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REPORT ON A COMBINED HELICOPTER-BORNE MAGNETIC, ELECTROMAGNETIC AND VLF-EM SURVEYS MATACHEWAN AREA, ONTARIO

FOR

BIRALGER RESOURCES LTD.
126 WILLOW ROAD
ATIKOKAN, ONTARIO
P0T 1C0

BY

AERODAT LIMITED
3883 NASHUA DRIVE
MISSISSAUGA, ONTARIO
L4V 1R3
PHONE: 416 - 671-2446

June 28, 1991

J9128

Ian Johnson, Ph.D., P.Eng.
Consulting Geophysicist

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LIST OF MAPS

Maps are labelled according to map type. All black line and colour maps are presented at a scale of 1:10,000. The total magnetic field shadow map is presented at a scale of 1:20,000. Survey results are presented in one map sheet.

BLACK LINE MAPS: (Scale 1:10,000)

Map Type	Description
1.	**BASE MAP;** screened photomosaic base plus survey area boundary, UTM reference grid, title block and surrounds.
2.	**FLIGHT PATH MAP;** photocombination of the base map with flight lines, fiducials and EM anomaly symbols.
3.	**COMPILATION/INTERPRETATION MAP;** flight path map with interpretation.
4.	**TOTAL FIELD MAGNETIC CONTOURS;** with base map and flight lines.
5.	**VERTICAL MAGNETIC GRADIENT CONTOURS;** with base map and flight lines.
6.	**APPARENT RESISTIVITY CONTOURS;** apparent resistivity calculated for the 4600 Hz data, with base map and flight lines.
7.	**VLF-EM TOTAL FIELD CONTOURS;** with base map and flight lines.

COLOUR MAPS: (Scale (1:10,000)

1. **TOTAL FIELD MAGNETICS;** with superimposed contours, base map, flight lines and EM anomaly symbols.
2. **VERTICAL GRADIENT MAGNETICS;** with superimposed contours, base map, flight lines and EM anomaly symbols.
3. **APPARENT RESISTIVITY;** calculated for the 4600 Hz data with superimposed contours, base map, flight lines and EM anomaly symbols.
4. **VLF-EM TOTAL FIELD;** with superimposed contours and base map, flight lines, fiducials and EM anomaly symbols.

5A. **HEM OFFSET PROFILES;** 935 Hz 865 Hz, and 33,000 Hz data with base map, flight lines and EM anomaly symbols.

5B. **HEM OFFSET PROFILES;** 4175 Hz and 4600 Hz data with base map, flight lines and EM anomaly symbols.

DERIVATIVE COLOUR MAP: (Scale 1:20,000)

1-A. **TOTAL FIELD MAGNETICS SHADOW MAP;** at an illumination direction selected after consultation with Biralger.

REPORT ON A COMBINED HELICOPTER-BORNE MAGNETIC, ELECTROMAGNETIC AND VLF-EM SURVEYS MATACHEWAN AREA, ONTARIO

1. INTRODUCTION

This report describes airborne geophysical surveys carried out on behalf of Biralger Resources Ltd. (Biralger), by Aerodat Limited under a contract dated April 25, 1991. Principal geophysical sensors included a five frequency electromagnetic system, a high sensitivity cesium vapour magnetometer and a two frequency VLF-EM system. Ancillary equipment included an electronic navigation system, a colour video tracking camera, a radar altimeter, a power line monitor and a base station magnetometer.

The survey was carried out over an area of some 122 claims (approximately 20 square kilometres) located about 10 km northeast of Matachewan, Ontario. Total survey coverage was approximately 200 line kilometres (plus about 9 km of magnetic tie lines). The flight line spacing was 100 m. The Aerodat Job Number is J9128.

This report describes the survey, the data processing and the data presentation. Electromagnetic anomalies which are thought to be the response to bedrock conductors have been identified and appear on selected map products as EM anomaly symbols with interpreted source characteristics. Where EM and magnetic results supported it, anomaly centers are joined to form conductor axes. Recommendations concerning areas with favourable geophysical characteristics are made with reference to a compilation/interpretation map.

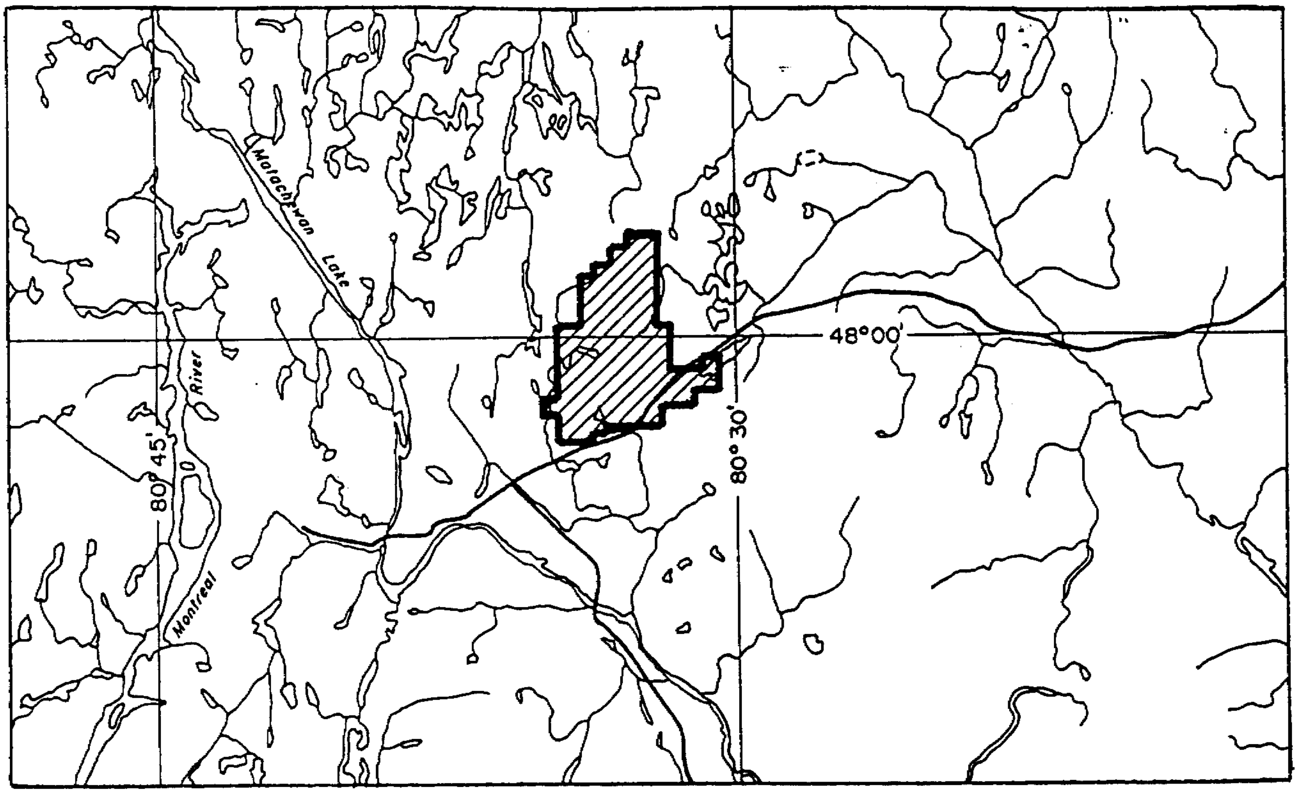
2. SURVEY AREA

The survey area is just north of Highway 66 and some 10 km northeast of Matachewan, Ontario. Area topography is shown on the 1:50,000 scale NTS maps 41P/15 - Matachewan and 42A/2 - Radisson Lake.

Local relief is moderate - elevations range from about 1100 to 1500 feet. Highway 66 from Matachewan to Kirkland Lake runs across the southeast corner of the survey area.

The survey area is shown in the attached index map which includes local topography and latitude - longitude coordinates. This index map also appears on all map legends.

The flight line direction was north-south. The survey areas were covered with a line spacing of 100 m. Three magnetic tie lines were flown.



AIRBORNE GEOPHYSICAL SURVEY
MATACHEWAN AREA, ONTARIO

on behalf of
BIRALGER RESOURCES LIMITED

BY

AERODAT LIMITED
J9128

In this general area, the earth's magnetic field has a declination of 9° west of north and an inclination of 75°.

3. SURVEY PROCEDURES

The survey was flown on May 12 and 13, 1991. Principal personnel are listed in Appendix IV. Three (3) survey flights were required to complete the project.

The flight line spacing was 100 m. The aircraft ground speed was maintained at approximately 60 knots (30 metres per second). The nominal EM sensor height was 30 metres, consistent with the safety of the aircraft and crew.

A GPS (Global Positioning System) satellite based navigation system was used to guide the pilot over the survey grid and to generate a digital record of position. This is an autonomous system which does not require the installation of ground stations.

The UTM coordinates of survey area corners were taken from maps provided by Biralger. These coordinates are used to program the navigation system. A test flight was used to confirm that area coverage would be as required.

Thereafter the traverse lines are flown under the guidance of the navigation system. The navigator/operator marked manual fiducials over prominent topographic features. These were entered on the navigator's map - a 1:20,000 scale topographic map (a 2.5 times photographic enlargement of local 1:50,000 scale NTS maps). Survey lines which showed excessive deviation were re-flown.

The magnetic tie lines were flown using visual navigation in areas of low topographic and magnetic relief. Aircraft position was taken from the navigation system.

Calibration lines are flown at the start, middle (if required) and end of every survey flight. These lines are flown outside of ground effects to record electromagnetic zero levels.

4. DELIVERABLES

The results of the survey are presented in a report plus maps. The report is presented in four copies. White print copies of all black line maps are folded and bound with the report.

The colour maps are delivered in four copies. The shadow map is delivered in two copies. The colour and shadow maps are rolled and delivered in map tube(s).

A full list of all map types is given at the beginning of this report. A summary is given here.

MAP TYPE	DESCRIPTION
1	Base Map (Black line)
2	Flight Path Map (Black line)
3	Compilation/Interpretation Map (Black line)
4	Total Magnetic Field Contours (Black line)
5	Vertical Magnetic Gradient Contours (Black line)
6	Apparent Resistivity - 4600 Hz (Black line)
7	VLF-EM Total Field Contours (Black line)
1	Total Magnetic Field Contours (Colour)
2	Vertical Magnetic Gradient Contours (Colour
3	Apparent Resistivity Contours - 4600 Hz - (Colour)
4	VLF-EM Total Field Contours (Colour)
5A	HEM Offset Profiles - 935, 865 & 33,000 Hz (Colour)
5B	HEM Offset Profiles - 4175 & 4600 Hz (Colour)
1A	Total Field Magnetic Shadow Map (Colour)

All black line and colour maps are presented at a scale of 1:10,000. The shadow maps is presented at a scale of 1;20,000. All black line maps show a screened photomosaic base, a UTM reference grid and the survey area boundary. The survey area boundary is close to but not precisely on the claim boundaries. All colour and shadow maps show the survey area boundary and the UTM reference corners. Results are presented in one map sheet.

The processed digital data is organized on 9 track archive tape. Both the profile and the gridded data are saved on tape. A full description of the archive tape(s) is delivered with the tape(s).

All gridded data are also provided on diskettes suitable for displaying on IBM compatible 286 or 386 microcomputers using the Aerodat RTI software package.

All analog records, base station magnetometer records, flight path video tape and original map cronaflexes are delivered with the final presentation.

5. AIRCRAFT AND EQUIPMENT

5.1 Aircraft

A Bell 206L helicopter (C-GIBU), owned and operated by Canadian Helicopters, was used for the survey. 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.

5.2 Electromagnetic System

The electromagnetic system was an Aerodat 5-frequency system. Two vertical coaxial coil pairs were operated at 935 Hz, 865 Hz and 4,600 Hz and two horizontal coplanar coil pairs at 4,175 and 33,000 Hz. The transmitter-receiver separation was 7 metres. Inphase and quadrature signals were measured simultaneously for the 4 frequencies with a time constant of 0.1 seconds. The HEM bird was towed 30 metres below the helicopter.

5.3 VLF-EM System

The VLF-EM System was a Herz Totem 2A. This instrument measures the total field and vertical quadrature components of two selected frequencies. The sensor was towed in a bird 15 metres below the helicopter.

VLF transmitters are designated "Line" and "Ortho". The line station is that which is in a direction from the survey area which is ideally normal to the flight line direction. This is the VLF station most often used because of optimal coupling with near vertical conductors running perpendicular to the flight line direction. The ortho station is ideally 90 degrees in azimuth away from the line station.

The transmitters used were NAA, Cutler, Maine broadcasting at 24.0 kHz and NLK, Jim Creek, Washington broadcasting at 24.8 kHz. NAA, Cutler at 24.0 kHz was used as the line station for all survey flights. From the survey area, Cutler is 20° south of east.

5.4 Magnetometer

The magnetometer employed was a Scintrex H8 cesium, optically pumped magnetometer sensor. The sensitivity of this instrument is 0.001 nanoTeslas at a 0.2 second sampling rate. The sensor was towed in a bird 15 metres below the helicopter.

5.5 Ancillary Systems

Base Station Magnetometer

An IFG-2 proton precession magnetometer was set up 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. Recording resolution was 1 nT. The update rate was 4 seconds.

External magnetic field variations are recorded on a 3" wide paper chart and in digital form. The analog record shows the magnetic field trace plotted on a grid. Each division of the grid (0.25") is equivalent to 1 minute (chart speed) or 5 nT (vertical sensitivity). The date, time and current total field magnetic value are printed every 10 minutes.

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.

Tracking Camera

A Panasonic colour video camera was used to record flight path on VHS video tape. The camera was operated in continuous mode. The flight number, 24 hour clock time (to .01 second), and manual fiducial number are encoded on the video tape.

GPS Navigation System

A Trimble TANS GPS positioning system was used to guide the pilot over a programmed grid. The UTM coordinates were digitally recorded. The output sampling rate is 1 second. Positional coordinates are recorded with a resolution of 0.1 m.

Analog Recorder

A RMS dot matrix recorder was used to display the data during the survey. Record contents are as follows:

Label	Contents	Scale
GEOPHYSICAL SENSOR DATA		
MAGF	Total Field Magnetics, Fine	2.5 nT/mm
MAGC	Total Field Magnetics, Course	25 nT/mm
VLT	VLF-EM, Total Field, Line Station	2.5 %/mm
VLQ	VLF-EM, Vertical Quadrature, Line Station	2.5 %/mm
VOT	VLF-EM, Total Field, Ortho Station	2.5 %/mm
VOQ	VLF-EM, Vertical Quadrature, Ortho Station	2.5 %/mm
CXI1	935 Hz, Coaxial, Inphase	2.5 ppm/mm
CXQ1	935 Hz, Coaxial, Quadrature	2.5 ppm/mm
CPI1	865 Hz, Coplanar, Inphase	10 ppm/mm
CPQ1	865 Hz, Coplanar, Quadrature	10 ppm/mm
CXI2	4600 Hz, Coaxial, Inphase	2.5 ppm/mm
CXQ2	4600 Hz, Coaxial, Quadrature	2.5 ppm/mm
CPI2	4175 Hz, Coplanar, Inphase	10 ppm/mm
CPQ2	4175 Hz, Coplanar, Quadrature	10 ppm/mm
CPI3	33000 Hz, Coplanar, Inphase	20 ppm/mm
CPQ3	33000 Hz, Coplanar, Quadrature	20 ppm/mm
ANCILLARY DATA		
RALT	Radar Altimeter	10 ft/mm
PWRL	60 Hz Power Line Monitor	-

The analog zero of the radar altimeter trace is 5 cm from the top of the analog record. A helicopter terrain clearance of 60 m (197 feet) will be seen as an analog trace 3 cm from the top of the analog record.

