

GEOPHYSICAL EXPLORATION

OF

THE PEL GROUP OF MINERAL CLAIMS



Located on Claim Map No. 105K-3

at

62° 15' N. - 133° 25' W.



by

R.A. Granger

Supervised by

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

This report has been examined by
the Geological Evaluation Unit
and approved as to technical worth by

R. S. Granger
RESIDENT GEOLOGIST

Approved as to cost in the amount
of \$ 7,105.03

R. S. Granger
RESIDENT MINING ENGINEER

Accepted as representation work
under Section 53(4) of the
Mining Act.

Anna Smith
COMMISSIONER OF GEOPHYSICS

June to August, 1967

INTRODUCTION

This report is based on a program of geophysical investigations carried out by Western Flintstone Mines Ltd. and Fantan Mines Ltd., jointly, on a group of 53 claims in the Vangorda Creek area of the Yukon Territory in 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 a period of at least one year. 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 on during the period of June to August, 1967 by the following persons:

- | | | |
|------------------|---|--|
| - Granger, R.A. | - | Geophysical Contractor,
Box 2378,
Whitehorse, Yukon. |
| - Babb, W. | - | Geophysical Technician,
c/o R.A. Granger |
| - Saunders, L.N. | - | Geophysical Technician,
c/o R.A. Granger |

WORK DONEGeophysical Surveys

- a) Magnetic Survey - 62.2 miles of magnetic observations were taken at 100' intervals on lines 400' apart.

- b) Electromagnetic Survey - 52.1 miles of electromagnetic observations were taken at 100' intervals on lines 400' apart.

PROPERTY

<u>Claim Name</u>	<u>Number</u>	<u>Record Date</u>
Pel 1 to 48 incl.	97101 to 97148 incl.	January 4, 1966
Pel 49 Fr. to 53 Fr.	Y10261 to Y10264 incl.	September 1, 1966

Total number of claims - 53

All of the above claims are held on behalf of

Western Flintstone Mines Ltd.,
 Fan Tan Mines Ltd.,
 1128 - 736 Granville Street,
 Vancouver, B. C.

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

LOCATION

The claims are located along the north bank of the Pelly River, and are approximately 38 miles NW of the village of Ross River. Co-ordinates are approximately $62^{\circ} 15'$ N. latitude and $133^{\circ} 25'$ W. longitude and elevations are between 2200' and 2800' A.S.L.

The mouth of Vangorda Creek lies at the extreme SE corder of the property.

ACCESS

Ross River is accessible from Whitehorse via the Alaska Highway and Canol Road, a distance of 220 miles.

The all-weather road to the Anvil Mines Ltd. FARO property passes about four miles north. Indications are that the final highway will bridge the Pelly River at Vangorda Creek and pass through the Pel group of claims.

Limited regular flights exist between Whitehorse and Ross River.

TOPOGRAPHY

The ground in general rises to the NE but is broken by small rugged hills.

Much of the ground adjacent to the Pelly River is swampy in character.

REGIONAL GEOLOGY

The geology of the surrounding region is described on G.S.C. Map #13 - 1961 - "Tay River".

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

Table of Formations

Quaternary	-	Unconsolidated glacial and alluvial deposits
	-	unconformity -
Tertiary	-	Felsic to intermediate volcanic flow rocks, flat lying.
Tertiary	-	Intermediate plutonic rocks
	-	intrusive contact -
Paleocene	-	Clastic sediments
	-	unconformity -
Cretaceous	-	Intermediate plutonic rocks
	-	intrusive contact -
Mississippian	-	Meta sediments and minor volcanic rocks. Included in this assemblage are a group of meta sediments in which a number of important Pb, Zn sulphide occurrences have been found. These consist of banded skarn and quartz granulites, micaceous and chloritic phyllites, hornfels and minor andesite and crystalline limestone. (Unit 7 G.S.C.)

Table of Formations (cont'd.)

Devonian, Silurian, Ordovician and Cambrian -

- Sedimentary and meta sedimentary rocks.

Proterozoic

- Meta sediments and minor volcanic rocks.

