RESIDENT MINING ENGINEER

HYLAND RIVER MINES LTD. NPL  
Vancouver, B.C.

**HARVEY H. COHEN ENGINEERING LTD.**

CONSULTING ENGINEERS

TELEPHONE: BUS.: 684-6711  
RES.: 266-8169

1264 WEST PENDER STREET  
VANCOUVER 1, B. C.

November 27th, 1968

Hyland River Mines Ltd. NPL.  
202 - 543 Granville Street,  
Vancouver 2, B.C.

RE: JAN and MIKO Groups Mineral Claims  
Yukon Territories  
Airborne Geophysical Survey  
File:68-169

Dear Sirs;

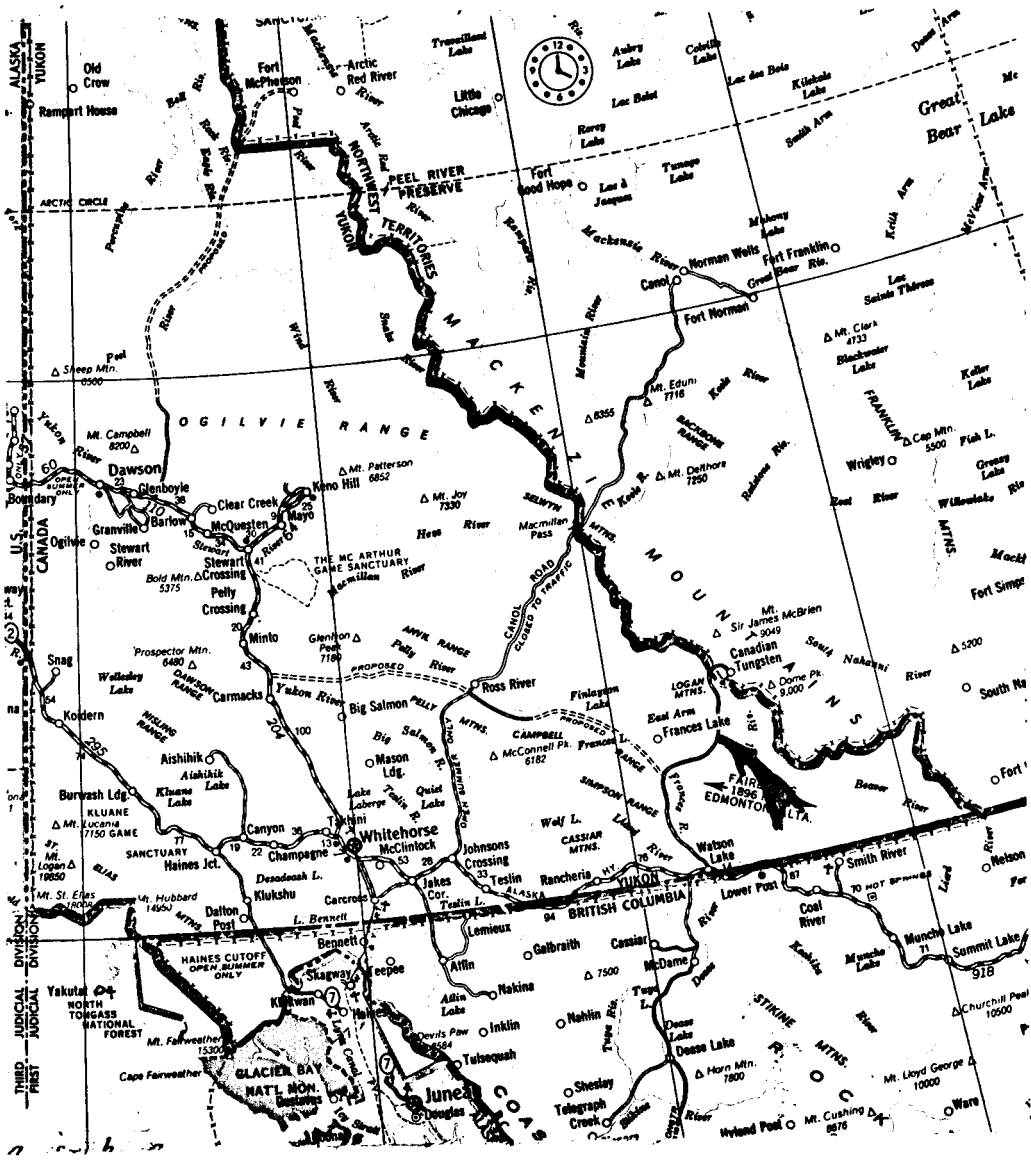
Pursuant to your instructions, the writer has conducted a combined airborne Geophysical Survey over the two groups of claims known as the JAN and MIKO held by your company in the Highland River Area of the Yukon Territories during the period October 24th to November 24th 1968 and submits herewith maps and report prepared on the results of the Magnetometer and Electromagnetic surveys.