Chart speed is 2 mm/second. The 24 hour clock time is printed every 20 seconds. The total magnetic field value is printed every 30 seconds. The ranges or preliminary UTM coordinates from the radar navigation system are printed every minute.

The analog records for flight 3 show a 24 hour clock time which is some 6.5 minutes slow relative to the flight path map. A time of 8:02:00 for example is equivalent to position 8:08:30 on the flight path map (see section 6.2 below).

Vertical lines crossing the record are operator activated manual fiducial markers. The start of any survey line is identified by two closely spaced manual fiducials. The end of a2ny survey line is identified by three closely spaced manual fiducials. Manual fiducials are numbered in order. Every tenth manual fiducial is indicated by its number, printed at the bottom of the record.

Calibration sequences are located at the start and end of each flight and at intermediate times where needed.

Digital Recorder

A DGR-33 data system recorded the digital survey data on magnetic media. Contents and update rates were as follows:

DATA TYPE	RECORDING INTERVAL	RECORDING RESOLUTION
Magnetometer	0.2 s	0.001 nT
VLF-EM (4 Channels)	0.2 s	0.03 %
HEM (10 Channels)	0.1 s	0.03 ppm (coaxial), 0.06 ppm (coplanar - 4175 Hz) 0.125 ppm (coplanar - 33 kHz)
Position (2 Channels)	0.2 s	0.1 m
Altimeter	0.2 s	0.05 m
Power Line Monitor	0.2 s	-
Manual Fiducial		
Clock Time		

6. DATA PROCESSING AND PRESENTATION

6.1 Base Map

The base map is a semi-controlled photomosaic prepared by Aerodat using aerial photographs form the Government of Ontario. UTM reference corners and the survey area boundary were added.

6.2 Flight Path Map

The flight path is drawn using linear interpolation between x,y positions from the navigation system. These positions are updated every second (or about 3 mm at a scale of 1:10,000). These positions are expressed as UTM eastings (x) and UTM northings (y).

Occasional dropouts occur when ranges to the ground transponders are lost. Interpolation is used to cover short gaps in the flight path. The navigator's flight path and/or the flight path recovered from the video tape may be stitched in to cover larger gaps. Such gaps may often be recognized by the distinctive straight line character of the flight path.

The manual fiducials are shown as a small circle and labelled by fiducial number. The 24 hour clock time is shown as a small square, plotted every 30 seconds. Small tick marks are plotted every 2 seconds. Larger tick marks are plotted every 10 seconds. The line and flight numbers are given at the start and end of each survey line.

The flight line and flight numbers are shown at both ends of each survey line. 104803 indicates for example, survey line 48 of survey flight number 3.

The flight path map is merged with the base map by matching UTM coordinates from the base maps and the flight path record. The match is confirmed by checking the position of prominent topographic features as recorded by manual fiducial marks or as seen on the flight path video record.

6.3 Electromagnetic Survey Data

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 the 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. This filter 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 gives minimal profile distortion. Following the filtering process, a base level correction was made using EM zero levels determined during high altitude calibration sequences. 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 determination of apparent resistivity (see below).

6.4 Total Field Magnetics

The aeromagnetic data were corrected for diurnal variations by adjustment with the recorded base station magnetic values. Where needed, the magnetic tie line results were used to further level the magnetic data. No corrections for regional variations were applied. The data was reduced to the pole. The corrected profile data were interpolated on to a regular grid using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 2 nT. A grid cell size of 25 m was used.

A page size copy of the black line contour map of the total magnetic field is attached.

6.5 Vertical Magnetic Gradient

The vertical magnetic gradient was calculated from the gridded total field magnetic data. The calculation is based on a 17 x 17 point convolution in the space domain. The results are contoured using a minimum contour interval of 0.2 nT/m. Grid cell sizes are the same as those used in processing the total field data.

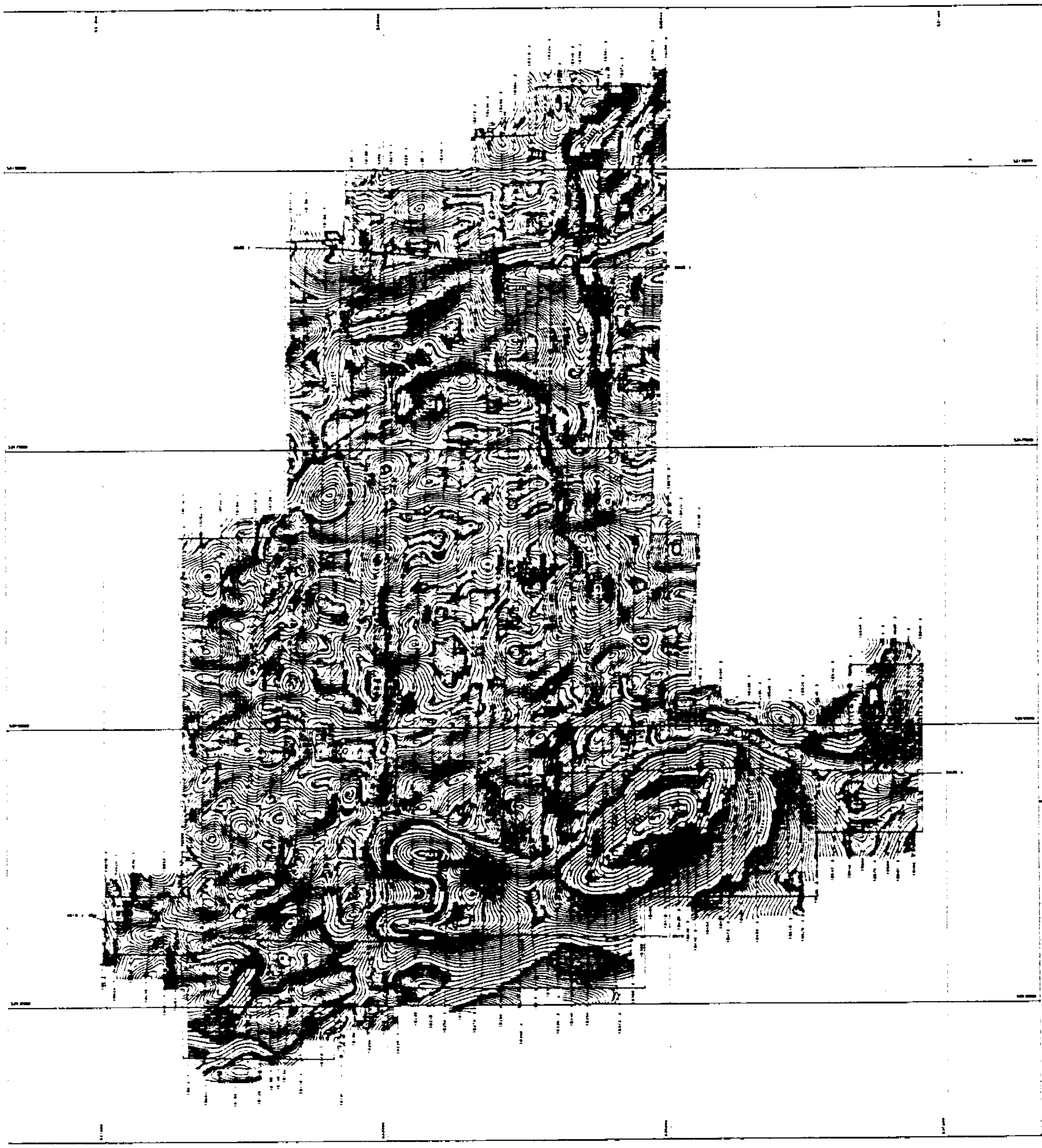
6.6 Apparent Resistivity

The apparent resistivity is calculated by assuming a 200 metre thick conductive layer over resistive bedrock. The computer determines the resistivity that would be consistent with the sensor elevation and recorded inphase and quadrature response amplitudes at the selected frequency. The apparent resistivity profile data were interpolated onto a regular grid at a 25 metres true scale interval using an Akima spline technique and contoured using logarithmically arranged contour intervals. The minimum contour interval is 0.1 log(ohm.m). This gives contour lines at 100, 126, 158, 200, 251, 316, 398, 501, 631 and 794 ohm.m and multiples of 10 thereof.

The highest measurable resistivity is approximately equal to the transmitter frequency. There is no lower limit on apparent resistivity.

6.7 VLF-EM

The VLF Total Field data from the Line Station is levelled such that a response of 0% is seen in non-anomalous regions. The corrected profile data are interpolated onto a regular grid using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 1%. Grid cell size is 25 m.



BIRALGER RESOURCES LTD.

TOTAL FIELD MAGNETIC CONTOURS

MATACHEWAN

AERODAT LIMITED

MAY 1991

For all of flight 3, Cutler was off. For the survey lines of flight 3 (45 to 60) covering the eastern most part of the survey area, the Ortho station (Jim Creek at 24.8 kHz) VLF data has been used to generate the total field contour map.

A preliminary map of the VLF total field using the ortho station (Jim Creek) data for the whole survey was generated to determine if it would be noticeably different from that determined using a mix of Cutler (flights 1 and 2) and Jim Creek (flight 3) data. No significant differences were seen and the final presentation was made up using data from the two stations.

7. INTERPRETATION

7.1 Area Geology

Ideas on area geology and the exploration target have been taken from material supplied by Ray Bernatchez, consulting geologist to Biralger Resources Ltd. These materials included copies of

1. An evaluation of the Matachewan Properties, Alma, Cairo, Flavelle Townships, Northern Ontario, for Biralger Resources Ltd., by R.A. Bernatchez, December 4, 1990.

2. A Report on the Cairo Project, Cairo Township, Matachewan, Ontario, for Biralger Resources Ltd., by R.A. Bernatchez, March 1991.

3. 1:2,500 scale maps showing results of a ground magnetometer and VLF survey over some 13 claims just north of Highway 66. Total coverage is about 16 line kilometres with 100 and 200 m line spacings. Survey conducted in February 1991 by R.A. Bernatchez.

4. A 1:1,500 scale planimetric map of Cairo Township and parts of Powell Township showing mineral occurrences, drillhole locations, major shear zones and VLF-EM conductor axes.

5. Page size geology sketch of areas west and north of Matachewan plus part of the 1:50,000 scale GSC aeromagnetic maps.

6. A number of published papers on area geology.

The survey area is centered over the eastern part of the Cairo stock, a large syenite intrusion. The Cairo stock and related dykes and plugs of trachytic syenite and syenite porphyry intrude a folded and green schist facies metamorphosed sequence of Archaean volcanic and sedimentary rocks. The volcanic rocks are mainly andesite and basalt flows and pyroclastic rocks. Some ultramafic flows are also present in the area.

Deformation associated with the Larder Lake - Cadillac break has been recorded in all of the lithologies listed above. This regional deformation zone has been traced from Kirkland Lake to just east of the survey area and from the Matachewan townsite area to just south-west of the survey area. All of the large gold deposits are found within a few kilometres of this deformation zone in the Kirkland Lake - Larder Lake area and west of Matachewan. Tracing this deformation zone through the survey area is an exploration priority.

Proterozoic rocks include diabase dykes of the Matachewan dyke swarm which trend n/s and cut the Archaean stratigraphy but are overlain unconformably by sedimentary rocks, mainly conglomerate.

The survey area is dominated by the Cairo stock - a syenite intrusion into older metavolcanics and metasediments. These older rocks are seen trending ne/sw in the extreme south east corner of the survey area. Their extent on geology maps is limited because of overlying Proterozoic sediments. The local aeromagnetic data (from published GSC maps) suggests they extend under the sediments to the south-east. The aeromagnetic trends which probably mirror the volcanics extend along strike for tens of kilometres to the northeast and southwest. The distinctive aeromagnetic anomalies found in the south-east part of the survey area are typical of a line of regional anomalies which defines or is close to the Cadillac break.

The poor understanding of the Cadillac break within the survey area is an intriguing mystery. Locating the possible trace of this break should allow for the possibility that it may be seen as several ne/sw trending parallel deformation zones separated from each other by as much as 2 to 3 km. At least two regional deformation zones may cross the survey area.

7.2 Exploration Target

The exploration target is gold. Gold bearing deposits in the Matachewan area are classified into four separate types: A) syenite hosted deposits; B) volcanic hosted deposits; C) porphyry copper molybdenum deposits and D) quartz veins.

A) Syenite hosted deposits
Most of the gold mined in the Matachewan area are of this type - e.g. Young - Davidson and Matachewan Consolidated. These two deposits are at opposite ends of a trachytic syenite 1000 m long and up to 200 m wide. This body trends e/w and is subparallel to and close to the contact between volcanic and sedimentary rocks. Deposits mined were on the order of one to five million tons with an average grade of 3.4 g/t gold. These deposits are 3 to 4 km west of Matachewan.

B) Volcanic hosted deposits
These deposits occur as auriferous pyrite and native gold in quartz veins and stringers and along fractures. The host rocks are mainly massive basaltic flows and interbedded tuffs with some ultramafic flows and sediments. These deposits are typically 10,000 to 100,000 tonnes averaging 5 to 10 g/t gold. These deposits

are less than 1 km east of the Matachewan Consolidated gold deposit - type A (see above).

C) Porphyry Copper Molybdenum deposits
These are primarily base metal deposits that contain gold on the order of 0.17 to 0.34 g/t gold. Though generally low grade (less than 0.5% copper) some of the deposits of this type are extensive. The Cairo - Flavelle deposit is located in the southeast corner of the survey area.

These deposits are essentially quartz veinlet stockworks associated with small intrusions of syenite porphyry. Mineralized zones contain chalcopyrite, molybdenite with some pyrite (0.5%) and magnetite (2%). These deposits were formed by hydrothermal alteration.

D) Quartz vein deposits
Large quartz veins that contain gold occur throughout the Matachewan area. Veins or vein systems are up to 250 m long and 0.1 to 12 m wide. They are composed mainly of quartz with some sections of abundant to massive pyrite and in places abundant galena, sphalerite, and chalcopyrite. The McChesney deposit on the extreme eastern edge of the Cairo stock and just east of the survey area is of this type.

The most probable deposit type in the survey area is considered to be type C - porphyry copper - molybdenum deposits such as the Cairo - Flavelle deposit. All deposit types are considered possible.

It is hoped that the airborne geophysical data can define possible regional deformation zones and local expression of these zones. Locally high apparent resistivities and/or concentrations of magnetite may be geophysical characteristics of preferred target areas.

7.3 EM Anomaly Selection and Analysis

A. Selection

EM anomalies have been picked from analog records and offset profile maps. The selection is based on satisfying any of the following criterion.

