

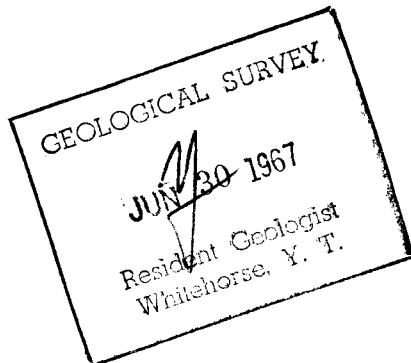
GEOPHYSICAL EXPLORATION

OF

THE BATA AND BOB GROUP OF MINERAL CLAIMS

Located on Claim Map No.105L-10

62° 40' N. - 134° 45' W.



By

R.A. Granger

This report has been examined by the Geological Evaluation Unit. Approved as to technical worth by:

*O. J. Finlay*  
RESIDENT, WHITEHORSE

Approved as to cost in the amount of \$ 11322.50

*A. E. Redden*  
RESIDENT, WHITEHORSE

Supervised by

Accepted as representation work under Section 22(4) Yukon Quartz Mining Act

*Albert F. Reeve*  
Administrator

Albert F. Reeve, P. Eng.,  
Geological Engineer  
Vancouver, B.C.

December 1966 to April 1967

## TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
WORK DONE	2
PROPERTY	3
LOCATION	4
ACCESS	4
TOPOGRAPHY	4
REGIONAL GEOLOGY	5
Table of Formations	5
LOCAL GEOLOGY	6
GEOPHYSICS	7
Method	7
A. Magnetic Survey	7
B. Electro Magnetic Survey	8
RESULTS	10
CONCLUSIONS	11
RECOMMENDATIONS	12

Table of Contents (cont'd.)

APPENDIX

A. Cost of Geophysical

Investigations BATA and BOB claims

1966-1967

B. Certificate of Supervising Engineer

MAPS

Fig. 1 Key Plan (location)

Fig. 1A Orientation Diagram, etc.

Fig. 2 Magnetic Survey Map, etc.

Fig. 3 Electro Magnetic, etc.

## INTRODUCTION

This report is based on a program of geophysical investigations carried out by General Enterprises Ltd. on a group of 64 claims in the Detour Lakes area of the Yukon Territory in 1966 and 1967. It has been compiled and written by R.A. Granger under the general supervision of Albert F. Reeve, P. Eng., geological engineer. It is submitted to the Mining Recorder of the Whitehorse Mining District to satisfy assessment work requirements on the claims stipulated for periods varying between one and two years as applied for. A set of geophysical maps is enclosed in the back cover and a certificate of the supervising engineer's qualifications is included in the appendix.

This work was carried out during the period of December, 1966 to April 13, 1967 by the following persons:

- |                    |   |
|--------------------|---|
| - Granger, R.A.    | - Geophysical Contractor,<br>400, 837 W. Hastings St.<br>Vancouver 1, B. C. |
| - Hay, R.G., B.Sc. | - Geologist,<br>Box 2378, Whitehorse.                                       |
| - Saunders, N.L.   | - Technician,<br>Box 2378, Whitehorse.                                      |
| - Babb, Herbert    | - Line Cutting Contractor,<br>Box 2378, Whitehorse.                         |

WORK DONE

## 1. Line cutting and surveying

- a) 40.5 miles of picket line (including base lines and tie lines) was cut and chained.
- b) All claim posts within this area were tied to points on the grid line.
- c) Claim tags were affixed to the proper claim posts.

## 2. Geophysics

- a) Magnetic Survey - 43 miles of magnetic observations were taken at 100' intervals on lines 400' apart.
- b) Electromagnetic Survey - 38 miles of electromagnetic observations were taken at 100' intervals in lines 400' apart.

