



REPORT ON  
MAGNETOMETER SURVEY  
ON PART OF THE PROPERTY OF  
GLEN LAKE SILVER MINES LTD.  
MORTIMER TOWNSHIP, ONT.

INTRODUCTION

In November, 1962, ground magnetic surveys were carried out over a claim group covering an airborne magnetic anomaly. At the conclusion of the survey and subsequent work, it was found advisable to stake additional ground adjacent to the original claim group.

A ground magnetic survey has been completed over these additional claims and some additional lines were surveyed to the northwest of the original survey. The following report and accompanying maps describe the results of these surveys.

PROPERTY AND LOCATION

The area surveyed covering the new claims ties onto the east and south of the original claim group (See Sheet 1). The new claims covered by the survey are shown on the Key Map and include L 77383 to L 77418 inclusive. Sheet No. 2 covers a small portion of the original claim group to the

*Autopositives filed separately*

northwest of the previous survey.

All claims are situated in Mortimer township, Ontario, and are recorded with the Ontario Department of Mines.

### GEOLOGY

The geology is covered in previous reports and diamond drilling has shown that the magnetic anomalies are due to the presence of ultra-basic intrusives which have intruded the surrounding volcanic and sedimentary rocks.

The drilling has shown the presence of asbestos fibre in serpentized peridotite and there are also possibilities for sulphide mineralization close to the contact of the ultra-basic intrusives.

### MAGNETOMETER SURVEY RESULTS AND INTERPRETATION

The magnetometer survey was carried out over lines at 400 foot intervals that had been extended from the previous grid. The results of the surveys are shown on the accompanying maps on a scale of 400 feet to the inch. In both cases the new survey has been tied into the original survey and the maps show a slight overlap.

A study of Sheet 1 shows several well defined anomalies, some of which are extensions of the magnetic anomalies found in the original survey. In the southern portion of the sheet the extension of an anomaly from the

previous survey continues to the southeast and goes off the property to the south. This gives the anomaly an additional length of approximately one mile. It has a greater width in the present survey and of significance is an indicated east-west fault which follows a bend in the river. This can be seen on line 1648 about 2400 west of base line No. 1. There appears to be a definite displacement to the west and then the anomaly continues off the property.

Another new anomaly was found in the extreme southwest corner of the area surveyed but the extent of this is not known as it goes off the property. It is parallel to the anomaly just discussed and situated about 800 feet to the west. It seems likely that both of these anomalies are due to ultra-basic intrusives as the readings are about the same magnitude as the majority of the anomalies. They appear to be related to the anomaly situated along base line No. 1 on the original survey and may represent a faulted section of the same intrusive.

In the central portion of Sheet No. 1 the extension of a small anomaly on line 1008 east of base line No. 1 was traced. It was found that this anomaly terminated within about 600 feet in the present survey.

In the northern portion of Sheet 1, a high circular shaped anomaly was outlined with peak readings of over

7,000 gammas. This appears to be an isolated plug and should be worthy of investigation. A short distance to the southwest is a small one line anomaly but this may be due to an erratic concentration of magnetite.

An examination of Sheet No. 2 shows that the survey here has successfully outlined the extensions of the anomalies found in the original survey. They show the same irregular outline found in the original survey.

#### SURVEY METHODS AND INSTRUMENT DATA

The surveys were carried out over a network of lines at 400 foot intervals which were extended from the original grid, as shown on the accompanying maps.

The magnetometer survey was carried out using a Sharpe A-2 magnetometer measuring the variations of the vertical component of the earth's magnetic field. Readings were taken at regular 100 foot stations with detail readings at 50 foot intervals over the anomalous areas.

Readings were taken at regular intervals at base stations to correct for the diurnal variation. The surveys were tied into the previous survey by overlapping the survey and the necessary corrections were made to correlate the two surveys. The results were plotted as gammas on the accompanying maps after correcting for the diurnal variation. The areas of high magnetic readings were outlined by contours.

CONCLUSIONS AND RECOMMENDATIONS

The surveys completed have traced the extensions of the anomalies found in the original survey and also outlined an additional anomaly in the northeast corner of the property.

Since diamond drilling has been in progress on the property for some time and the writer does not have the results of this work, any final interpretation or recommendations would be premature. One significant feature is the indicated fault in the southeast corner of the property as fault zones have been found to be favorable areas for asbestos deposition. Correlation of the diamond drilling data with the present magnetic survey should provide a proper assessment of the results.

Respectfully submitted,

PROSPECTING GEOPHYSICS LTD.



H.J. Bergmann, P. Eng.

Montreal, Que.,  
May 31, 1963.



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REPORT ON  
AIRBORNE MAGNETIC AND ELECTROMAGNETIC  
SURVEY

for

NORTHERN MINING AND DEVELOPMENT CORPORATION

by

HUNTING SURVEY CORPORATION LIMITED

Toronto, Ontario.

January, 1962

## INTRODUCTION

Hunting Survey Corporation Limited carried out an airborne geophysical survey of an area in the vicinity of Iroquois Falls, Ontario, covering 260 square miles and including the townships of Galna, Moody, Marathon, Sherring and parts of Findlay, Stinson, Sweatman and Mortimer. Approximately 850 line miles of magnetometer and 560 miles of E.M. were flown at spacing intervals of 1/4 and 1/2 mile. The flight direction was north-south.

This report presents the survey specifications and the airborne geophysical interpretation.

### Survey Specifications:

The survey was performed using a Cessna (CF-DFB) aircraft equipped with magnetometer, electromagnetometer, scintillometer and radio altimeter, and an Aero Commander equipped with a magnetometer. Only the magnetometer and E.M. data are presented on the geophysical maps. The magnetometer survey was conducted over the whole area, whereas the E.M. survey was restricted to townships Sherring and Marathon.

The survey was conducted with a mean terrain clearance of 475 feet. Positioning of flight lines was done by means of vertical, overlapping 35 mm. photographs exposed throughout the survey flight. Numbered fiducials along flight lines correspond to landmarks on the 35 mm. strips, which tie the data to the terrain covered.

The airborne magnetometer records changes in the total intensity of the earth's magnetic field. These changes are measured with an accuracy of 2 to 3 gammas, or better than one twenty-thousandth of the earth's total field.

The E. M. equipment used was the Hunting Survey Corporation fixed wing, dual-frequency type, which records changes in phase of an applied electromagnetic field. This primary field, generated simultaneously at 400 cycles per second and at 2500 cycles per second, produces secondary electric magnetic responses in conducting bodies at or beneath the surface of the earth. The accuracy of the measurements is 0.1 degrees, which corresponds to secondary fields roughly one six-hundredth as strong as the primary. The equipment consists of a large horizontal transmitting coil fixed to the aircraft and smaller vertical receiving coils mounted in a "bird" which is towed approximately 350 feet behind and 175 feet below the aircraft. The anomalies are recorded at two frequencies in order to provide a measure of the conductivity of the body. The coil orientation and separation are chosen to provide the best possible sensitivity to bodies of all strikes and dips.

#### Geophysical Records.

##### (a) General

Two recording tapes are obtained from the combined survey, one for the magnetometer and one for the combination of E. M. and scintillometer records.



Along the upper edge of both the combined and magnetometer tapes, there are a series of fiducial marks. These correspond to the numbered frames of the positioning camera exposures and are in multiples of ten. The marks will be on the even decimal. Below these marks in places are the numbers of plotted points, and to the left of each of these points, a line along which the intercept for the reading for this point was taken. This displacement to the left is to correct for the lag in the record due to the movement of the aircraft over the ground and the period of the response of the recorder, plus the offset in the record pen relative to fiducial pen.

The horizontal scale of these records is a function of the tape speed and the ground speed of the aircraft. The tape speed setting will vary from 1-1/2 to 6 inches per minute and is noted on the flight report for each day. The correct horizontal scale can be obtained locally only by plotting two adjacent points on a base map and equating this distance to the length on the tape between the same two points.

(b) Magnetometer Tape (Records from top to bottom)

1. - Positioning fiducials, as described above.
2. - Magnetic profile - the relative value of the earth's magnetic field. These values are referred to the datum setting which will be the minimum to ensure that no negative readings are recorded over the area of the survey. The datum is marked on each tape.
3. - Sensitivity - the value of the full width of the chart (10 inches) represents 1200 gammas and is marked on the daily flight reports.

(c) Combined Tape (Records from top to bottom)

1. - Scintillometer - the scale is 6000 counts per minute at an integrating time of 1 second across the full 2 inch chart width. The zero is set to coincide with the bottom edge of the chart.
2. - APN-1 - or ground clearance record. Mid position on the chart is set at 500 feet above ground elevation on take-off using the aircraft altimeter. The range of the chart is then 500 feet across the full width (2 inches) or 250 feet above and below the mid position.
3. - High Frequency - E.M. profile 2300 cycle frequency. This indicates the phase shift of the received signal at this frequency compared with the transmitted signal. The full width of the chart (2 inches) represents 8 degrees.  
Low Frequency - E.M. profile 400 cycle frequency. This indicates the phase shift of the received signal at this frequency compared with the transmitted signal. The full width of the chart (2 inches) represents 4 degrees.  
The tape speed of the E.M. record is 2.5 mm. per second and that of the magnetometer record is 4 inches per minute.

### Flight Records:

The flight records are packaged separately for each flying day and consist of the following:

1. - Flight report giving:-

- (a) Place, date, and aircraft
- (b) Lines flown, sequence, time of each traverse
- (c) Flying height
- (d) Record sensitivities
- (e) Tape speeds

2. - Including 35 mm. photography.

### Geophysical Maps

The geophysical data were reproduced and plotted on maps which accompany this report. The maps show planimetry obtained from maps compiled by the Department of Lands and Forests and by Forest Resources Inventory. Flight lines are shown to help the interpreter in the evaluation of contoured anomalies; data were obtained only on the flight lines. The contouring between lines represents therefore one choice out of several choices.

The magnetic data are recorded on maps at a scale of 1 inch to 1/4 mile, 1/2 mile, 1 mile. The results obtained are presented as magnetic contours; lines of equal magnetic intensity obtained by joining points of equal value on adjacent lines. The value on the contour lines are accurate at every intersection with a flight line. The interpretation results are shown on the 1 inch to 1/2 mile map.

The contour interval is 25 gammas with every 100 gamma line accentuated.

E.M. data are recorded as anomalies and ratios on maps at a scale of 1 inch to 1/4 mile. Ratios of 400 cycle anomalies to 2300 cycle anomalies are shown at all the 400 cycle peaks.

Contour lines join points of equal 400 cycle response on adjacent flight lines; the contour interval is 0.2 degrees. The drawing of contour lines for E.M. results is done on the assumption that aircraft altitude is maintained constant and the lines are flown roughly parallel to one another.

Also accompanying this report is a composite airborne magnetometer map at a scale of 1 inch to 4 miles showing the surveyed area in relationship to the other belts of basic and ultrabasic rock types in the general area.

#### Geological Setting:

Very little geological work has been done in this area as almost the entire Cochrane-Abitibi region has largely been regarded as "clay belt", and therefore unworthy of exploration owing to heavy overburden. However, numerous rock outcrops have been mapped along the Abitibi River less than one mile to the south of the area surveyed, along the railway line three miles to the east, and in Edwards Township about five miles to the southwest. The predominant country rocks are basic to intermediate volcanics, tightly folded along northwest trending axes. Intrusives are known to occur throughout the area. For example, some

25 miles to the south is a belt of basic and ultrabasic rocks which have shown the intrusives to be silt-like bodies of gabbro or "older diabase", with serpentinized peridotite and dunite.

Within 50 miles of the survey area is the Canadian Johns-Manville Munro Mine, the Timmins Gold Camp, the Normetal Mine and the worked-out gold deposit of Matheson (see location map accompanying this report).

Apart from the active and past producing mines, nickel sulphides, chromite and asbestos are known in numerous scattered showings. Some of these occurrences are under investigation at the present time. The common association of such mineral deposits with ultrabasic rocks make the investigation of a possible new belt of peridotite an ideal target for exploration.

#### INTERPRETATION

The results of the aeromagnetic survey include an area of fairly uniform magnetic relief, and is thought to be due to basic to intermediate volcanics. The most striking features on the aeromagnetic map is the line of northwest trending anomalies. These anomalies, numbered 1 to 7, are due to basic or ultrabasic intrusives, probably gabbro or "older diabase". There is also two other smaller magnetic anomalies, one located in the southeast corner of Galna Township and the other in the southeast corner of Mortimer.

Mathematical analysis has been applied to the seven anomalies, in order to obtain information such as magnetic susceptibility, magnetite content, depth and width of the causative body. The results of this analysis are shown on the accompanying maps by the appropriate zone. It will be noticed that more than one analysis was carried out on some of the anomalies.

Several interpreted faults are shown cutting the volcanics.

The E. M. survey, which covered only a portion of the total surveyed area, indicate an unusually large number of anomalies, many of which are believed to be caused by overburden and ground water. It will be noticed, however, that some of the anomalies do coincide with the magnetic anomaly in Sherrill Township. No attempt has been made to classify the E. M. anomalies at this time, as this is a time-consuming task.

#### SUMMARY AND RECOMMENDATIONS

The magnetic survey indicates the presence of a system of northwest trending basic to ultrabasic intrusives. In addition to the intrusives, faults have been interpreted cutting through the volcanics. The electromagnetic records display an unusually large number of anomalies, which have not been graded.

The anomalous areas outlined by the magnetic survey are

similar in general appearance and magnetic relief to those which appear over a belt of basic and ultrabasic rocks some 25 miles to the south (see 1 inch to 4 mile composite airborne magnetometer map). Within this belt numerous deposits of asbestos fibre are known. The Canadian Johns-Manville Munro Mine is producing commercial fibre from one of these deposits. Also, a past producer of nickel, the Alex Mine, is associated with similar ultrabasic rocks less than 25 miles from the survey area.

The predominant rock type of the intrusives is gabbro, and the favourable peridotite horizon is found as a narrower band parallel to or on both sides of the gabbro, depending on the structural location of the intrusives within the volcanic rocks.

It is recommended that further investigation be carried out over the anomalies. Since peridotite can be located by a ground magnetometer survey, the exploration should consist largely of a detailed magnetometer survey over the anomalies, followed by diamond drilling and, where possible, striping, trenching and pitting.

Line grids should be cut to completely cover the anomalous area. A recommended line grid for anomaly 5 is appended at the end of this report. Similar grids can be applied over the other anomalies.