* a detectable 935 Hz inphase response.
* a positive 4600 Hz inphase or quadrature response with coincident 4175 Hz inphase or quadrature low.
* a positive 4600 Hz inphase response with a coincident proportionately higher 4175 Hz inphase response

These criteria should result in the identification of all possible bedrock conductors. Even horizontal conductors should be identifiable by the edge effects. (see Appendix 1).

These criteria reject EM anomalies due to gradual changes in overburden thickness or resistivity. For such anomalies, the coaxial and coplanar channels (either inphase or quadrature) for the same operating frequency move together and no separation is seen. This information is best seen in the contour maps of apparent resistivity.

The width of an anomaly from a bedrock conductor will depend principally on depth of burial, dip and orientation with respect to flight line direction. A near vertical conductor running normal to the flight lines will yield a coaxial EM anomaly whose width is about 2.5 times the source-sensor separation (measured from 20% of the anomaly peak). The anomaly from such conductors at surface will therefore be about 80 m. The comparable figures for a conductor under 50 m of overburden is 220 m.

Anomalies are judged to be due to cultural sources if there is a coincident response in the power line monitor as seen on the analog records. Where EM anomalies of a uniform style line up over a major road, railroad or other man made conductor but where there is no response in the power line monitor, such anomalies are also shown as due to cultural sources.

Special care is taken in areas of negative inphase response (due to magnetite). The quadrature channels may be the only indicators of a coincident conductor.

B. Analysis

The EM anomaly response amplitudes at 4600 Hz are used to estimate the conductance and depth of burial of a vertical thin sheet conductor model. These data appear in the anomaly listings in Appendix II.

The inphase anomaly amplitude and the thin sheet conductance range as determined from the 4600 Hz response amplitudes are shown with the plotted anomaly symbols. Each anomaly is identified by flight line number and letter.

Cultural anomalies are shown as open squares. Each anomaly is identified by a letter.

Conductive overburden will generally reduce thin sheet conductance estimates because of elevated background levels in the quadrature channels. Depth of burial estimates will in general be too small.

7.4 General Comments

EM

The 4600 Hz apparent resistivity map shows variations from less than 1000 ohm-m to greater than 5000 ohm-m.

All of the low and middle frequency (900 and 4500 Hz) data show low amplitude, long period variations but no significant sharp anomalies. This implies the absence of near vertical high conductance bedrock conductors such as graphites or massive sulphides.

Some EM anomalies have been picked from the 4500 Hz coaxial/coplanar quadrature channels. These anomalies were picked where the 4600 Hz quadrature trace locally separates from the 4175 Hz quadrature trace. These are thought to represent extremely weak bedrock conductors such as faults or edge effects. Edge effects are seen at the contact between two rock units of different resistivity or at a sharp change in overburden resistivity.

Relatively large areas of the offset profile maps show negative inphase anomalies. These are due to anomalously high concentrations of magnetite. As a rough rule of thumb, a negative anomaly in either coaxial EM channel (935 or 4600 Hz) of 1 ppm is equivalent to about 0.2% weight percent magnetite. Typical negative peak amplitudes are -10%. This implies roughly 2% weight percent magnetite.

MAGNETICS

The total field magnetic map shows large ne/sw trending anomalies in the southern part of the survey area. Peak amplitudes are 61,000 to 62,000 nT with background values of about 58,750 nT. The largest anomaly in amplitude and extent has a peak of almost 4000 nT over background. This anomaly is seen on the 1:50,000 scale GSC aeromagnetic maps as a 3000 nT anomaly whose major axis sits on or near Highway 66.

The middle of the survey area is seen as an area of elliptical magnetic anomalies of intermediate amplitude (50 to 250 nT) and no preferred orientation. These patterns are typical of felsic intrusives.

In the northern part of the survey area, an e/w or ene/wsw trend is re-established with a prominent magnetic low running across the entire survey area. This feature may be associated with a deformation zone which is part of the extended Cadillac break.

The calculated vertical gradient data shows the same overall pattern as seen in the total field map but in greater detail. The high magnetic features in the south appear as VG anomalies with peaks of 25 to over 100 nT/m. The lesser magnetic anomalies in the center of the survey area have peak amplitudes of 1 to 10 nT/m.

The outline of steeply dipping magnetic sources is often taken from the zero contour line of the VG contour map. This is reliable where the source is wide (i.e. on the order of 200 m or more). For narrower sources, the VG anomaly does not change shape and the determination of whether the source is wide or narrow is a geological decision.

Magnetic axes, shown on the compilation map (see below), have been taken from the peak location of VG anomalies with peak amplitudes greater than 5 nT/m.

Possible faults have been drawn along breaks or discontinuities as seen in the black line contour map of the vertical gradient. Supporting evidence from the total field magnetic and VLF-EM contour maps has been considered.

VLF

The contoured VLF total field data shows variations of from -20% to +35%. The strongest anomaly trends ene/wsw across the top of the survey area. Peak amplitudes are on the order of 15 to 35%. These VLF anomalies lie on the aeromagnetic total field low which might be the geophysical response to a deformation zone.

In the center part of the survey area, VLF anomalies favour the ese direction of the transmitter (Cutler) although an ene/wsw grain is also present.

In the southern part of the area, moderate amplitude VLF anomalies (5 to 15%) trend e/w or nen/wsw. As in the north, VLF highs lie over aeromagnetic lows. The pattern is more confused however on ene/wsw structural feature in this part of the survey area appears to have been broken and displaced.

7.5 Compilation Map

The compilation map shows:

- EM conductor axes
- magnetic axes (moderate and strong)
- faults (inferred from the magnetics)
- areas of anomalous weight percent magnetite
- VLF conductor axes
- favourable target area labels
- outline of known mineral deposits

A page size copy of the compilation map is attached.

Conductor axes are drawn through EM anomaly centers using similarities in EM anomaly patterns and magnetic strike from the contoured vertical gradient map.

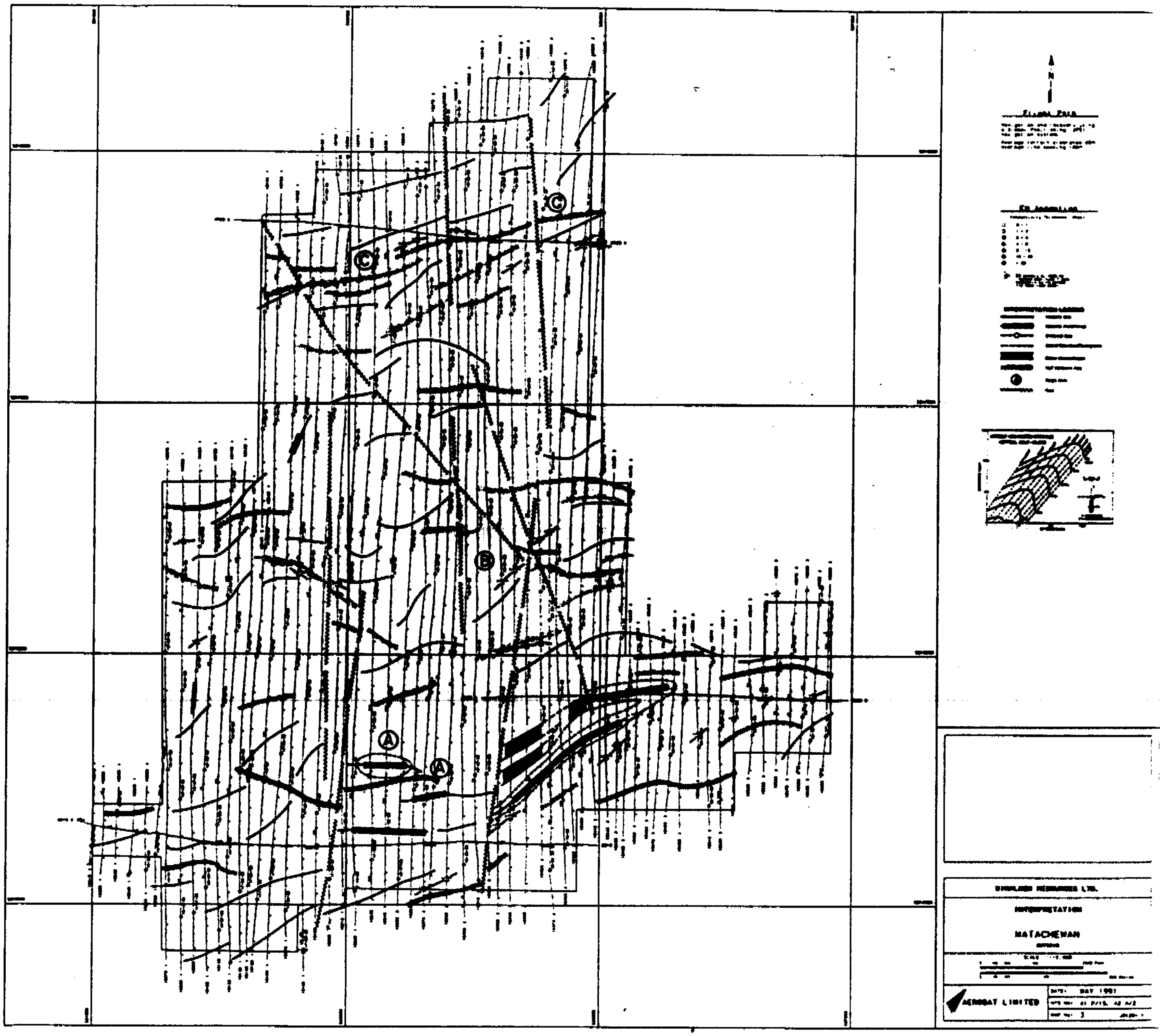
Magnetic axes are drawn through the peak of prominent vertical gradient anomalies. Strong axes indicate peak amplitudes of 25 nT/m or more.

Faults are inferred from breaks seen in the black line contour map of vertical gradient data.

Areas of anomalous weight percent magnetite have been taken from the offset profiles of the 4600 Hz inphase data. Negative anomalies of more than about 5 ppm are included.

7.6 Favourable Areas

Major features of the geophysical setting of the porphyry copper-molybdenum deposits near the eastern edge of Cairo Township are shown on the compilation map. These deposits are seen to be 100 to 200 m north of the source of a strong (4000 nT) aeromagnetic anomaly. The source outline has been taken from the contoured vertical gradient data and a coincident zone of high magnetite content.



INTERPRETATION
MATACHEWAN
AERODAT LIMITED

The Cairo-Flavelle deposit, on the Township boundary is seen on strike with another strong magnetic feature. The two are interrupted by a possible fault. The source outline across the fault appears consistent. Only the geophysical character changes when moving from east to west across this interpreted fault.

These mineral deposits have no clear geophysical signature. This applies in particular to EM and VLF data - both sensors show a lack of response over the known deposits.

Some 500 m northwest of the Cairo-Flavelle deposit are ene/wsw trending EM anomalies and near coincident VLF conductor axis. The EM anomalies are thought to represent a contact between more conductive rocks to the north and less conductive rocks to the south. This may be a geological contact or an expression of the McChesney fault.

Target areas are shown on the compilation map as A, B and C.

Both A symbols indicate areas with a geophysical setting similar to that of the Cairo-Flavelle deposit. They are shown 100 to 200 m north of the high magnetic feature some 1000 m west of the known deposits and again immediately east of the same anomaly. Both areas are free of VLF and EM responses.

Target B is at the junction of a number of possible faults, VLF and EM conductor axes. It is in an area of low magnetic relief and amplitudes. It may be on or near the McChesney fault.

Target type C is meant to indicate the probable deformation zone which may pass across the northern part of the survey area. Further work would focus on the e/w trending zone of EM and VLF conductor axes and coincident magnetic low. Cross-cutting faults might be areas of special interest.

8. CONCLUSIONS

High resolution helicopterborne geophysical surveys have been completed over an area of about 20 square kilometres located 10 km northeast of Matachewan, Ontario. Total coverage is 200 line kilometres plus magnetic tie lines. Results are presented on black line and colour maps at a scale of 1:10,000. Map types include EM anomaly centres, apparent resistivity, contoured magnetic field, contoured vertical magnetic gradient and contoured VLF-EM Total Field data.

Preferred geophysical characteristics have been built up from a model geological target. These characteristics have been extracted from various map products and transferred to a compilation/interpretation map. Favourable areas are discussed with reference to this compilation map.

Respectfully submitted,

Ian Johnson, Ph.D., P.Eng.
Consulting Geophysicist
for
AERODAT LIMITED
June 28, 1991

J9128

REGISTERED PROFESSIONAL ENGINEER
I. M. JOHNSON
PROVINCE OF ONTARIO

APPENDIX I

GENERAL INTERPRETIVE CONSIDERATIONS

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. The horizontal coplanar coil configuration is similarly operated at two different frequencies where at least one pair is 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.

