INTRODUCTION

A combined magnetometer-electromagnetic survey has been carried out on the property of Elephant Country Explorers Limited in Hoyle Township, Ontario. The survey was completed during the last half of June, 1968.

The object of the programme is to locate specific geological or geophysical conditions favourable to the deposition of base metals or gold.

PROPERTY, LOCATION AND ACCESS

The property consists of 16 contiguous unpatented mining claims numbered P 96678, P 96918 to P 96921 inclusive, P 96695 to P 96702 inclusive, and P 96705 to P 96707 inclusive.

These claims, in Hoyle Township, are located in Concession IV, Lot 6; Concession IV, north half of Lot 5; and Concession V, south half of Lot 6. Timmins, Ontario, a mining community is situated 12 miles southwest of the property.

The property is accessible by boat or swamp vehicle. The Porcupine River, which flows north along the east boundary of the claims, provides access by boat from Whitney Township or Matheson Township. Alternatively, a winter road from the railroad crossing, just north of the Pamour mine, extends west and then north along the centre line of Hoyle Township to the property, a distance of about 5 miles. This road can only be negotiated by a swamp vehicle.

PREVIOUS WORK

The writer is not aware of any previous work which has been carried out on the claim group.

GEOLOGY

The geology of the general area is shown on Map No. 48A published by the Ontario Department of Mines in 1939.

Although no rock exposures are present on the property, exposures and drilling to the east suggests that the contact between sediments to the north and volcanics to the south crosses the south half of Lot 6, Concession IV, in an east-west direction. Rock exposures to the east tend to strike about east-west and dip vertically or steeply north.

ELECTROMAGNETIC-MAGNETOMETER SURVEY RESULTS AND INTERPRETATIONS

The survey was conducted along north-south picket lines. On the south half of Lot 6, Concession IV, the lines were established at 200 foot intervals and on the remaining portion of the property at 400 foot intervals. Maps, at a scale of one inch to three hundred feet, accompanying this report show the geophysical data. A ronka EM 16 electromagnetic unit and a Sharpe M.F.-1 fluxgate magnetometer were used for the survey.

The magnetic background of the property ranges between 650 and 750 gammas and the general trend of isomagnetics is west-northwest. Three magnetic anomalies are present on the property.

The most prominent anomaly, ranging from 75 to 1025 gammas, is linear shaped, striking north-northwest. It represents

a diabase dyke which is approximately 50 feet wide and dips east.

On claim P 96919 crossing the north portions of Lines 4 East and 8 East are two small elongate anomalies about 150 feet apart, striking about east-west. The north anomaly is marked by one station at 2231 gammas. The south anomaly is continuous for over 400 feet up to 200 gammas, above background. Conductor C, to be described, is associated with these magnetic features.

A small magnetic anomaly, at station 16 North, Line 12 East, attains a peak value of 1041 gammas. Conductor B coincides with this anomaly.

The magnetometer survey does not show a variation which might indicate a greenstone-sedimentary contact.

Many conductive zones of variable intensity have been detected by the electromagnetic survey. With the exception of conductors A, B, and C, all have weak characteristics and are, therefore, probably caused by conductive overburden or wet faults.

Conductor A, at Station 16 North, Line 12 East, corresponds with the peak of the above described magnetic anomaly. This conductor is partially masked by overburden conductors to the north and south and, therefore, the in-phase profile is not a true cross-over. However, the relationship of the in-phase profile to the quadrature profile indicates bedrock conductivity. Both the conductor and magnetic anomaly are less than 800 feet long, having been detected on only one line. The magnetic high is approximately

150 feet wide.

Conductor B is at least a half mile long, extending west-northwest from the diabase dyke across the centre portion of the property. The strongest portion of conductivity is between Line 8 East and Line 0 where it crosses the property boundary. On Line 4 East the relationship of the in-phase profile to the quadrature profile indicates moderate bedrock conductivity overlain by conductive overburden. The zone of strongest conductivity is within a slightly higher magnetic area.