LOCAL GEOLOGYTable of Formations

1. Peridotite and serpentine,

may be gabbro and volcanic in part

- intrusive contact -

2. Meta sediments - micaceous gneisses and schists.

GEOPHYSICSMethodA. Magnetic Survey

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

An arbitrary instrument datum of about 300 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)

GEOPHYSICSB. 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° . However, if such a conducting body is cut by the varying magnetic component field of the transmitter, electrical currents will be produced which in

GEOPHYSICS

B. Electro Magnetic Survey (cont'd.)

turn will set up a secondary electro-magnetic field of like frequency. When this occurs the resultant of 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 a NW magnetic trend that conforms with the known geology. The strongly magnetic anomaly lying in the NW corner of the group weakens to the SE and several weak to moderate zones are indicated along this trend.

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

- a) Northwesterly striking conductors apparently associated with the trend of the strongly magnetic anomalies.
- b) Westerly striking conductors which tend to the area south of type a) conductors.
- c) Broad conductors, or groups of conductors, which appear in both of the above areas.

CONCLUSIONS

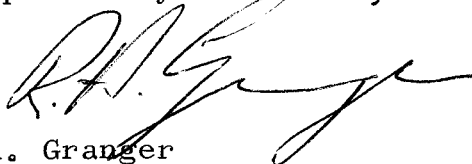
1. Magnetic anomalies of two types have been indicated.
 - a) Strong anomalies associated with more or less serpentized rocks that are obviously the source. Along this trend to the SE lie three moderately magnetic zones that may be caused by buried bodies of basic rocks, by andesitic volcanic rocks or by mineralization. No conclusion can be reached with present information due to these three possibilities. It must be noted that conductors are developed through or along the flanks of these zones.
 - b) Weak to moderately magnetic zones which are south of the area of basic rocks or which may be of doubtful position in this regard.
2. Electromagnetic results indicate strong development of conductors in a NW direction which appear to be associated with intrusive phenomena such as the development of graphitic shears, etc. No explanation can be given for the westerly striking conductors other than the presence of a second but weaker structural control.
3. Several of these coincident zones are of a nature that suggests further investigation.

RECOMMENDATIONS

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

1. Take soil samples over these limited areas and analyse them quantitatively for copper and zinc.
2. If positive results are forthcoming in the above it would be advisable to conduct gravimetric surveys prior to further work.

Respectfully submitted,



R.A. Granger



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

A P P E N D I X A

COST OF GEOPHYSICAL INVESTIGATIONS

PEL CLAIMS

1967

1.	Magnetic survey (contracted) 62.2 line miles @ \$50	\$ 3,110
2.	E.M. survey (contracted) 52.1 line miles @ \$50	2,605
3.	Transportation Plane	204
	Helicopter	180
	Jeep 1200 mi. @ 18¢	216
4.	Supervision	420
5.	Office and miscellaneous costs	<u>370</u>
	Total Cost of Surveys	<u>\$ 7,105</u>

This work has been applied for and distributed
as assessment credits.

A P P E N D I X B

CORDILLERAN ENGINEERING LIMITED

400-837 WEST HASTINGS STREET

VANCOUVER 1, B.C.

TELEPHONE: 685-0167

MINERAL EXPLORATION
MANAGEMENT AND
ENGINEERING CONSULTANTS- ASSOCIATES -
BONDAR-CLEGG & COMPANY LTD.
GEOCHEMISTSCERTIFICATE