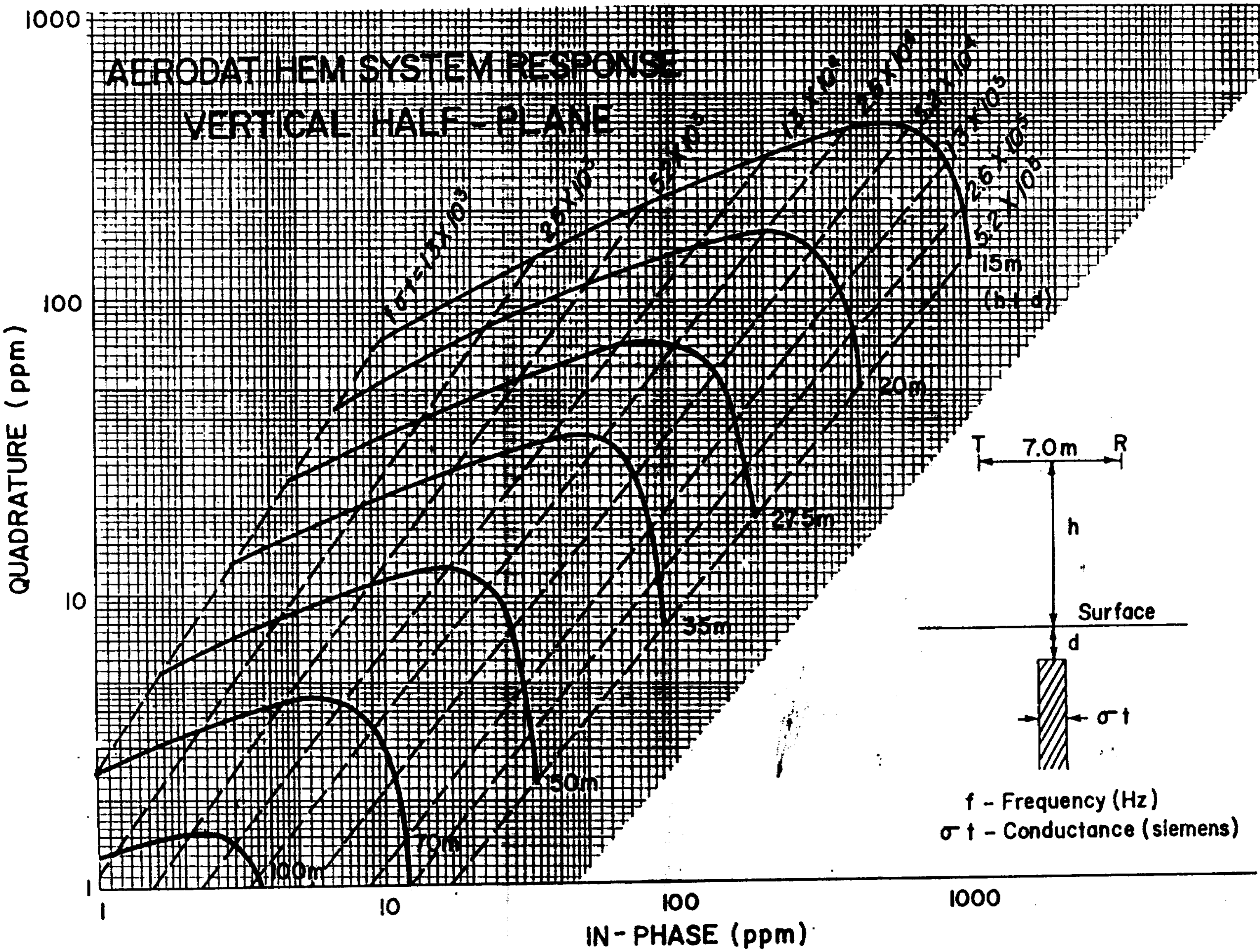
Electrical Considerations

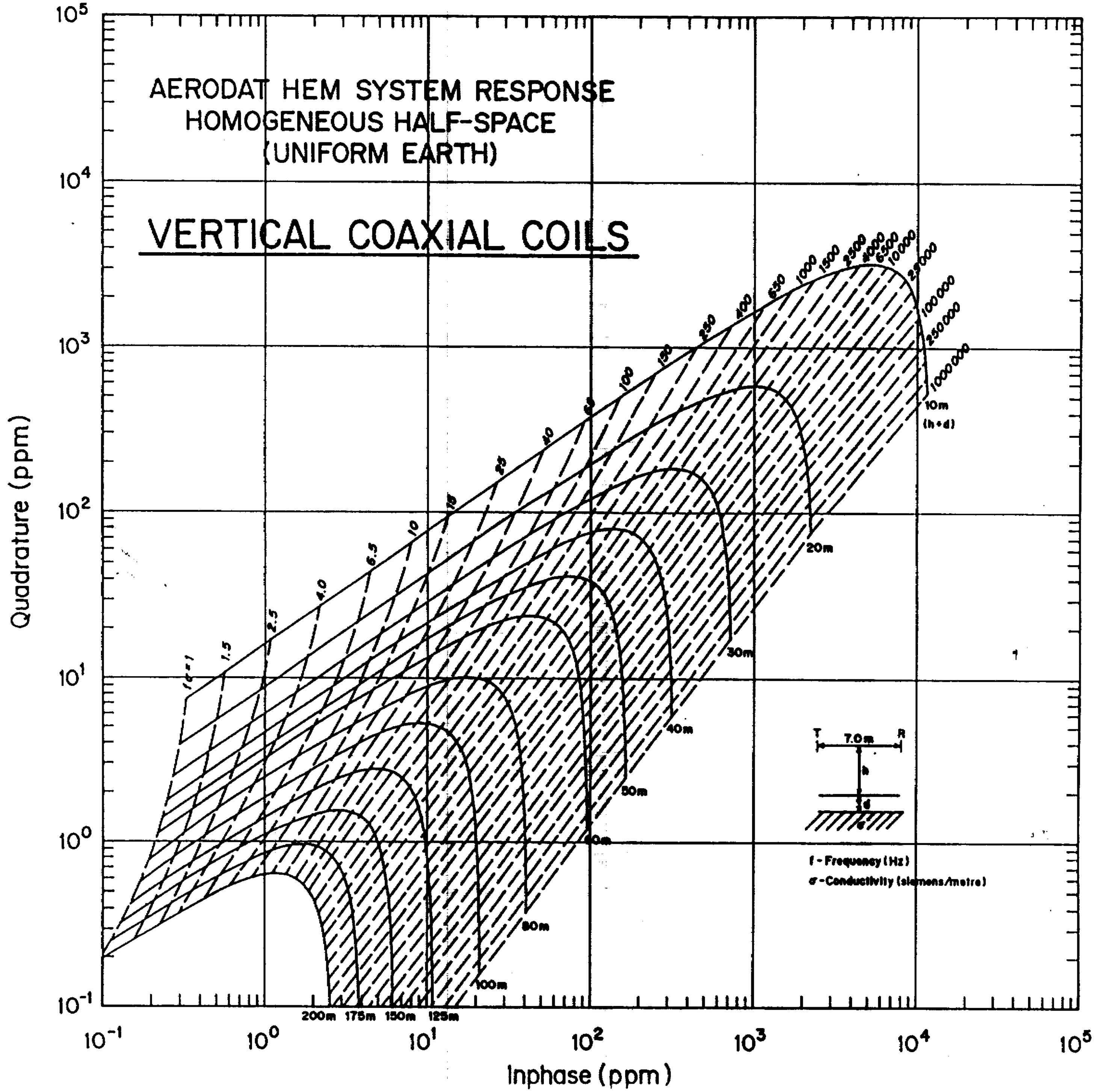
For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large inphase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for non-magnetic vertical half-plane and half-space models on the accompanying phasor diagrams. 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 of selected anomalies. The results of this calculation are presented in anomaly listings included in the survey report and the conductance and inphase amplitude are presented in symbolized form on the map presentation.

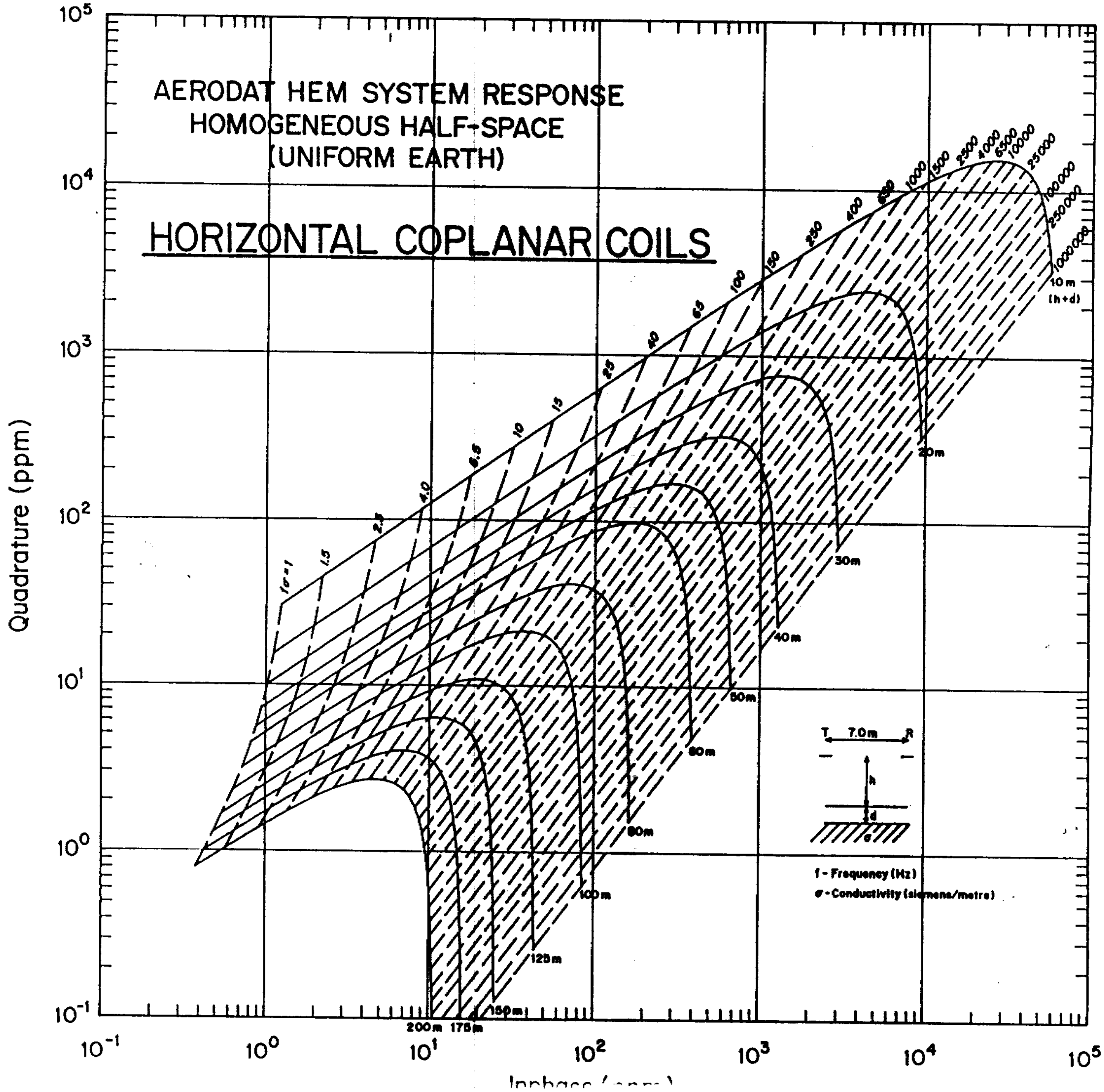
The conductance estimate is most reliable when anomaly amplitudes are large and background resistivities are high. Where the EM anomaly is of low amplitude and background resistivities are low, the conductance estimates are much less reliable. In such situations, the conductance estimate is often quite low regardless of the true nature of the conductor. This is due to the elevated background response levels in the quadrature channel. In an extreme case, the conductance estimate should be discounted and should not prejudice target selection.

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, or may be strongly magnetic. Its conductivity and thickness may vary with depth


AERODAT HEM SYSTEM RESPONSE
VERTICAL HALF-PLANE
QUADRATURE (ppm)
IN-PHASE (ppm)
1000
100
10
1
1
10
100
1000
15m
(h+d)
20m
27.5m
35m
50m
70m
100m
T
7.0m
R
h
Surface
d
σ-t
f - Frequency (Hz)
σ-t - Conductance (siemens)



AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)
VERTICAL COAXIAL COILS
Quadrature (ppm)
Inphase (ppm)
f - Frequency (Hz)
σ - Conductivity (siemens/metre)
T
7.0m
R
h
d
10m
(h+d)
20m
30m
40m
50m
60m
80m
100m
125m
150m
175m
200m



AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)
HORIZONTAL COPLANAR COILS
Quadrature (ppm)
Inphase (ppm)
10 m (h+d)
20m
30m
40m
50m
60m
80m
100m
125m
150m
200m
175m
T
7.0m
R
h
d
f - Frequency (Hz)
σ - Conductivity (siemens/metre)

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.

The higher ranges of conductance, greater than 2-4 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 massive sulphides or graphites.

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 concentrations in association with minor conductive sulphides, and the electromagnetic response will 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. Minor accessory sulphide mineralization may however 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. A moderate to low conductance value does not rule out the possibility of significant economic mineralization.

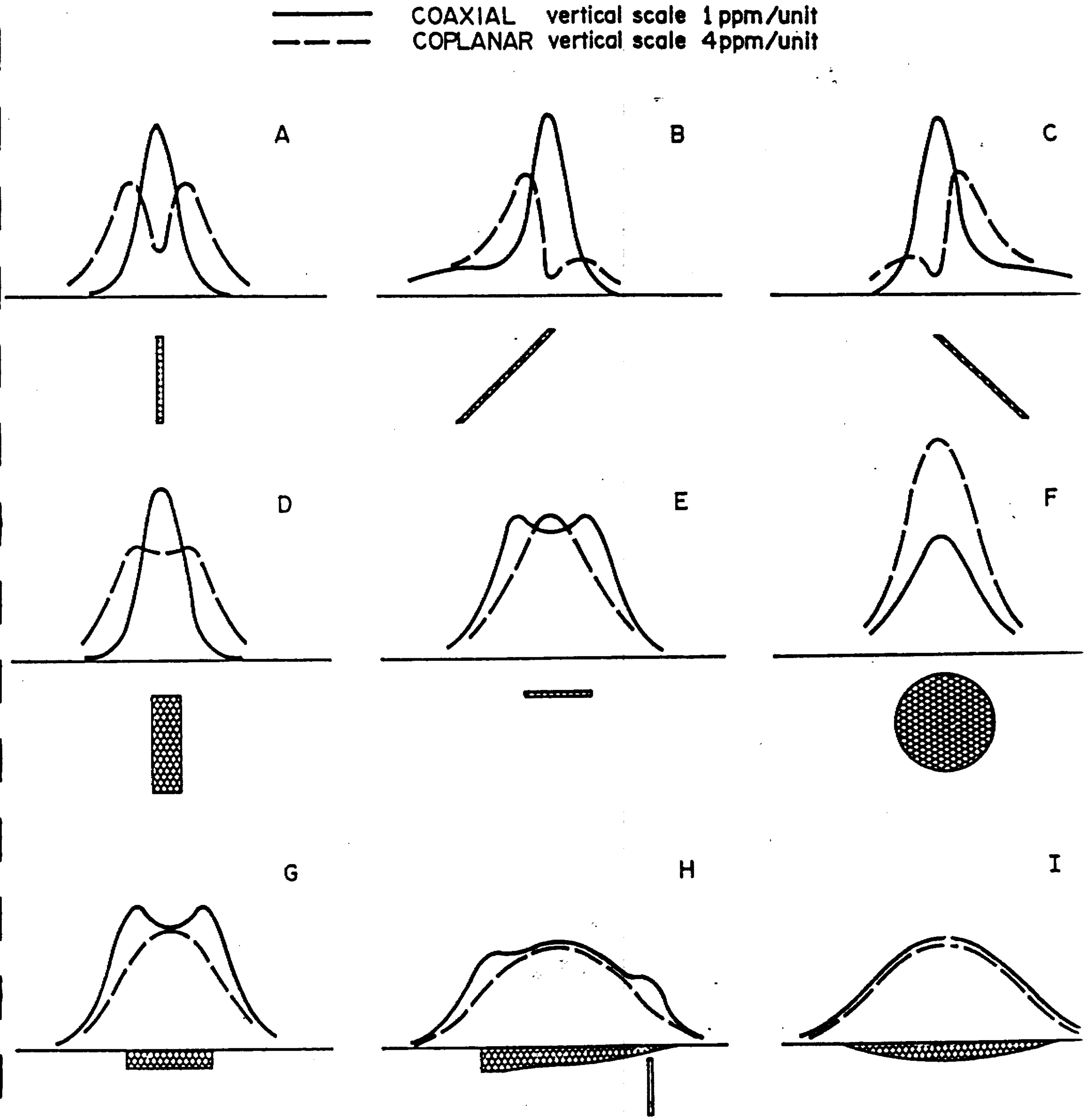
Geometrical Considerations

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. The accompanying figure shows a selection of HEM response profile shapes from nine idealized targets. Response profiles are labelled A through I. These labels are used in the discussion which follows.

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.(Profile A) As the dip of the conductor decrease 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.(Profiles B and C).

As the thickness of the conductor increases, induced current flow across the thickness of the

HEM RESPONSE PROFILE SHAPE AS AN INDICATOR OF CONDUCTOR GEOMETRY



conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible.(Profile D) 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 a horizontal thin sheet or 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*.(Profiles E and G).