The in-phase and quadrature profiles of Conductor C, in the north part of the property, indicate poor to moderate conductivity. It is uncertain whether or not the conductivity is in bedrock or overburden. It is the presence of small magnetic linears corresponding to, or nearby, the conductor axis which accounts for the importance of Conductor C. This conductor strikes west-northwest and is approximately 800 feet long.

The greenstone-sedimentary contact on the property may be indicated by the electromagnetic profiles. Just north of the base line in Lot 6, the in-phase and quadrature profiles show greater variation and intensity than in the south portion of the property.

CONCLUSIONS

The magnetometer survey indicates a prominent diabase dyke crossing the property in a north-northwest direction. Other-

wise the magnetic trend is a little north of west. The contact between sediments to the north and volcanics to the south is not indicated by a change in the magnetic intensities.

Numerous poor conductive zones caused by wet faults or conductive overburden trend generally west-northwest corresponding to the magnetic trend and the probable strike of the rocks in the area. The variation and change in intensity of the electromagnetic profiles indicates that the contact between sediments to the north and volcanics to the south may be located just north of the base line in Lot 6. It is expected to strike west-northwest.

Three conductive zones, two of which are associated with magnetic anomalies, require further investigation. Conductor A, less than 800 feet long, corresponds with the peak of a magnetic anomaly which may be caused by pyrrhotite or magnetite associated with base metal sulphides. Conductor B is at least a half mile long. The strongest portion of this conductive zone is more than 800 feet long in an area of slightly increased magnetic intensity. This conductor may be caused by shearing, graphite, or sulphides. Conductor C, of weak to moderate strength, is associated with small lenticular magnetic highs. To determine the cause of this conductor, approximately 800 feet long, and the associated magnetic features requires further investigation.

RECOMMENDATIONS

Diamond drilling is recommended to investigate Conductors A, B, and C. It is proposed that each conductor be investi-

gated by one hole as follows:

Hole No.	Location	Direction	Dip	Depth (ft.)
68-1	Line 12 E (A) St. 17+30 N	South	50°	375
68-2	Line 4 E (B) St. 35+75 N	South	50°	375
68-3	Line 4 E (C) St. 49+60 N	South	50°	450
			Total Footage	1200

Cost of this drill programme is estimated at $9600.

Respectfully submitted,

SHIELD GEOPHYSICS LIMITED,

R. J. Bradshaw, B.A., F.G.A.C.,
Consulting Geologist.

Timmins, Ontario,

July 4, 1968.

CERTIFICATE

I, Ronald J. Bradshaw, residing at 480 Howard Street, Timmins, Ontario, a consulting geologist with office at 26 Pine Street South, Timmins, Ontario, do hereby certify that:

I attended Queen's University, Kingston, Ontario, and graduated with an Honours B.A. degree in Geological Sciences in 1958.

I am a Fellow of the Geological Association of Canada, a Member of the Canadian Institute of Mining and Metallurgy, and qualified for membership in the Association of Professional Engineers of the Province of Manitoba in 1959.

I have no interest either directly or indirectly in the shares or securities of Elephant Country Explorers Limited.

Timmins, Ontario,
July 4, 1968.

R. J. Bradshaw, B.A., F.G.A.C.,
Consulting Geologist.

APPENDIX

Survey Method and Instrument Data

A Ronka EM 16, number 35, was used for the survey.

This instrument is simply a sensitive receiver covering the frequency of the new VLF-transmitting stations with means of measuring the vertical field components. The VLF-transmitting stations operate for communications with submarines at frequencies between 17.8 and 24.0 Khz. The vertical antenna current of these transmitting stations creates a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. This equipment measures the vertical components of these secondary fields.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has a normally vertical axis and the other is horizontal.

The signal from the coil with vertical axis is first minimized by tilting the instrument. The tilt angle is calibrated in percentages. The remaining signal in this coil is finally balanced out by a measured percentage of signal from the other coil.

After a suitable station is selected, at right angles to the direction of the survey lines, readings are made of the in-phase

and quadrature components where the signal has been minimized to its greatest degree. The VLF-transmitting stations, at Cutler, Maine and Seattle, Washington, have been used for this survey.

