REPORT ON
COMBINED HELICOPTERBORNE
MAGNETIC, ELECTROMAGNETIC AND VLF
SURVEY
MADOC AREA
SOUTHERN ONTARIO

RECEIVED
SEP 2 1988
MINING LANDS SECTION

FOR
MICHAM EXPLORATION INC.
BY
AERODAT LIMITED

J8818MNDM

Glenn Boustead

on this file

TABLE OF CC

Page No.

3. AIRCRAFT AND EQUIPMENT

4. DATA PRESENTATION

LIST OF MAPS

(Scale 1:10,000)

1. BASE MAP;
   Topographic base.

2. TOTAL FIELD MAGNETICS CONTOUR AND FLIGHT PATH MAP;
   showing manual and time fiducial, Contours at 2nT.

3. APPARENT RESISTIVITY and FLIGHT PATH MAP;
   calculated from 4175 Hz data.

4. VLF-EM CONTOUR and FLIGHT PATH MAP;
   contours at 2%.

INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of Micham Exploration Inc. by Aerodat Limited. Equipment operated during the survey included a four frequency electromagnetic survey, a high sensitivity cesium vapour magnetometer, a two frequency VLF-EM system, a video tracking camera, a radar altimeter, and an electronic positioning system. Electromagnetic, magnetic, and altimeter data were recorded both in digital and analog forms. Positioning data was stored in digital form, encoded on VHS format video tape and recorded at regular intervals in UTM coordinates, as well as being marked on the flight path mosaic by the operator while in flight.

The survey area, comprising a block of ground located approximately 27 kilometres north of Madoc, was flown during the period of February 15 to May 12, 1988. Eighteen flights were required to complete the survey flying with flight lines oriented in an ENE WSW direction and flown at a nominal spacing of 150 metres. Coverage and data quality were considered to be well within the specifications described in the service contract.

The purpose of the survey was to record airborne geophysical data over and around ground that is of interest to Micham Exploration Inc.

A total of 2,420 line kilometres of the recorded data were compiled in map form. The maps presented as part of this report cover the claims listed on the following page.

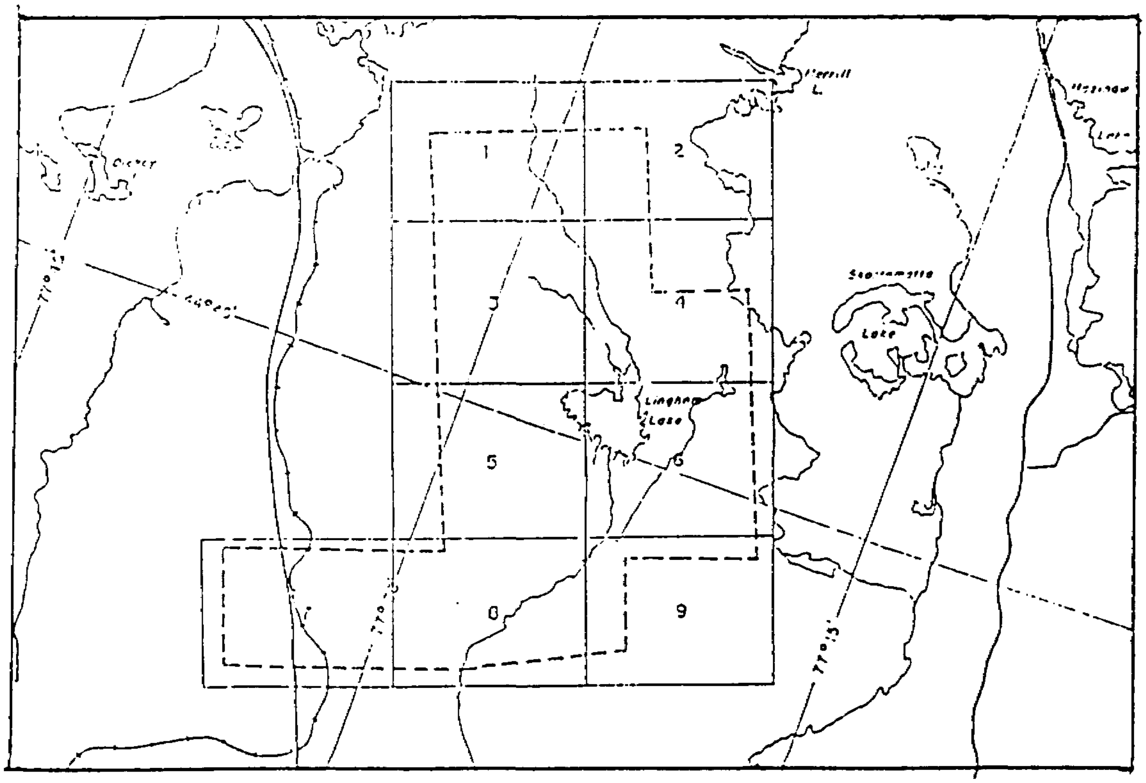
CLAIMS COVERED

S.O. 740470

740472

2. SURVEY AREA LOCATION

The survey area is depicted on the index map shown below. It is centred at geographic latitude 44 degrees 46 minutes north, longitude 77 degrees 26 minutes west, approximately 27 kilometres north of the town of Madoc, Ontario (NTS Reference Map No. 31). The survey area is accessed by Highway No.62 which connects the towns of Belleville and Bancroft.



3. AIRCRAFT AND EQUIPMENT

3.1 Aircraft

An Aerospatiale A Star AS-350 helicopter, (C GATX), owned and operated by Ranger Helicopters Ltd., was used for the test. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey aircraft was flown at a mean terrain clearance of 60 metres.

3.2 Equipment

3.2.1 Electromagnetic System

The electromagnetic system was an Aerodat 4-frequency system. Two vertical coaxial coil pairs were operated at 935 Hz and 4.6 kHz and two horizontal coplanar coil pairs at 4.2 kHz and 33 kHz. The transmitter-receiver separation was 6.5 metres. Inphase and quadrature signals were measured simultaneously for the four frequencies with a time constant of 0.1 seconds. The electromagnetic bird was towed 30 metres below the helicopter.