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.(Profile F)

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.(Profile I) 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.(Profile H)

* 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.

The interpretation of contoured aeromagnetic data is a subject on its own involving an array of methods and attitudes. The interpretation of source characteristics for example from total field results is often based on some numerical modelling scheme. The vertical gradient data is more legible in some aspects however and useful inferences about source characteristics can often be read off the contoured VG map.

The zero contour lines in contoured VG data are often sited as a good approximation to the outline of the top of the magnetic source. This only applies to wide (relative to depth of burial) near vertical sources at high magnetic latitudes. It will give an incorrect interpretation in most other cases.

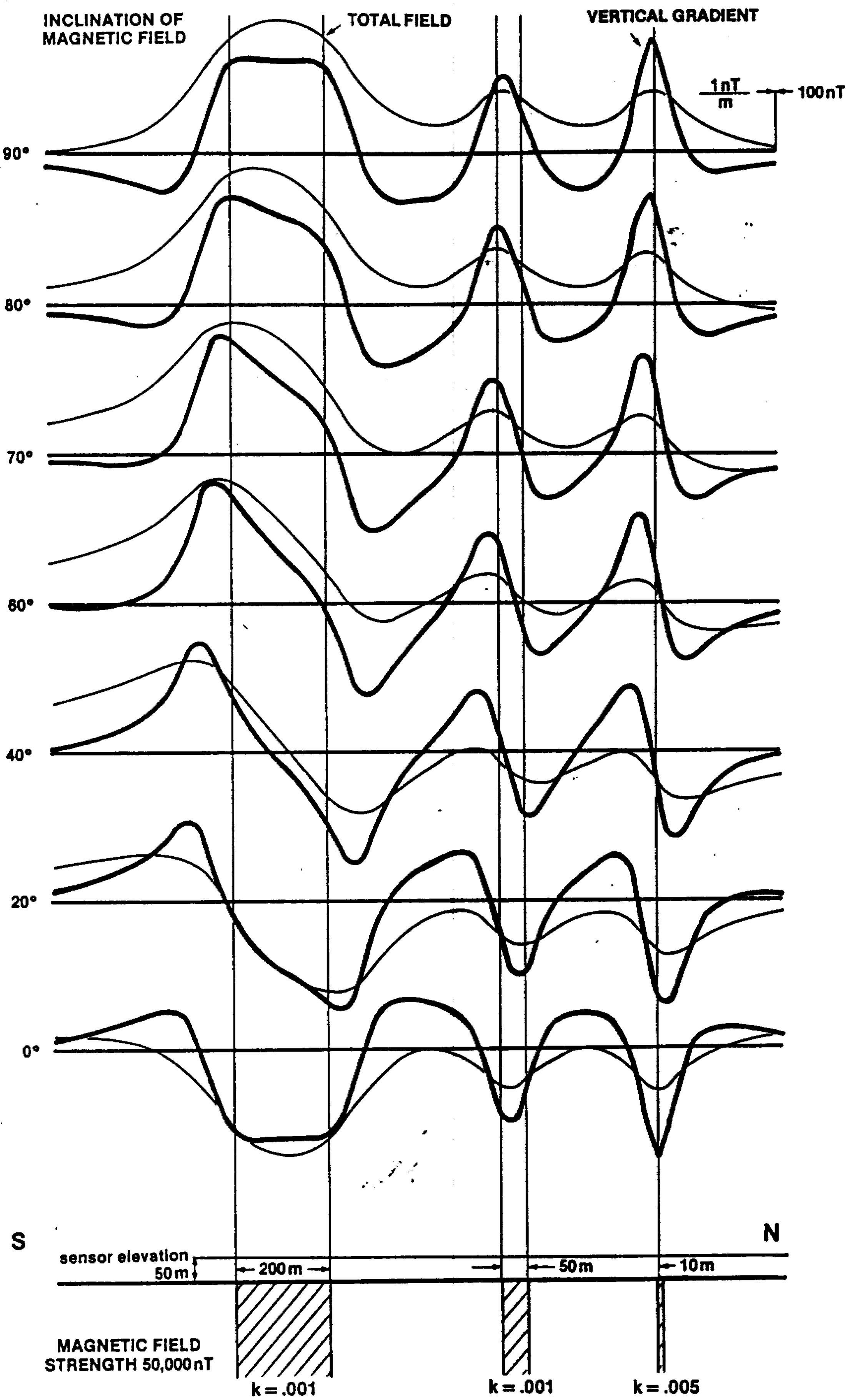
Theoretical profiles of total field and vertical gradient anomalies from tabular sources at a variety of magnetic inclinations are shown in the attached figure. Sources are 10, 50 and 200 m wide. The source-sensor separation is 50 m. The thin line is the total field profile. The thick line is the vertical gradient profile.

The following comments about source geometry apply to contoured vertical gradient data for magnetic inclinations of 70 to 80°.

Outline

Where the VG anomaly has a single sharp peak, the source may be a thin near-vertical tabular source. It may be represented as a magnetic axis or as a tabular source of measureable width - the choice is one of geological preference.

Where the VG anomaly has a broad, flat or inclined top, the source may be a thick tabular source. It may be represented as a thick body where the width is taken from the zero contour lines if the body dips to magnetic north. If the source appears to be dipping to the south (i.e. the VG anomaly is asymmetric), the zero contours are less reliable indicators of outline. The southern most zero contour line should be ignored and the outline taken from the northern zero contour line and the extent of the anomaly peak width.



INCLINATION OF MAGNETIC FIELD
TOTAL FIELD
VERTICAL GRADIENT
1nT/m
100nT
90°
80°
70°
60°
40°
20°
0°
S
N
sensor elevation 50m
200m
50m
10m
MAGNETIC FIELD STRENGTH 50,000nT
k=.001
k=.001
k=.005

Dip

A symmetrical vertical gradient response is produced by a body dipping to magnetic north. An asymmetrical response is produced by a body which is vertical or dipping to the south. For southern dips, the southern most zero contour line may be several hundred meters south of the source.

Depth of Burial

The source-sensor separation is about equal to half of the distance between the zero contour lines for thin near-vertical sources. The estimated depth of burial for such sources is this separation minus 50 m. If a variety of VG anomaly widths are seen in an area, use the narrowest width seen to estimate local depths.

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 locally horizontal and normal to a line pointing at the transmitter.

The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component from two VLF stations. These stations are designated Line and Ortho. The line station is ideally in a direction from the survey area at right angles to the flight line direction. Conductors normal to the flight line direction point at the line station and are therefore optimally coupled to VLF magnetic fields and in the best situation to gather secondary VLF currents. The ortho station is ideally 90 degrees in azimuth from the line station.

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 measurable 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 anomaly is an indicator of the existence and position of a conductor. 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.

Conversely a negative total field anomaly is often seen over local resistivity highs. This is because the VLF field produces electrical currents which flow towards (or away from) the transmitter. These currents are gathered into a conductor and are taken from resistive bodies. The VLF system sees the currents gathered into the conductor as a total field high. It sees the relative absence of secondary currents in the resistor as a total field low.

As noted, VLF anomaly trends show a strong bias towards the VLF transmitter. Structure which is normal to this direction may have no associated VLF anomaly but may be seen as a break or interruption in VLF anomalies. If these structures are of particular interest, maps of the ortho station data may be worthwhile.

Conductive overburden will obscure VLF responses from bedrock sources and may produce low amplitude, broad anomalies which reflect variations in the resistivity or thickness of the overburden.

Extreme topographic relief will produce VLF anomalies which may bear no relationship to variations in electrical conductivity. Deep gullies which are too narrow to have been surveyed at a uniform sensor height often show up as VLF total field lows. Sharp ridges show up as total field highs.

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 vertical quadrature component is rarely presented. Experience has shown the total field to be more sensitive to bedrock conductors and less affected by variations in conductive overburden.

AERODAT LIMITED
June, 1991.

APPENDIX II

ANOMALY LISTINGS

BIRALGER RESOURCES LTD. - MATACHEWAN,ONT

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	10080	A	0	1.8	4.3	0.1	20	39
1	10090	A	0	0.5	5.4	0.0	1	32
1	10140	A	0	0.3	2.7	0.0	0	48
1	10150	A	0	0.4	4.1	0.0	0	53
1	10150	B	0	0.1	5.0	0.0	0	40
1	10170	A	0	1.4	4.8	0.0	8	43
1	10170	B	0	0.4	4.8	0.0	0	46
1	10180	A	0	-0.3	3.2	0.0	0	44
1	10190	A	0	0.6	4.6	0.0	0	54
1	10200	A	0	-0.2	4.3	0.0	0	39
1	10200	B	0	-0.4	4.2	0.0	0	41
1	10200	C	0	0.2	5.6	0.0	0	47
1	10210	A	0	0.3	6.9	0.0	0	48
1	10230	A	0	1.7	8.2	0.0	0	42
1	10240	A	0	-0.6	4.3	0.0	0	38
1	10240	B	0	1.9	5.8	0.0	0	55
2	10250	A	0	1.2	10.6	0.0	0	46
2	10270	A	0	1.0	10.7	0.0	0	44
2	10290	A	0	3.4	8.8	0.1	1	44
2	10290	B	0	1.2	7.1	0.0	0	44
2	10300	A	0	2.3	7.2	0.0	0	46
2	10300	B	0	-0.2	5.2	0.0	0	39
2	10330	A	0	0.9	4.5	0.0	2	44
2	10330	B	0	-1.8	3.8	0.0	0	42
2	10330	C	0	-4.3	4.2	0.0	0	32
2	10340	A	0	1.9	14.9	0.0	0	39
2	10340	B	0	-1.1	8.2	0.0	0	37
2	10340	C	0	-1.4	5.5	0.0	0	39

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

BIRALGER RESOURCES LTD. - MATACHEWAN,ONT

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	10340	D	0	-1.6	3.7	0.0	0	41
2	10350	A	0	-1.9	5.5	0.0	0	39
2	10360	A	0	0.0	12.3	0.0	0	38
2	10360	B	0	0.9	13.8	0.0	0	37
2	10360	C	0	-1.6	7.0	0.0	0	37
2	10370	A	0	-0.1	10.7	0.0	0	35
2	10370	B	0	0.0	9.4	0.0	0	37
2	10390	A	0	-1.7	9.6	0.0	0	34
2	10390	B	0	-0.8	11.5	0.0	0	35
2	10390	C	0	-0.5	4.9	0.0	0	51
2	10400	A	0	-0.2	6.7	0.0	0	45
2	10400	B	0	-0.2	12.4	0.0	0	35
2	10410	A	0	-2.1	7.4	0.0	0	38
2	10420	A	0	-0.2	5.8	0.0	0	45
2	10420	B	0	-1.4	5.7	0.0	0	39
2	10420	C	0	-1.4	5.5	0.0	0	52
2	10430	A	0	-0.1	6.4	0.0	0	51
2	10430	B	0	-3.1	6.8	0.0	0	32
3	10450	A	0	-2.4	5.7	0.0	0	44
3	10500	A	0	1.3	6.1	0.0	4	39
3	10530	A	0	2.7	4.9	0.2	5	55
3	10560	A	0	-0.9	3.0	0.0	0	33
3	10590	A	0	0.8	4.1	0.0	0	48
3	10600	A	0	1.3	26.4	0.0	0	37

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

APPENDIX III

CERTIFICATE OF QUALIFICATIONS

I, IAN JOHNSON, certify that:

1. I am registered as a Professional Engineer in the Province of Ontario.

2. I reside at 38 Tinti Place in the town of Thornhill, Ontario.

3. I hold a Ph.D. in Geophysics from the University of British Columbia, having graduated in 1972.

4. I have been continuously engaged in both professional and managerial roles in the minerals industry in Canada and abroad for the past fourteen years.

5. The accompanying report was prepared from published or publicly available information and material supplied by Biralger Resources Ltd. and Aerodat Limited in the form of government reports and proprietary airborne exploration data. I have not personally visited the specific property.

7. I have no interest, direct or indirect, in the property described nor in Biralger Resources Ltd.

8. I hereby consent to the use of this report in a Statement of Material Facts of the Company and for the preparation of a prospectus for submission to the appropriate securities commission and/or other regulatory authorities.

Signed,

Ian Johnson, Ph.D., P. Eng.

REGISTERED PROFESSIONAL ENGINEER
I. M. JOHNSON
PROVINCE OF ONTARIO

J9128
Thornhill, Ontario
June 28, 1991

APPENDIX IV

PERSONNEL

FIELD

Flown	May 12 and 13, 1991
Pilot	Greg Charbonneau
Operator	Scott Wessler

OFFICE

Processing	Tom Furuya George McDonald
Report	Ian Johnson

N.L.

Ministry of Northern Development and Mines Ontario

DOCUMENT No. W9180•00205 (WORK)

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Report of Work

Mining Act (Geophysical, Geological and Geochemical Surveys)

Mining Lands Section, Mineral Development and Lands Branch

Type of Survey(s)	Mining Division	Township or Area
Airborne Mag, EM, VLF-EM, Resistivity	Larder Lake	Cairo, Alma, Flavelle, Twps.

Recorded Holder(s): Biralger Resources Ltd — Prospector's Licence No.: T 4775

Address: Box 1376, 126 Willow Rd Atikokan Ontario P0T 1C0 — Telephone No.: 807-597 4526

Survey Company: Aerodat Ltd

2.14220

Name and Address of Author (of Geo-Technical Report): Bob Decarle, 3883 Nashua Dr., Mississauga, Ont. L4V1R3

Date of Survey (from & to): 3 Day 5 Mo 91 Yr — 22 Day 5 Mo 91 Yr

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days (This includes line cutting)	Geophysical - Electromagnetic	
	- Magnetometer	
For each additional survey using the same grid: Enter 20 days (for each)	- Other	
	Geological	
	Geochemical	
Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Other	
	Geological	
	Geochemical	
Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys	Electromagnetic	40
	Magnetometer	40
	Other	

Total miles flown over claim(s): 200 Km.

Date: May 3/91 — Recorded Holder or Agent (Signature): R.A. Bernatchez, Pres.

Mining Claims Traversed (List in numerical sequence)

Prefix	Number	Prefix	Number	Prefix	Number
L	1132175	L	1106462	L	1111067
	1132176		1106463		1111068
	1132177		1106464		1111069
	1132178		1106465		1048585
	1132179		1106466		1048586
	1132180		1106467		1048587
	1132181		1106468		1048588
	1137298		1106469		1048589
	1137299		1137949 ~~1106488~~		1048590
	1137311		1137950	L	1132182
	1106455	L	982258		1132183
	1106456		982259		1132184
	1106457		982260		1132185
	1106458		982261		1132187
	1106459	L	1111066		1132188 1132189
	1106460				
	1106461				

Total number of mining claims covered by this report of work: 48

Certification Verifying Report of Work

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

Name and Address of Person Certifying: Raymond A. Bernatchez P.Eng. Box 1376, 126 Willow Rd. Atikokan Ont. P0T 1C0

Telephone No: 807-597-4526 — Date: May 3/91 — Certified By (Signature): R.A. Bernatchez, P.Eng.