Respectfully submitted,



HARVEY H. COHEN, P.ENG.

HHC/ip



KEY MAP SHOWING LOCATION OF FRANCES LAKE AREA, YUKON TER.

## TABLE OF CONTENTS

Introduction	1
Location and Access	1
Summary of Claims	3
Geophysical Investigations	4
Magnetometer Survey	4
Electromagnetic Survey	6
Radioactivity Survey	6
Procedure	7
Analysis of Results & Conclusions	8
Recommendations	12
Estimates	13

### List of Illustrations:

Key Map Showing Location of Frances Lake Area
Map Showing Flight Pattern - Area 1 Frances Lk.
Map Showing Flight Pattern- Area 2 Frances Lk.
Airborne Geophysical Survey Magnetometer
Jan 1-16 M.C.'s
Miko 1-16 M.C.'s
Airborne Geophysical Survey - Electromagnetic
Jan 1-16 M.C.'s
Miko 1-16 M.C.'s
Claim Location Jan Group
Claim Location Miko Group

REPORT ON THE  
AIRBORNE GEOPHYSICAL SURVEY  
JAN AND MIKO MINERAL CLAIMS  
FRANCES LAKE AREA, Y.T.

---

---

INTRODUCTION

LOCATION AND ACCESS:

The Hyland River Mines Ltd. properties, consisting of two groups of mineral claims, the JAN 1-16 and the MIKO 1-16 inclusive, are situated 36 and 28 miles respectively east of Frances Lake, Yukon Territories and approximately 75 miles north of Watson Lake, Y.T. along the Hyland River and the new Cantung Road. The JAN 1-16 Mineral Claims cover a relatively high mountainous region to the east of the Hyland River at elevations of 5000 to 6000 feet above sea level. The MIKO 1-16 Mineral Claims cover an area on the north slope of hills which form a valley of a tributary of the Hyland River. The latter flows southerly to join the Liard River to the southeast of Lower Post. The two groups are separated by a distance of 10 miles.

Access to the area is via the Cantung Road from Watson Lake to Mile 75 thence by new bush road to the claim area. Helicopter service from the base at Watson Lake requires approximately one hour flight directly to the property.

Watson Lake is the nearest supply centre, and it is serviced by daily scheduled airlines (CPA), bus line, and regular freight service. It is situated at Mile 635 on the Alaska Highway.

Geographically, the properties are located at:

JAN 1-16	Longitude: 128°15'W
	Latitude: 61°05'N

MIKO 1-16	Longitude: 128°30'W
	Latitude: 61°15'N

SUMMARY OF CLAIMS

<u>NAME</u>	<u>RECORD NO.</u>
JAN 1	Y2759
JAN 2	Y2760
JAN 3	Y2761
JAN 4	Y2762
JAN 5	Y2763
JAN 6	Y2764
JAN 7	Y2765
JAN 8	Y2766
JAN 9	Y2767
JAN 10	Y2768
JAN 11	Y2769
JAN 12	Y2770
JAN 13	Y2771
JAN 14	Y2772
JAN 15	Y2773
JAN 16	Y2774
MIKO 1	Y2719
MIKO 2	Y2720
MIKO 3	Y2721
MIKO 4	Y2722
MIKO 5	Y2723
MIKO 6	Y2724
MIKO 7	Y2725
MIKO 8	Y2726
MIKO 9	Y2727
MIKO 10	Y2728
MIKO 11	Y2729
MIKO 12	Y2730
MIKO 13	Y2731
MIKO 14	Y2732
MIKO 15	Y2733
MIKO 16	Y2734

(JAN 1-16 M.C.'s Area 1)  
(Miko 1-16 M.C.'s Area 2)

## GEOPHYSICAL INVESTIGATIONS

### MAGNETOMETER SURVEY:

The purpose of the Magnetometer Survey was to determine the existence of any magnetic anomalies on the property, and if so, what was their size, magnetic intensity, and probable cause. An anomaly would result from the presence or absence of any magnetic accessory minerals in the underlying rock formations in detectable quantity; the magnetic survey would differentiate between the volcanic, sedimentary and intrusive members and detect sulphides that are magnetic and that could possibly be associated with valuable minerals.

Using these factors as a guide, the Geophysical Survey was conducted over an area 16,000 feet by 5000 feet in order to adequately cover the property held by the company. A total of 66 line miles were recorded in this survey.

Factors which produce variations in the magnetic field are: -

1. A concentration of magnetic minerals possibly associated with valuable minerals.
2. A variation in amount of accessory mineral

magnetite in granitic, volcanic, or sedimentary bedrock.