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

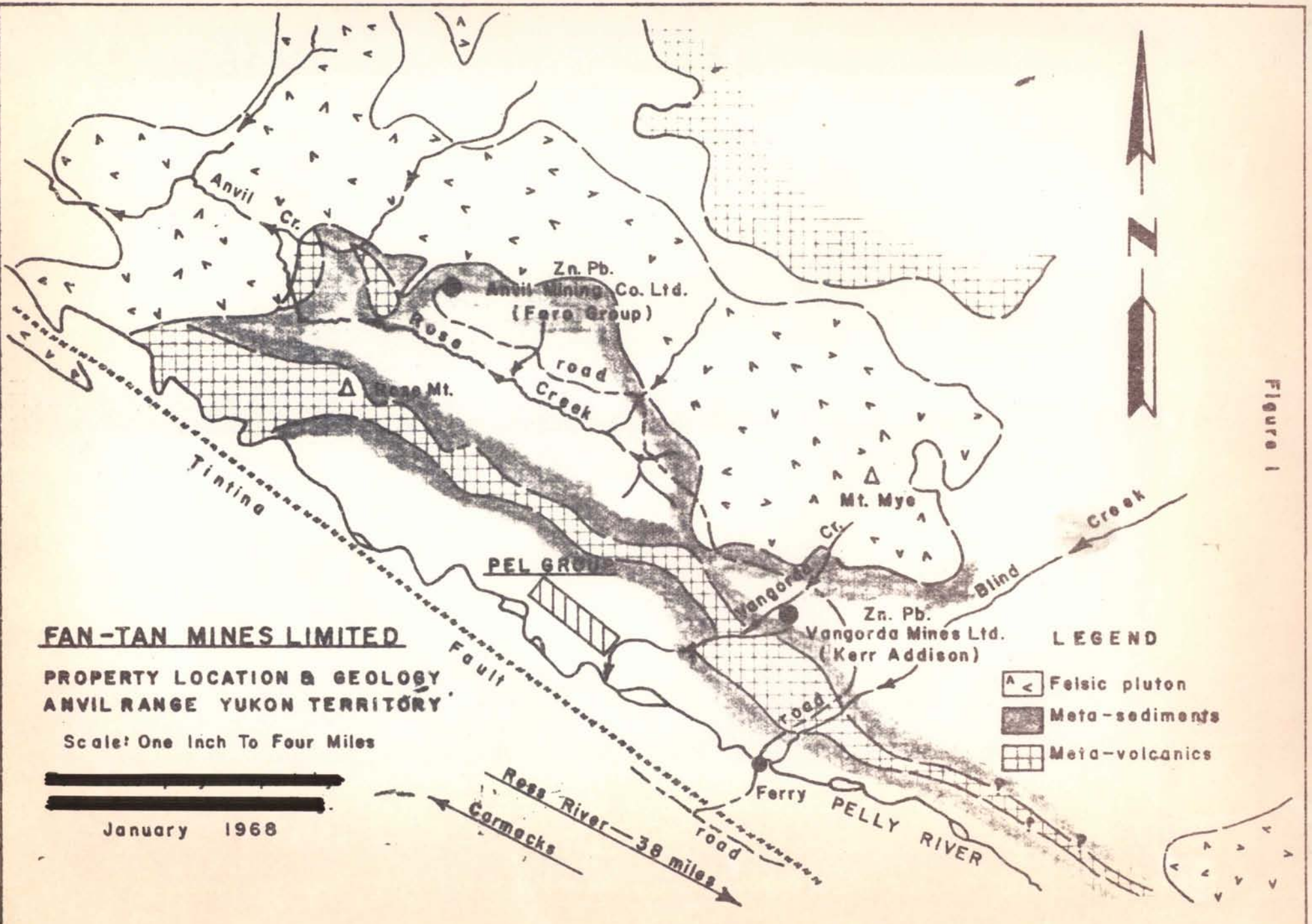
1. I am a geological engineer residing at 2475 West 1st Avenue, with an office at 400, 837 West Hastings Street.
2. I am a graduate of the Provincial Institute of Mining, at Haileybury, Ontario, 1958; and received a Bachelor of Science degree from Michigan College of Mining & Technology, at Houghton, 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 Pel Claims. I have examined the results given in the enclosed geophysical survey and find that they have been properly executed and described.



Respectfully submitted,


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

February, 1968.