As another mineral possibility here is nickel, it is also recommended that a ground electromagnetic survey be conducted over portions of the magnetic anomalies. The purpose of the E.M. survey would be to prospect for possible massive sulphides.

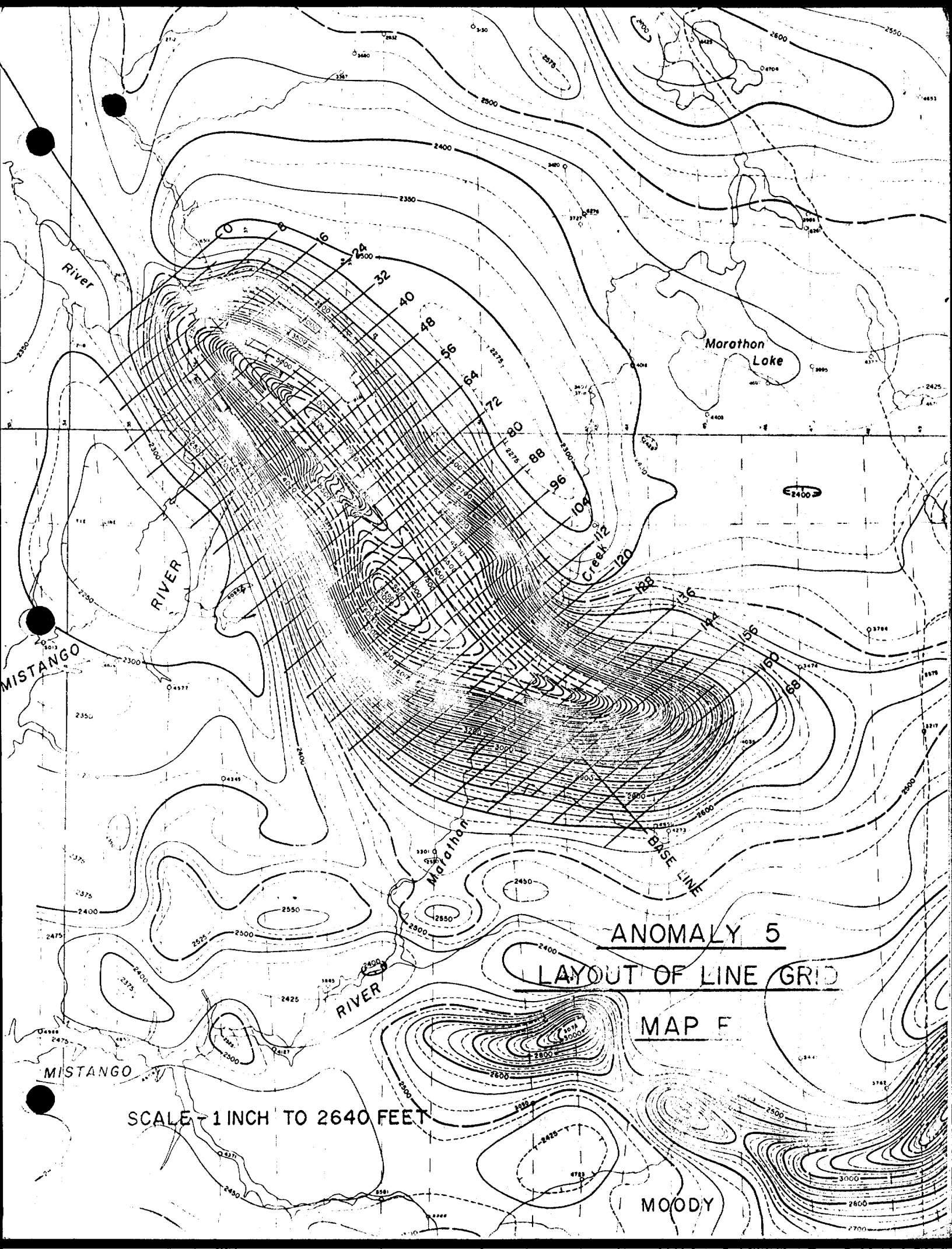
The ground geophysical surveys will accurately locate the anomalies, and detailed interpretation will locate possible drilling sites for further investigations.

Evaluation of deposits of asbestos fibre can only be accomplished by diamond drilling, and the major problem with this type of investigation is the depth of overburden. A study of the aerial photographs shows very few actual outcrops within the survey area, therefore the depth could be anywhere from 0 to 200 feet. It is therefore recommended that determinations of the depth of overburden be carried out at possible drilling locations using a portable seismograph. This will greatly reduce the cost of the drilling program.

HUNTING SURVEY CORPORATION LIMITED

  
E. B. Nicholls.





Marathon Lake

River

RIVER

MISTANGO

Marathon

BASE LINE

ANOMALY 5

LAYOUT OF LINE GRID

MAP F

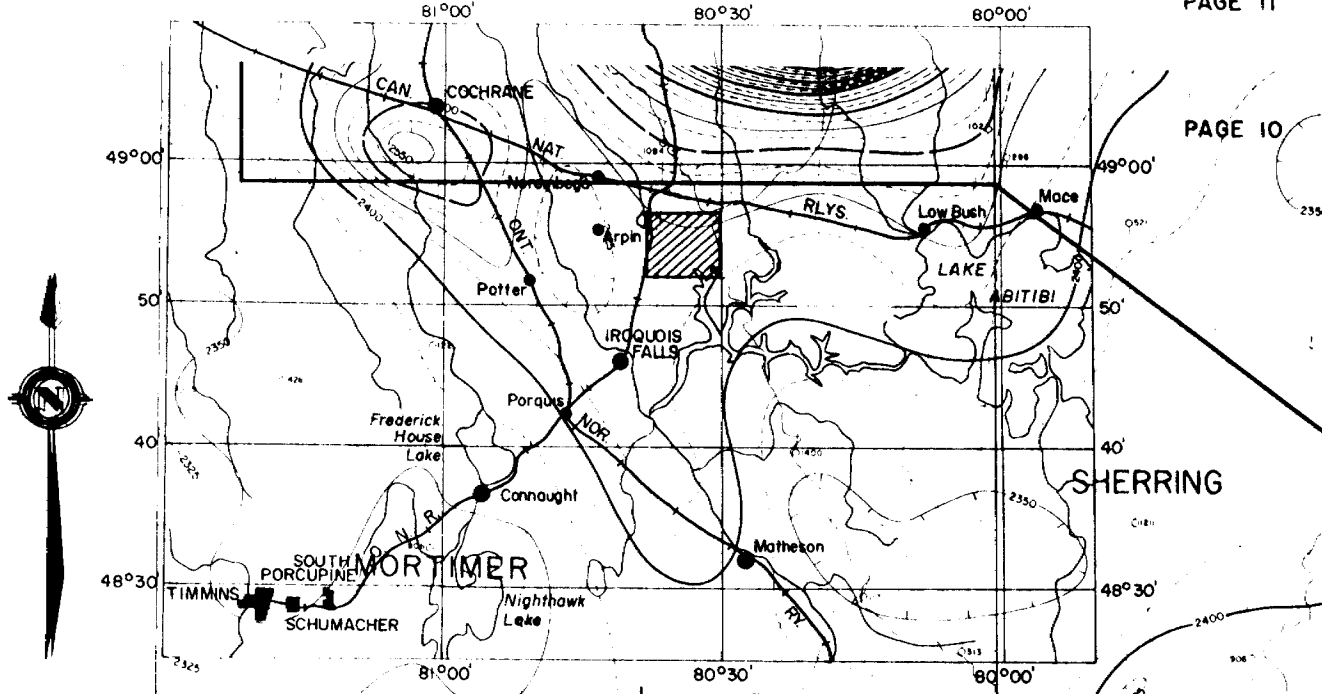
MISTANGO

SCALE - 1 INCH TO 2640 FEET

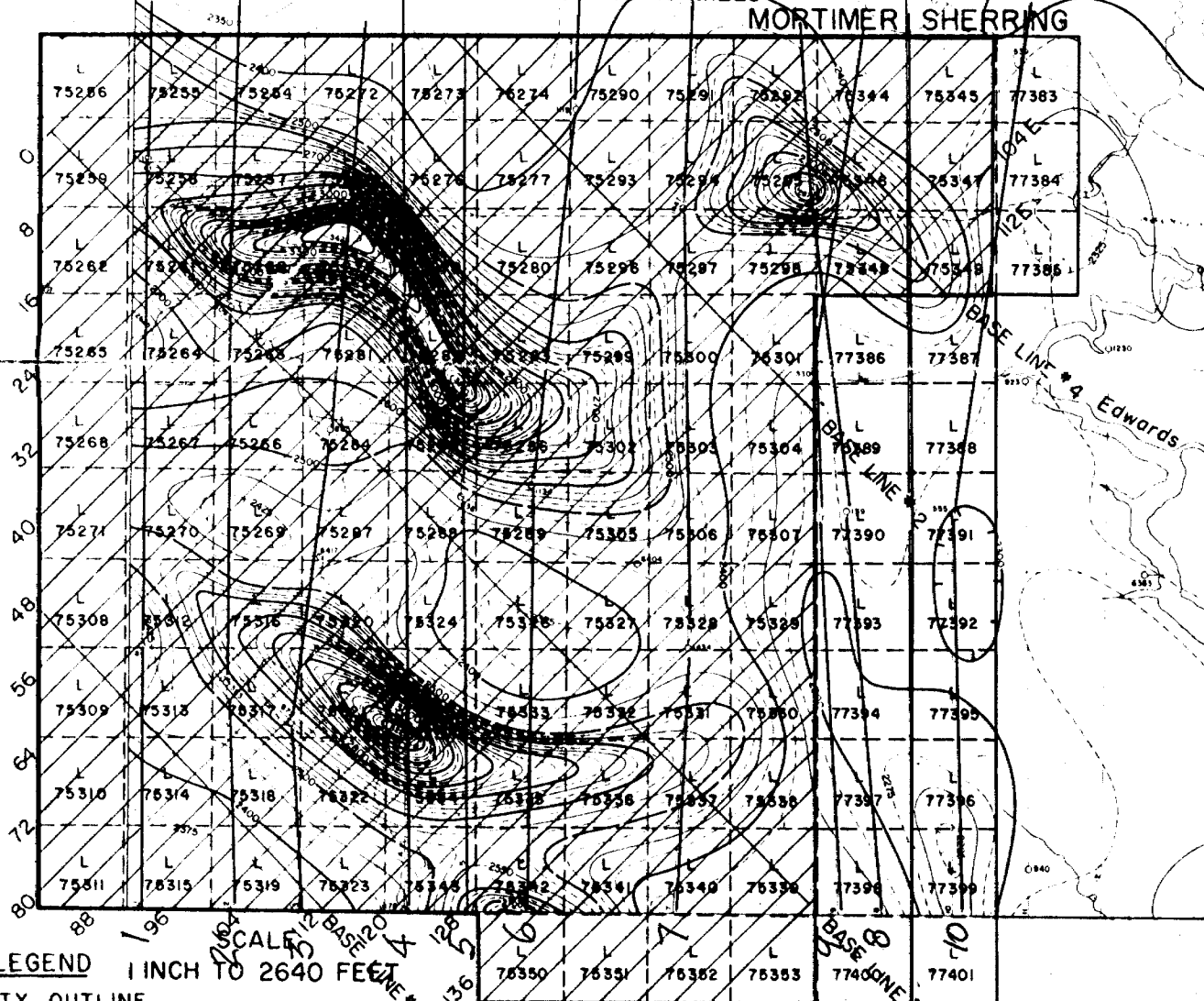
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# LOCATION MAP



SCALE: 1 INCH TO 16 MILES



## LEGEND

- PROPERTY OUTLINE
- MAGNETIC ANOMALIES
- JUNE 5, 1962

SCALE: 1 INCH TO 2640 FEET

# APPENDIX MAP A TO ACCOMPANY REPORT TO GLEN LAKE SILVER MINES LIMITED

JULY 31, 1963  
FLIGHT LINES — 1

EDWARDS				WESLEY			
L 77406	L 77405	L 77404	L 77403	L 77402	L 77401	L 77400	L 77399
L 77407	L 77408	L 77409	L 77410	L 77411	L 77412	L 77413	L 77414
L 77415	L 77416	L 77417	L 77418	L 77419	L 77420	L 77421	L 77422



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REPORT ON  
GROUND MAGNETOMETER SURVEY  
MORTIMER TOWNSHIP, ONTARIO

for

GLEN LAKE SILVER MINES LIMITED

by

HUNTING SURVEY CORPORATION LIMITED

Toronto, Ontario

December, 1962

## INTRODUCTION

A ground magnetometer survey was conducted over a group of claims held by Glen Lake Silver Mines Limited and located in Mortimer Township, Ontario.

The survey was carried out by Hunting Survey Corporation Limited during the period August 1st. to October 23rd., 1962. Results of the survey are shown on the maps accompanying this report.

### Property, Location and Access

The property of Glen Lake Silver Mines Limited discussed in this report comprises a group of one hundred (100) claims located in Mortimer Township, Ontario. The claims surveyed are as follows: L75254 to L75353 inclusive.

The claims group is located in the southeast corner of Mortimer Township approximately 10 miles northeast of Iroquois Falls. It is possible to drive from Iroquois Falls to within one mile of the property; this final mile is a well-marked trail through the bush.

GENERAL GEOLOGY

Very little geological work has been done in this area as almost the entire Cochrane-Abitibi region has largely been regarded as "clay-belt", and therefore unworthy of exploration owing to the heavy overburden. However, numerous rock outcrops have been mapped along the Abitibi River, along the railway lines. The predominant country rocks are basic to intermediate volcanics, tightly folded along northwest trending axes. Intrusives are known to occur throughout the area, for example some 25 miles to the south is a belt of basic and ultrabasic rocks which have shown the intrusives to be sill-like bodies of gabbro or older diabase, with serpentized peridotite and dunite.

Within 50 miles of the survey area is the Canadian Johns-Manville Munro Mine, the Timmins Gold Camp, the Normetal Mine and the worked-out gold deposit of Matheson.

## INTERPRETATION

The ground magnetometer survey detected and localized the airborne magnetometer anomalies. However, the ground survey, as indicated on the accompanying interpretation map, broke the two main airborne anomalies into a number of smaller anomalies of varying intensities.

The main and strongest of the anomalies starts at Line 0+00 and extends easterly to Line 68+00E. Calculations carried out indicate that the magnetic body or bodies causing the anomalies vary in depth from approximately 100 feet to 150 feet, with horizontal widths from 180 feet to 260 feet. The bodies are dike-like in that they extend for large distances along their strike and downward, and in that they dip nearly vertically. The calculated magnetic susceptibility of these bodies varies from 0.017 to 0.25 c. g. s. units suggesting the presence of either ultrabasic intrusive rock or lean iron formations.