3. A variation in amount of magnetite distributed through or connected with the overburden.
4. A variation in depth of non-magnetic overburden on caprock over bedrock having a constant vertical magnetic intensity.
5. Variation in amount of magnetic minerals in adjacent bands of volcanic and/or sedimentary rocks. These variations are not expected to be great, and they produce elongated highs and lows parallel to the strike of the formation.
6. Any combination between variations in magnetic minerals in the rock and variations in magnetic or non-magnetic overburden or caprock thickness.

It will be seen from the above factors that the geophysical survey employing a magnetometer, produces information that would assist in providing a structural picture as well as indicating and defining more favorable areas of greater geologic significance for further exploration.

Electromagnetic Survey:

The Electromagnetic Survey, conducted simultaneously with the Magnetometer Survey, measures the change in mutual impedance between a pair of coils as the impedance is affected by nearby conductors of electricity. The equipment employed transmits an electrical field through a 65 foot coil at a frequency of 1000 cycles per second. The coil is housed in a "bird" that is drawn by the aircraft, and records any fields produced by the transmitted field.

RADIOACTIVITY SURVEY:

The radioactivity was continuously measured employing a DR-229 Nucleometer constructed specifically for airborne work. It is a highly sensitive instrument of 24 tube construction. This survey system was employed to investigate any zones of radioactivity that may be caused by certain weathered products associated with mineralized zones.

## PROCEDURE

The two properties of Hyland River Mines Ltd., consisting of two 16 claim groups were covered by 66 line miles of survey. Due to the nature of the topography, flight lines over the JAN Group were flown at a true heading of  $001^{\circ}$ , while over the MIKO Group, the heading was set at  $294^{\circ}$ . This was done in order to best conform to the general contour of the ground and best maintain a near constant of 500 feet above ground.

The flight lines were flown at a spacing of 500 feet, at a speed of 113.7 miles per hour, and an elevation of 500 feet above surface.

Instrumentation was continuous, but readings were recorded by photography at preset intervals to record at 500 foot stations. Flight lines, 11 in number over each area, were flown 16,000 feet in length plus turning and reorienting distance. The flight pattern and grid lines were plotted in advance on topographic maps to a scale of  $1" = 4500$  feet (see key maps), and the flight was made during periods of extreme calm weather utilizing prominent landmarks as visual reference points for flight control.

The resulting readings and their coordinates were key punched and the data processed by a Univac 1108 computer. The enclosed maps are the results of this process.

## ANALYSIS OF RESULTS AND CONCLUSIONS

### MAGNETOMETER SURVEY: JAN GROUP

Three significant magnetic anomalies occur on the Jan 1-16 Mineral Claims, and they correspond to the general structural trend of the strata. The anomalies are located at:

1. Flight Line 7 North 15 1300 gamma
2. Flight Line 7 North 11 - 300 gamma
3. Flight Line 7 North 24 1500 gamma

The low magnetic intensity Anomay No.2 is probably due to an increased depth of overburden on the Jan 4 M.C. at the headwaters of a small creek flowing easterly to the Hyland River tributary. The high intensity anomalies are due to a magnetite content in the underlying rocks - particularly No.3 Anomaly which is shown to be highly conductive as well as magnetic. This zone measures 1300 feet in length by 300 feet in width and is located on the Jan 12 and Jan 14 mineral claims.

The series of magnetic differences outlined in part along Flight Line 11 are due to terrain and its effect of the transverse ridges and valleys with the accompanying variations in depth of overburden.

MAGNETOMETER SURVEY: MIKO GROUP

The Miko Group Mineral Claims, situated on the moderate north slope of a valley has revealed five significant magnetic anomalies at the following locations;

1. Flight Line 2 North 31
2. Flight Line 7 North 27
3. Flight Line 10 North 20
4. Flight Line 8 North 10
5. Flight Line 8 North 5

No.1 Anomaly is part of a cross-over system with a differential of 200 gamma between the positive and negative centres. The polarity lines up in a northwest-southeast direction and the zone measures 1000 feet by 500 feet. The intensity is that of magnetite content either as an accessory mineral in the underlying rocks or as a content in the overburden.

No.2 Anomaly at Flight Line 7 North 27 is a relatively large area measuring 2000 feet by 1000 feet. The 2000 gamma variation between the high and the low are indicative of magnetite content in the overburden on the moderate slopes where an increased thickness occurs towards the north.

No.3 Anomaly at Flight Line 10 North 20

measuring 1000 feet by 500 feet approximately, occurs on the Miko 11 mineral claim and is measured at plus 2000 gamma above background. The shape is indicative of a significant zone with possibilities of sulphide mineralization in the underlying rock in that, this anomaly corresponds to an electromagnetic anomaly of plus 9. The underlying rock is moderate to strong in conductivity and moderate in magnetic properties. The target is ideal for exploratory work.

No.4 Anomaly, circular in shape, measuring 500 feet in diameter with a magnetic intensity of 1400 gamma is centered at Flight Line 8 North 10 on the Miko 15 Mineral Claim. Again, an EM "high" of plus 8 was recorded at this location to produce possibilities of moderate conductivity with magnetic properties.