The lower end of the handle, will as a rule, point towards the conductor and the instrument is so calibrated that when approaching a conductor, the angles are positive in the in-phase component.

As with any electromagnetic unit, the largest and best conductors give the highest ratio of the in-phase and quadrature components.

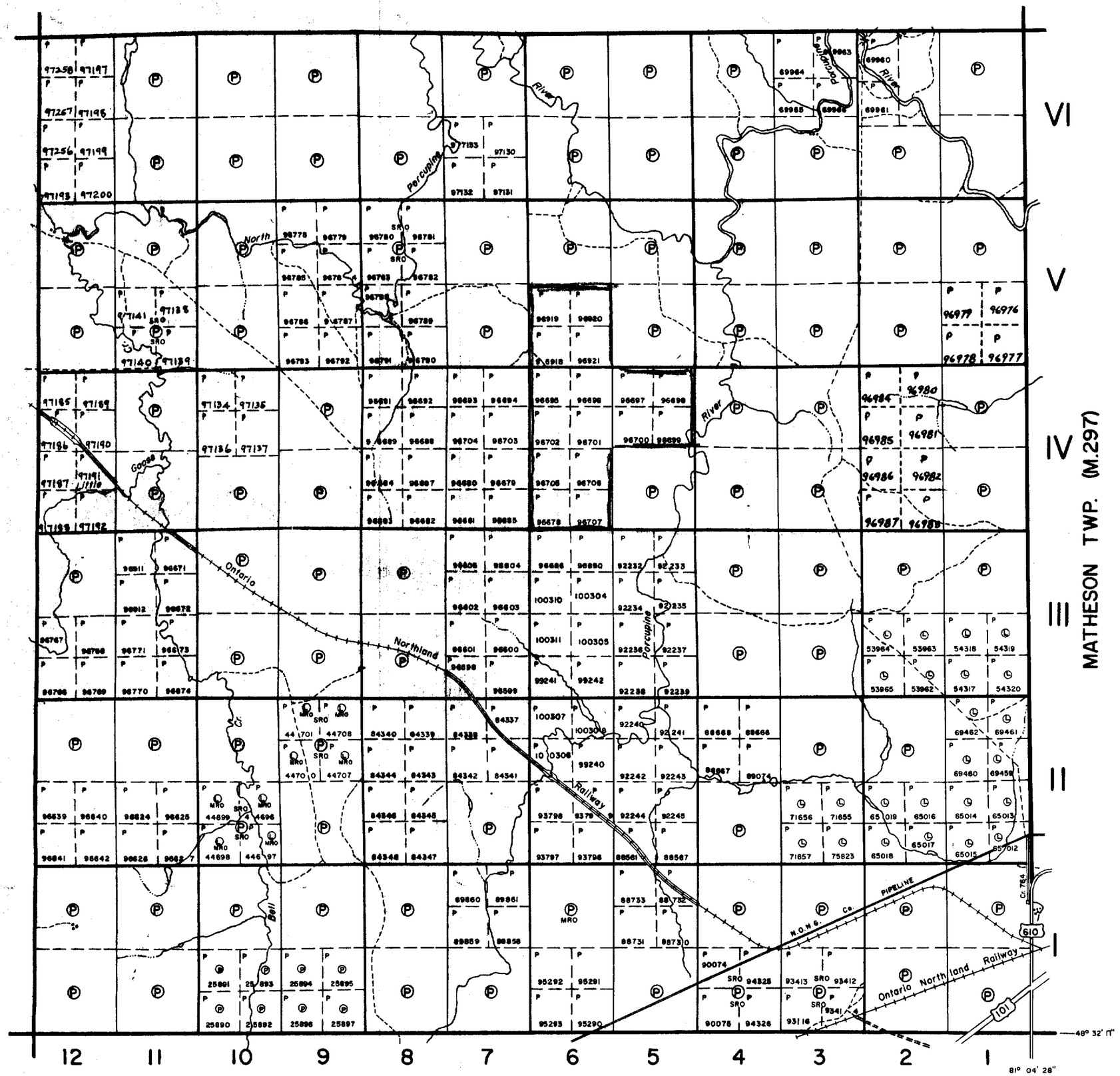
A Sharpe M.F.-1 fluxgate magnetometer was used in the magnetic survey. This instrument measures the vertical component of the earth's magnetic field in gammas. Base stations for determining the magnetic diurnal variations were established along the main base line at 400 foot intervals. Magnetic readings were taken at 50 foot intervals, along the cross lines.