The second main anomaly is located between Lines 52+00E and 96+00E paralleling the main Base Line. This anomaly shows the same characteristics as the zone, but does not have as strong a magnetic contrast. Calculations carried out across this anomaly indicate it to vary in depth between 100 and 200 feet and in width between 100 and 300 feet. Magnetic susceptibility of the body varies from 0.01 to 0.015 c. g. s. units suggesting the presence of ultrabasic rock.

Other anomalous zones are located between Lines 100+00E and 124+00E south of the main Base Line, and between 92+00E and 112+00E north of the Base Line. Depths to these bodies are in the order of 100 feet to 150 feet and widths vary from 125 feet to 280 feet. The calculated susceptibility is 0.01 c. g. s. units indicating the presence of approximately 4% magnetite by volume.

A number of smaller magnetic bodies are outlined. These are believed to be caused by country rocks probably locally altered by the intrusive and thereby becoming weakly magnetic. There is no way of determining the nature of the country rock on the basis of the available data. However, if the weakly magnetic bodies are part of the rock, then the ultrabasic rocks must have intruded formations of either volcanic or sedimentary origin.

A number of north-northwesterly trending faults are interpreted on the basis of disruptions and deflections of the magnetic trends.

SURVEY DATA

The survey was carried out using a Sharpe A-2 vertical component magnetometer with a sensitivity of 20.0 gammas per scale division. The magnetometer survey was carried out over lines oriented in a northeasterly direction. These lines were turned off at 400-foot intervals at right angles to the base lines which were established in a northwesterly direction. A total of 69.3 miles of line were cut and chained.

Readings were taken at 100-foot intervals along the traverse lines over the entire claim group. A total of 66.5 miles of line was surveyed by this method requiring 3,500 station readings. The survey covered a total of approximately 3,000 acres.

The total number of 8-hour man days required to complete the above-mentioned survey are as follows:

	<u>8-hour man days</u>	<u>Attributable to Assessment Work</u>
Line cutting and chaining	185 x 5	925
Operating magnetometer survey	153 x 5	765
Calculations and Interpretation	18 x 5	90
Report writing	5 x 5	25
Drafting	15 x 5	75
Office typing and supervision	<u>5 x 5</u>	<u>25</u>
	<u>381 x 5</u>	<u>1,905</u>

*Cover* L 75254  
 75257-58  
 75260-61  
 75263 & 353

$$\frac{381 \times 4}{96} = 16 \text{ days per claim}$$



SUMMARY AND CONCLUSIONS

A ground magnetometer survey was carried out over the claim group of Glen Lake Silver Mines Limited located near Iroquois Falls, Ontario. A number of anomalies were located, varying in width from 100 feet to 300 feet. The calculated susceptibilities vary from 0.01 to 0.025 c. g. s. units. If no remanent magnetism is assumed, these susceptibilities indicate the presence of 5 to 10% magnetite by volume. Thus these rocks are either basic to ultrabasic intrusives or lean iron formation. The former seems the more probable.


The conditions appear to be very similar to those encountered in the vicinity of the chrysotile asbestos deposits in Munro and Beatty Townships.

Several fault systems are detected and appear to be concentrated more in the immediate vicinity of the intrusive than in the country rock.

In conclusion, on the basis of the available information, the area appears favourable and should be investigated further to determine the causes of the magnetic anomalies.

It is recommended that this further exploration take the form of diamond drilling. Proposed drill holes are shown on the accompanying map located in the pocket at the rear of this report.

HUNTING SURVEY CORPORATION LIMITED

  
E. B. Nicholls,  
Geophysicist.



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REPORT ON A TURAM ELECTROMAGNETIC SURVEY  
IN MORTIMER TOWNSHIP,  
LARDER LAKE MINING DIVISION, ONTARIO,  
ON BEHALF OF  
GLEN LAKE SILVER MINES, LIMITED.

by

ROBERT A. BOSSCHART, M.Sc.

TORONTO, CANADA.

JUNE 26th, 1964.

SUMMARY

The present Turam electromagnetic survey has indicated the occurrence of several conductors of potential base metal interest in the southern part of the investigation area. To examine these conductors five drill holes, totalling 2500' in length, have been recommended.

HAROLD O. SEIGEL & ASSOCIATES, LIMITED  
CONSULTING GEOPHYSICISTS

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INTRODUCTION

During May 1964 an electromagnetic survey was carried out on portions of a claim group located in southeast Mortimer Twp., southwest Sherring Twp., northeast Edwards Twp. and northwest Wesley Twp., Larder Lake Mining Division, Ontario, on behalf of Glen Lake Silver Mines Limited.

Previous exploration on the property has been described in a report entitled "Report to Glen Lake Silver Mines, Limited, on Group of Claims in Mortimer, Edwards and Sherring Townships" by Gray S. Willson, dated August 15, 1963.

The present survey covered those areas which are believed to be of potential base metal and asbestos interest (see "Study of Exploration Activities Mortimer Township Area, Ontario" by H. O. Seigel, dated April 4, 1964.)

Because the magnetic results had indicated overburden thicknesses between 100' and 150', the survey was carried out with the Turam method, using inductive, low frequency (400 c.p.s.) energization. In this procedure the primary field is created by means of closed rectangular loops, and two receiving coils connected to a compensator bridge are used to measure the field strength ratios and phase differences between consecutive stations. Subsurface conductors give rise to secondary electromagnetic fields, causing abnormal field strength ratios and phase differences. The relative amplitudes of field strength and phase distortions are a measure of the conductivity of the conducting bodies, i.e.

good conductors are characterized by field strength distortion combined with relatively little phase shifting, whereas poor conductors affect the phase, rather than the strength of the resultant field.

For a more accurate grading the resistivity/thickness ( $r/d$ ) ratio of the individual conductors can be derived from the calculated in-phase and out-of-phase components. These values are marked on the upper right side of the anomalies. The depth of the current axis can be determined from the shape of the disturbance and is marked on the lower left side. This depth should be regarded as the maximum depth to the upper surface of the conductor.

In all <sup>0</sup> miles of profile were investigated, oriented N45 E at 400 intervals. Turam measurements were made at 100' intervals on these lines.

#### TOPOGRAPHY, GEOLOGY and MINERALISATION

No outcrops occur within the investigation area, which has a clay cover of considerable thickness and little topographic relief. The northern part is underlain by sediments, the southern part by volcanics, with basic and ultrabasic intrusives. Minor amounts of Cu, Ni and Cr mineralisation and some asbestos veinlets were encountered in previous drilling. (refer report by Gray S. Willson mentioned above).

#### DISCUSSION OF RESULTS.

The results of the Turam survey are shown on the enclosed plan (Plate # 1), in the form of field strength ratio and phase difference profiles, on vertical scales of 1" = 40% and 1" = 20' respectively and a horizontal scale of 1" = 400'.

The larger part of the area shows only low amplitude geo-electrical disturbances of a random nature, which can be attributed to small variations in overburden conduction or thickness. Significant anomalous conditions occur in the southeastern portion of the grid. Most pronounced is a long zone of strong parallel conductors, designated generally as A, extending with minor interruptions

from line 136 S to the southeast corner of the property. The conductivity of the major bands is exceptionally high (very small r/d values). This zone occurs several hundred feet northeast of a major magnetic anomaly, which is believed to represent an ultrabasic intrusive (Report Gray S. Willson, Map 'B'). The conducting zone is more or less parallel to the magnetic anomaly.

A possibly related, shorter and weaker conductor (B) occurs close to the baseline. It shows comparable conductivity to A but no magnetic correlation.

Conductors C and D are both located on the margins of strongly magnetic bodies, presumably ultrabasics. The r/d values of both conductors indicate good conductivity, although not as high as in zone A.

Two relatively short conductors E and F occur between the creek and the boundary and between lines 100S and 120S. Both appear to be of potential interest, but the electromagnetic as well as the magnetic coverage in this corner is inadequate for definite conclusions to be drawn.

#### CONCLUSIONS AND RECOMMENDATIONS.

The banded character and large extent of zone A suggest that the anomalies are most likely due to graphitic conductors. Their interpreted conductivity is, however, unusually high for carbonaceous material and could be due to the concurrent presence of sulphides. The same applies to conductor B.

Conductors C and D combine a more favourable pattern and significant relation to magnetic features with good conductivity, and are therefore of primary interest.

To examine the above conductors the following drill holes are recommended:


D.D.H.	Collar	Orientation	Length	Dip
#1	L. 164 S. 11 - 60 W.	N.135° W.	700'	55°
#2	L. 148 S. 10 10 W.	N.135° W.	700'	55°
#3	L. 132 S. 2 00 E.	N.135° W.	350'	55°
#4	L. 104 S. 25 80 E.	N.135° W.	350'	55°
#5	L. 100 S. 17 00 W.	N.135° W.	400'	55°

Based on the results of previous drilling it has been assumed that the conducting bodies are steeply dipping. A careful examination of the core for evidence of dip is desirable: The holes may have to be relocated if the core suggests that the dip may be to the southwest.

Since the magnetic and electromagnetic surveys will be extended to include the area to the southwest of anomalies E and F, drilling recommendations for these anomalies will be delayed until the coverage is more complete.

Direct correlation between magnetic and electromagnetic anomalies, indicative of serpentinization and fracturing, has not been observed.

Respectfully submitted,

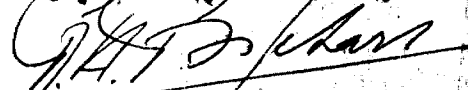


Robert A. Bosschart, M.Sc.

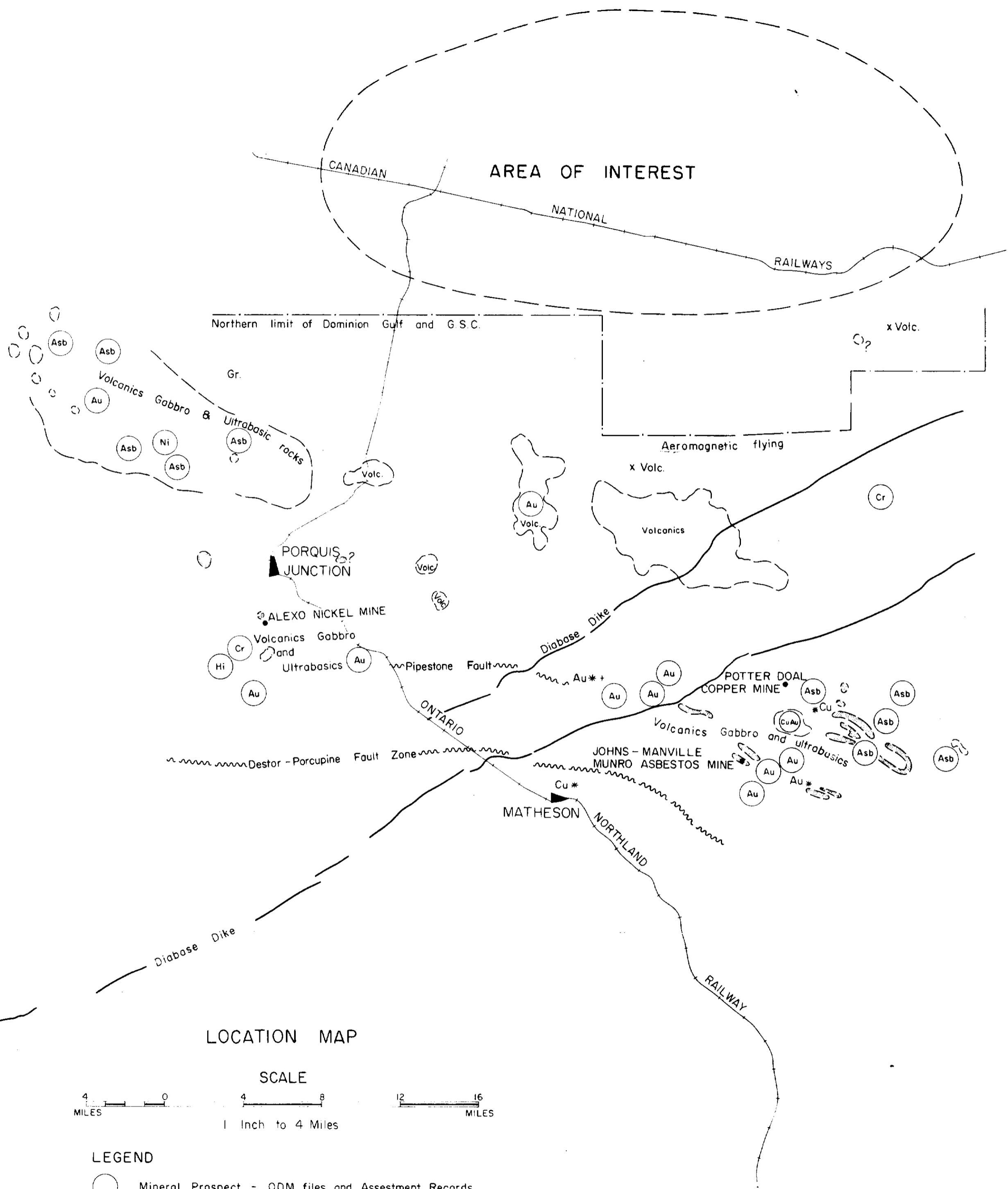
Toronto, Canada.

June 26th, 1964.

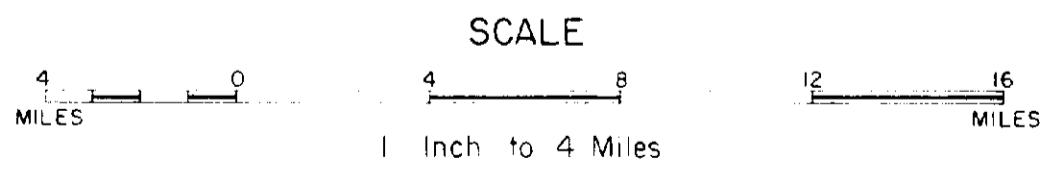
Respectfully submitted,



Robert A. Bosschart, M.Sc.



LOCATION MAP



LEGEND

- Mineral Prospect - ODM files and Assessment Records.
- \* Mineral Occurrence - from ODM Reports.
- ▭ Ultrabasic rock and/or Gabbro.