PROPERTY

<u>Claim Name</u>	<u>Number</u>	<u>Record Date</u>
Bata 25 to 56 incl.	Y4633 to Y4664	April 15, 1966
Bob 1 to 16 incl.	Y12133 to Y12148	
Bob 17 to 24 incl.	Y12231 to Y12238	
Bob 25 to 32 incl.	Y12379 to Y12386	

Total Number of Claims: 64

All of the above claims are held on behalf of

General Enterprises Ltd.,  
Whitehorse, Yukon.

These claims have been grouped and applications have been made for Certificates of Work, Form C, Section 53.

LOCATION

The claims are located south of the Pelly River and north of Detour Lakes about ninety miles downstream from the town of Ross River. Co-ordinates are approximately  $62^{\circ} 40'$  N. latitude and  $134^{\circ} 45'$  W. longitude. Elevations are between 2000' and 3600' A.S.L. The claims occupy a broad bend in the Pelly River known as The Detour.

ACCESS

During the period of these surveys access was only by small aircraft but a tote road is presently being constructed to the property by the owners. This road in general follows the south bank of the Pelly about four miles removed. It begins at the Mayo Road near the town of Pelly Crossing and reaches into the property after a traversed distance of about sixty miles.

TOPOGRAPHY

The northeast portion of this group covers a broad flat but the southwest portion covers the flank of a small mountain which rises abruptly from the valley bottom.

The Detour Lakes to the southwest occupy low spots in a valley which marks the location of the Tintina Fault.

### REGIONAL GEOLOGY

The geology of the surrounding region is described on G.S.C. Map 25-1960 - "Glenlyon".

The structural and stratigraphic relationships of the various rock units are described as follows:

#### Table of Formations

Quaternary	- Unconsolidated glacial and alluvial deposits - unconformity
Jurassic, Cretaceous or earlier	- Acidic intrusive rocks of batholithic characteristics; monzonite, diorite, granodiorite, etc. Some minor mafic dikes. - intrusive contact
Mississippian	- Clastic sediments, basic flows, phyllite, limestone, carbonaceous shale. Unit 19.  This group corresponds to Unit 7 on the "Tay River" sheet which hosts the Pb, Zn deposits at Faro, Vangorda and Swim lakes.
Devonian, Silurian, Ordovician	- Quartzite; shale, argillite, limestone, rhyolitic tuff and flows.

## LOCAL GEOLOGY

### Table of Formations

1. Volcanic Sequence; andesitic and basaltic flows, some pyroclastic material.
2. Meta sediments - quartz mica schists, phyllite, probably some carbonaceous shale.

### Structural

1. It is possible that the mountain (volcanic rocks) represents an anticlinal fold. During the surveys snow depths were too great to allow proper observation.

2. Two outcrops of meta sedimentary rocks were observed on the flats. These exhibited much crumpling due to drag folding and were cut by numerous small to medium sized quartz veins. Dips were moderately northeast.

### Mineralization

Initial prospecting disclosed many occurrences of weak chalcopyrite mineralization often associated with shearing. These were not economic but are important as points of reference in detailed prospecting.

Conwest and Glenlyon Mines Ltd. are carrying out programs on adjoining properties on mineralization of associated origin.

GEOPHYSICSMethod

A. A Sharpe MF-1 fluxgate magnetometer was used to observe the vertical component of the total magnetic field.

An arbitrary instrument datum of about 400 gammas was chosen after making a trial reconnaissance traverse over an area known to be underlain by quartz mica schist. The latitude of the instrument was then mechanically adjusted to the datum. Magnetic observations were then taken at 100' intervals on grid lines 400' apart.

The magnetic data was corrected for diurnal and daily variations with respect to time, by referring to a system of base stations. Corrections were made to the nearest ten gammas.