GOWAN TWP. (M.285)

MURPHY TWP. (M.303)

MATHESON TWP. (M.297)

WHITNEY TWP. (M.319)



THE TOWNSHIP
OF

HOYLE

DISTRICT OF
COCHRANE

PORCUPINE
MINING DIVISION

SCALE: 1-INCH — 40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S.
LEASES	Ⓛ
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.

NOTES

400' Surface Rights Reservation around all lakes and rivers.

No disposition of sand and gravel from May 8, 1964 until further notice.

PLAN NO. M.287

DEPARTMENT OF MINES

— ONTARIO —

200

63-2371

L0 L4E L8E L12E L16E L20E L24E L28E L32E L36E L40E L44E L48E L52E

CONCESSION V

CONCESSION IV

68-3 "C" 68-2 "B" 68-1 "A"

700 700 1000

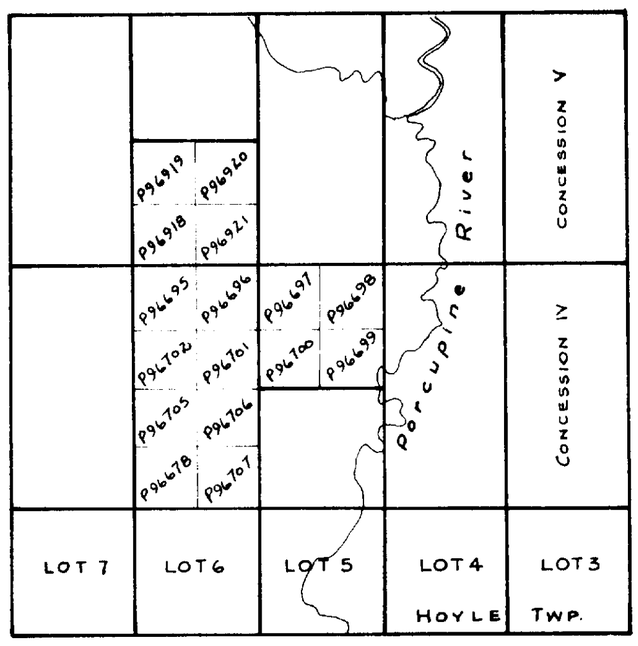
Tractor Road

BASE LINE

LOT 5

LOT 6

N AST.



KEY MAP
1 inch to ½ mile

LEGEND

Measurement station along picket line

-7 In phase readings (%) plotted to right

-7 Quadrature readings (%) plotted to left

Profile scale : 1" = 20%

Electromagnetic Conductor

INSTRUMENT: Ronka EM 16. Readings taken with instrument facing north

ELECTROMAGNETIC SURVEY

ON THE PROPERTY OF

ELEPHANT COUNTRY EXPLORERS LTD.

HOYLE TOWNSHIP, PORCUPINE MINING DIVISION, ONTARIO

BY

SHIELD GEOPHYSICS LIMITED

SCALE

0 300 600 900 1200
FEET

JUNE 1968

July 8, 1968

63-2371

220

MAGNETOMETER SURVEY

ON THE PROPERTY OF

ELEPHANT COUNTRY EXPLORERS LTD.