3.2.2 VLF-EM System

System was a Herz Totem 2A. This instrument measures the total field and quadrature components of two selected transmitters, preferably oriented at right angles to one another. The sensor was towed in a bird 12 metres below the helicopter. The transmitting stations monitored were NLK, Jim Creek, Washington for the Orthogonal station and NAA, Cutler, Maine for the line station broadcasting at 24.8, and 24.0 kHz respectively.

3.2.3 Magnetometer

The magnetometer employed a Scintrex Model VIW - 2321 H8 cesium, optically pumped magnetometer sensor. The sensitivity of this instrument was 0.1 nanoTeslas at a 0.2 second sampling rate. The sensor was towed in a bird 12 metres below the helicopter.

3.2.4 Magnetic Base Station

An IFG proton precession magnetometer was operated at the base of operations to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation.

3.2.5 Radar Altimeter

A King KRA-10 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude for maximum accuracy.

3.2.6 Tracking Camera

A Panasonic video flight path recording system was used to record the flight path on standard VHS format video tapes. The system was operated in continuous mode and the flight number, real time and manual fiducial numbers were registered on the picture frame for cross-reference to the analog and digital data.

3.2.7 Analog Recorder

An RMS dot-matrix recorder was used to display the data during the survey. In addition to manual and time fiducials, the following data were recorded:

Channel	Input	Scale
RALT	Altimeter (150 m at top of chart)	3 m/mm
CXI1	935 Hz Coaxial Inphase ✓	2.5 ppm/mm
CXQ1	935 Hz Coaxial Quadrature	2.5 ppm/mm
CXI2	4.6 kHz Coaxial Inphase	2.5 ppm/mm
CXQ2	4.6 kHz Coaxial Quadrature	2.5 ppm/mm

Channel	Input	Scale
CPI1	4.2 kHz Coplanar Inphase ✓	10 ppm/mm
CPQ1	4.2 kHz Coplanar Quadrature	10 ppm/mm
CPI2	33 kHz Coplanar Inphase	20 ppm/mm
CPQ2	33 kHz Coplanar Quadrature	20 ppm/mm
VLT	VLF-EM Total Field, Line	2.5 %/mm
VLQ	VLF-EM Quadrature, Line	2.5 %/mm
VOT	VLF-EM Total Field, Ortho	2.5 %/mm
VOQ	VLF-EM Quadrature, Ortho	2.5 %/mm
MAGF	Magnetometer, fine	2.5 nT/mm
MAGC	Magnetometer, coarse	25 nT/mm
PWRL	Power Line Monitor	n/a

3.2.8 Digital Recorder

A DGR 33 in conjunction with a DAC/NAV 2 data system recorded the survey on magnetic tape. Information recorded was as follows:

Equipment	Recording Interval
EM system	0.1 seconds
VLF-EM	0.5 seconds
Magnetometer	0.2 seconds
Altimeter	0.5 seconds
NAV System	1.0 seconds

3.2.9 Radar Positioning System

A Motorola Mini-Ranger (MRS III) radar navigation system was used for both navigation and flight path recovery. Transponders sited at fixed locations were interrogated several times per second and the ranges from these points to the helicopter measured to a high degree of accuracy. A navigational computer triangulated the position of the helicopter and provided the pilot with navigation information. The range/range data were recorded on magnetic tape for subsequent flight path determination.

4. DATA PRESENTATION

4.1 Topographic Base Map

A topographic base at a scale of1:10,000 was prepared from a NTS 1:50,000 topographic map and supplied by Aerodat as a screened mylar base.

4.2 Flight Line Map

The flight path was derived from the MiniRanger radar positioning system. The distance from the helicopter to two established reference locations was measured several times per second and the position of the helicopter calculated by triangulation. It is estimated that the flight path is generally accurate to about 10 metres with respect to the topographic detail of the base map.

4.3 Airborne Electromagnetic Survey Interpretation Map

The electromagnetic data were recorded digitally at a sample rate of 10 per second with a time constant of 0.1 seconds. A two stage digital filtering process was carried out to reject major sferic events and to reduce system noise.

Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise ratio was further enhanced by the application of a low pass digital filter. It has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 0.25 seconds. This low effective time constant permits maximum profile shape resolution.

Following the filtering process, a base level correction was made. The correction applied is a linear function of time that ensures the corrected amplitude of the various inphase and quadrature components is zero when no conductive or permeable source is present. The filtered and levelled data were used in the interpretation of the electromagnetics. An interpretation map was prepared showing flight lines, fiducials, peak locations of anomalies and conductor axes. Anomaly and cultural EM response locations are also shown on the map. The data have been presented on a Cronaflex copy of the topographic base map.

4.4 Total Field Magnetic Contours

The aeromagnetic data were corrected for diurnal variations by adjustment with the digitally recorded base station magnetic values. No correction for regional variation was applied. The corrected profile data were interpolated onto a regular grid at a 25 metre true scale interval using an Akima spline technique. The grid provided the basis for threading the presented contours at a 2 nanoTesla interval.

The contoured aeromagnetic data have been presented on a Cronaflex copy of the topographic base map.

4.5 Vertical Magnetic Gradient Contours

The vertical magnetic gradient was calculated from the gridded total field magnetic data. Contoured at a 0.2 nT/m interval, the gradient data were presented on a Cronaflex copy of the topographic base map.

4.6 Apparent Resistivity Contours

The electromagnetic information was processed to yield a map of the apparent resistivity of the ground.

The approach taken in computing apparent resistivity was to assume a model of a 200 metre thick conductive layer (i.e., effectively a half space) over a resistive bedrock. The computer then generated, from nomograms for this model, the resistivity that would be consistent with the bird elevation and recorded amplitude for the 4175 Hz coaxial frequency. The apparent resistivity profile data were interpolated onto a regular grid at a 25 metres true scale interval using an Akima spline technique.

The contoured apparent resistivity data were presented on a Cronaflex copy of the topographic base map with the flight path.

4.7 VLF-EM Total Field Contours and Profiles

The VLF-EM signals from NAA, Cutler, Maine, broadcasting at 24.0 kHz were compiled. The Total Field data were compiled in contour form and presented on a Cronaflex copy of the topographic base map.