Sample Calculation

<u>Station</u>	<u>Reading</u>	<u>Diurnal Correction</u>	<u>Daily Correction</u>	<u>Result</u>	<u>Time</u>
base	280	+ 0	- 40	240	2:00 p.m.
1	300	+ 0	- 40	260	
2	350	+ 10	- 40	320	
3	370	+ 10	- 40	320	
4	410	+ 20	- 40	390	
5	390	+ 20	- 40	370	
6	340	+ 30	- 40	330	
base	250	+ 30	- 40	240	2:30 p.m.

The corrected magnetic results were plotted and contoured on a 1" = 400' plan (See Fig. 2).

## GEOPHYSICS

### B. Electro Magnetic Survey

Sharpe SE 300 electro magnetic survey equipment was used to make EM observations at 100' intervals on lines 400' apart.

This equipment consists of two identical units, each having a coil capable of transmitting and receiving oscillating electro-magnetic field signals of 400 c.p.s. and 1600 c.p.s.

There are several ways (or configurations) in which the two units can be used to produce useful EM data.

In this case a reconnaissance method known as the "broadside" configuration was employed. This method is illustrated on Fig. 1A. Operator B generates a cyclic electro-magnetic field signal with the transmitting coil. Operator A receives this signal and "nulls" it by tilting the receiver coil. If there are no conductors, such as sulphide bodies, graphite zones, or confined ionic waters, in the near vicinity of the operators, the angle of tilt of the receiving coil will be near  $0^{\circ}$ . However, if such a conducting body is cut by the varying magnetic component field of the transmitter, electrical currents will be produced which in turn will set up a secondary electro-magnetic field of like frequency. When this occurs the resultant of

GEOPHYSICSB. Electro Magnetic Survey (cont'd.)

the original and secondary fields will cause the receiver coil to null at anomalous  $\pm$  tilt angles.

In the broadside method the operators traverse in parallel directions, successively occupying directly opposite stations. At each station operator B transmits and A receives, then the procedure is reversed.

Tilt angles are recorded and plotted at the receiving station. In this way two lines of data are received on a single traverse. Anomalous results indicating a conductor consist of a series of high positive tilt angles followed by a "crossover" and a group of negative angles.

Tilt angles in this case were plotted directly and did not require mathematical reduction. The 1600 c.p.s. frequency was used for this work.

Tilt angle profiles are shown on Fig. 3, 1" = 400' scale electromagnetic survey plan.

## RESULTS

The magnetic survey indicates geologic trends parallel to the strike of the Tintina Fault and known geology.

A belt of weak magnetic lows traversing the property in a northwesterly direction probably indicates a strong fault with a good deal of shearing and wall rock alteration.

Southwesterly of this postulated fault and in the southeasterly portion of the property there is a series of weak to moderate magnetic highs varying from 100 gammas to 200 gammas above background.

Further to the southwest and on the steep flank of the mountain there is a strong magnetic anomaly <sup>of</sup> ~~of~~ series of anomalies. As this area is complex and coverage is incomplete due to ground conditions, further work is necessary before results can be stated in full.

The electromagnetic survey indicates two types of conductors, as follows:

a) Weak to strong conductors closely associated with magnetic highs.

b) Conductors not associated with magnetic highs and tending to be continuous over great distances.

CONCLUSIONS

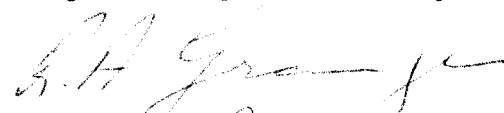
1. The strong magnetic high and associated conductor A-1 is interpreted to represent lenses of material with disseminated to heavy pyrrhotite associated with massive sulphides or carbonaceous material. These features will be found very close to surface.
2. The moderate magnetic highs with erratically associated conductors could represent weakly disseminated pyrrhotite or magnetite in (a) zones of moderate sulphide in erratic veins and disseminations, or (b) zones of carbonaceous material. These are well covered by overburden.
3. The long conductors similar to A-5, A-6 and without magnetic association are probably beds of graphitic material.