HOYLE TOWNSHIP, PORCUPINE MINING DIVISION, ONTARIO

BY

SHIELD GEOPHYSICS LIMITED

SCALE

0 300 600 900 1200

FEET

JUNE

1968

LEGEND

Measurement station along picket line

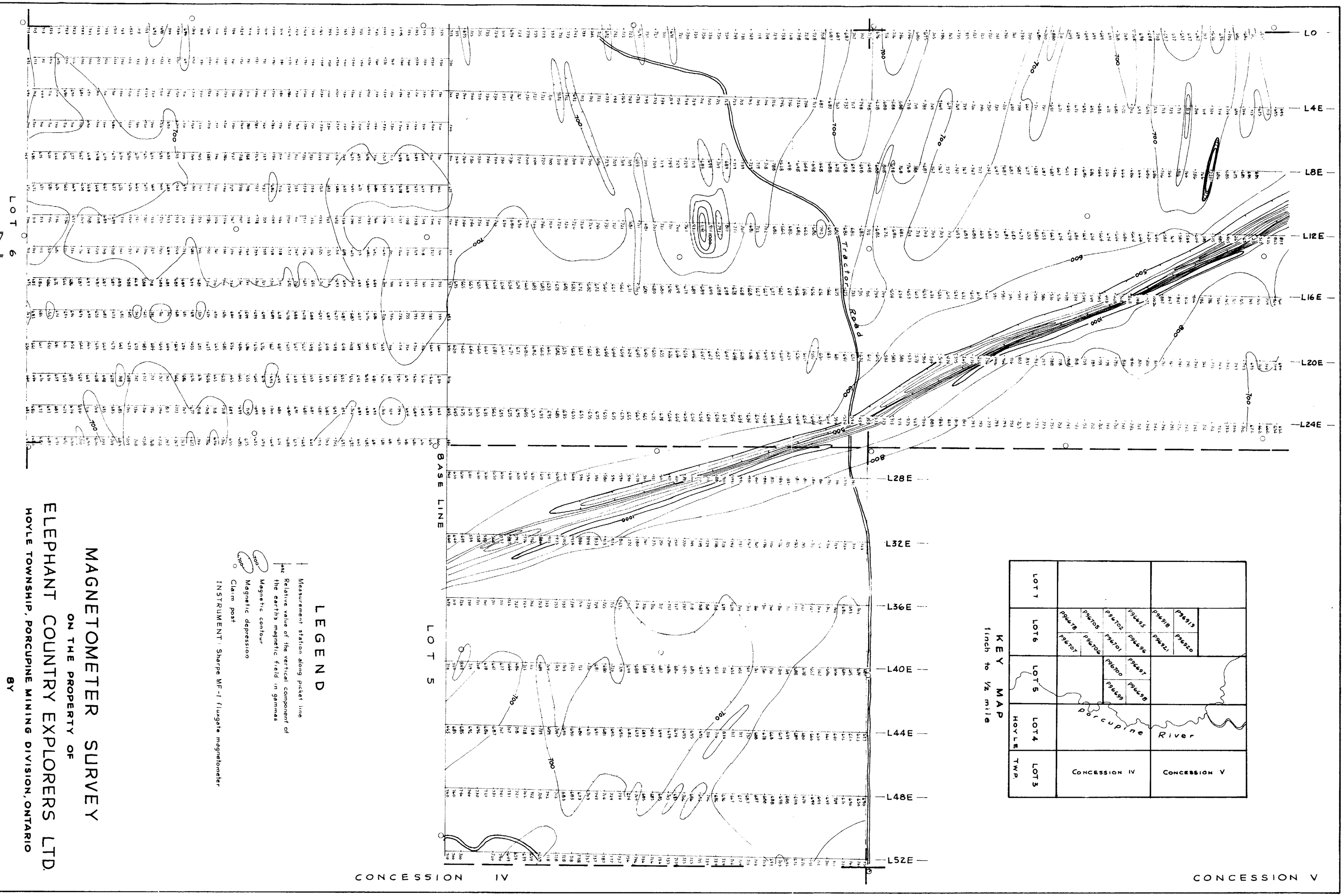
Relative value of the vertical component of the earth's magnetic field in gammas

Magnetic contour

Magnetic depression

Claim post

INSTRUMENT: Sharpe MF-1 fluxgate magnetometer



KEY MAP
1 inch to ½ mile