77383	
77384	
77385	
77386	77387
77388	77389
77390	77391
77392	77393
77394	77395
77396	77397
77398	77399
77400	77401
77402	77403
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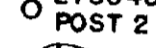
CLAIM GROUP  
1" = 1500 FT.

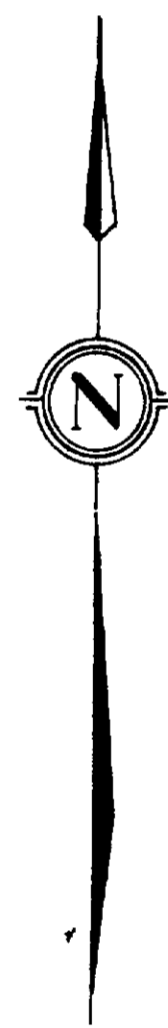
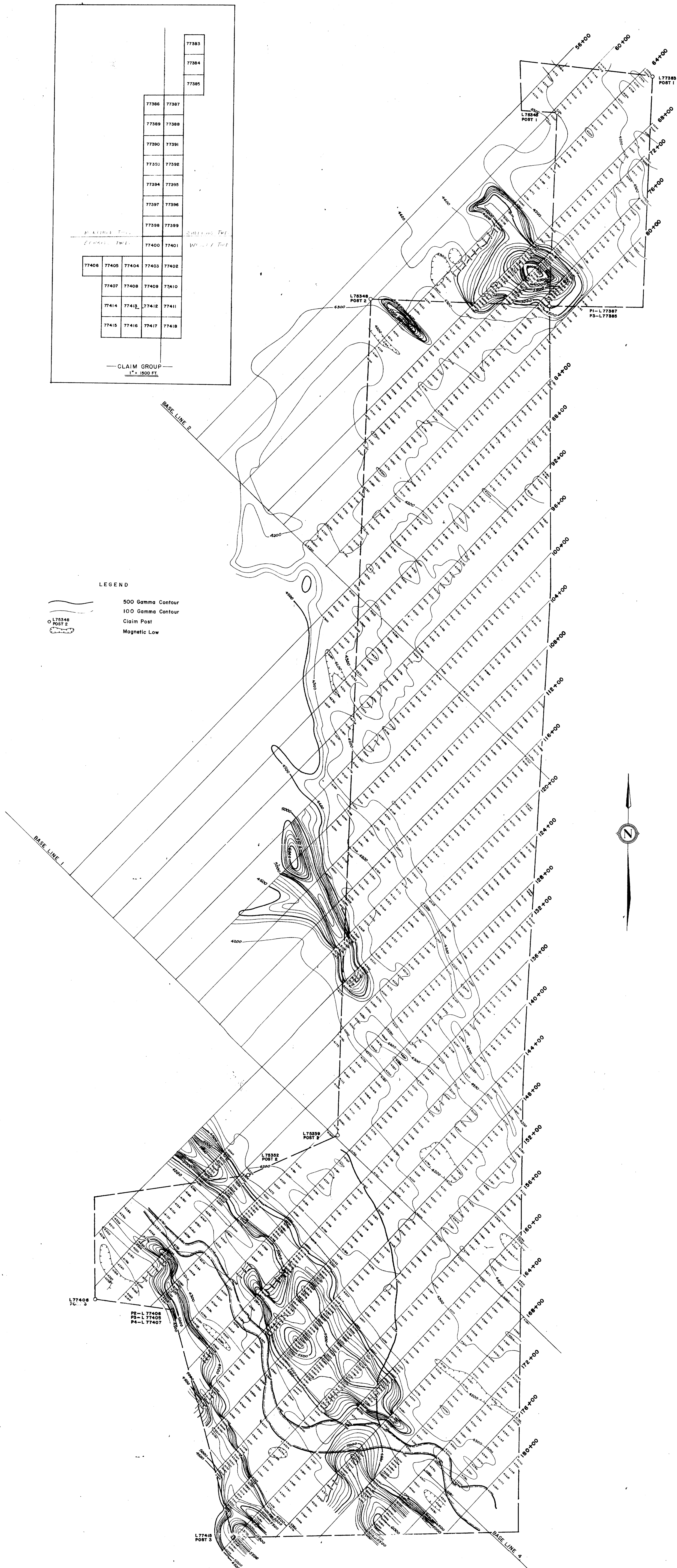
LEGEND

 500 Gamma Contour

 100 Gamma Contour

 Claim Post

 Magnetic Low



MAGNETOMETER SURVEY

**GLEN LAKE SILVER MINES LTD**  
MORTIMER TOWNSHIP, ONTARIO.

PROSPECTING GEOPHYSICS LTD.

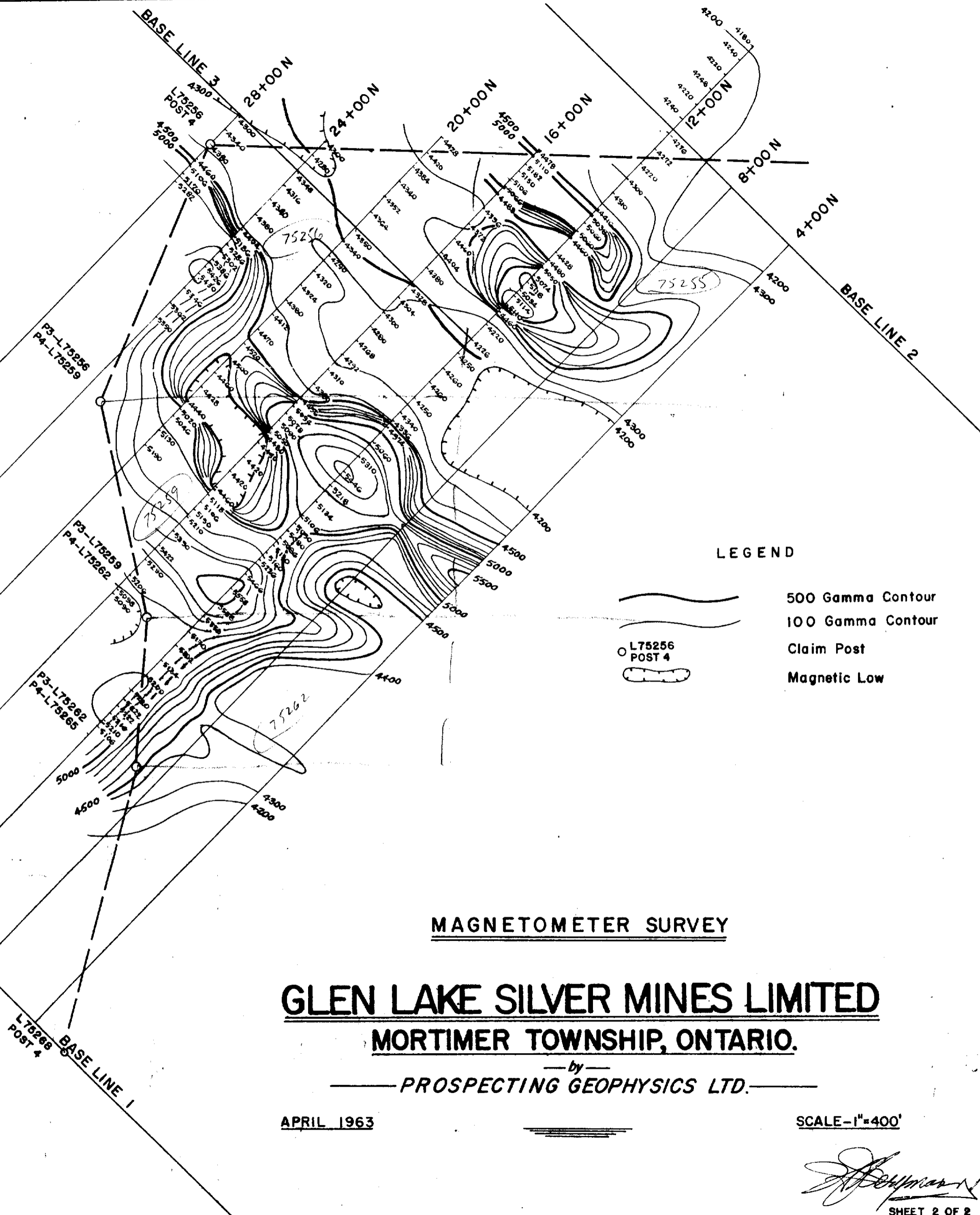
APRIL 1963

SCALE-1" = 400'


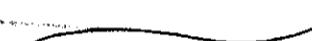

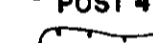
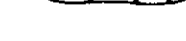


210

SHEET 1 OF 2



LEGEND

-  500 Gamma Contour
-  100 Gamma Contour
-  L75256 POST 4
-  Claim Post
-  Magnetic Low

MAGNETOMETER SURVEY

GLEN LAKE SILVER MINES LIMITED  
MORTIMER TOWNSHIP, ONTARIO.

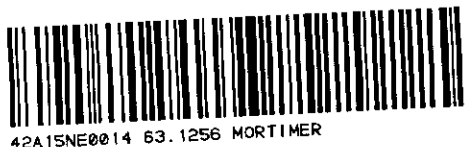
—by—  
PROSPECTING GEOPHYSICS LTD.—

APRIL 1963

SCALE—1"=400'

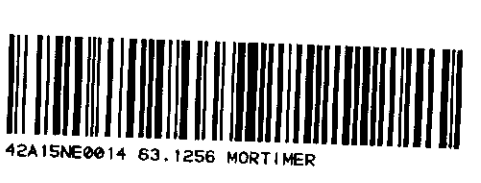
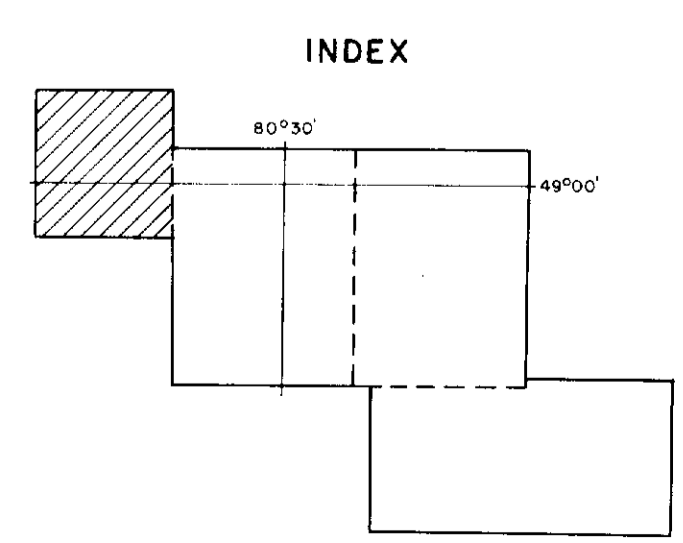
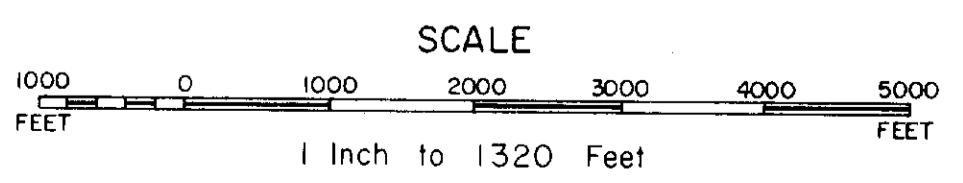
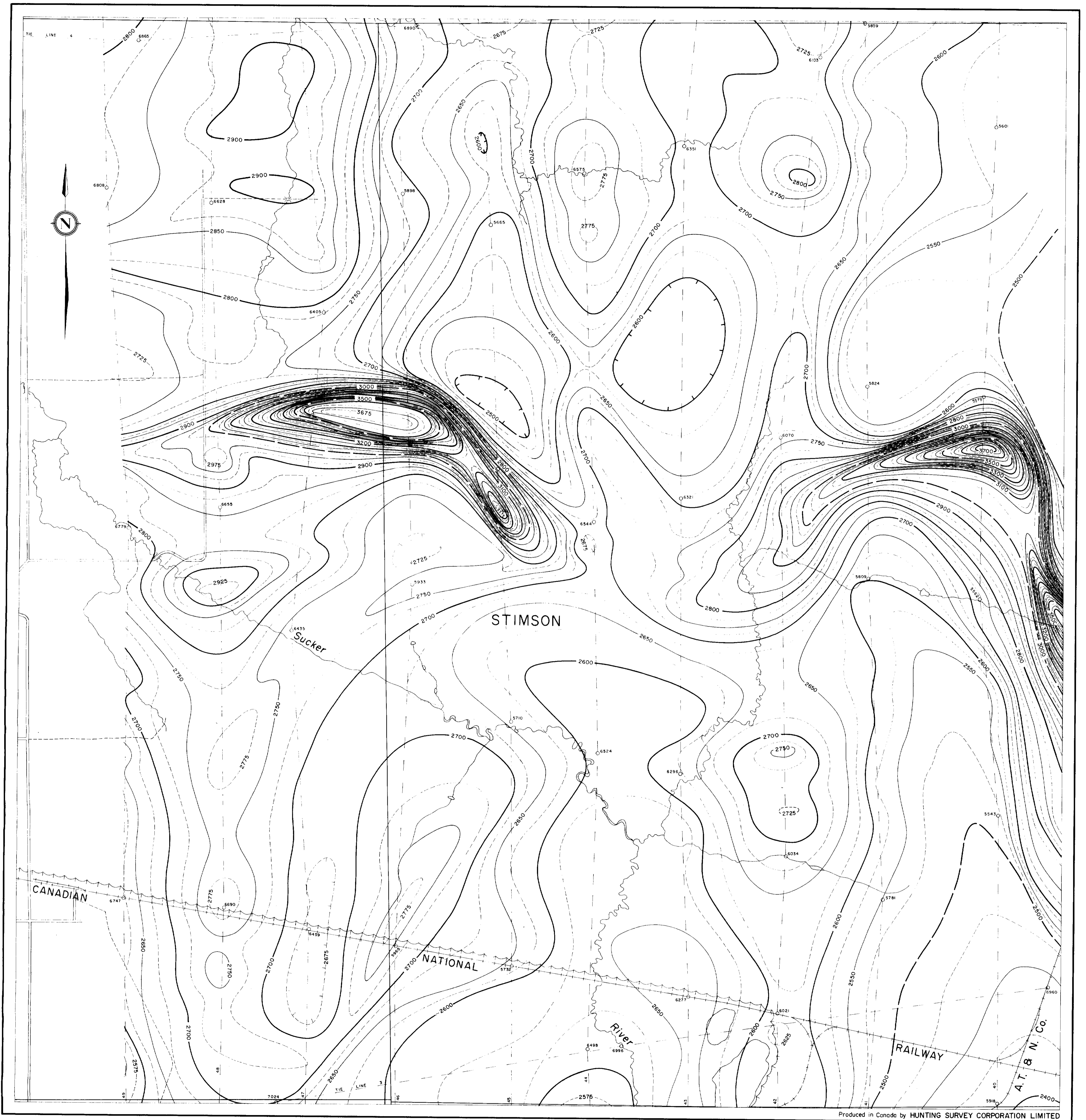