INTERPRETATION AND RECOMMENDATIONS

Electromagnetic

The Aerodat four frequency system utilizes two different transmitter-receiver coil geometries. The traditional coaxial coil configuration is operated at two widely separated frequencies and the lower frequency horizontal coplanar coil pair is operated at a frequency approximately aligned with one of the coaxial frequencies.

The electromagnetic response measured by the helicopter system is a function of the "electrical" and "geometrical" properties of the conductor. The "electrical" property of a conductor is determined largely by its electrical conductivity, magnetic susceptibility and its size and shape; the "geometrical" property of the response is largely a function of the conductor's shape and orientation with respect to the measuring transmitter and receiver.

Electrical Considerations

For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large inphase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for a non-magnetic vertical half-plane model on the accompanying phasor diagram. Other physical models will show the same trend but different quantitative relationships.

The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in parts per million (ppm) of the primary field as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to identify the apparent conductance and depth at selected anomalies. The results of this calculation are presented in table form in Appendix II and the conductance and inphase amplitude are presented in symbolized form on the map presentation.

The conductance and depth values as presented are correct only as far as the model approximates the real geological situation. The actual geological source may be of limited length, have significant dip, may be strongly magnetic, its conductivity and thickness may vary with depth and/or strike and adjacent bodies and overburden may have modified the response. In general the conductance estimate is less affected by these limitations than is the depth estimate, but both should be considered as relative rather than absolute guides to the anomaly's properties.

Conductance in mhos is the reciprocal of resistance in ohms and in the case of narrow slab-like bodies is the product of electrical conductivity and thickness.

Most overburden will have an indicated conductance of less than 2 mhos; however, more conductive clays may have an apparent conductance of say 2 to 4 mhos. Also in the low conductance range will be electrolytic conductors in faults and shears.

The higher ranges of conductance, greater than 4 mhos, indicate that a significant fraction of the electrical conduction is electronic rather than electrolytic in nature. Materials that conduct electronically are limited to certain metallic sulphides and to graphite. High conductance anomalies, roughly 10 mhos or greater, are generally limited to sulphide or graphite bearing rocks.

Sulphide minerals, with the exception of such ore minerals as sphalerite, cinnabar and stibnite, are good conductors; sulphides may occur in a disseminated manner that inhibits electrical conduction through the rock mass. In this case the apparent conductance can seriously underrate the quality of the conductor in geological terms. In a similar sense the relatively non-conducting sulphide minerals noted above may be present in significant consideration in association with minor conductive sulphides, and the electromagnetic response only relate to the minor associated mineralization. Indicated conductance is also of little direct significance for the identification of gold mineralization. Although gold is highly conductive, it would not be expected to exist in sufficient quantity to create a recognizable anomaly, but minor accessory sulphide mineralization could provide a useful indirect indication.

In summary, the estimated conductance of a conductor can provide a relatively positive identification of significant sulphide or graphite mineralization; however, a moderate to low conductance value does not rule out the possibility of significant economic mineralization.

Geometrical Considerations

Geometrical information about the geologic conductor can often be interpreted from the profile shape of the anomaly. The change in shape is primarily related to the change in inductive coupling among the transmitter, the target, and the receiver.

In the case of a thin, steeply dipping, sheet-like conductor, the coaxial coil pair will yield a near symmetric peak over the conductor. On the other hand, the coplanar coil pair will pass through a null couple relationship and yield a minimum over the conductor, flanked by positive side lobes. As the dip of the conductor decreased from vertical, the coaxial anomaly shape changes only slightly, but in the case of the coplanar coil pair the side lobe on the down dip side strengthens relative to that on the up dip side.

As the thickness of the conductor increases, induced current flow across the thickness of the conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible. As a result, the apparent minimum of the coplanar response over the conductor diminishes with increasing thickness, and in the limiting case of a fully 3 dimensional body or a horizontal layer or half-space, the minimum disappears completely.

A horizontal conducting layer such as overburden will produce a response in the coaxial and coplanar coils that is a function of altitude (and conductivity if not uniform). The profile shape will be similar in both coil configurations with an amplitude ratio (coplanar:coaxial) of about 4:1*.

In the case of a spherical conductor, the induced currents are confined to the volume of the sphere, but not relatively restricted to any arbitrary plane as in the case of a sheet-like form. The response of the coplanar coil pair directly over the sphere may be up to 8* times greater than that of the coaxial pair.

In summary, a steeply dipping, sheet-like conductor will display a decrease in the coplanar response coincident with the peak of the coaxial response. The relative strength of this coplanar null is related inversely to the thickness of the conductor; a pronounced null indicates a relatively thin conductor. The dip of such a conductor can be inferred from the relative amplitudes of the side-lobes.

Massive conductors that could be approximated by a conducting sphere will display a simple single peak profile form on both coaxial and coplanar coils, with a ratio between the coplanar to coaxial response amplitudes as high as 8*.

Overburden anomalies often produce broad poorly defined anomaly profiles. In most cases, the response of the coplanar coils closely follows that of the coaxial coils with a relative amplitude ratio of 4*.

Occasionally, if the edge of an overburden zone is sharply defined with some significant depth extent, an edge effect will occur in the coaxial coils. In the case of a horizontal conductive ring or ribbon, the coaxial response will consist of two peaks, one over each edge; whereas the coplanar coil will yield a single peak.

* It should be noted at this point that Aerodat's definition of the measured ppm unit is related to the primary field sensed in the receiving coil without normalization to the maximum coupled (coaxial configuration). If such normalization were applied to the Aerodat units, the amplitude of the coplanar coil pair would be halved.

Magnetics

The Total Field Magnetic Map shows contours of the total magnetic field, uncorrected for regional variation. Whether an EM anomaly with a magnetic correlation is more likely to be caused by a sulphide deposit than one without depends on the type of mineralization. An apparent coincidence between an EM and a magnetic anomaly may be caused by a conductor which is also magnetic, or by a conductor which lies in close proximity to a magnetic body. The majority of conductors which are also magnetic are sulphides containing pyrrhotite and/or magnetite. Conductive and magnetic bodies in close association can be, and often are, graphite and magnetite. It is often very difficult to distinguish between these cases. If the conductor is also magnetic, it will usually produce an EM anomaly whose general pattern resembles that of the magnetics. Depending on the magnetic permeability of the conducting body, the amplitude of the inphase EM anomaly will be weakened, and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is elliptically polarized in the vicinity of electrical conductors. The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component of the polarization ellipse.