The No.5 Anomaly lies to the south of the Miko Group.

## ELECTROMAGNETIC

The Electromagnetic Survey recorded all forms of conductivity (electrical) in the subsurface of the Jan and Miko mineral claims. In a zone of sediments and slates, the highest conductivity expected would be due to graphite, followed by graphitic shears, massive sulphides, clay deposits, electrolyte filled shears; massive sulphides being one of a number of causes of high conductivity. Generally the range 0 to 3 is considered low and not too significant. From 4-7, moderate and caused by conductors that could possibly be sulphides or shear zones. Plus 8 on the EM is considered strong and indicative of good conductivity.

The anomalies and their size are listed here for completion and for target areas for further exploration.

	<u>FLIGHT LINE</u>	<u>NORTH OF BASE</u>	<u>SIZE</u>	<u>INTENSITY</u>
JAN GROUP:				
	7	30	500 ft. diam.	moderate
	7	25	1000' x 200'	moderate
	5	19	500 ft. diam.	moderate
	4	10	1000 x 500'	strong
	5	5	500 ft. diam.	strong
MIKO GROUP:				
	6	22	500 ft. diam.	strong
	8	22	500 ft. diam.	strong
	7	18	500 ft. diam.	strong

## RECOMMENDATIONS

Employ a bulldozer, a D-7 or equivalent to provide access roads to the properties from the Cantung Highway, and utilize this equipment to cut trenches in the overburden to expose bedrock on the anomalous zones for further geologic study. A gas operated rock drill may be used in conjunction with the bulldozer to drill and blast fresh cuts for mapping and sampling.

Conduct a geologic reconnaissance and mapping of the area plotting the results on a scale of 500 ft. to 1 in.

Diamond drilling would follow to test at depth those zones exposed by stripping and trenching that reveal mineralization of geologic or economic significance.

A second phase of exploratory work would consist of diamond drilling any or all anomalies that expose mineralization during the initial phase of work. The program would be detailed subsequently, and would be based on results of Phase 1.