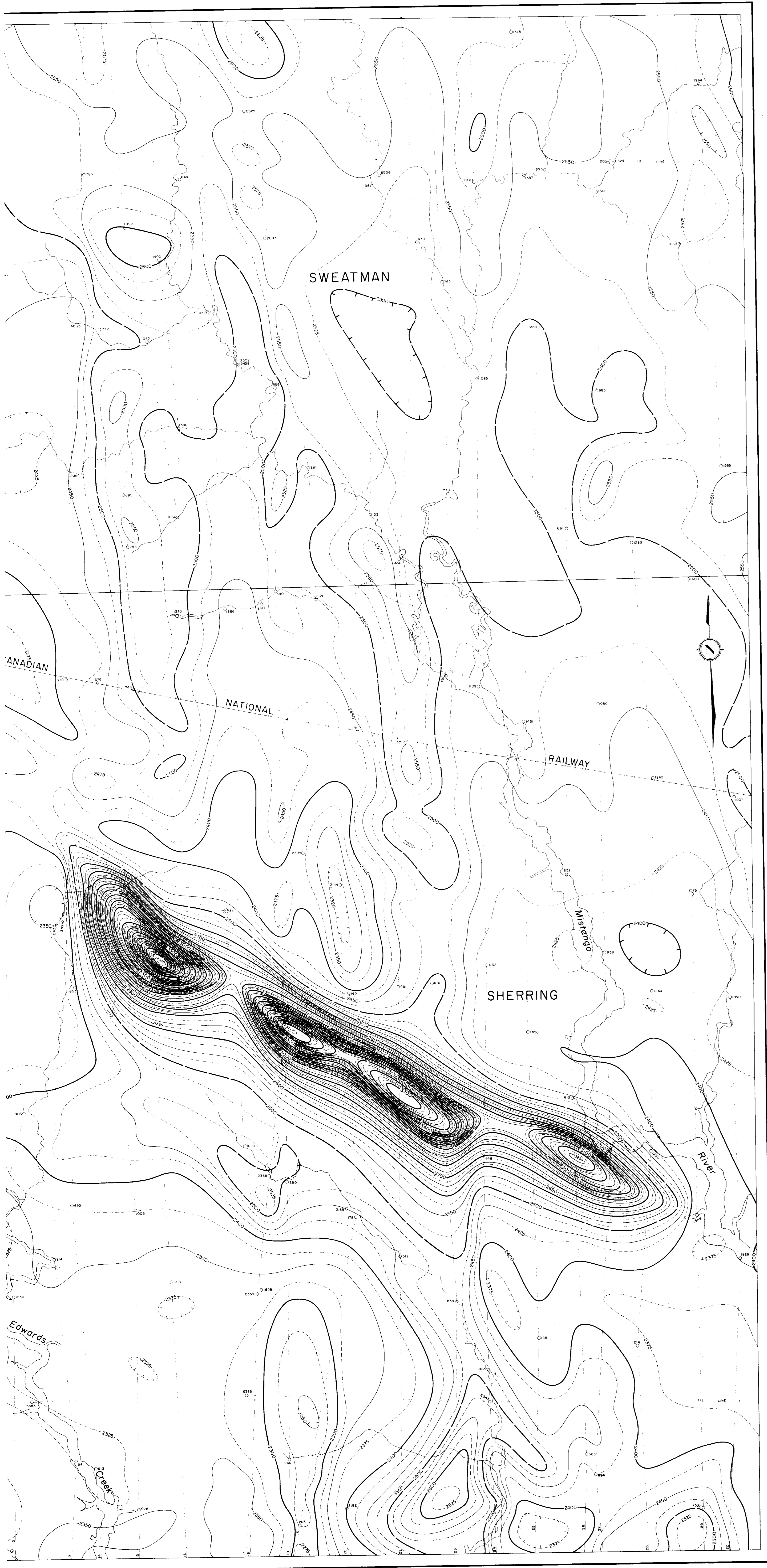
SHEET 2 OF 2



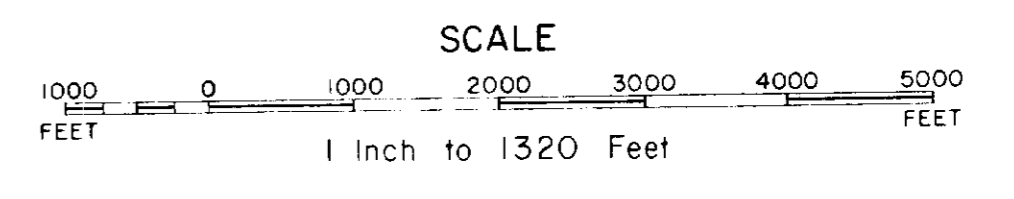


NORTH AMERICAN RARE METALS LIMITED  
 LAKE ABITIBI — TIMMINS AREA  
 MAGNETOMETRIC MAP

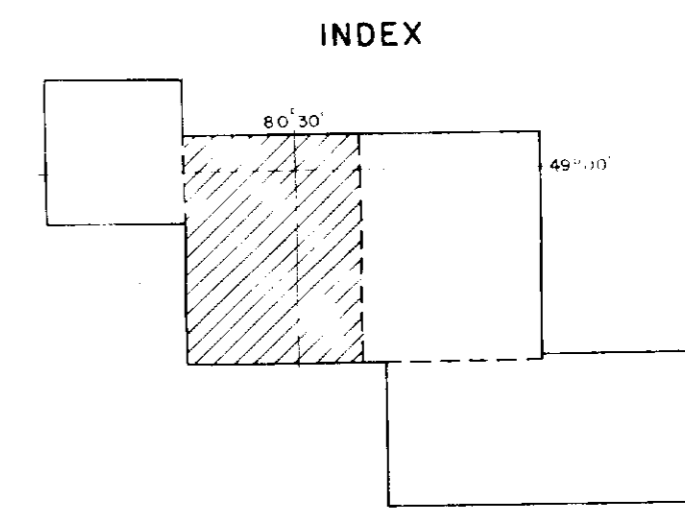




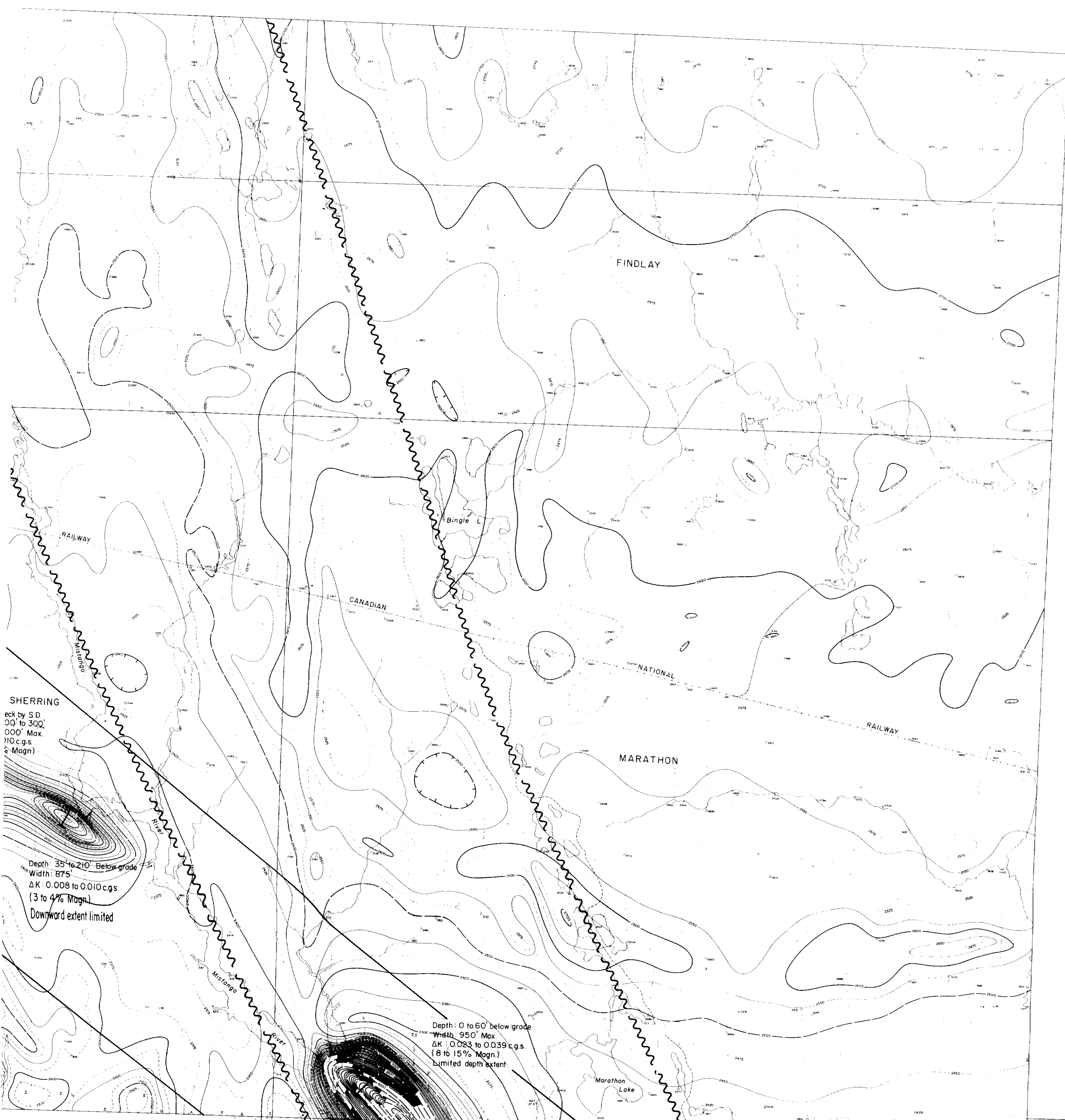
NORTH AMERICAN RARE METALS LIMITED  
LAKE ABITIBI — TIMMINS AREA  
MAGNETOMETRIC MAP



Produced in Canada by HUNTING SURVEY CORPORATION LIMITED

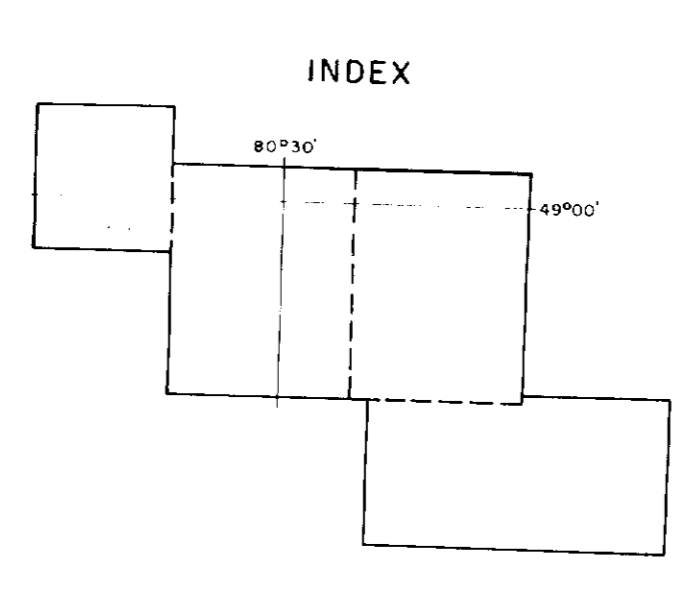




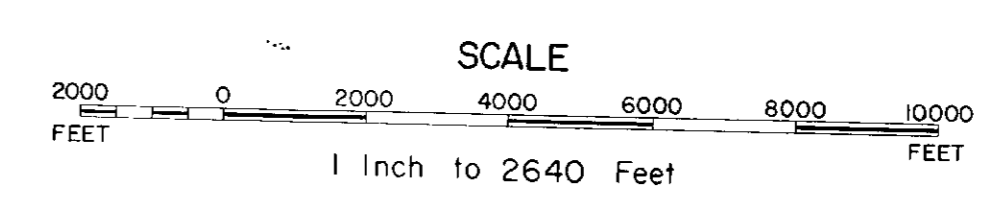


63-1256

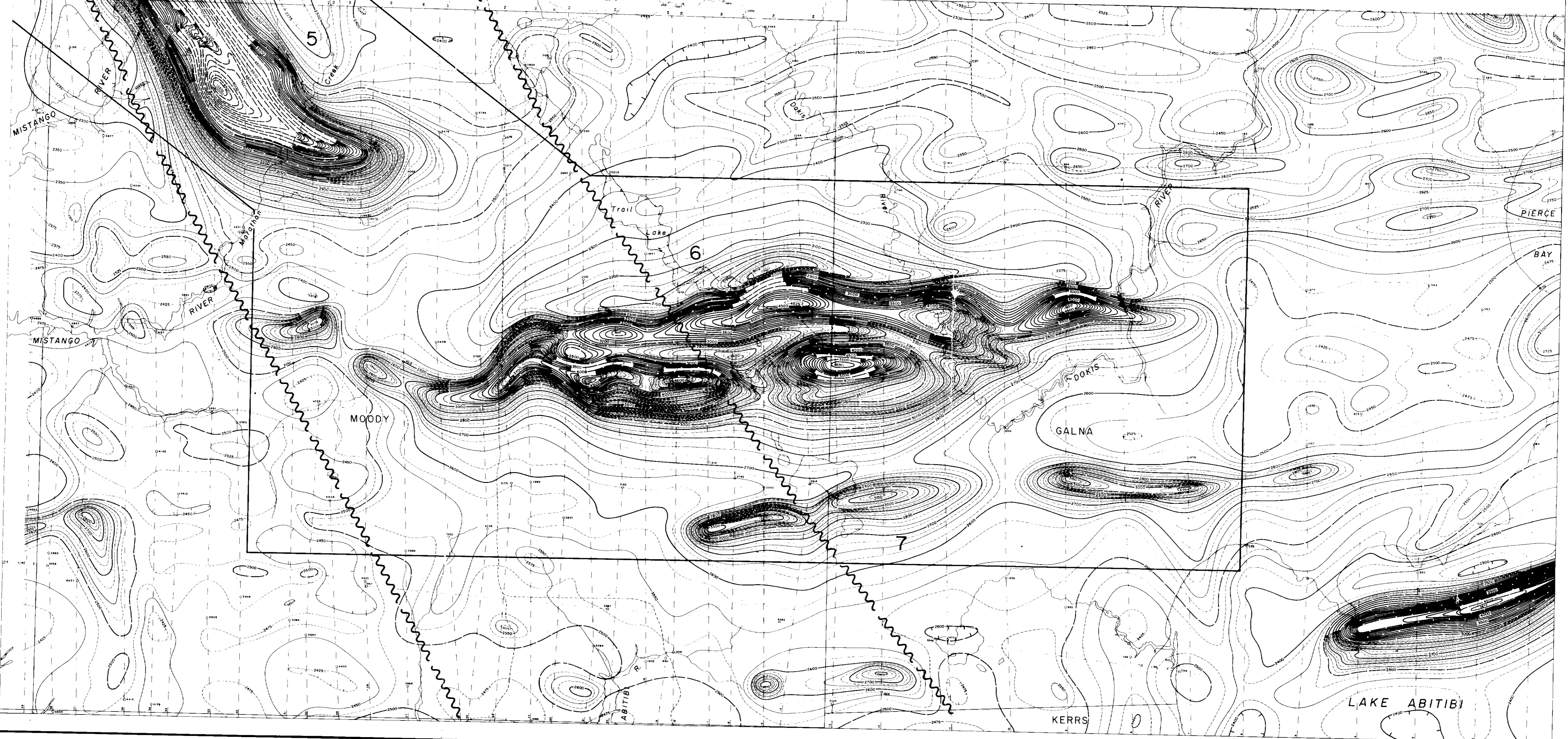
NORTH AMERICAN RARE METALS LIMITED  
LAKE ABITIBI — TIMMINS AREA  
MAGNETOMETRIC MAP