The relatively high frequency of VLF (15-25) kHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measureable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground the depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically, it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field response is an indicator of the existence and position of a conductivity anomaly. The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

The vertical quadrature component over steeply dipping sheet-like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

The amplitude of the quadrature response, as opposed to shape is function of target conductance and depth as well as the conductivity of the overburden and host rock. As the primary field travels down to the conductor through conductive material it is both attenuated and phase shifted in a negative sense. The secondary field produced by this altered field at the target also has an associated phase shift. This phase shift is positive and is larger for relatively poor conductors. This secondary field is attenuated and phase shifted in a negative sense during return travel to the surface. The net effect of these 3 phase shifts determine the phase of the secondary field sensed at the receiver.

A relatively poor conductor in resistive ground will yield a net positive phase shift. A relatively good conductor in more conductive ground will yield a net negative phase shift. A combination is possible whereby the net phase shift is zero and the response is purely in-phase with no quadrature component.

A net positive phase shift combined with the geometrical crossover shape will lead to a positive quadrature response on the side of approach and a negative on the side of departure. A net negative phase shift would produce the reverse. A further sign reversal occurs with a 180 degree change in instrument orientation as occurs on reciprocal line headings. During digital processing of the quadrature data for map presentation this is corrected for by normalizing the sign to one of the flight line headings.

August 30, 1988
J8818MNDM

Respectfully submitted,
Glenn A. Boustead, P.Eng
G Boustead

STATEMENT OF QUALIFICATIONS

GLENN BOUSTEAD

1. I hold a B.A.Sc. in Engineering Science (Geophysics Option) from the University of Toronto.

2. I am a Geophysicist and have been employed with Aerodat since June, 1983.

3. I am a registered member of the Association of Professional Engineers of Ontario.

Yours truly,

G Boustead

Glenn Boustead, P.Eng.