FAN-TAN MINES LIMITED

**PROPERTY LOCATION & GEOLOGY
ANVIL RANGE YUKON TERRITORY**

Scale: One Inch To Four Miles



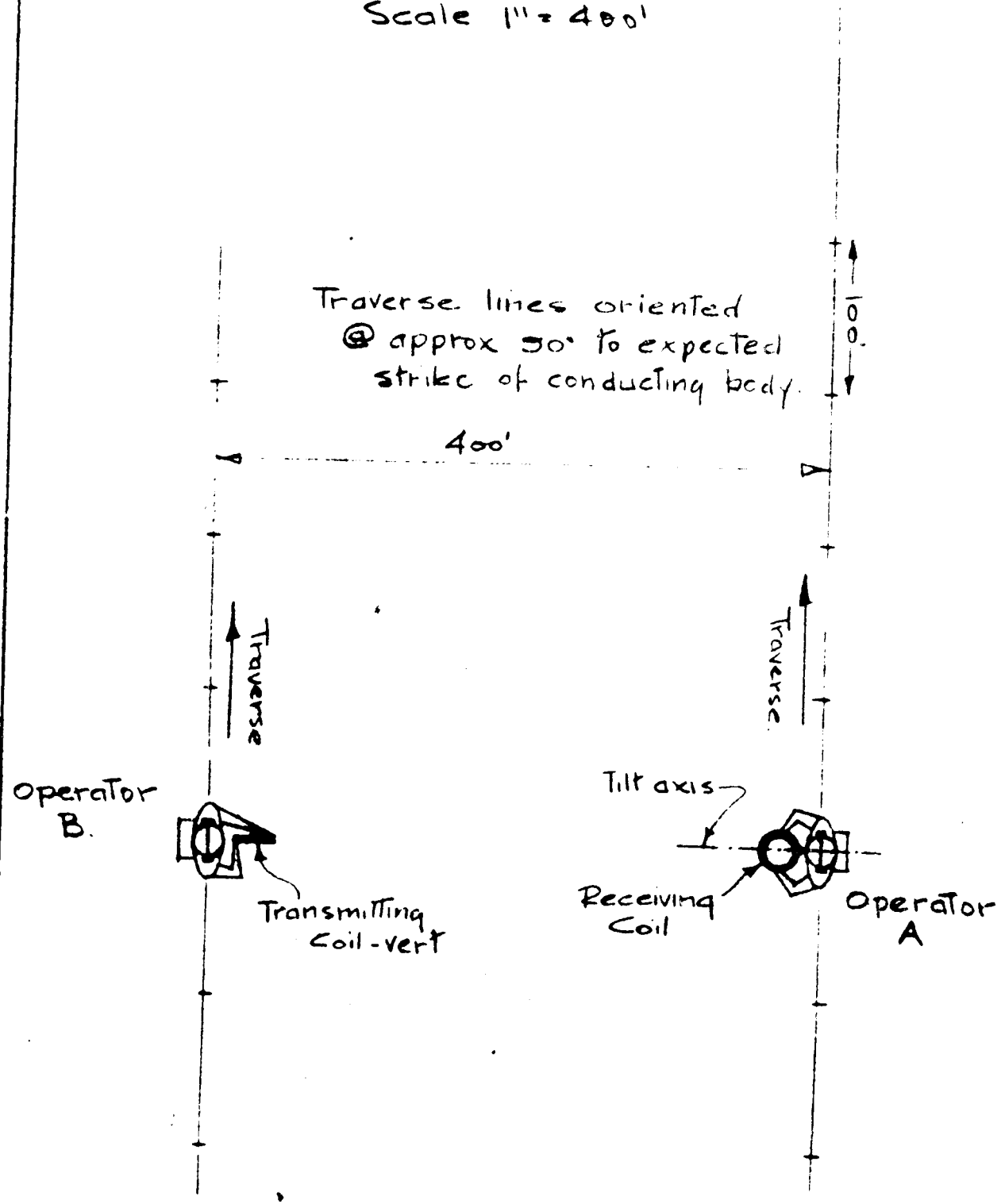