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
3840	May 8/91	[signature]
	Date Approved as Recorded	Provincial Manager, Mining Lands
	July 26/91	[signature]

Received Stamp: RECEIVED LARDER LAKE MINING DIVISION MAY 8 1991 TIME [illegible]

RECEIVED JUN 06 1991 MINING LANDS SECTION

ONTARIO GEOLOGICAL SURVEY GIS ASSESSMENT FILES RECEIVED AUG [illegible] 1991

1362 (89/06)

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.

2.14220

Type of Survey(s) AIRBORNE MAG, EM, VLF-EM, RESISTIVITY
Township or Area CAIRO, ALMA, FLAVELLE TWPS.
Claim Holder(s) BIRALGER RESOURCES LIMITED
126 WILLOW ROAD, ATIKOKAN, ONT.
Survey Company AERODAT LIMITED
Author of Report IAN JOHNSON, P. ENG.
Address of Author 3883 NASHUA DR. MISSISSAUGA, ONT.
Covering Dates of Survey MAY 12 AND MAY 13.
(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 40 Electromagnetic 40 Radiometric ________
(enter days per claim)

DATE: July 4, 1991 SIGNATURE: Ian Johnson
Author of Report or Agent

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
[redacted]	
L	1106455-1106469
L	982258-982261
[redacted]	
L	1137298-1137299
L	1137311
L	1137949-L1137950
L	1111066-1111069
L	1132175-1132185
L	1132187-1132189
L	1048585-1048590

If space insufficient, attach list

TOTAL CLAIMS 48

OFFICE USE ONLY

Res. Geol. ________ Qualifications 2.3844

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) HELICOPTER BORNE GEOPHYSICAL SURVEY

Instrument(s) FOUR-FREQUENCY EM, Magnetometer, VLF-EM
(specify for each type of survey)

Accuracy EM ± 1 ppm, Magnetics 0.1 nT, VLF - 1 %.
(specify for each type of survey)

Aircraft used BELL 206L (C-GIBU) - CANADIAN HELICOPTERS.

Sensor altitude 45m (magnetometer and VLF), 30 m (EM)

Navigation and flight path recovery method navigation by Global Positioning System (GPS) supplimented by colour video tracking camera.

Aircraft altitude 60 m Line Spacing 100 m.

Miles flown over total area ~ 120 miles Over claims only ~ 48 miles

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)

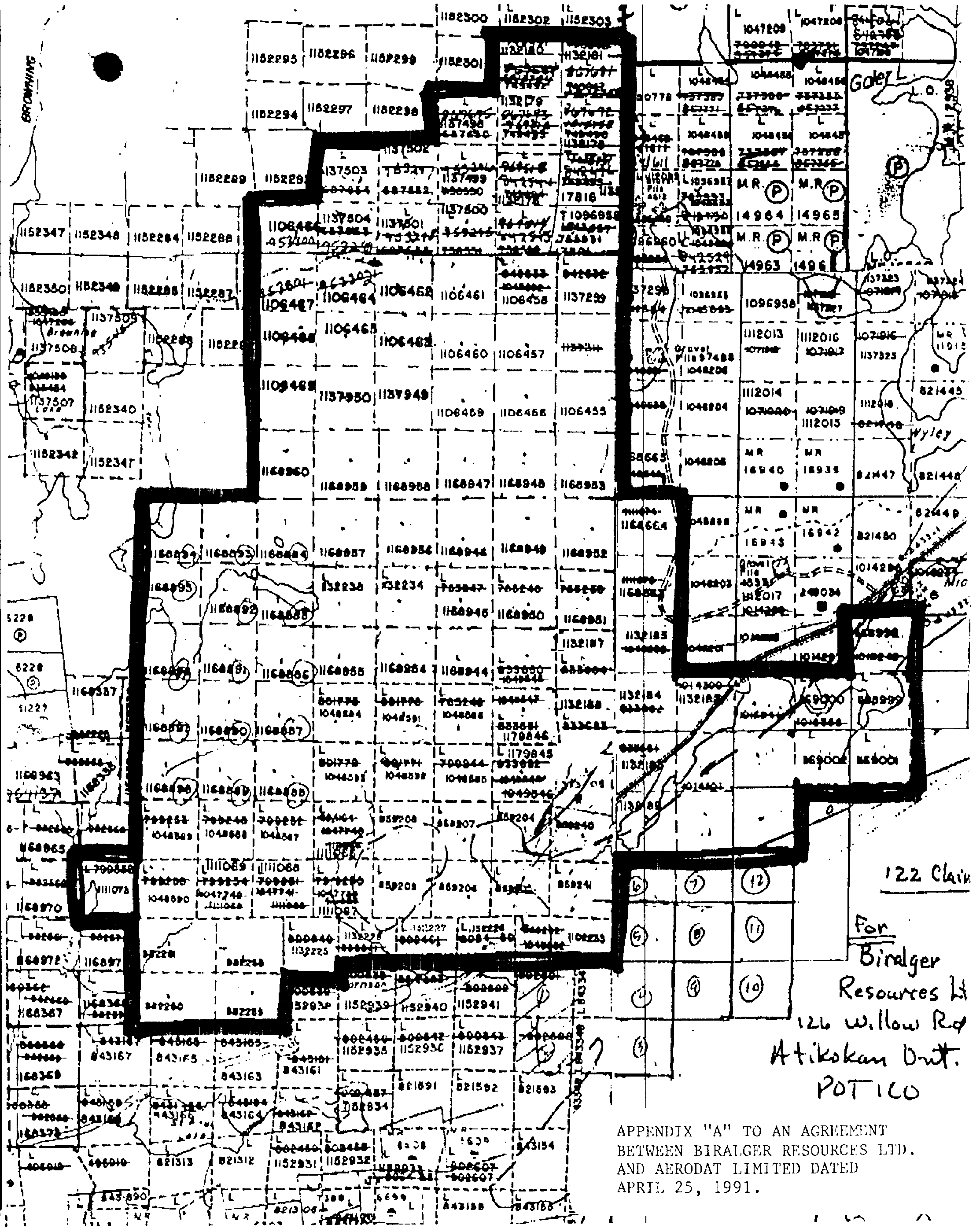
Name of Laboratory ________________

Extraction Method ________________

Analytical Method ________________

Reagents Used ________________

General ________________



APPENDIX "A" TO AN AGREEMENT BETWEEN BIRALGER RESOURCES LTD. AND AERODAT LIMITED DATED APRIL 25, 1991.

MINING LANDS: PLEASE COMPLETE THIS FORM & RETURN IT WITH REPORT TO THE ASSESSMENT FILES OFFICE

DATE REMOVED: (from AFO) March 1/93

DATE RETURNED: (to AFO') March 28/93

REPORT # : 2.14220

FICHE NO. : ______________ (where applicable)

RECEIVED
MAR - 2 1993
MINING LANDS BRANCH

REASON FOR REQUESTING REPORT (complete #1-4 below):

1. INFORMATION ADDED TO EXISTING PAGES OF REPORT: ☐

IF YES, SPECIFY PAGES: ______
: ______
: ______

2. a) PAGES/MAPS ADDED TO THIS REPORT: ____ TOTAL PAGES ADDED
: ____ TOTAL MAPS ADDED

b) TYPE OF PGS ADDED: ______ CORRESPONDENCE
: ______ WORK REPORTS (AMENDED)
: ______ WORK RPTS (NEW)
: ______ MISSING PAGES OF TEXT
: ______ OTHER (PLEASE SPECIFY)

3. a) REMOVAL OF PGS FROM REPORT: ______ TOTAL PGS REMOVED

b) TYPE OF PAGES REMOVED : ______ CORRESPONDENCE
: ______ WORK REPORTS
: ______ PGS OF TEXT
: ______ OTHER (PLEASE SPECIFY)

4. REPORT NEEDED FOR REFERENCE ONLY: ☑

NO INFORMATION ALTERED : ☑

NO INFORMATION ADDED : ☑

NO INFORMATION DELETED : ☑

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File

(RI) MINING AND SURFACE RIGHTS NOT OPEN TO STAKING, APPLICATION UNDER SECTION 3(b) JUNE 12,1987.

OL 4906 – PENDING APPLICATION UNDER PUBLIC LANDS ACT

LUP – LAND USE PERMIT

TOWNSHIP SUBJECT TO FORESTRY OPERATIONS

DATE OF ISSUE

JUN 26 1991

LARDER LAKE MINING RECORDER'S OFFICE

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

NOTES

AREA WEST OF WEST MONTREAL RIVER CLOSED TO STAKING SUBJECT TO SEC. 38(f) OF THE MINING ACT, 20 SEPT. 1978.

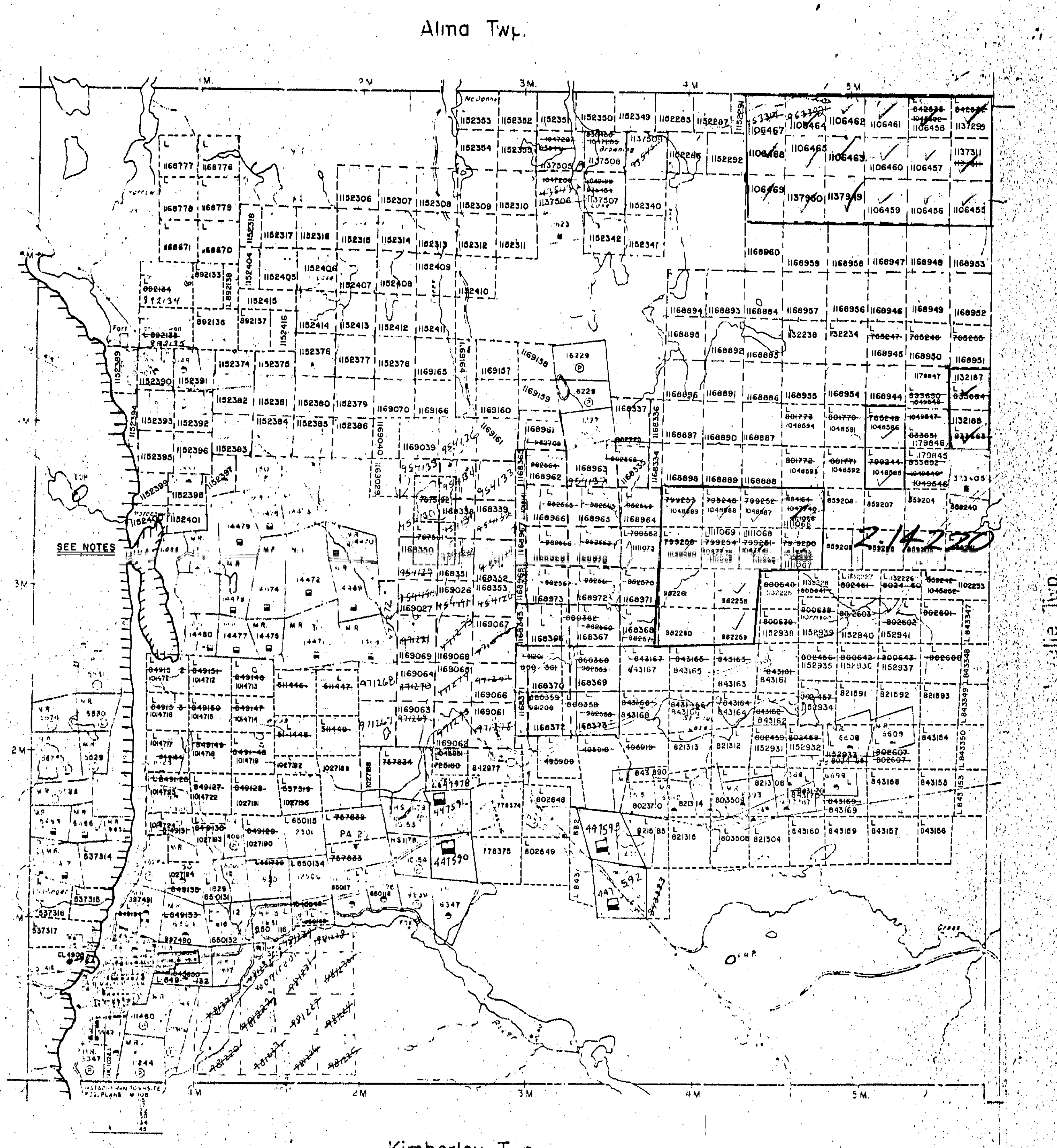
"THIS MAP SHOWS THE APPROXIMATE LOCATION OF THE BOUNDARIES OF THE AREA WHICH IS THE SUBJECT OF CURRENT LITIGATION. THE EXACT LOCATION WILL BE SHOWN FOLLOWING CONFIRMATION BY THE PARTIES TO THE ACTION."

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP / AREA FALLS WITHIN THE PLONSKI FOREST MANAGEMENT UNIT

42A02SE0101 2.14220 CAIRO

200



LEGEND

HIGHWAY AND ROUTE No.
OTHER ROADS
TRAILS
SURVEYED LINES:
TOWNSHIPS, BASE LINES, ETC.
LOTS, MINING CLAIMS, PARCELS ETC.
UNSURVEYED LINES:
LOT LINES
PARCEL BOUNDARY
MINING CLAIMS ETC.
RAILWAY AND RIGHT OF WAY
UTILITY LINES
NON-PERENNIAL STREAM
FLOODING OR FLOODING RIGHTS
SUBDIVISION OR COMPOSITE PLAN
RESERVATIONS
ORIGINAL SHORELINE
MARSH OR MUSKEG
MINES
TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT — SYMBOL

PATENT, SURFACE & MINING RIGHTS
" , SURFACE RIGHTS ONLY
" , MINING RIGHTS ONLY
LEASE, SURFACE & MINING RIGHTS
" , SURFACE RIGHTS ONLY
" , MINING RIGHTS ONLY
LICENCE OF OCCUPATION
ORDER-IN-COUNCIL
RESERVATION
CANCELLED
SAND & GRAVEL

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000
METRES 0 200 1000 2000 (1 KM) (2 KM)