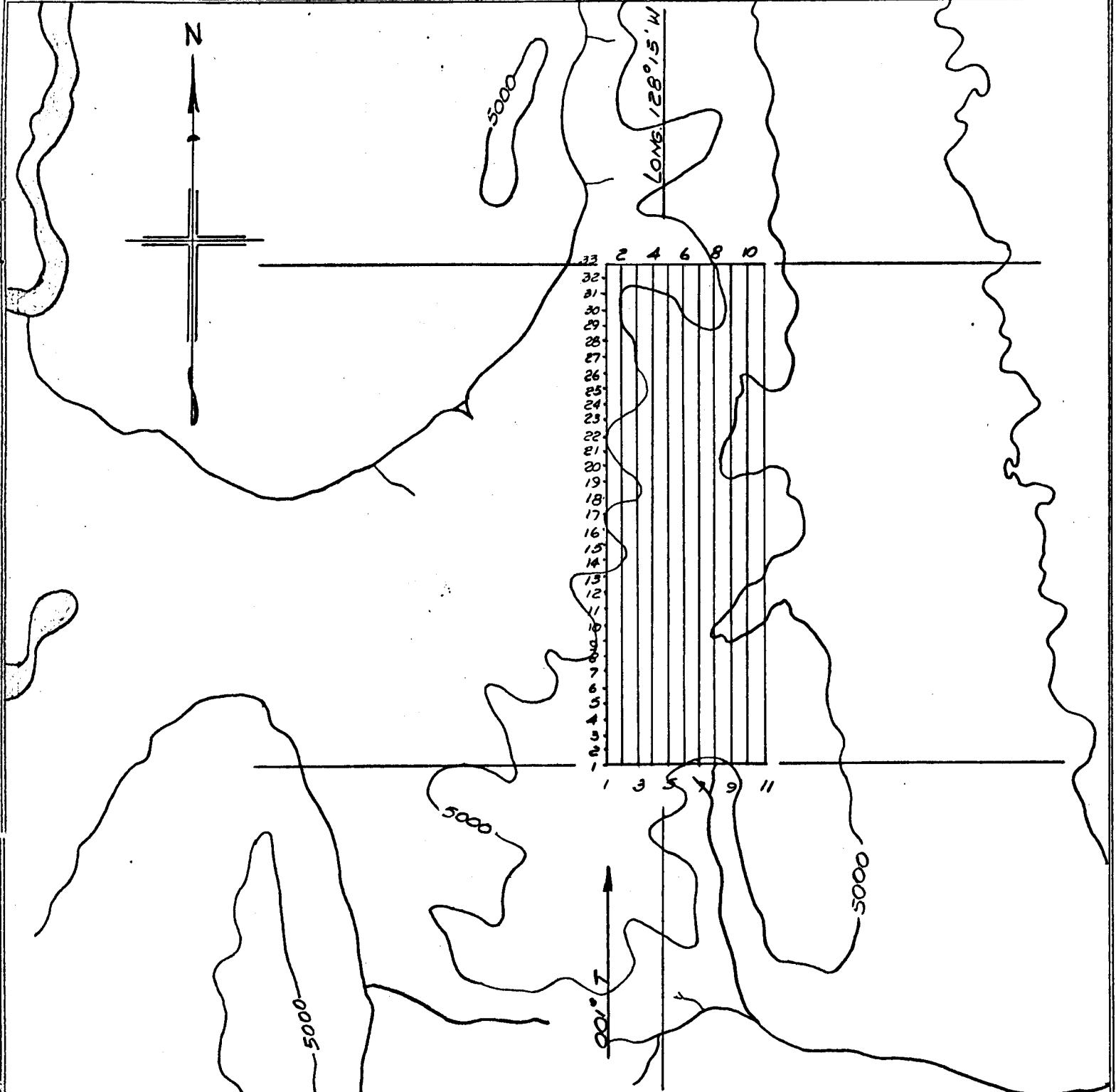
ESTIMATES

Phase 1:

Trenching, stripping, access roads, bulldozer	\$6000.00
Drilling & blasting cuts	2000.00
Geologic mapping and reconnaissance	3000.00
Transportation, camp, supplies	4000.00
Supervision & engineering	3000.00
Diamond drilling 1000 feet	9000.00
Misc. and contingencies	<u>3000.00</u>
 Total Phase 1	 \$30000.00

This does not include any management, legal, office overhead expense of the company.

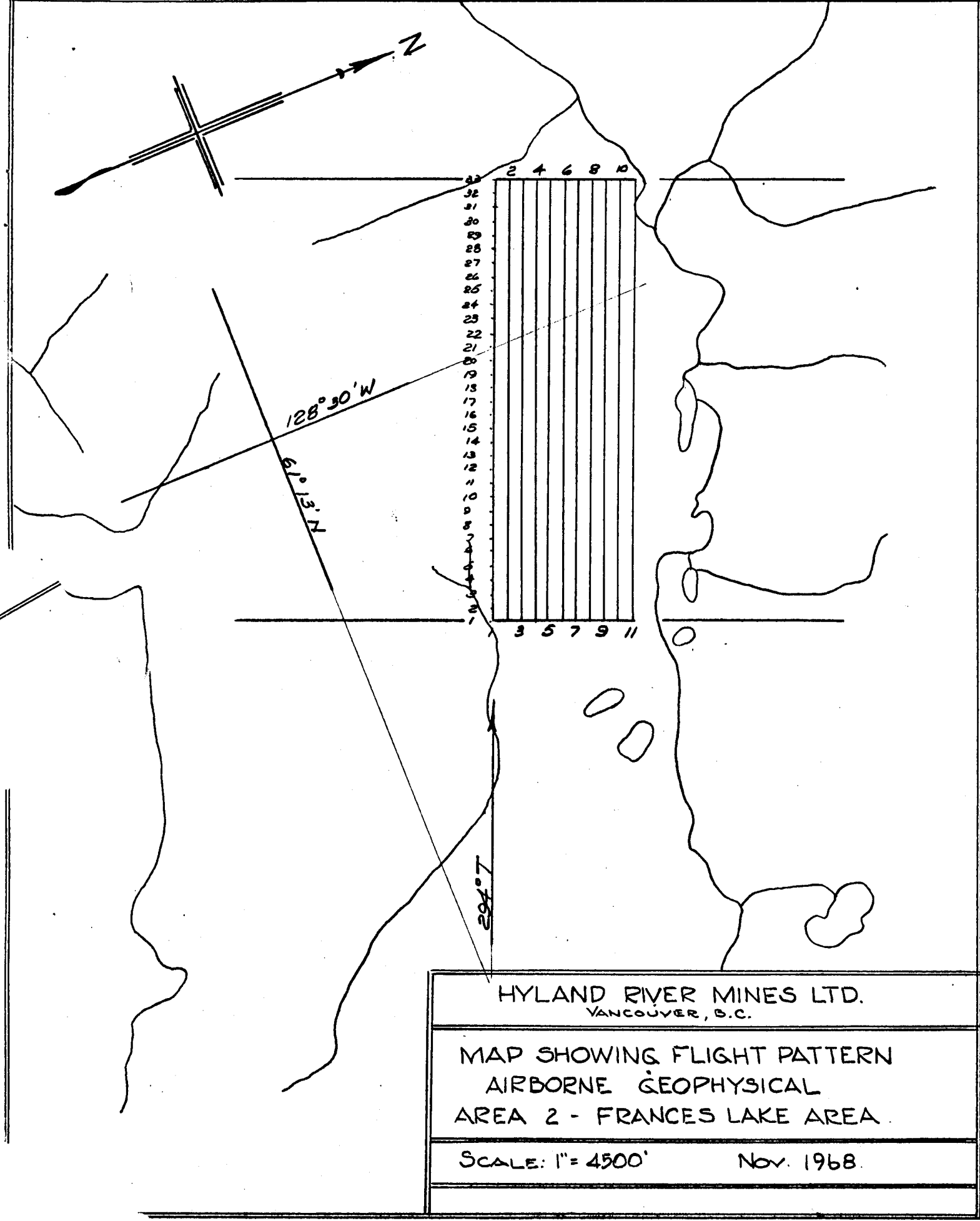
The time required to complete Phase 1 is estimated to be 3 months.