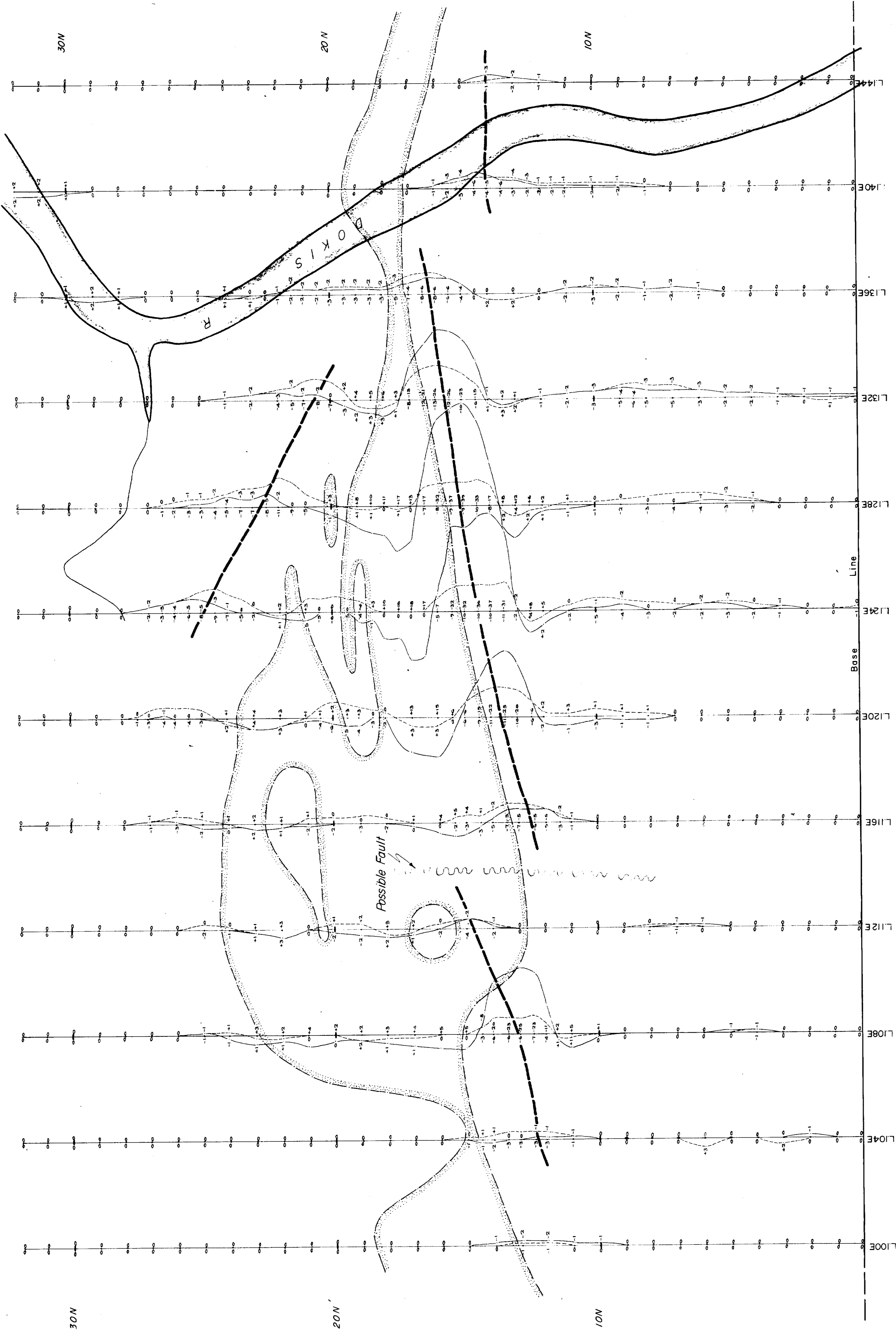
Planimetric detail reproduced from maps compiled by the DEPARTMENT OF LANDS and FORESTS, FOREST RESOURCES INVENTORY. Airborne Geophysics flown and compiled by the HUNTING SURVEY CORPORATION LIMITED, 1450 O'Connor Drive, TORONTO, 1960-1961.



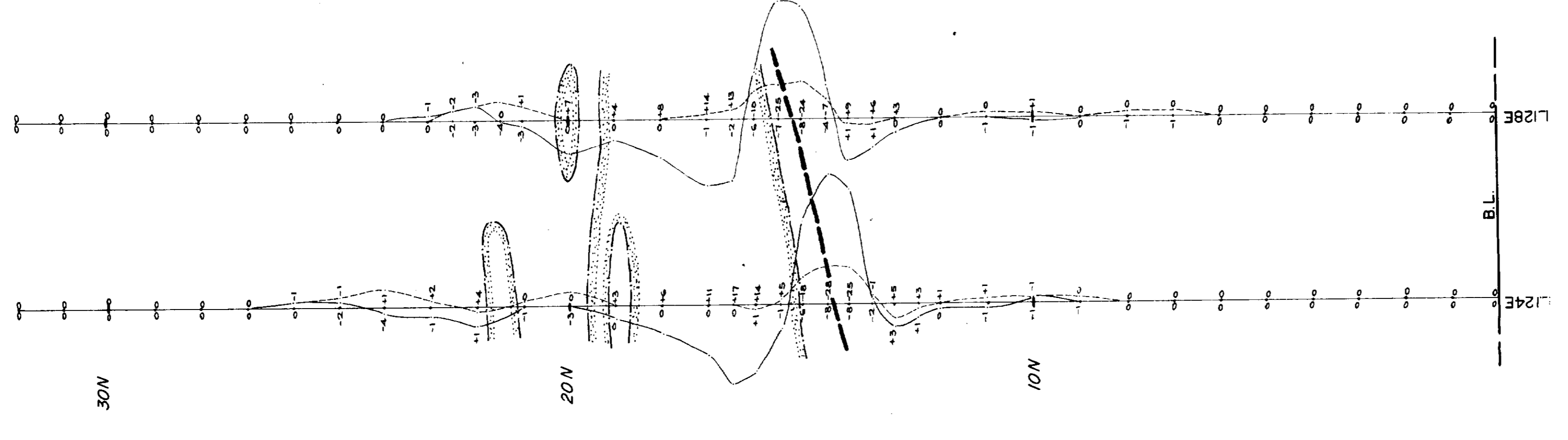
MEAN FLIGHT LINE SPACING: 1320 & 2640 FEET  
MEAN TERRAIN CLEARANCE: 475 FEET  
INFERRED FAULTS FROM MAGNETOMETER SURVEY: [Symbol]







—300' COIL SEPARATION—



—200' COIL SEPARATION—

- LEGEND**
- MEASUREMENT STATIONS ALONG PICKET LINES
  - ELECTROMAGNETIC READINGS—In Phase Component (%)
  - ELECTROMAGNETIC READINGS—Out of Phase Component (%)
  - PROFILE—In Phase Component (Scale 1"=20%)
  - PROFILE—Out of Phase Component (Scale 1"=20%)
  - ELECTRICAL CONDUCTOR
  - OVER 3000 GAMMAS MAGNETIC CONTOURS



ELECTROMAGNETIC SURVEYS

for  
**MISTANGO RIVER MINES LTD.**

by  
**PROSPECTING GEOPHYSICS LTD.**

APRIL 1963

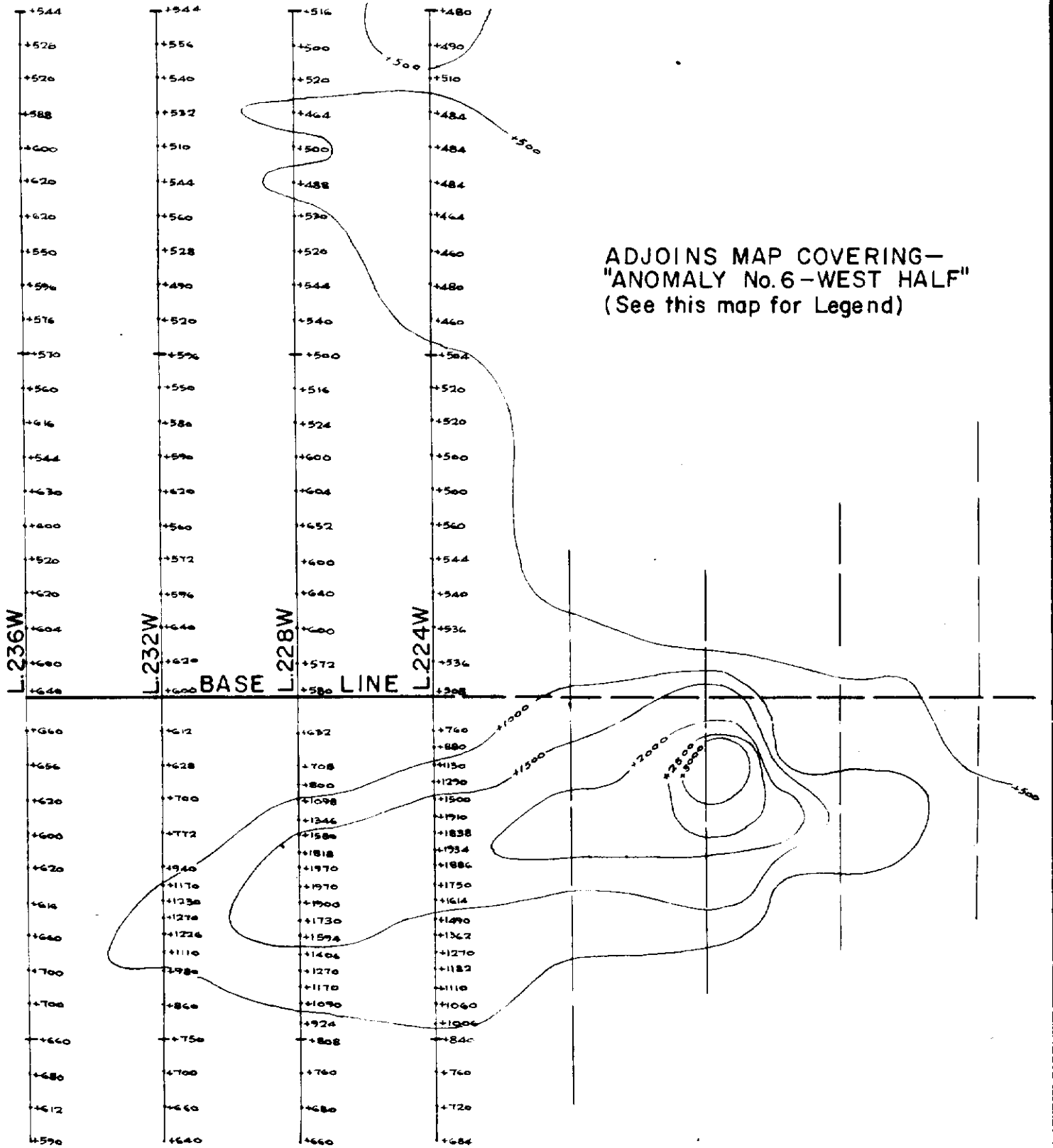
SCALE—1"=200'



20N

10N

10S



ADJOINS MAP COVERING—  
"ANOMALY No.6—WEST HALF"  
(See this map for Legend)