RECOMMENDATIONS

It is recommended that the following steps be followed in further evaluating results to date:

1. While the bulldozers are available it would be advisable to attempt to strip down to bedrock over the more pronounced anomalous areas. If more than ten feet of overburden is encountered on any such anomaly further work should await more detailed surveys.
2. Make detailed EM surveys using different configurations over selected anomalies.
3. Take soil samples over these areas and analyse them quantitatively for copper and zinc.

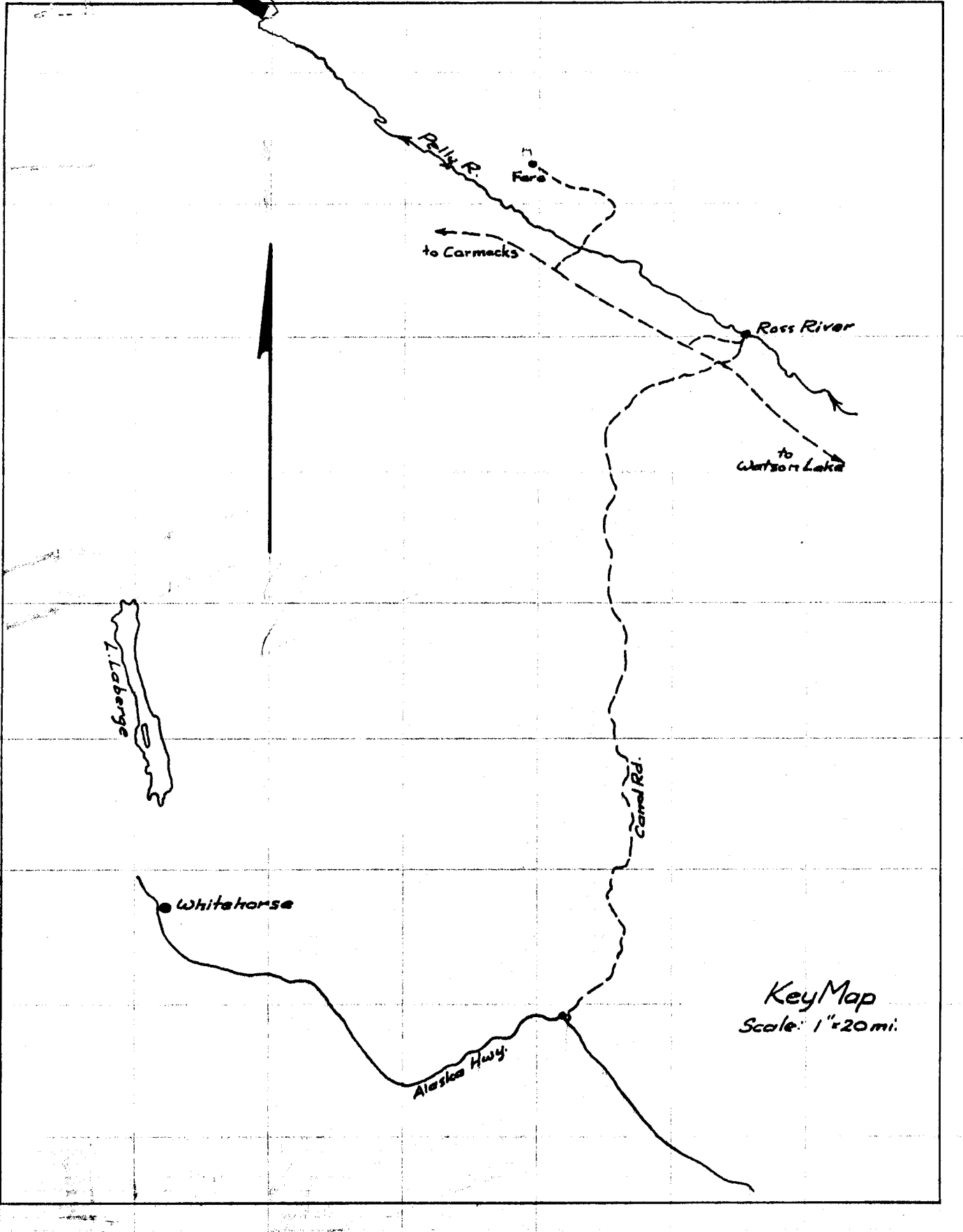
Respectfully submitted,



R. A. Granger



Albert F. Reeve, P. Eng.,  
Geological Engineer



Pelly R.