January 1968

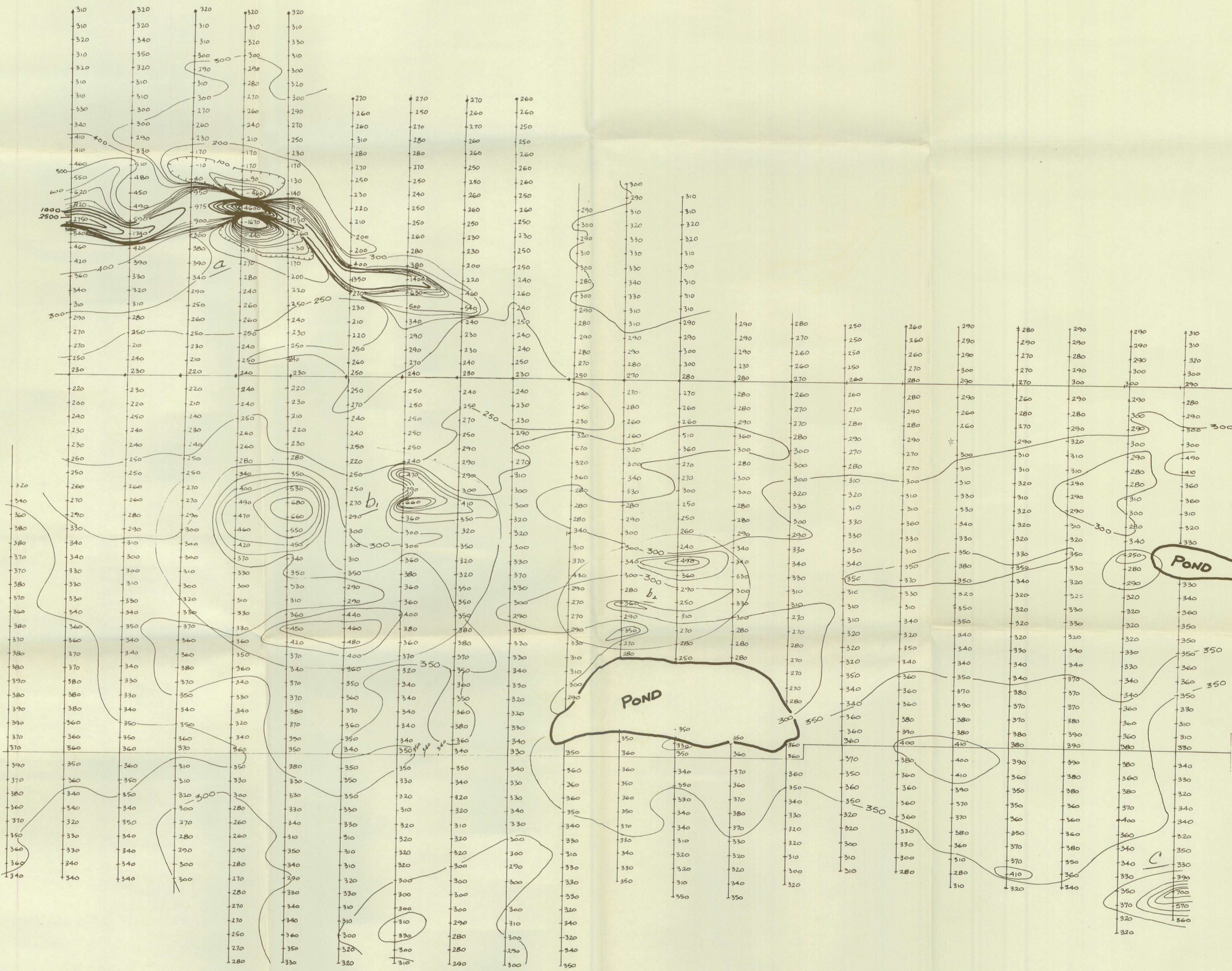
LEGEND

- Felsic pluton
- Meta-sediments
- Meta-volcanics

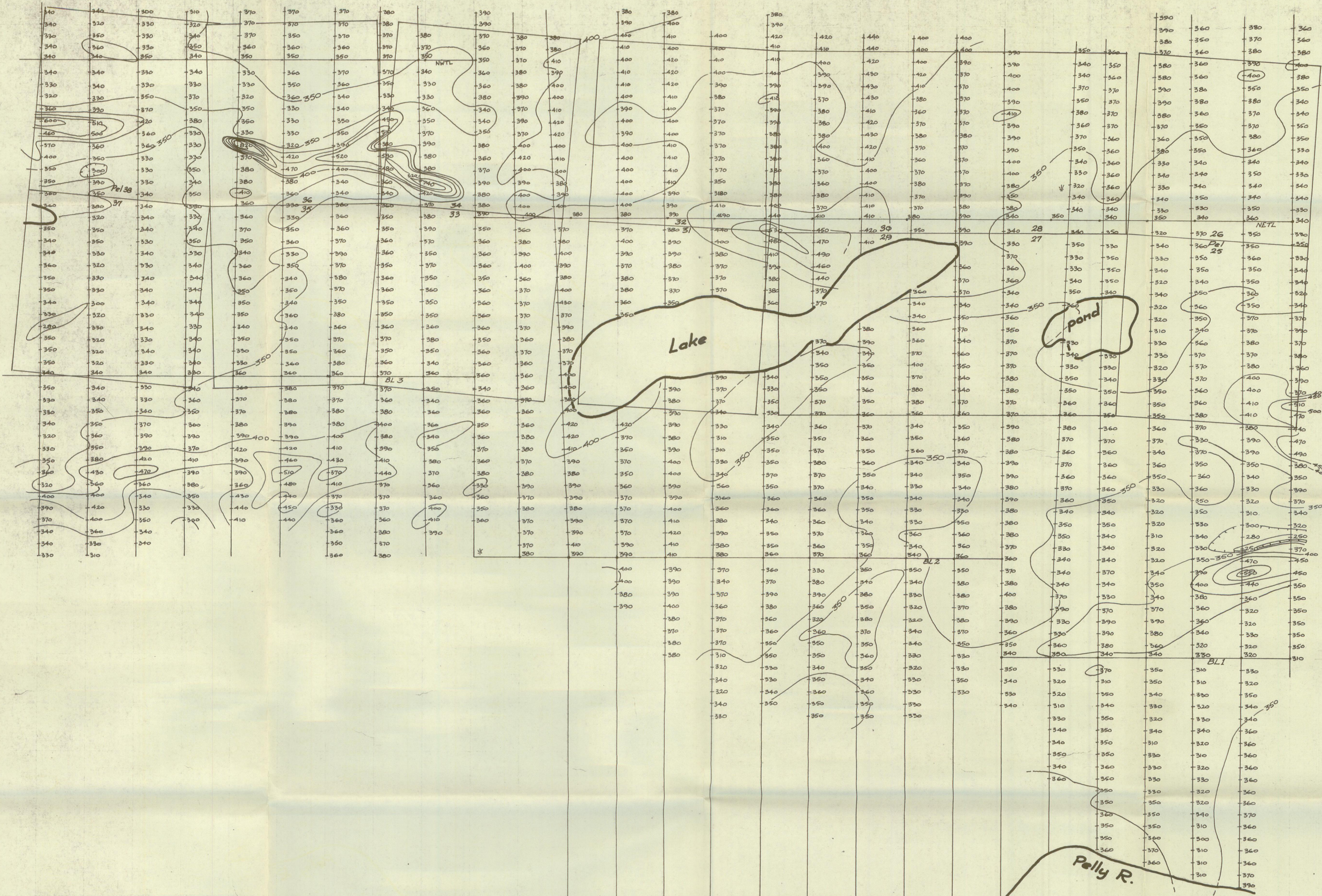
Figure 1

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





Fox Tan Mines Ltd.
 Western Flintstone Mines Ltd.
 N-W Portion Fe/Gp.
 Magnetic Survey