42A15NE0014 63.1256 MORTIMER

NETOMETER SURVEY

270 — for —

**MISTANGO RIVER MINES LTD.**

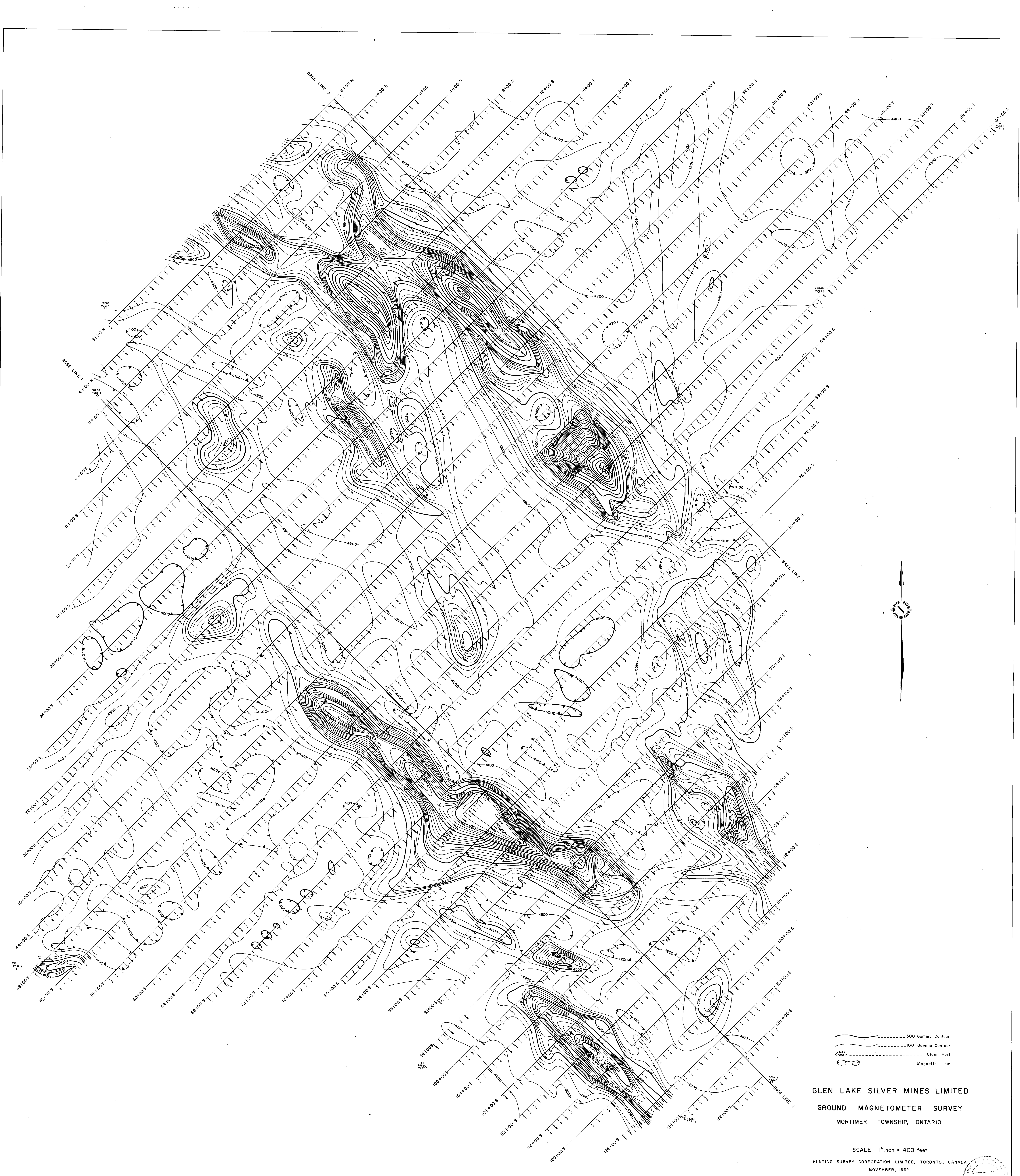
— by —

*Prospecting Geophysics Ltd.*

APRIL 1963

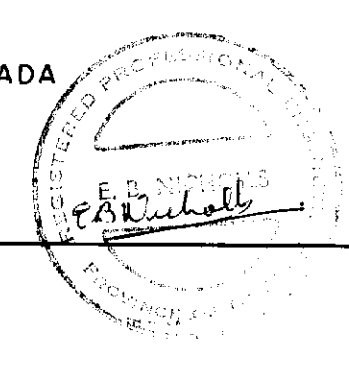
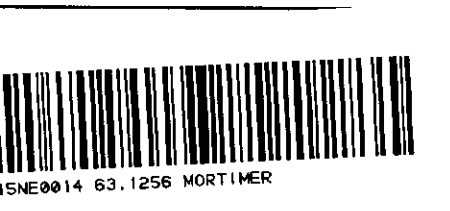
SCALE—1"=400'



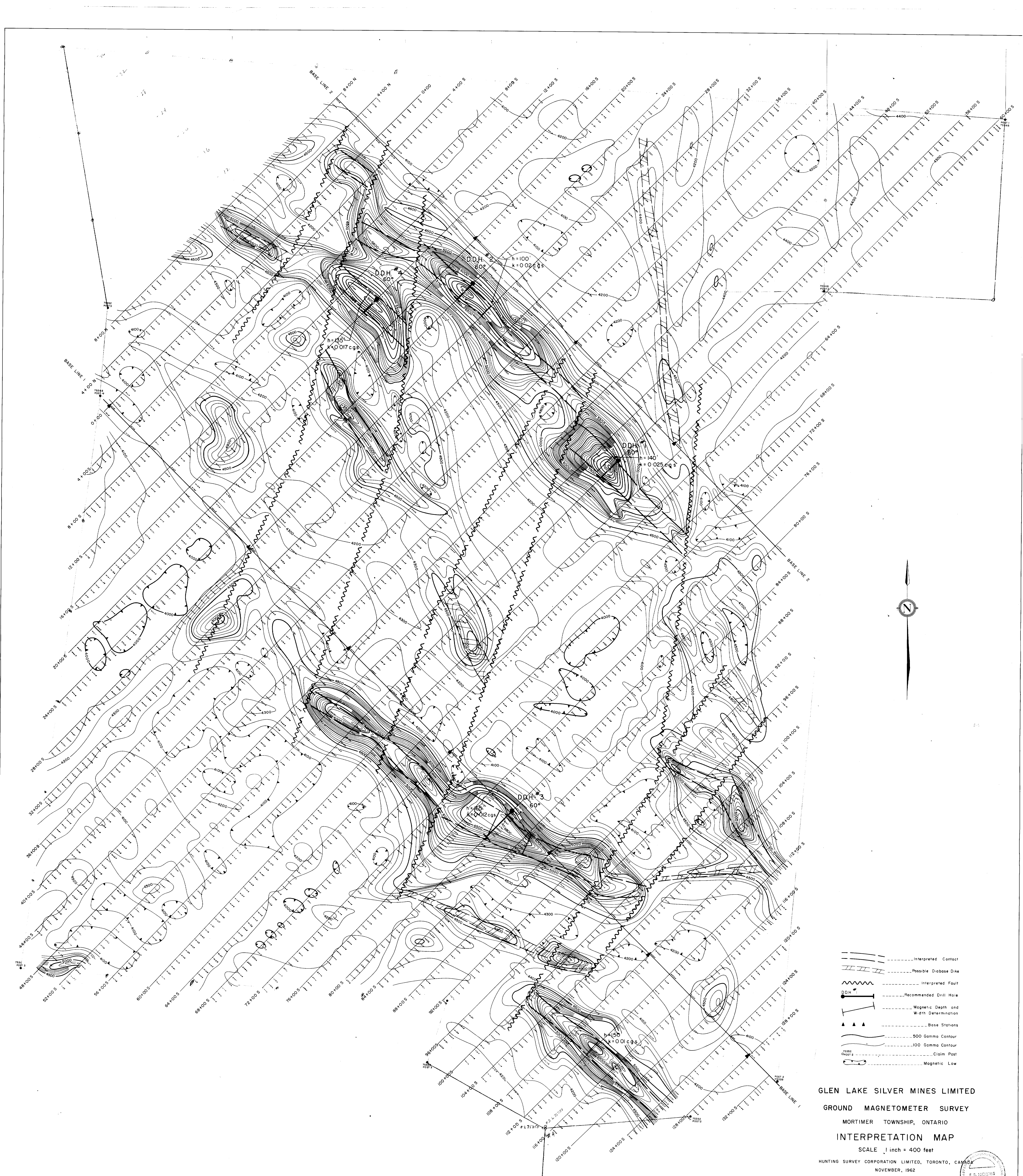


GLEN LAKE SILVER MINES LIMITED  
 GROUND MAGNETOMETER SURVEY  
 MORTIMER TOWNSHIP, ONTARIO

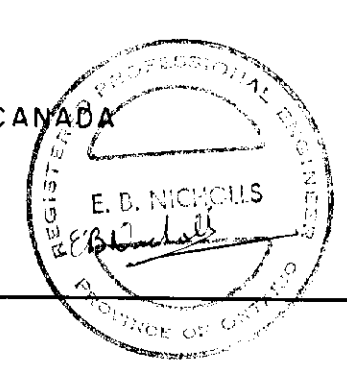
SCALE 1" = 400 feet  
 HUNTING SURVEY CORPORATION LIMITED, TORONTO, CANADA  
 NOVEMBER, 1962



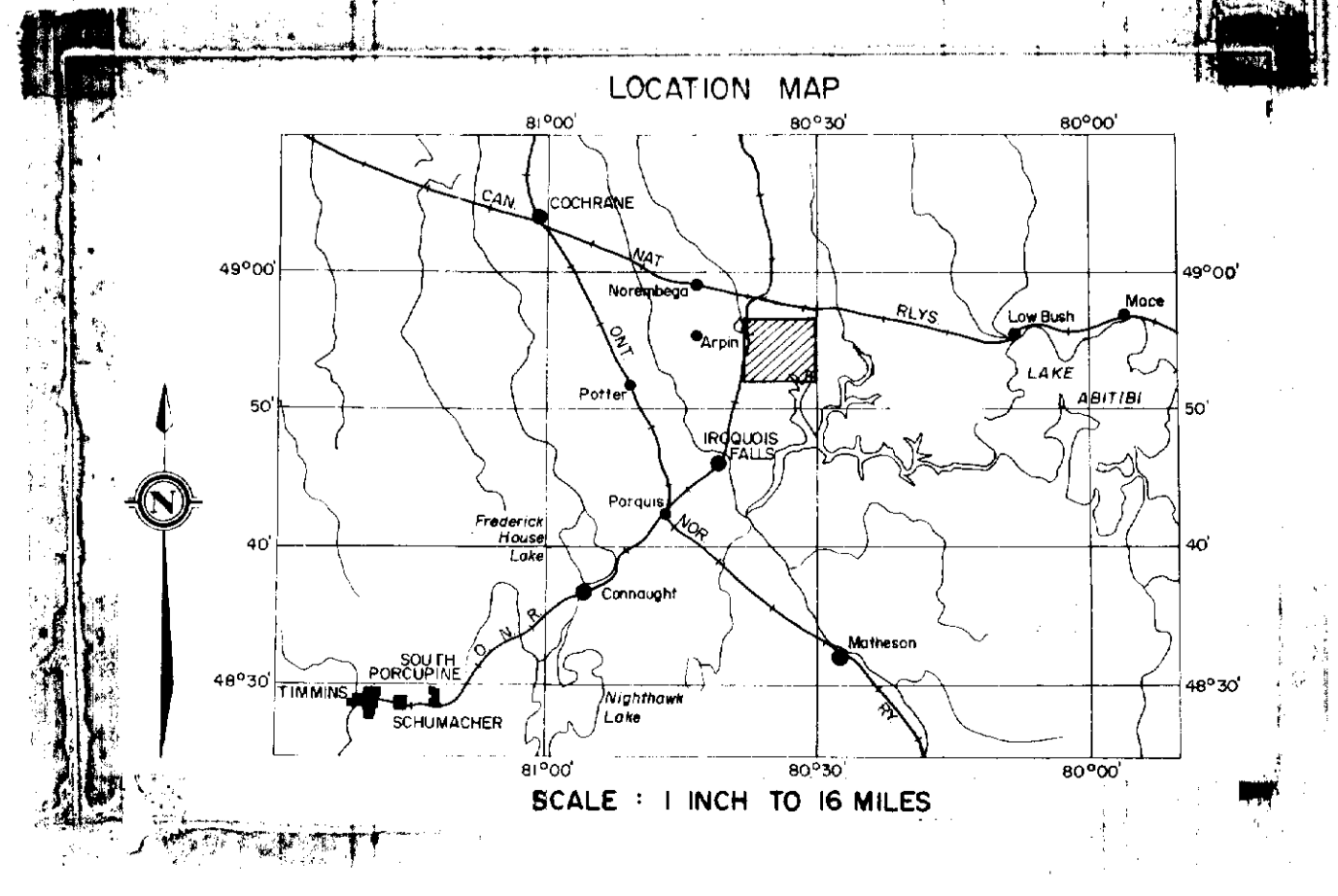
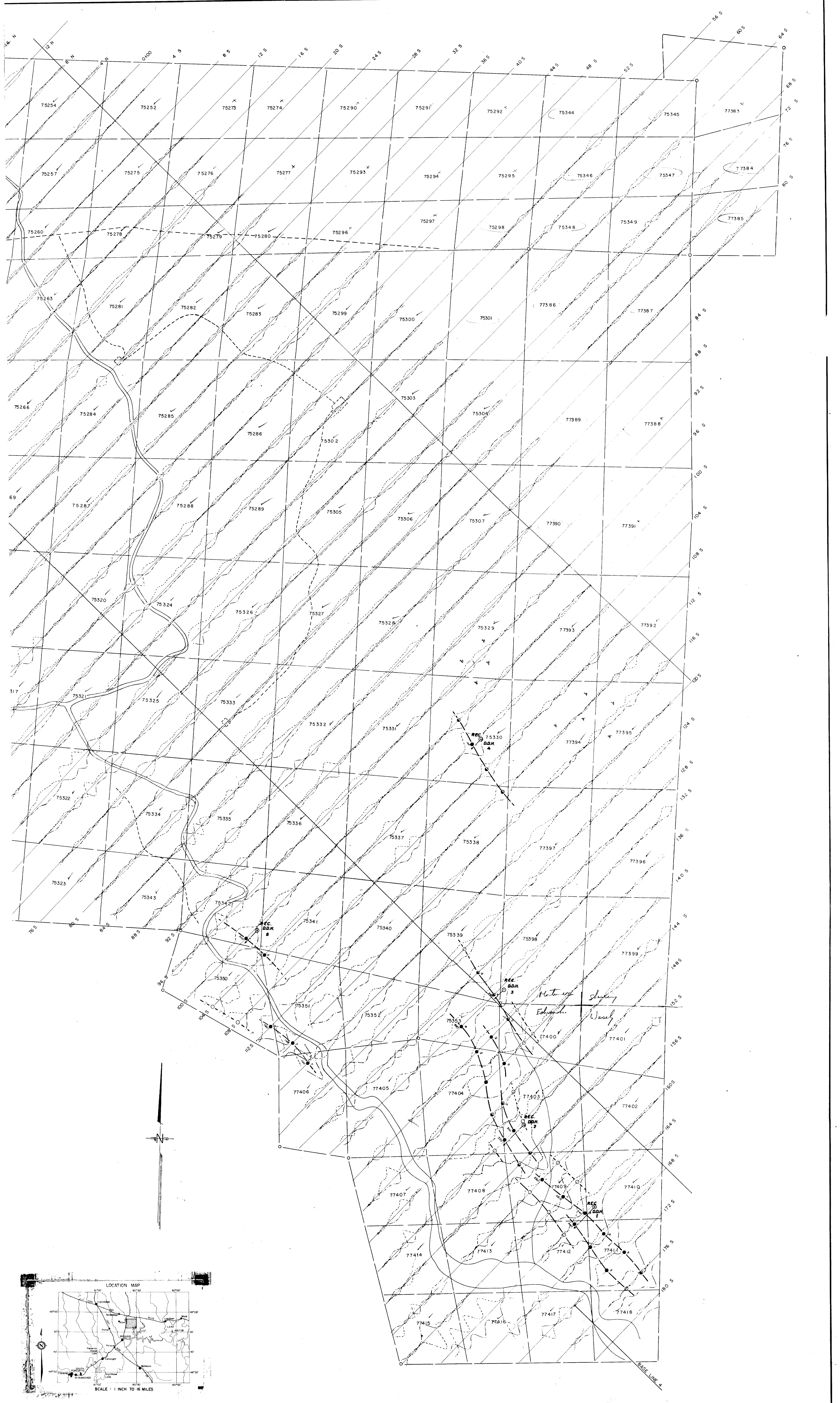




GLEN LAKE SILVER MINES LIMITED  
 GROUND MAGNETOMETER SURVEY  
 MORTIMER TOWNSHIP, ONTARIO  
 INTERPRETATION MAP  
 SCALE 1 inch = 400 feet  
 HUNTING SURVEY CORPORATION LIMITED, TORONTO, CANADA  
 NOVEMBER, 1962









A.T.B.N. Co.