August30, 1988
J8818MNDM

APPENDIX IV

PERSONNEL

FIELD

Flown - May, 1988

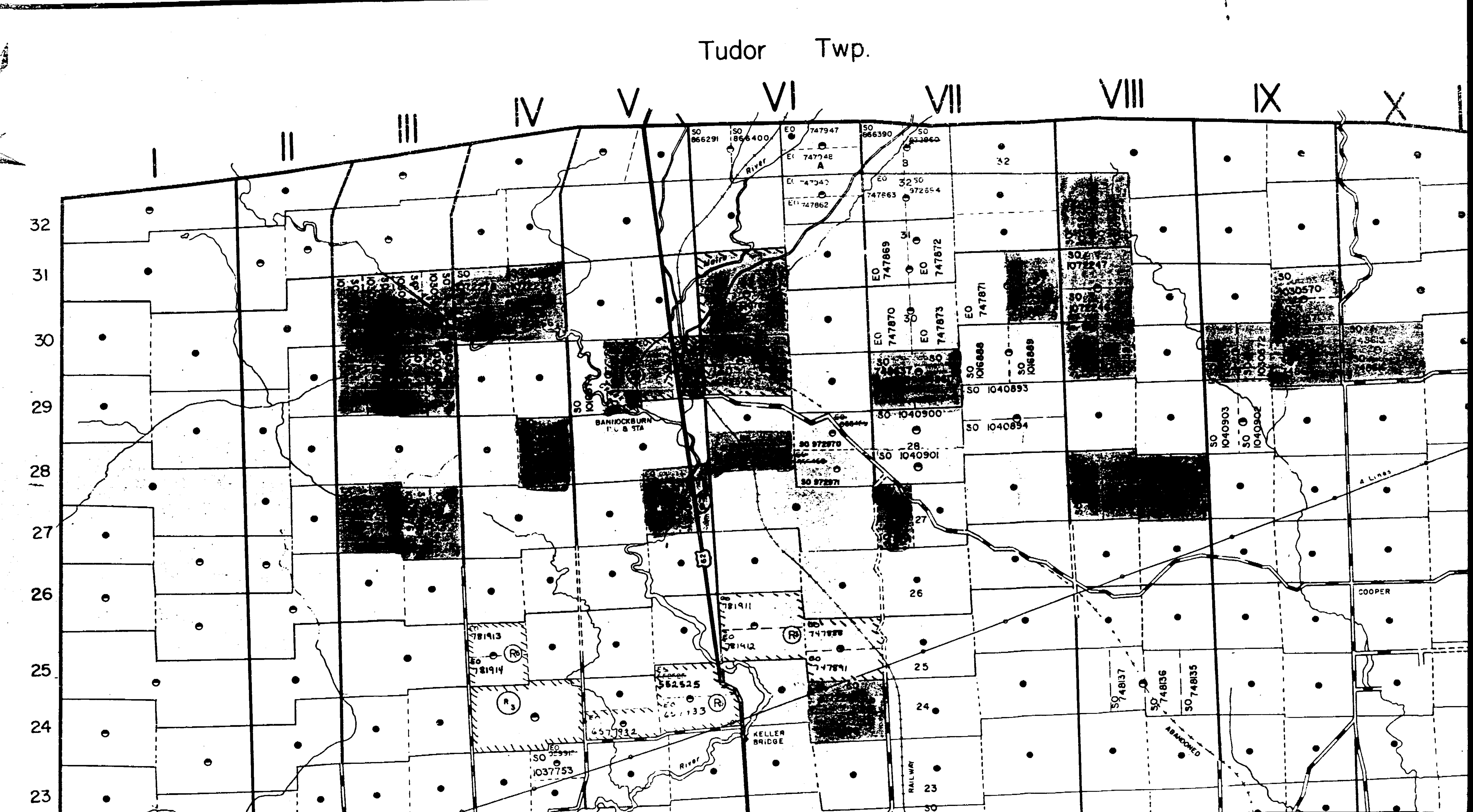
Pilot - Paul Mosher

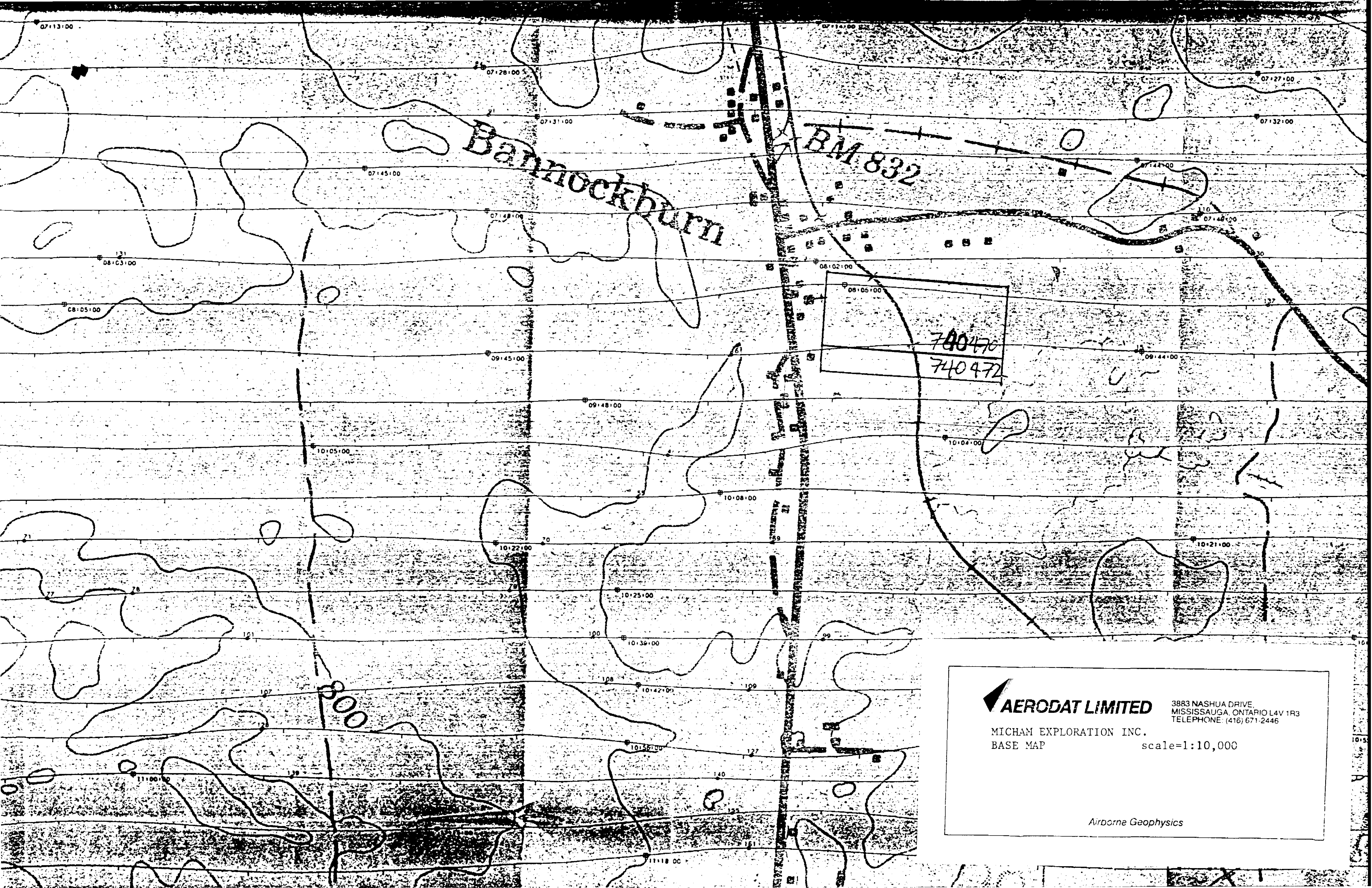
Operator - Mark Fortier

OFFICE

Processing - Anthony E. Valentini

Report - Glenn Boustead


Tudor Twp.
I
II
III
IV
V
VI
VII
VIII
IX
X
32
31
30
29
28
27
26
25
24
23
SO 866291
SO 866400
EO 747947
SO 866390
SO 972960
EO 747948
A
B
EO 747943
EO 747863
32
SO 972694
EO 747862
River
31
EO 747869
EO 747872
EO 747870
EO 747873
30
EO 747871
SO 1072247
SO 1072246
SO 1030570
SO 1030572
SO 1016888
SO 1016889
SO 1040893
SO 1040900
SO 1040894
SO 1040901
28
SO 1040903
SO 1040902
SO 972970
SO 972971
BANNOCKBURN P.O. & STA.
Moira
27
4 Lines
26
COOPER
EO 781911
EO 781912
EO 781913
EO 781914
EO 747926
EO 747891
25
ES 562525
EO 657733
R3
R2
6577932
KELLER BRIDGE
24
SO 748137
SO 748136
SO 748135
ABANDONED
SO 1037753
River
RAILWAY
23
30
62