HYLAND RIVER MINES LTD.  
VANCOUVER, B.C.

MAP SHOWING FLIGHT PATTERN  
AIRBORNE GEOPHYSICAL  
AREA 1 - FRANCES LAKE AREA

SCALE : 1" = 4500'      Nov. 1968



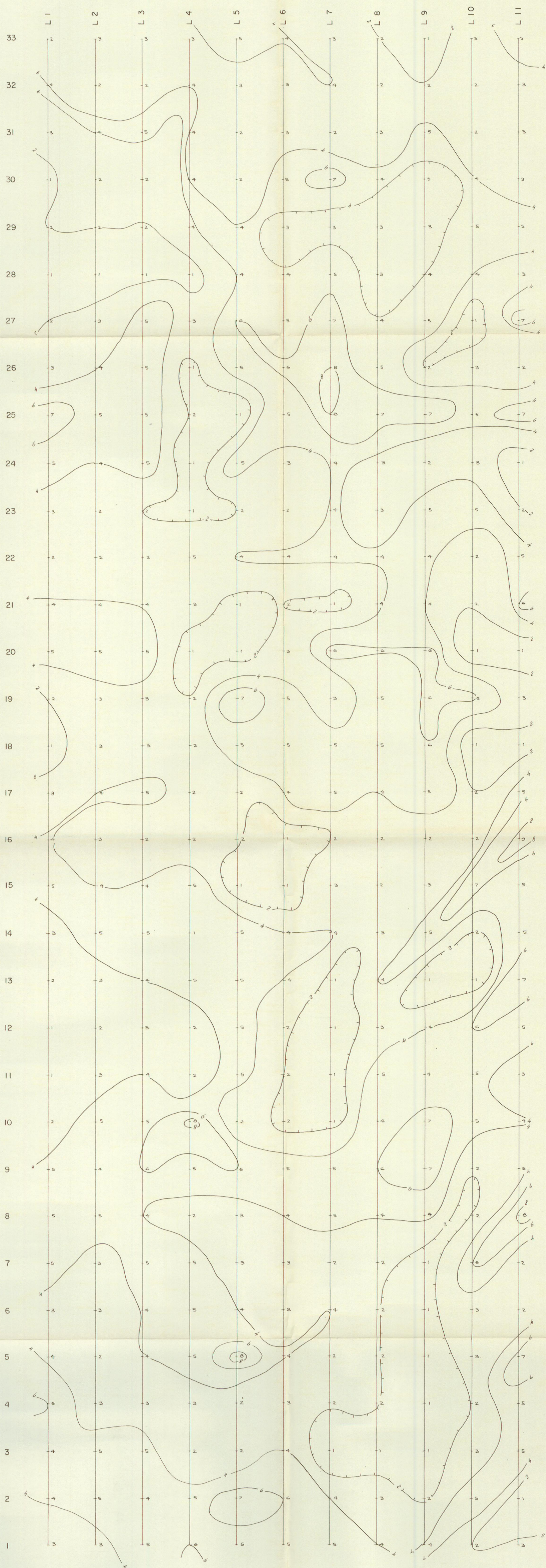
HYLAND RIVER MINES LTD.  
VANCOUVER, B.C.

MAP SHOWING FLIGHT PATTERN  
AIRBORNE GEOPHYSICAL  
AREA 2 - FRANCES LAKE AREA.

SCALE: 1" = 4500'

Nov. 1968.