Faro

to Carmacks

Ross River

to Watson Lake

I. Laberge

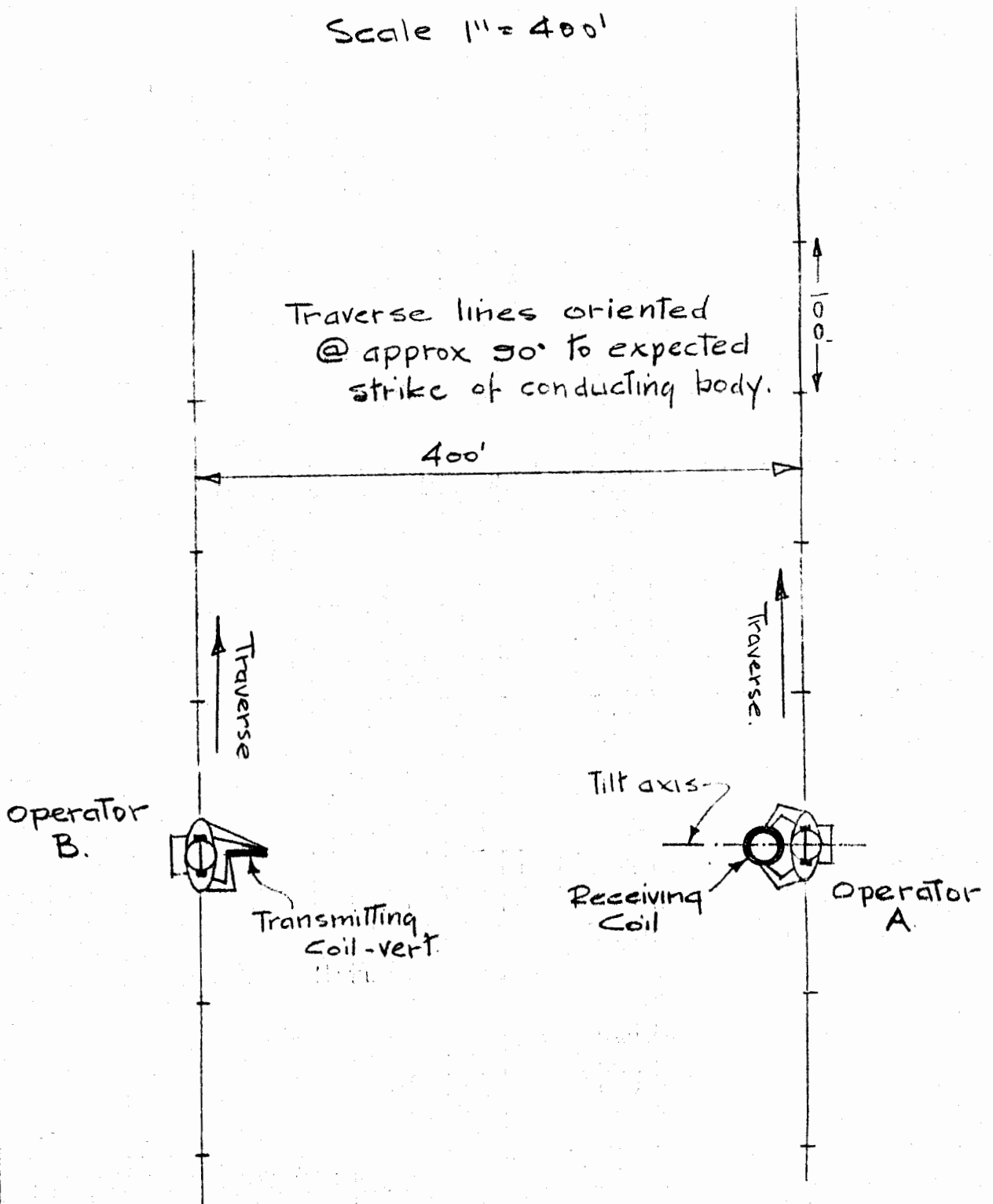
Whitehorse

Canal Rd.

Alaska Hwy.

Key Map  
Scale: 1" = 20 mi.

Fig 1-A  
ORIENTATION DIAGRAM  
for  
SHARPE SE-300 E.M. EQUIPMENT  
"BROADSIDE" RECON. METHOD  
Scale 1" = 400'



COST OF GEOPHYSICAL INVESTIGATIONS

BATA AND BOB CLAIMS

1966-1967

1.	Linecutting (contracted) 40.5 mi. @ \$75	\$ 3,037.50
2.	Magnetic Survey (contracted) 43 mi. @ \$50	2,150.00
3.	E.M. Survey (contracted) 38 mi. @ \$50	1,900.00
4.	Camp maintenance and supplies 274 man days @ \$5.00	1,370.00
5.	Transportation Super Cub, Robt. Grant	<u>2,865.00</u>
	Total Cost of Surveys	\$ 11,322.50

This work has been applied for and distributed.

*2000*

*11-0-000*

**ALBERT F. REEVE, P.ENG.**

**GEOLOGICAL ENGINEER**

400 - 837 West Hastings Street, Vancouver 1, B.C.

ASSOCIATE

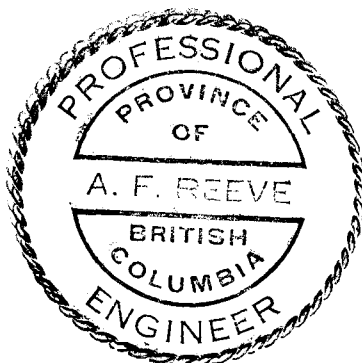
RONALD A. GRANGER

Phone 685-0167

CERTIFICATE

I, Albert F. Reeve, of Vancouver, B. C. hereby certify that:

1. I am a geological engineer residing at 2557 West 3rd Avenue, with an office at 400, 837 West Hastings Street.
2. I am a graduate of the Provincial Institute of Mining, at Haileybury, Ontario, 1958; and received a Bachelor of Science degree from Michigan College of Mining & Technology, at Houghton, Michigan, in 1961.
3. I am a certified member of the Associations of Professional Engineers in the provinces of Ontario and British Columbia.
4. I supervised the work described in this report, on the Bata and Bob Claims. I have examined the results given in the enclosed geophysical survey and find that they have been properly executed and described.