TOWNSHIP

CAIRO

M.N.R. ADMINISTRATIVE DISTRICT

KIRKLAND LAKE

MINING DIVISION

LARDER LAKE

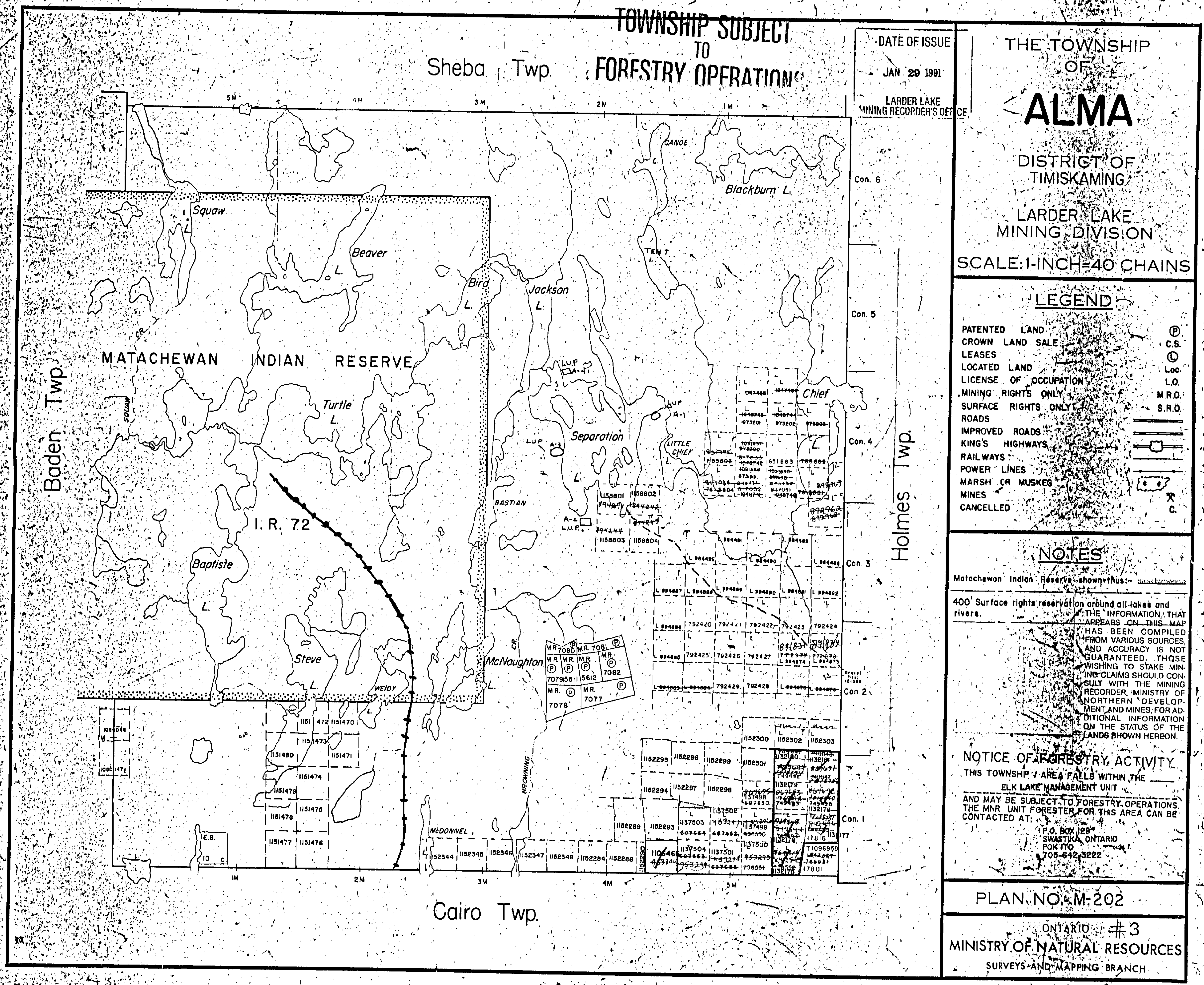
LAND TITLES / REGISTRY DIVISION

TIMISKAMING

Ministry of Natural Resources — Ministry of Northern Development and Mines — Ontario

Date: JULY 1936 — Number:

2.14220 — G-3209



42A02SE0101 2.14220 CAIRO

210

2.14220

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

The subdivision of this Township into lots and concessions is partially annulled. December 3rd 1963

(G) M.T.C. Gravel Pit 203

(G3) M.T.C. Pit 1394

(R1) Surface and Mining Rights Withdrawn From Staking, Section 36/80 Order No. W93/84, 8/6/1984

(R2) Surface and Mining Rights Withdrawn From Staking, Section 31(B), Feb. 11, 1986 3:07 P.M.

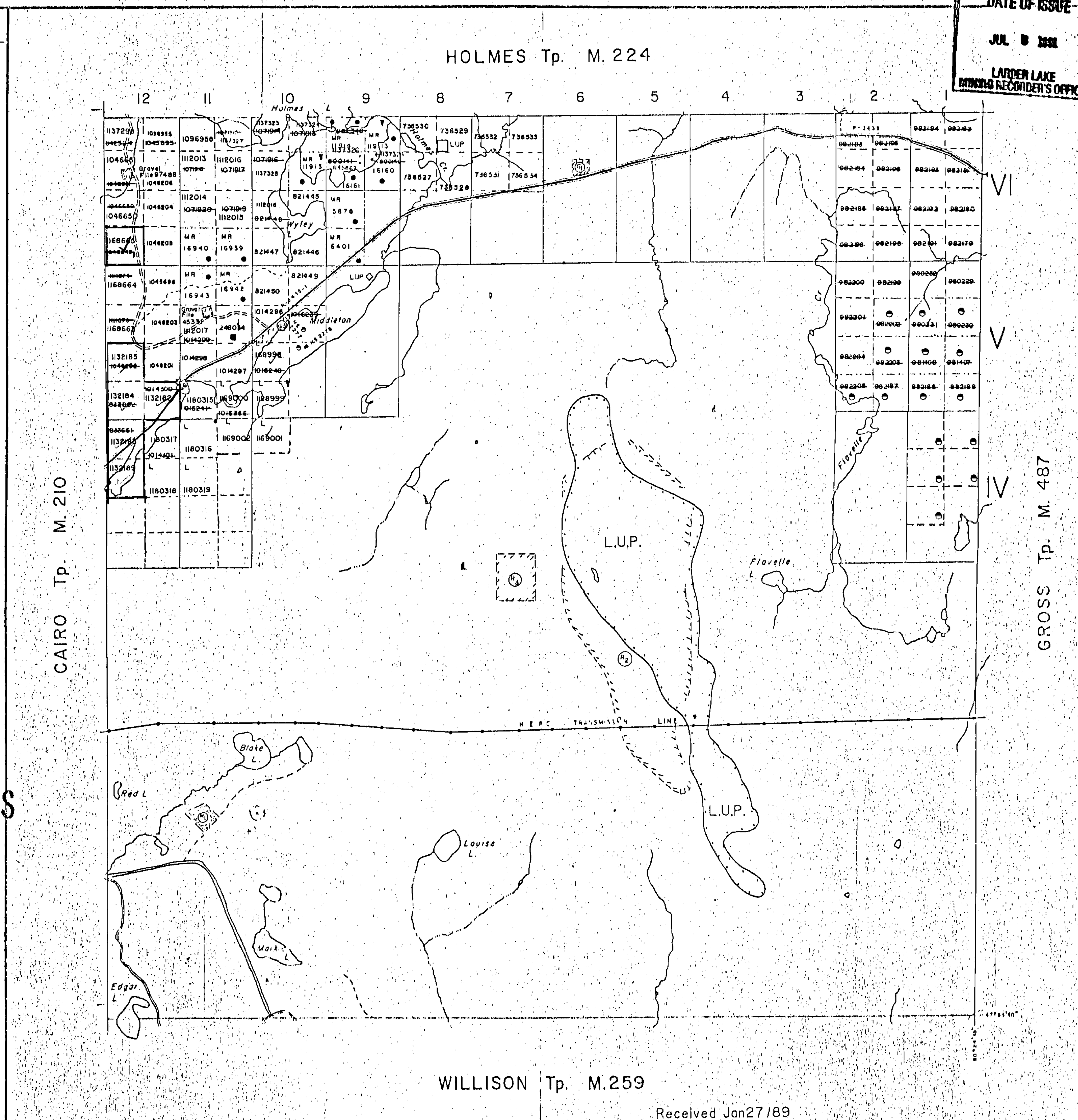
(R3) Surface Rights Withdrawn From Staking, Section 31(B) Aug. 13, 1987.

TOWNSHIP SUBJECT TO FORESTRY OPERATIONS

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP/AREA FALLS WITHIN THE PLONSKI FOREST MANAGEMENT UNIT AND MAY BE SUBJECT TO FORESTRY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT: P.O. BOX 129 SWASTIKA, ONT. P0K 1T0 705-642-3222



DATE OF ISSUE
JUL 8 1991
LARDER LAKE MINING RECORDER'S OFFICE

LEGEND

HIGHWAY AND ROUTE No.
OTHER ROADS
TRAILS
SURVEYED LINES:
TOWNSHIPS, BASE LINES, ETC.
LOTS, MINING CLAIMS, PARCELS, ETC.
UNSURVEYED LINES:
LOT LINES
PARCEL BOUNDARY
MINING CLAIMS ETC.
RAILWAY AND RIGHT OF WAY
UTILITY LINES
NON-PERENNIAL STREAM
FLOODING OR FLOODING RIGHTS
SUBDIVISION
ORIGINAL SHORELINE
MARSH OR MUSKEG
MINES

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	
CROWN LAND SALE	CS
ORDER-IN-COUNCIL	OC
RESERVATION	
CANCELLED	
SAND & GRAVEL	

SCALE: 1 INCH = 40 CHAINS

FEET 0 500 1000 2000 4000 6000 8000

METRES 0 200 400 600 800 1KM 2KM

ACRES	HECTARES
40	16

TOWNSHIP

FLAVELLE

DISTRICT
TIMISKAMING

MINING DIVISION
LARDER LAKE

MINISTRY OF NORTHERN DEVELOPMENT AND MINES
Ontario

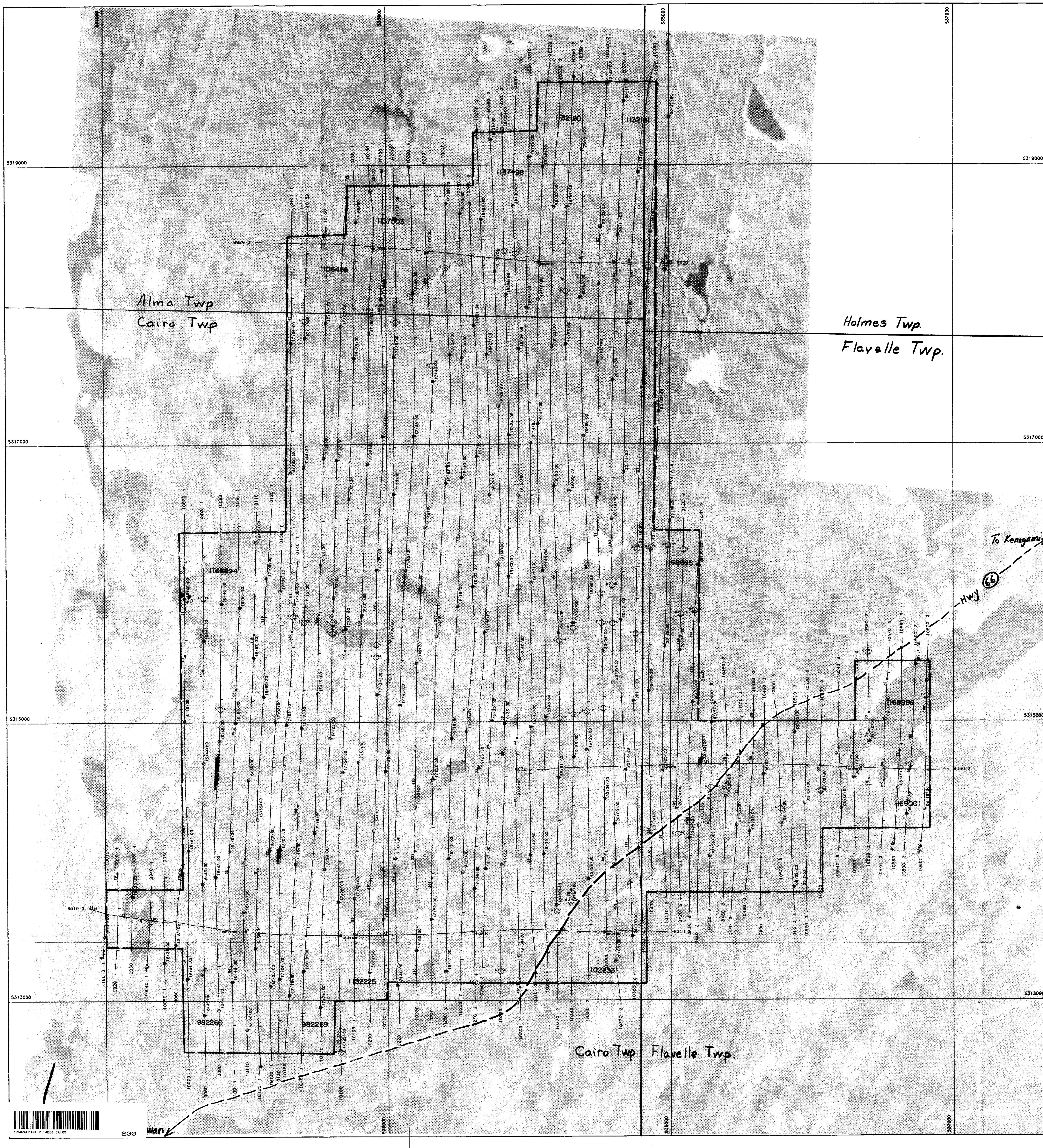
Date 26/06/88
Whitney Block Queen's Park, Toronto

Plan No. M.220

2.14220

42A02SE0101 2.14220 CAIRO

220



Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- > 30

EM Anomaly A, 4600 Hz inphase amplitude 7 ppm, Conductivity thickness 1-2 mhos (see code).

RECEIVED
JUL 23 1991
MINING LANDS SECTION

J. A. R. BERNATCHEZ
PROVINCE OF ONTARIO

2.14220

BIRALGER RESOURCES LTD.

FLIGHT PATH

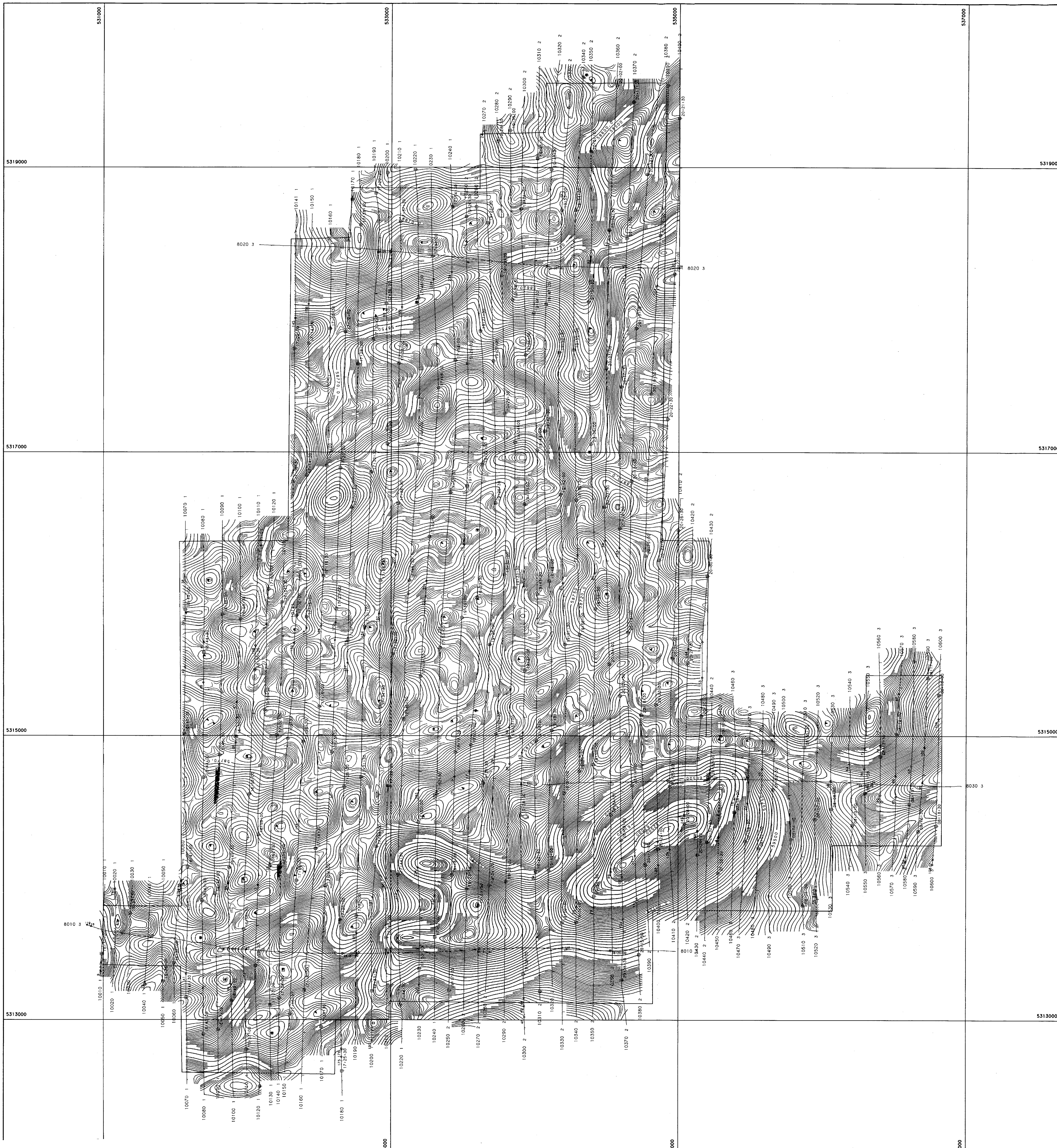
MATACHEWAN
ONTARIO

SCALE 1:10,000

AERODAT LIMITED

DATE: MAY 1991
NTS No: 41 P/15, 42 A/2
MAP No: 2 J9128-1

230



N

Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

Magnetics

Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

- 2 nT
- 10 nT
- 50 nT
- 250 nT
- 1000 nT

BIRALGER RESOURCES LTD.