GRID LINES AT 500' SPACING



FLIGHT LINES AT 500' SPACING

**LEGEND**

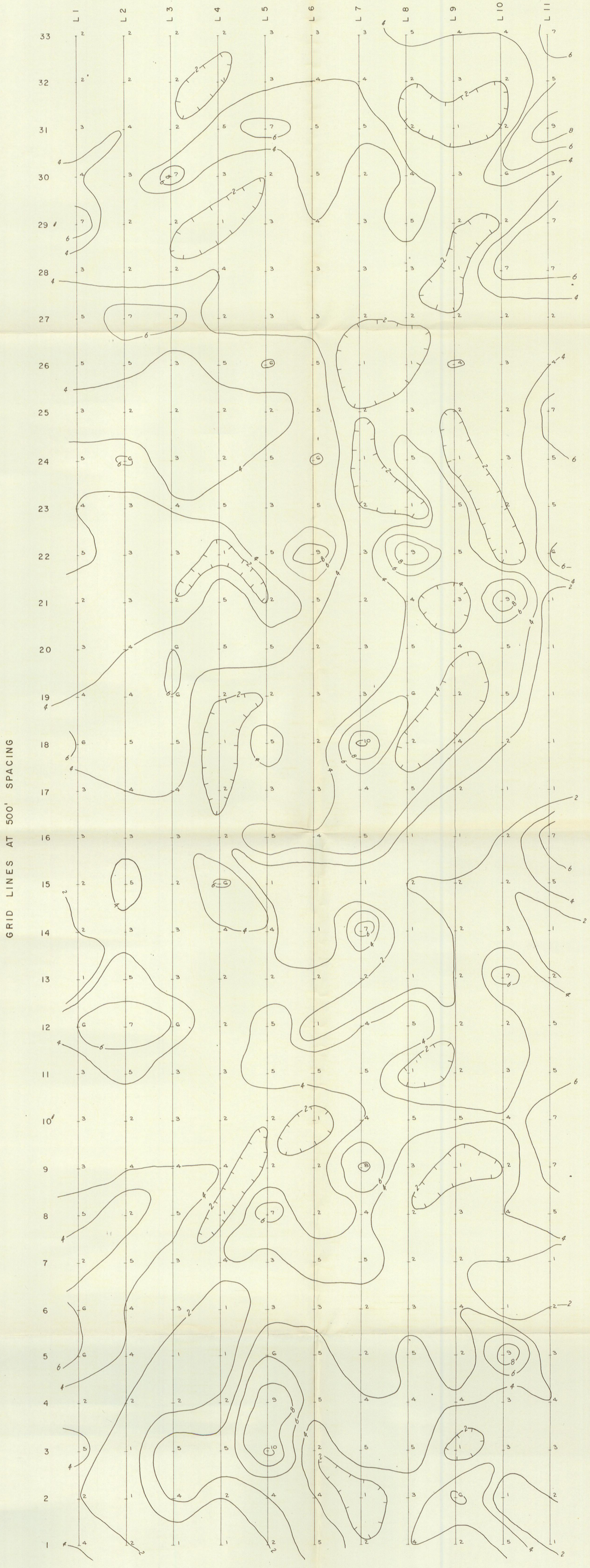
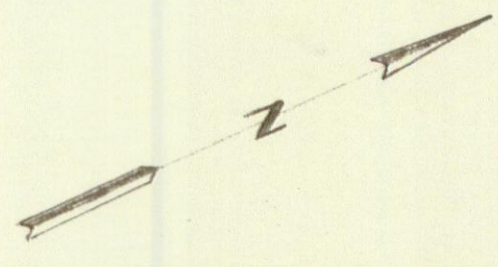
- FLIGHT LINE
- VALUE IN 10 AMP UNITS
- CONTOUR INTERVAL 20 AMP'S

HYLAND RIVER MINES LTD. (N.P.L.)  
VANCOUVER, B.C.

AIRBORNE GEOPHYSICAL SURVEY  
ELECTROMAGNETIC  
JAN. 1-16 M.C.'S  
FRANCES LAKE AREA, YUKON TERRITORY

500 0 500 1000  
SCALE: 1" = 500' NOVEMBER, 1968

HARVEY COHEN ENGINEERING LTD.