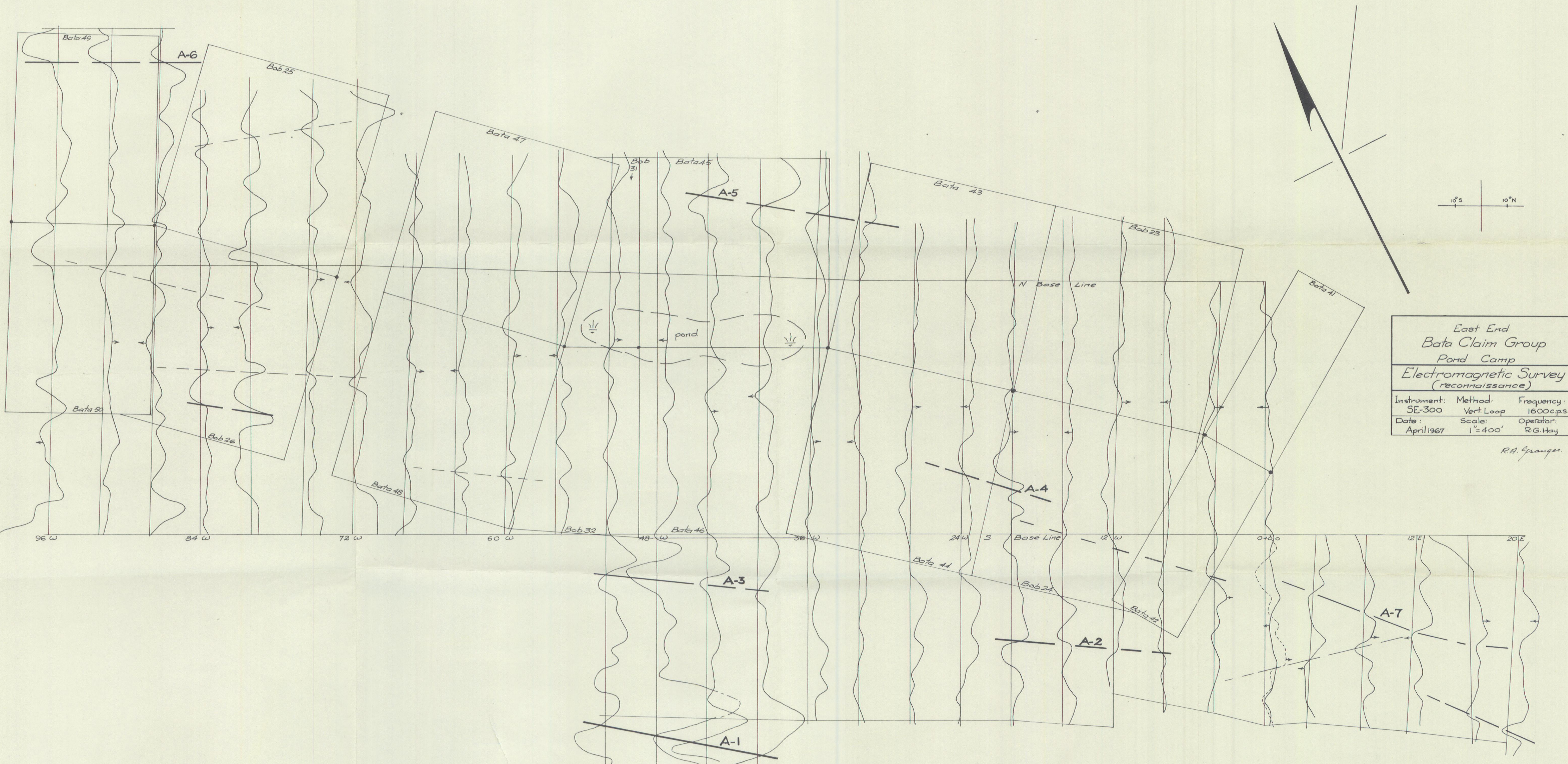


Respectfully submitted,

A handwritten signature in black ink, appearing to read "A. F. Reeve".