STIMSON

SWEATMAN

CANADIAN

NATIONAL

RAILWAY

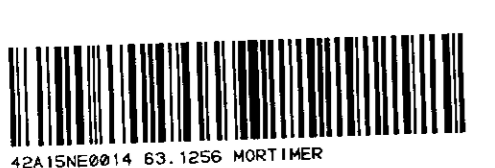
MISTINGO

SHERRING

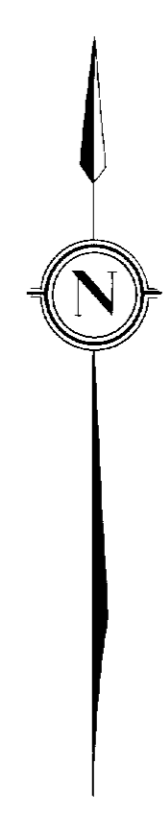
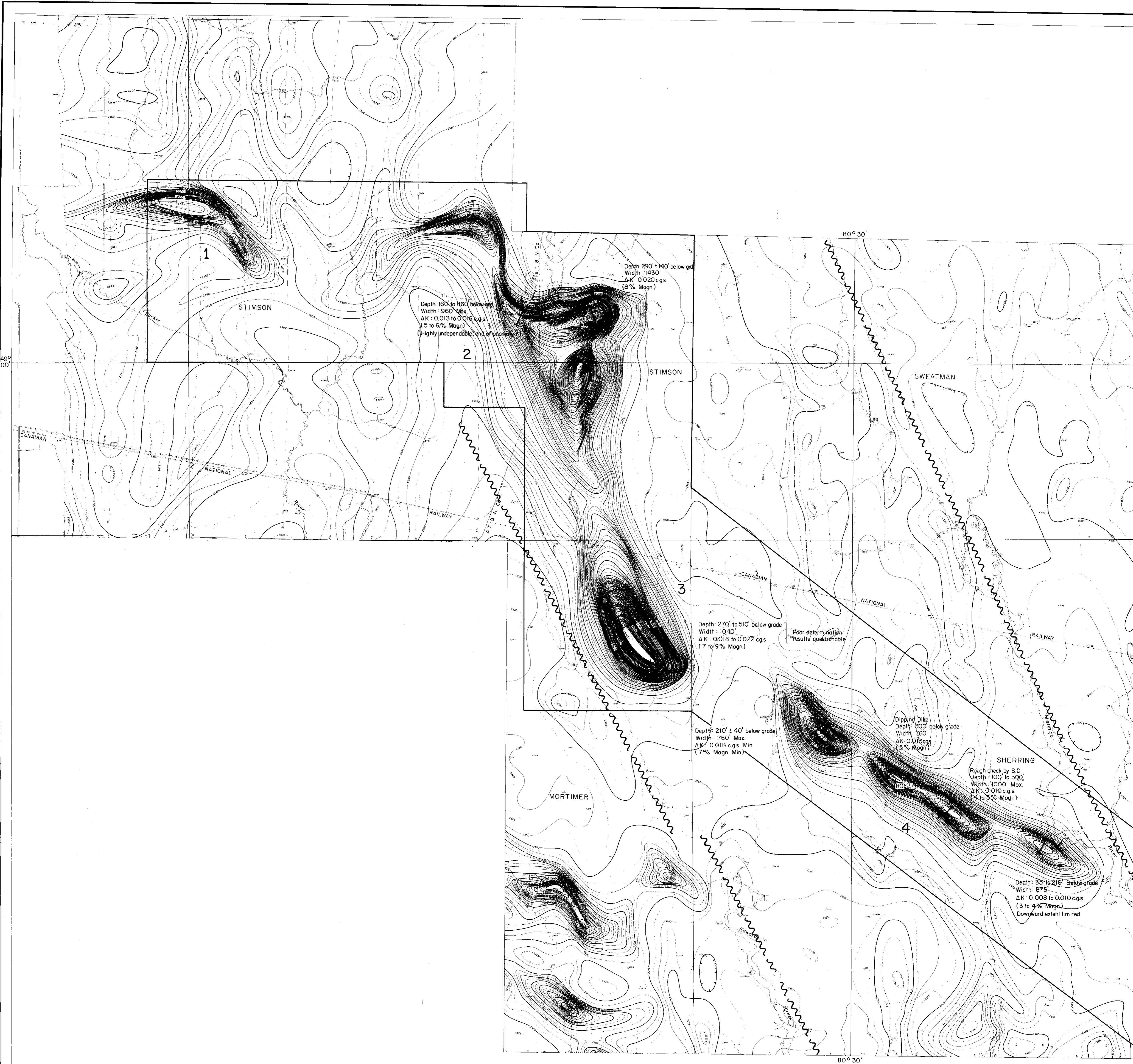
MORTIMER

Edwards

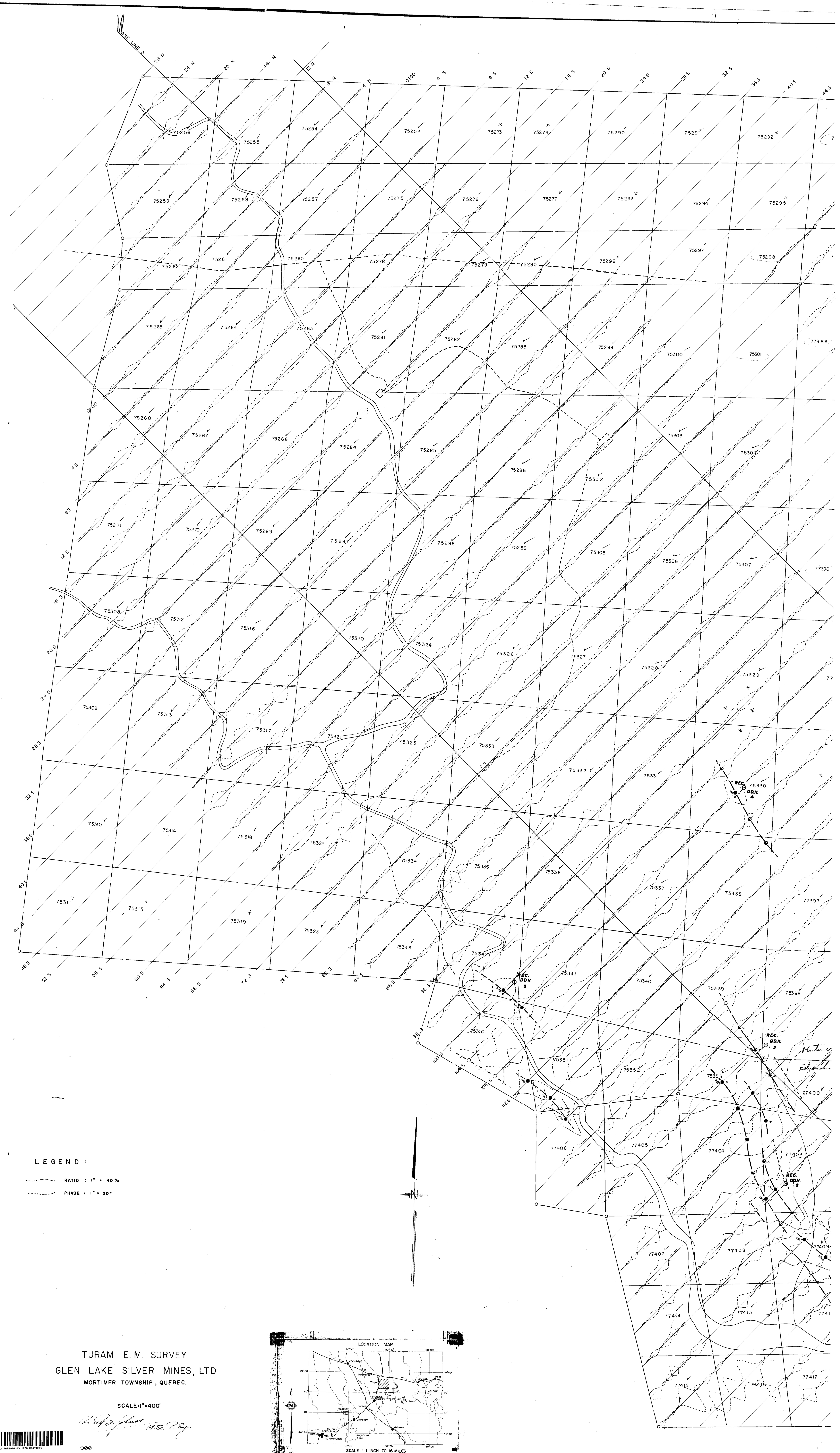
Creek



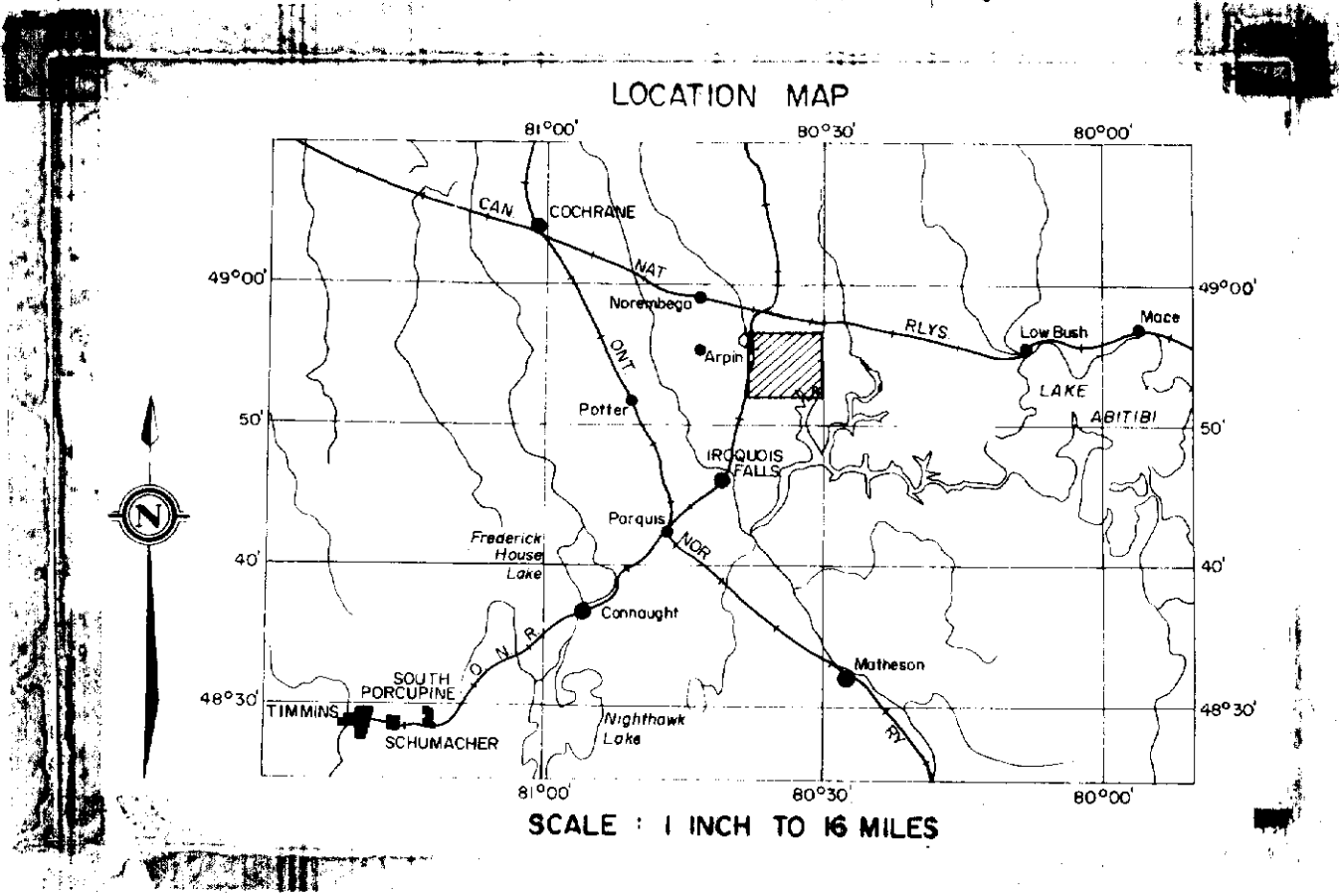








LEGEND:  
 - - - - - RATIO : 1" = 40'  
 - - - - - PHASE : 1" = 20'



TURAM E.M. SURVEY.  
 GLEN LAKE SILVER MINES, LTD  
 MORTIMER TOWNSHIP, QUEBEC.

SCALE: 1" = 400'  
*H. O. Seigel*  
*M.S. 7.84*



300

SURVEY BY HAROLD O. SEIGEL & ASSOCIATES, LTD.

JUNE 1964.