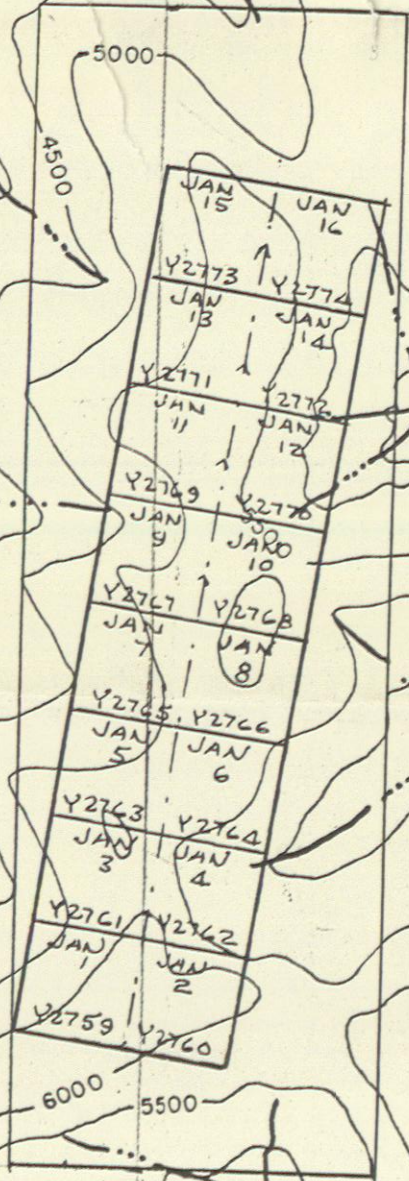
GRID LINES AT 500' SPACING

FLIGHT LINES AT 500' SPACING

**LEGEND**

- FLIGHT LINE
- VALUE IN 10 AMP UNITS
- CONTOUR INTERVAL 20 AMP'S

HYLAND RIVER MINES LTD. (N.P.L.) VANCOUVER, B.C.	
AIRBORNE GEOPHYSICAL SURVEY ELECTROMAGNETIC MIKO 1-16 MC'S	
FRANCES LAKE AREA, YUKON TERRITORY	
500 0 500 1000 SCALE: 1" = 500'	
NOVEMBER, 1968	
HARVEY COHEN ENGINEERING LTD.	



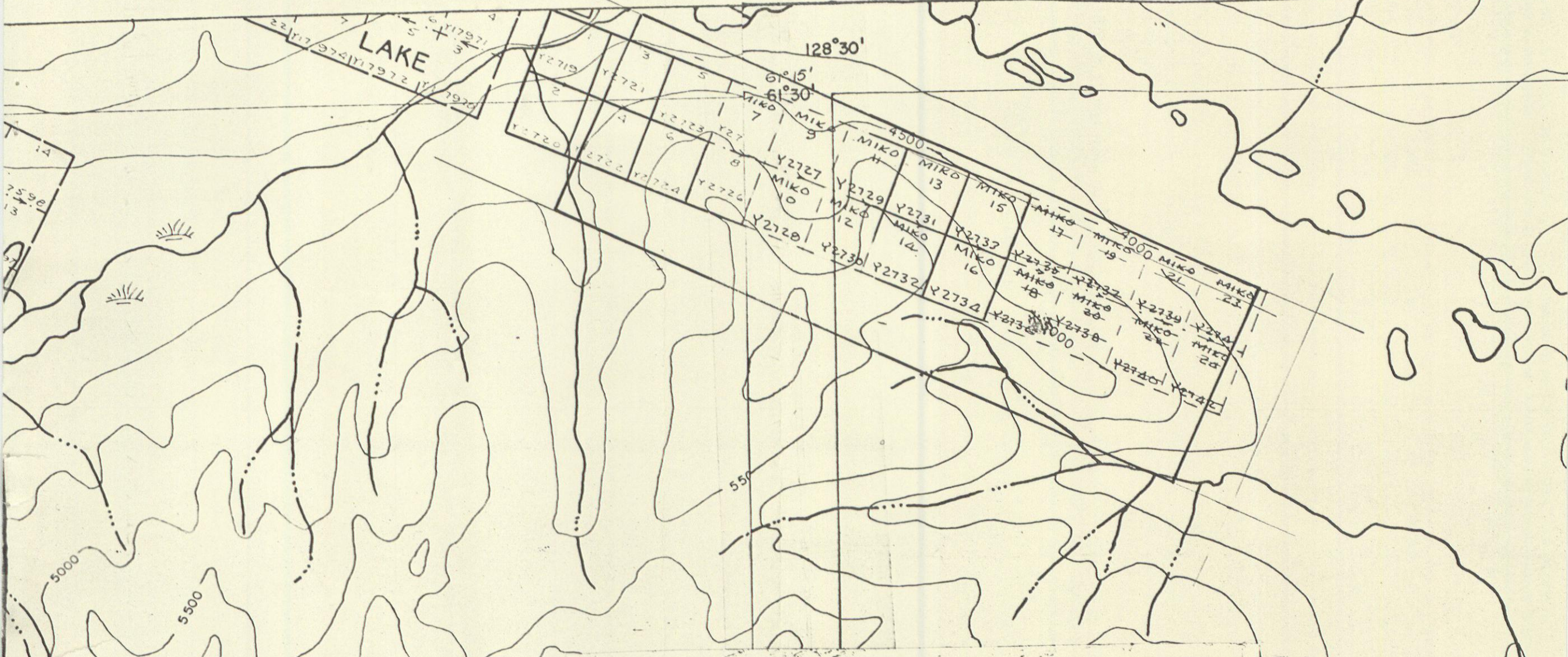
HYLAND RIVER MINES LTD. NPL  
 VANCOUVER, B.C.

---

MAP SHOWING CLAIM LOCATION OF  
JAN GROUP  
 FRANCES LAKE, YUKON TERRITORIES

---

SCALE: 1" = 1/2 MILE DEC. 1968



HYLAND RIVER MINES LTD. NPL  
 VANCOUVER, B.C.

MAP SHOWING CLAIM LOCATION OF  
MIKO GROUP  
 FRANCES LAKE, YUKON TERRITORIES.

SCALE: 1" = 1/2 MILE DEC. 1968.