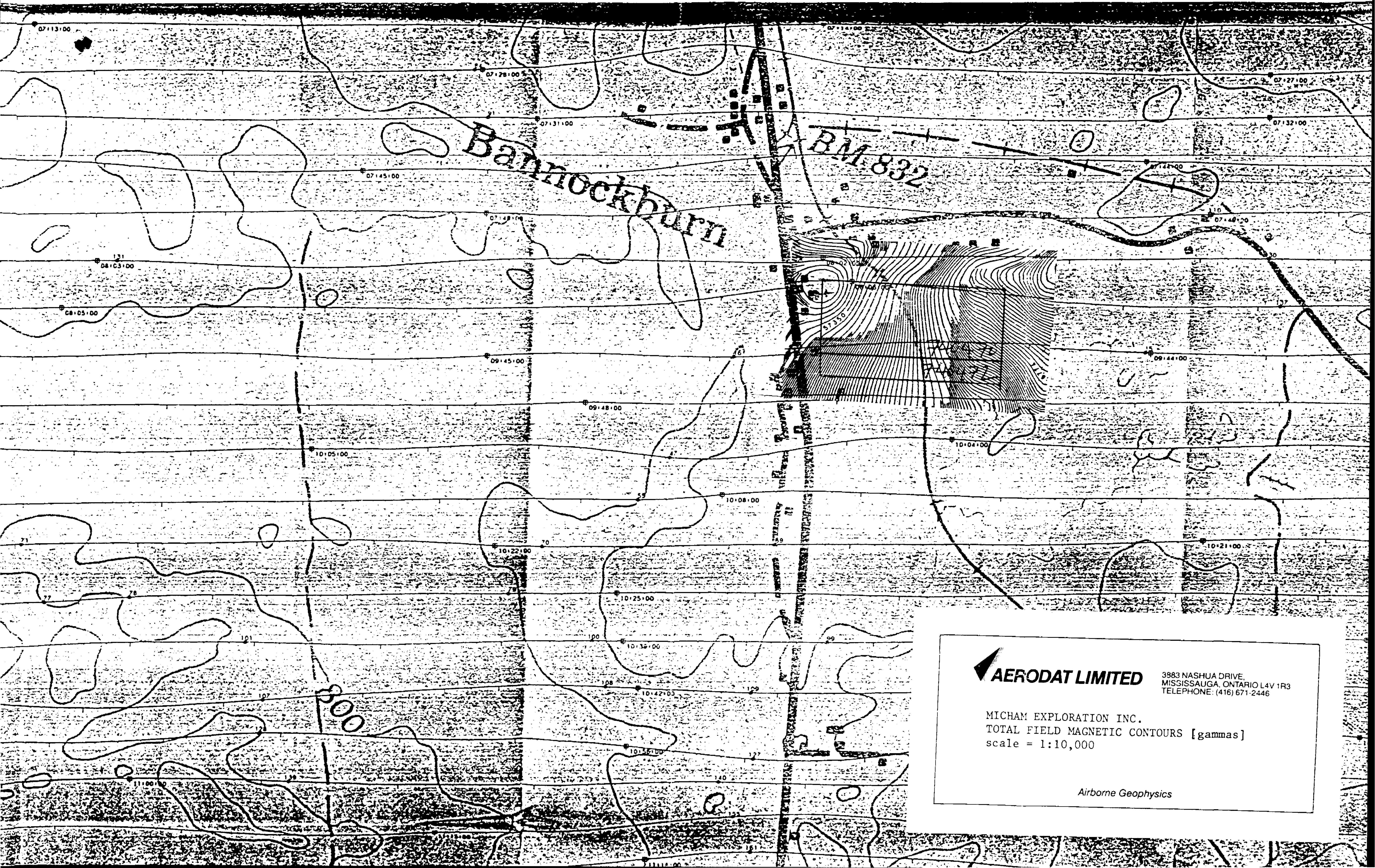


AERODAT LIMITED

3883 NASHUA DRIVE,
MISSISSAUGA, ONTARIO L4V 1R3
TELEPHONE: (416) 671-2446

MICHAM EXPLORATION INC.
BASE MAP scale=1:10,000

Airborne Geophysics

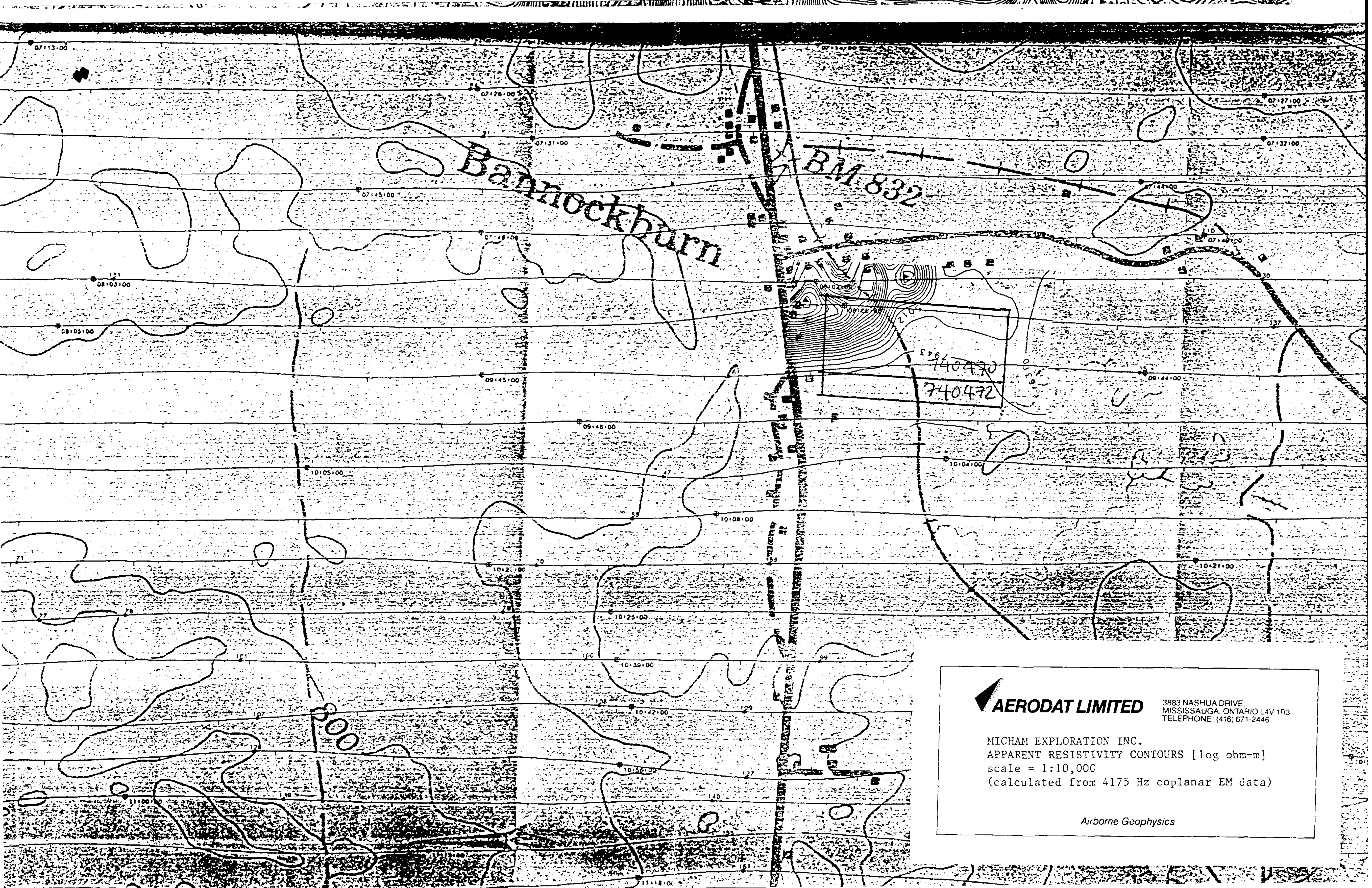


AERODAT LIMITED

3883 NASHUA DRIVE,
MISSISSAUGA, ONTARIO L4V 1R3
TELEPHONE: (416) 671-2446

MICHAM EXPLORATION INC.
TOTAL FIELD MAGNETIC CONTOURS [gammas]
scale = 1:10,000

Airborne Geophysics



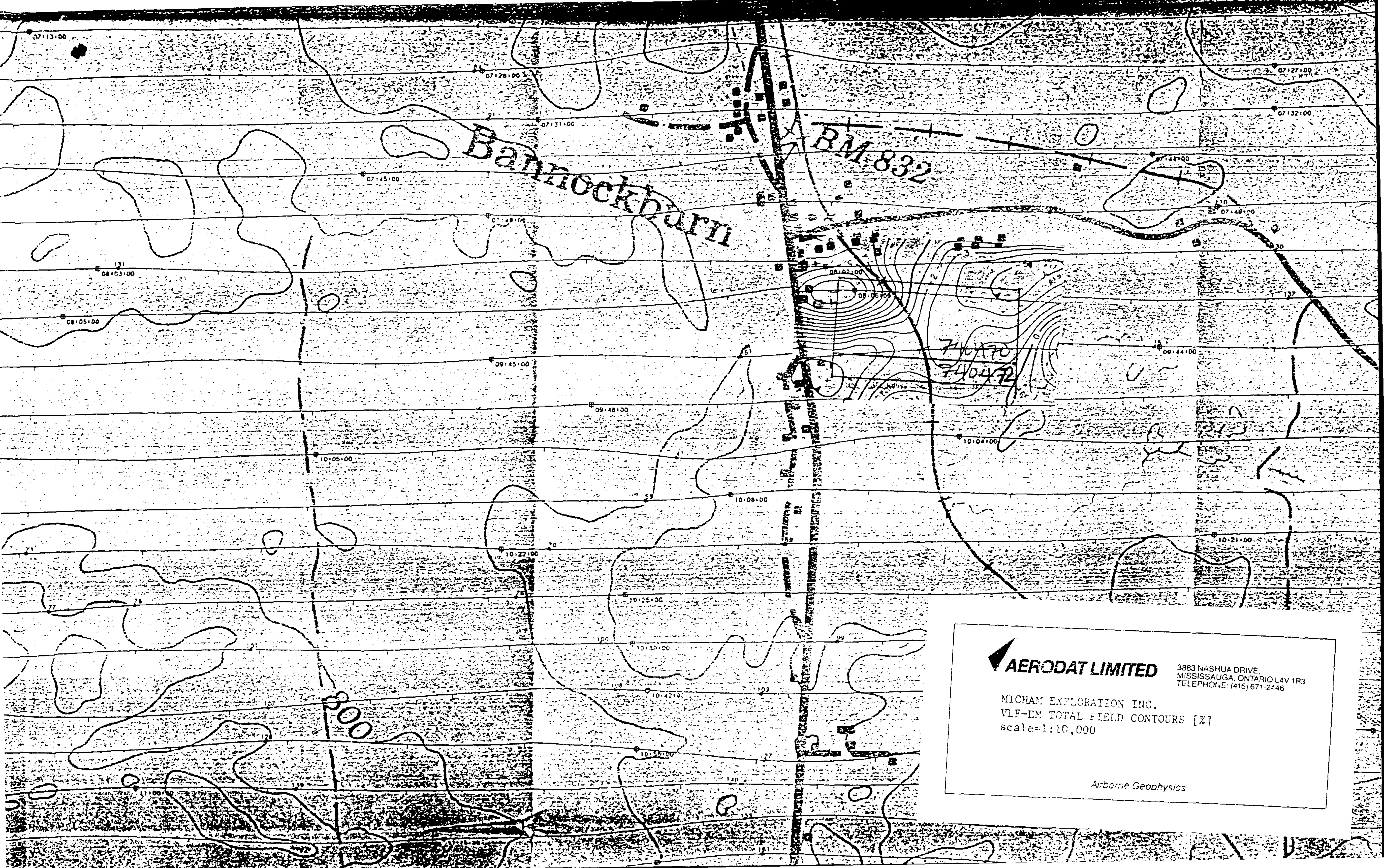
740470
740472

AERODAT LIMITED

3883 NASHUA DRIVE,
MISSISSAUGA, ONTARIO L4V 1R3
TELEPHONE: (416) 671-2446

MICHAM EXPLORATION INC.
APPARENT RESISTIVITY CONTOURS [log ohm-m]
scale = 1:10,000
(calculated from 4175 Hz coplanar EM data)

Airborne Geophysics



AERODAT LIMITED

3883 NASHUA DRIVE,
MISSISSAUGA, ONTARIO L4V 1R3
TELEPHONE: (416) 671-2446

MICHAM EXPLORATION INC.
VLF-EM TOTAL FIELD CONTOURS [%]
scale=1:10,000

Airborne Geophysics

Ministry of Northern Development and Mines
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

DOCU
W88

31C12NE0035 2.11570 MADOC

900

Mini

2.11570

Type of Survey(s): Airborne Geophysical	Township or Area: Madoc Twp G-1269
Claim Holder(s): Mono Gold Mines Inc.	Prospector's Licence No.: T 1194