TOTAL FIELD MAGNETIC CONTOURS

MATACHEWAN

ONTARIO

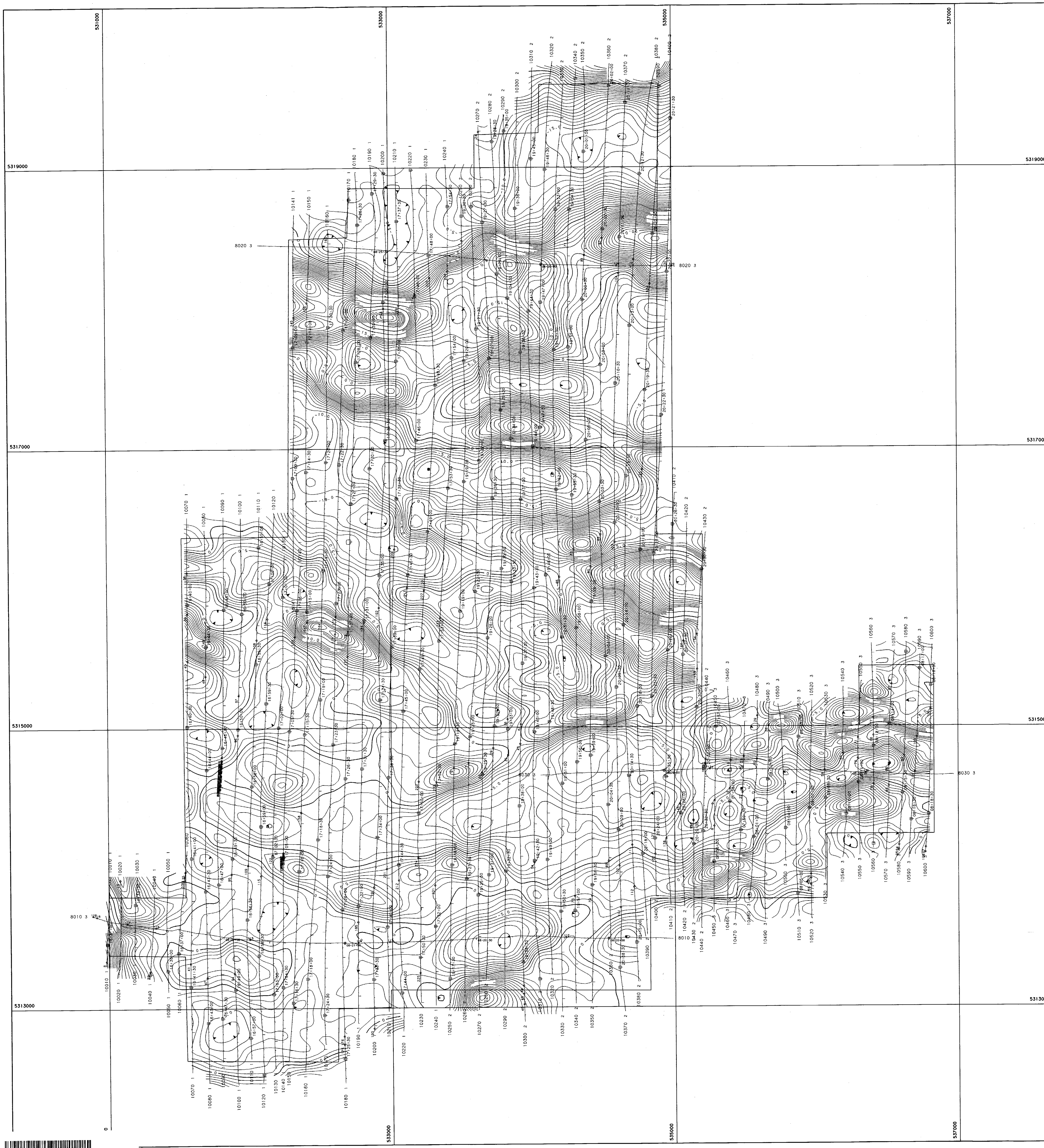
SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	MAY 1991
NTS No:	41 P/15, 42 A/2
MAP No: 4	J9128-1



Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

VLF-EM

VLF-EM Total Field Intensity in percent.

Station: NAA Flights 1-2
Cutler, Maine
24.0 kHz
Station: NLK Flight 3
Seatle, Washington
24.8 kHz

Sensor elevation 45m

Map contours are multiples of those listed below

1 %
5 %
25 %
100 %

BIRALGER RESOURCES LTD.

VLF-EM TOTAL FIELD CONTOURS (LINE CHANNEL)

MATACHEWAN
ONTARIO

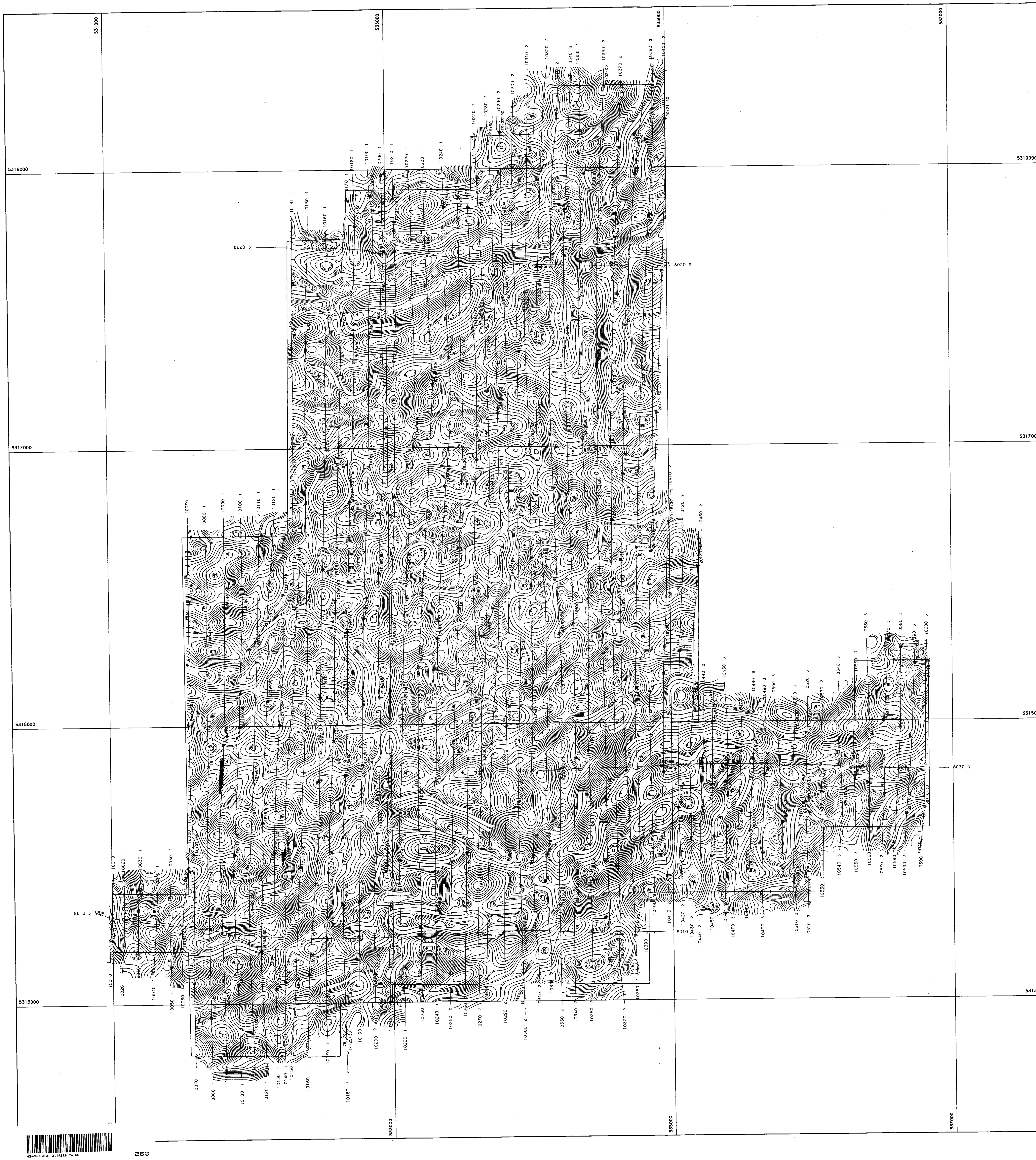
SCALE 1:10,000

0 330 660 1320 2640 Feet
0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: MAY 1991
NTS No: 41 P/15, 42 A/2
MAP No: 7 J9128- 1

250



Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below
0.20 nT
1.00 nT
5.00 nT
25.0 nT
100.0 nT

BIRALGER RESOURCES LTD.

CALCULATED VERTICAL MAGNETIC GRADIENT

MATACHEWAN

ONTARIO

SCALE 1:10,000

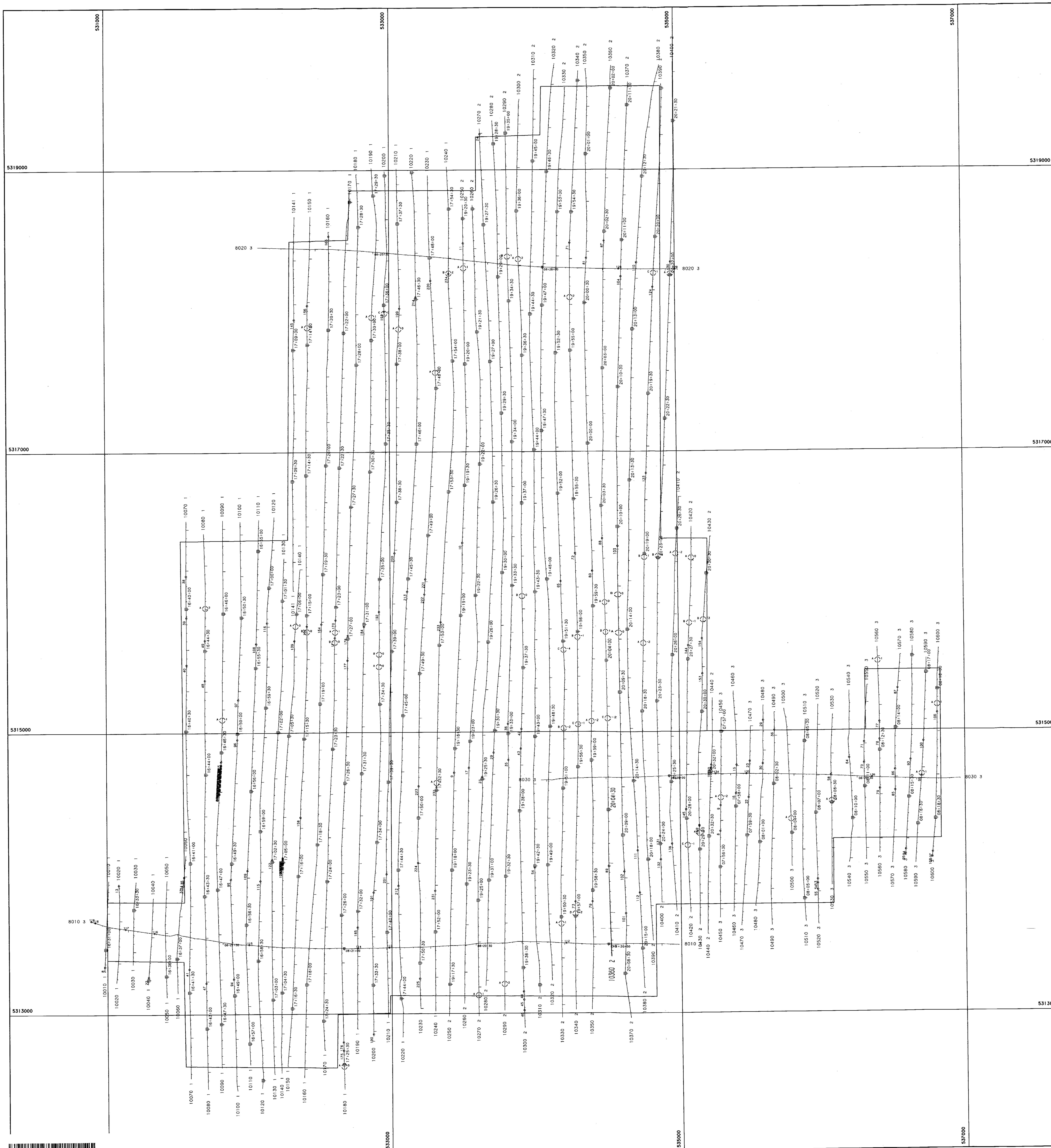
0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	MAY 1991
NTS No:	41 P/15, 42 A/2
MAP No:	5 J9128- 1

260



Flight Path

Navigation and recovery using a Global Positioning (GPS) navigation system.

Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- > 30

EM Anomaly A, 4600 Hz inphase amplitude 7 ppm, Conductivity thickness 1-2 mhos (see code).

BIRALGER RESOURCES LTD.

FLIGHT PATH

MATACHEWAN

ONTARIO

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: MAY 1991

NTS No: 41 P/15, 42 A/2

MAP No: 2 J9128-1

42A02SE8181 2.14228 CAIRO

270