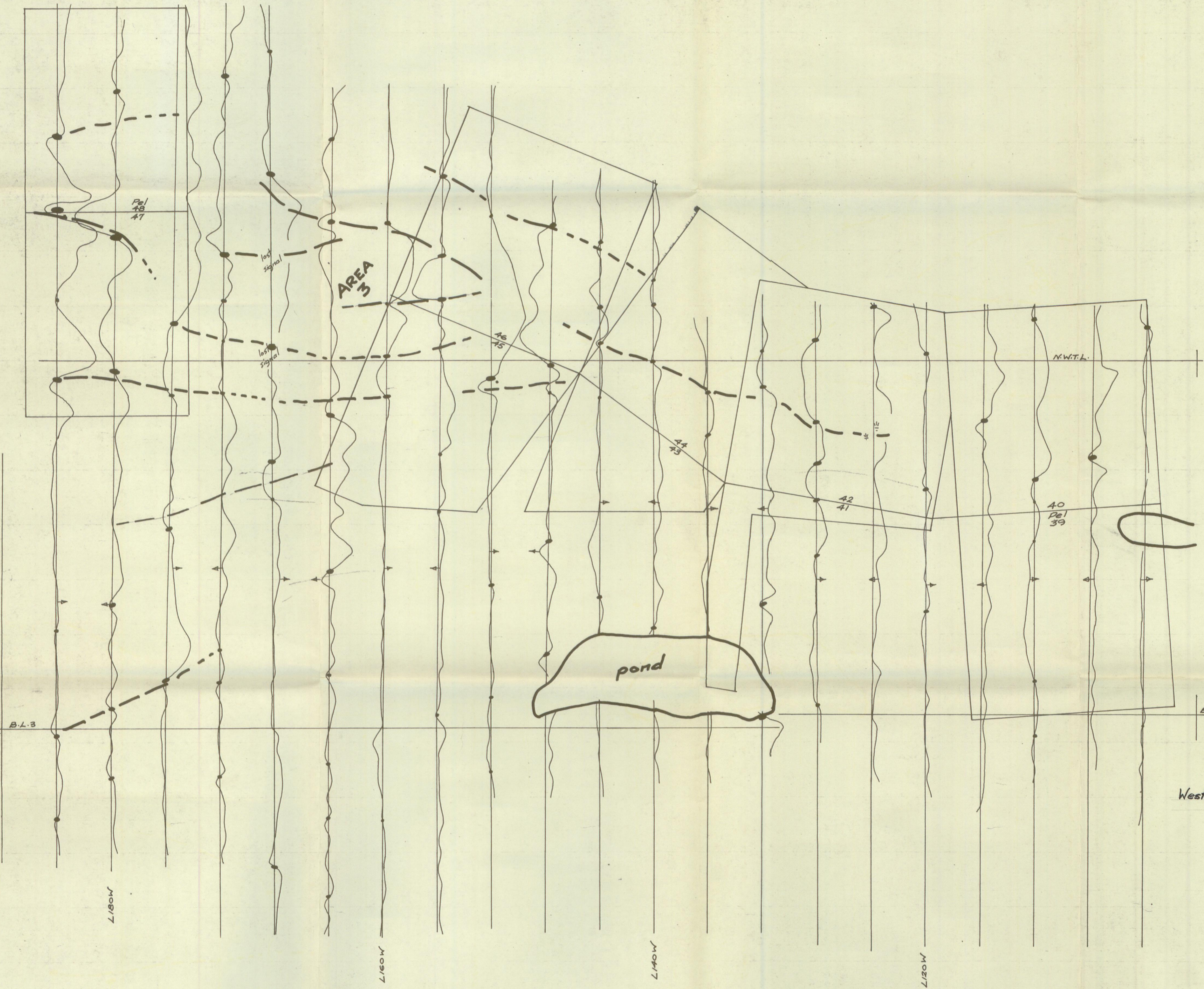


FANTAN MINES LTD.
Pel 25-48

Western Flintstone Mines Ltd.
Pel 1-24, 1F-5F

S-E PORTION
Magnetic Survey

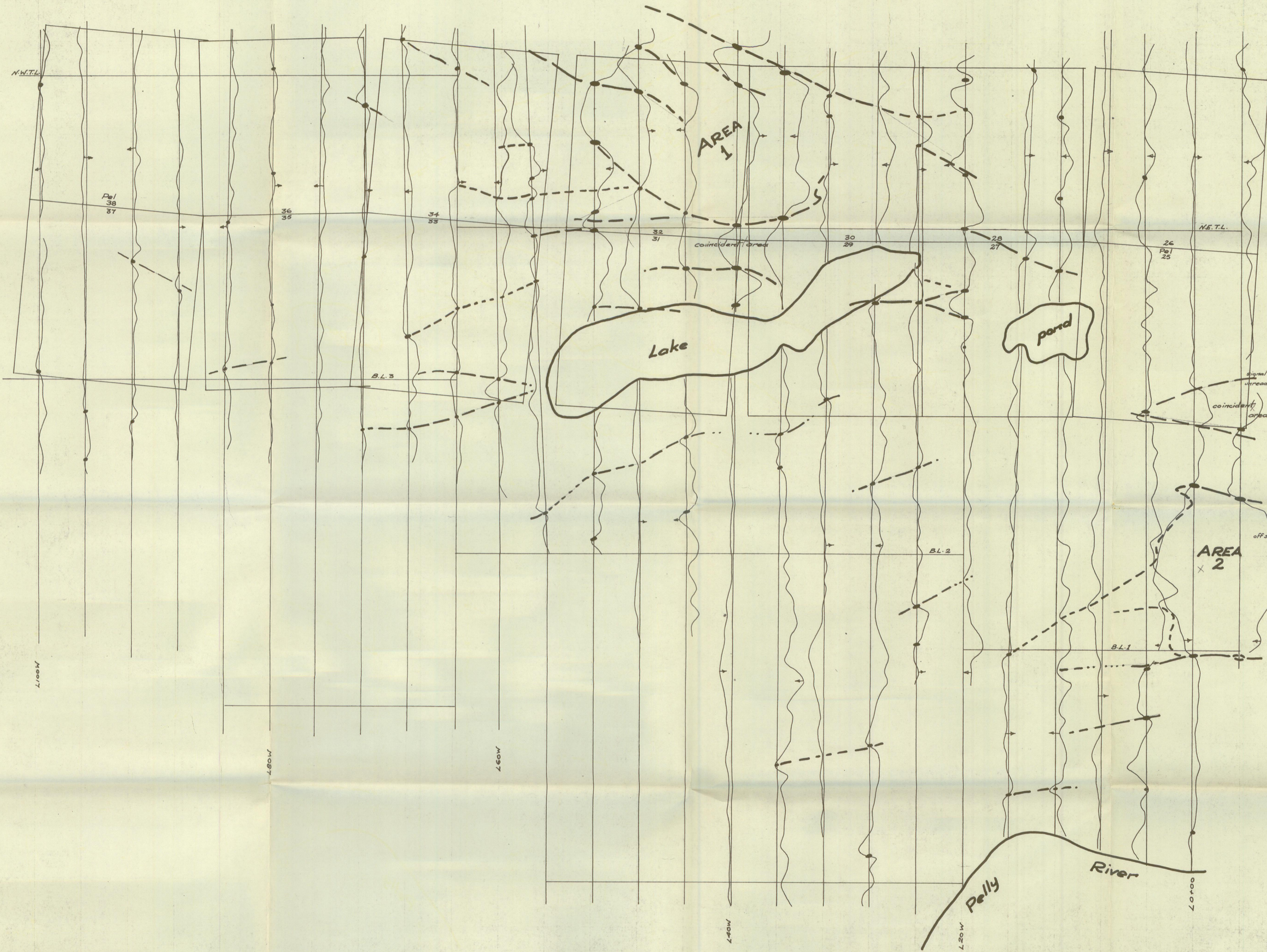
Inst: Sharpe MF-1 Corr. 108
Scale: 1"=400' Contours: 50Y
Date: Nov/67 R.A. Granger



FAN TAN MINES LTD.
Pel 25-48

Western Flintstone Mines Ltd.
Pel 1-24, 1F-5F

N-W PORTION
Electro-magnetic Survey
broadside method
Inst: Sharpe SE-300 Freq: 1600 c.p.s.
Scale: 1"=400' Curves: 1"=40'
Date: Nov/67 R.A. Granger



FAN TAN MINES LTD.
Pel 25-48

Western Flintstone Mines Ltd.
Pel 1-24, 1F-5F

S-E PORTION
Electro-magnetic Survey
broadside method
Inst: Storppe SE-300 Freq. 1600 c.p.s.
Scale: 1"=400' Curves: 1"=40'
Date: Nov/67 R.A. Granger