Address: Suite 790, 885 Dunsmuir Street, Vancouver, B.C. V6Z 1N8

Survey Company	Date of Survey (from & to)						Total Miles of line Cut
	Day	Mo.	Yr.	Day	Mo.	Yr.	
Aerodat Limited	15	02	88	12	05	88	Nil

Name and Address of Author (of Geo-Technical report): Zbynek Dvorak c/o Aerodat Limited, 3883 Noshua Drive, Mississauga, Ontario L4V 1R3

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

RECEIVED
JUL 7 1988
MINING LANDS SECTION

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	40
	Magnetometer	20
	VLF-Em ~~Radiometric~~	20

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures				Total Days Credits
$	÷	15	=	

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date	Recorded Holder or Agent (Signature)
July 5/88	Stephen Conquer

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
So.	740470	
	740472	

SOUTHERN ONTARIO MINING DIV.
RECEIVED
JUL 05 1988
AM 7,8,9,10,11,12,1,2,3,4,5,6 PM

Total number of mining claims covered by this report of work: 2

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Acting Mining Recorder
160	July 5, 1988	D. Jollymore
	Date Approved as Recorded	Branch Director
		See Revised Work Statement

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying:
Stephen Conquer, c/o David R. Bell Geological Services Inc., P.O Box 1250,
261 Third Avenue, Timmins, Ontario P4N 7S2

Date Certified	Certified by (Signature)
July 5/88	Stephen Conquer

File

Ontario

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) HELICOPTER EM/MAG/VLF –
Township or Area MADOC –
Claim Holder(s) MIGHAM EXPLORATION INC.

Survey Company AERODAT LIMITED
Author of Report Glenn Boustead.
Address of Author 3883 NASHUA DR. MISS.
Covering Dates of Survey Feb 15 – MAY 12/88
(linecutting to office)
Total Miles of Line Cut

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)
Magnetometer 26 2/3 Electromagnetic 26 2/3 ~~Radiometric~~ VLF-EM 26 2/3
(enter days per claim)

DATE: Aug 30/88 SIGNATURE: G Boustead
Author of Report or Agent

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
SO.	740470
SO.	740472

If space insufficient, attach list

TOTAL CLAIMS 2

OFFICE USE ONLY

Res. Geol. Qualifications

Previous Surveys

File No.	Type	Date	Claim Holder

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations Number of Readings

Station interval Line spacing

Profile scale

Contour interval

MAGNETIC

Instrument

Accuracy – Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency
(specify V.L.F. station)

Parameters measured

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION
RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

SELF POTENTIAL

Instrument Range

Survey Method

Corrections made

RADIOMETRIC

Instrument

Values measured

Energy windows (levels)

Height of instrument Background Count

Size of detector

Overburden

(type, depth — include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey

Instrument

Accuracy

Parameters measured

Additional information (for understanding results)

AIRBORNE SURVEYS

Type of survey(s) HEM MAG VLF-EM

Instrument(s) Aerodat Aerodat/Scintrex Herz TOTEM 2A

(specify for each type of survey)

Accuracy 0.1ppm 0.01 γ 0.1%

(specify for each type of survey)

Aircraft used Aerospatiale 350B.

Sensor altitude 30m 45m 45m

Navigation and flight path recovery method Motorala Mini Ranger III radar nav with VHS video backup.

Aircraft altitude 60 m. Line Spacing 150m

Miles flown over total area 1500 Over claims only 4/3

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken ____________________

Total Number of Samples ____________________

Type of Sample ____________________
(Nature of Material)

Average Sample Weight ____________________

Method of Collection ____________________

Soil Horizon Sampled ____________________

Horizon Development ____________________

Sample Depth ____________________

Terrain ____________________

Drainage Development ____________________

Estimated Range of Overburden Thickness ____________________

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis ____________________

General ____________________

ANALYTICAL METHODS

Values expressed in:
per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others ____________________

Field Analysis (____________________ tests)

Extraction Method ____________________

Analytical Method ____________________

Reagents Used ____________________

Field Laboratory Analysis

No. (____________________ tests)

Extraction Method ____________________

Analytical Method ____________________

Reagents Used ____________________

Commercial Laboratory (____________________ tests)

Name of Laboratory ____________________

Extraction Method ____________________

Analytical Method ____________________

Reagents Used ____________________

General ____________________

October 3, 1988

Your File: W8809.49
Our File: 2.11570

Mining Recorder
Ministry of Northern Development & Mines
10 Wellesley Street East
1st Floor
Toronto, Ontario
M4Y 1G2

ONTARIO GEOLOGICAL SURVEY
ASSESSMENT FILES
OFFICE
OCT 18 1988
RECEIVED

Dear Sir:

Re: Airborne Geophysical (Electromagnetic, Magnetometer and Resistivity) Survey on Mining Claims S.O.740470 et al in the Township of Madoc

---

The enclosed statement of assessment work credits for the Airborne Geophysical (Electromagnetic, Magnetometer and Resistivity) Survey has been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

W.R. Cowan, Manager
Mining Lands Section
Mines & Minerals Division

Whitney Block, Room 6610
Queen's Park
Toronto, Ontario
M7A 1W3

DK:ad
Encs.

cc: Resident Geologist
Tweed, Ontario

Mono Gold Mines Inc.
Suite 790
885 Dunsmuir Street
Vancouver B.C.
V6Z 1B8

cc: Aerodat Ltd.
3883 Nashua Drive
Mississauga, Ont.
L4V 1R2

Stephen Conquer
c/o David R. Bell
Geological Services Inc.
P.O. Box 1250
261 Third Avenue
Tim[illegible]ns, Ontario

Ministry of
Northern Development
an[illegible]ines
Ontario

Technical Assessment Work Credits

File: 2.11570

Date: October 3, 1988

Mining Recorder's Report of Work No.: W8809-49

Recorded Holder: Mono Gold Mines Inc.

Township or Area: Madoc

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic 27 days	S.O.-740470 740472
Magnetometer 27 days	
Radiometric ____ days	
Induced polarization ____ days	
Other Resistivity 26 days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological ____ days	
Geochemical ____ days	
Man days ☐ Airborne ☒	
Special provision ☐ Ground ☐	
☐ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geologocal - 40; Geochemical - 40; Section 77(19) - 60.

828 (85/12)