Albert F. Reeve, P. Eng.,  
Geological Engineer

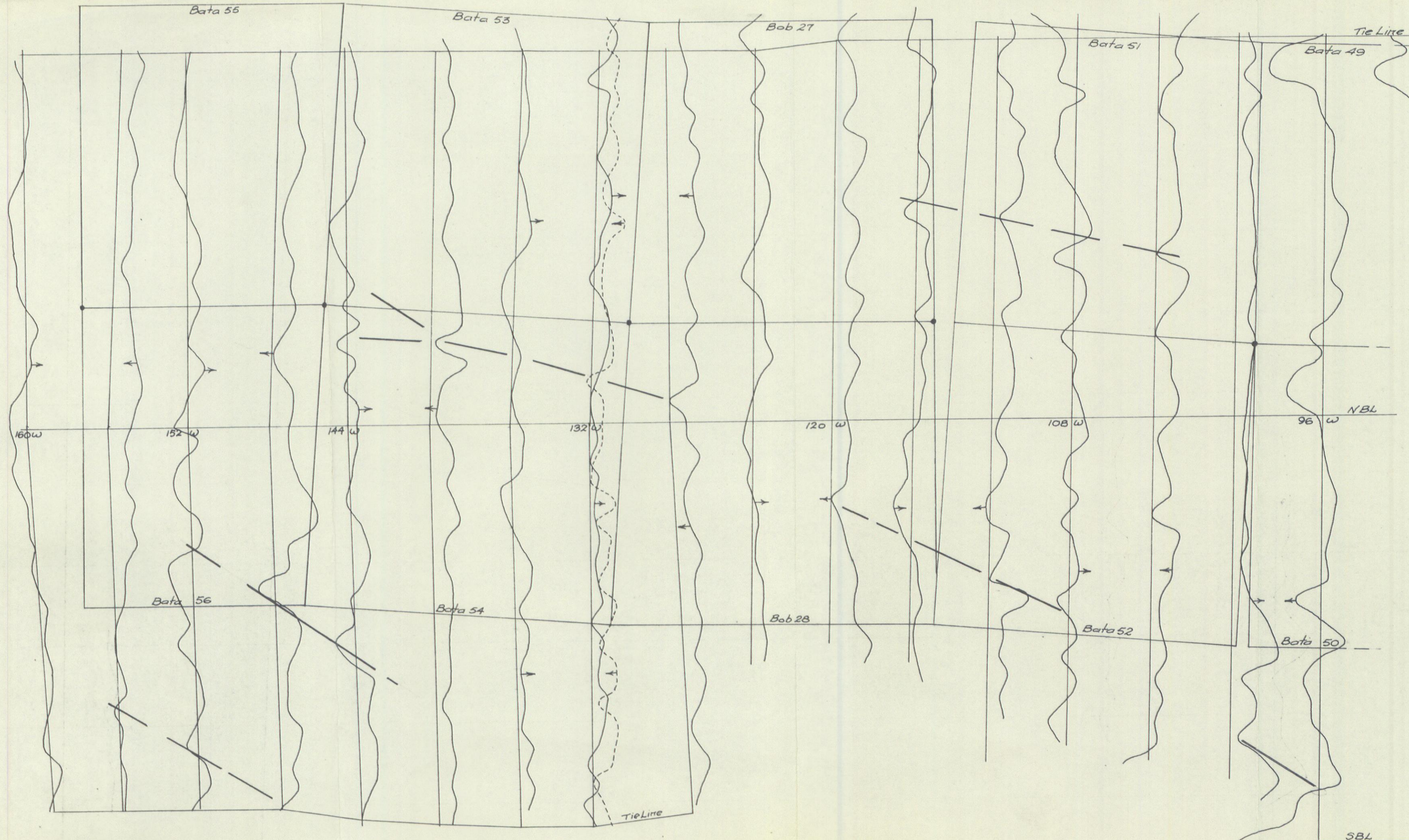
April, 1967.



East End  
Bata Claim Group  
Pond Camp  
Electromagnetic Survey  
(reconnaissance)

Instrument:	Method:	Frequency:
SE-300	Vert. Loop	1600c.p.s.
Date:	Scale:	Operator:
April 1967	1" = 400'	R.G. Hay

R.A. Granger.



West End Bata Claim Group Pond Camp		
Electromagnetic Survey (reconnaissance)		
Instrument: SE-300	Method: Vert Loop	Frequency: 1600 c.p.s.
Date: April 1967	Scale: 1" = 400'	Operator: R.G. Hay

*R.A. Ganger*