

**GEOPHYSICAL REPORT  
FOR  
SANDGOLD CORPORATION  
ON THE  
BIGMARSH LAKE PROPERTY  
CARSCALLEN TOWNSHIP  
PORCUPINE MINING DIVISION  
NORTHEASTERN ONTARIO**



Prepared by: J.C. Grant, CETT, FGAC  
June, 2008

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**INTRODUCTION:**

The services of Exsics Exploration Limited were retained by Mr. J. Boissonneault on behalf of the Company, Sandgold Corporation to complete a detailed ground geophysical program across a portion of their claim holdings in Carscallen Township, which is part of the Porcupine Mining Division in Northeastern Ontario.

This property covers a felsic intrusive unit that lie just to the north of the Destor-Porcupine fault that cuts across the Porcupine mining camp and is and has been the host of most of the gold deposits in the camp. The property is also just to the west and along strike of the gold deposit that is currently being drilled and developed by Lake Shore Gold located in the southwest section of Bristol Township.

There are several airborne conductors present within the grid area that are striking northwest to southeast that will be covered by the ground program.

The present program consisted of a detailed, total field magnetic survey that was done in conjunction with a VLF-EM survey. These survey methods are excellent mapping tools to define the geological characteristics of the property as well as to define potential electromagnetic horizons that may relate to sulphide minearization.

This report will detail the results of this present program as well as all conclusions and recommendations.

**PROPERTY LOCATION AND ACCESS:**

The Bigmarsh Lake property is located in the east central portion of Carscallen Township of the Porcupine Mining Division in Northeastern Ontario. More specifically the property is located approximately 18 kilometers west of the City of Timmins and just to the immediate east of Bigmarsh Lake. The survey area is located approximately 5 kilometers north of Highway 101 west.

Access to the grid during the survey period was ideal. Highway 101 runs just to the south of the property and a series of ingress gravel roads and ATV trails allowed for good ground access to the grid area and throughout the cut lines. Traveling time from the City of Timmins to the property is approximately 20 minutes. Figures 1 and 2.


**CLAIM BLOCK:**

The claim number that was covered by the current ground program was P-4211013 and it represents a 16 claim unit. Refer to Figure 3 that has been copied from the MNDM Plan Map G-3040 of Carscallen Township at a scale of 1:20,000.



**LEGEND / LÉGENDE**

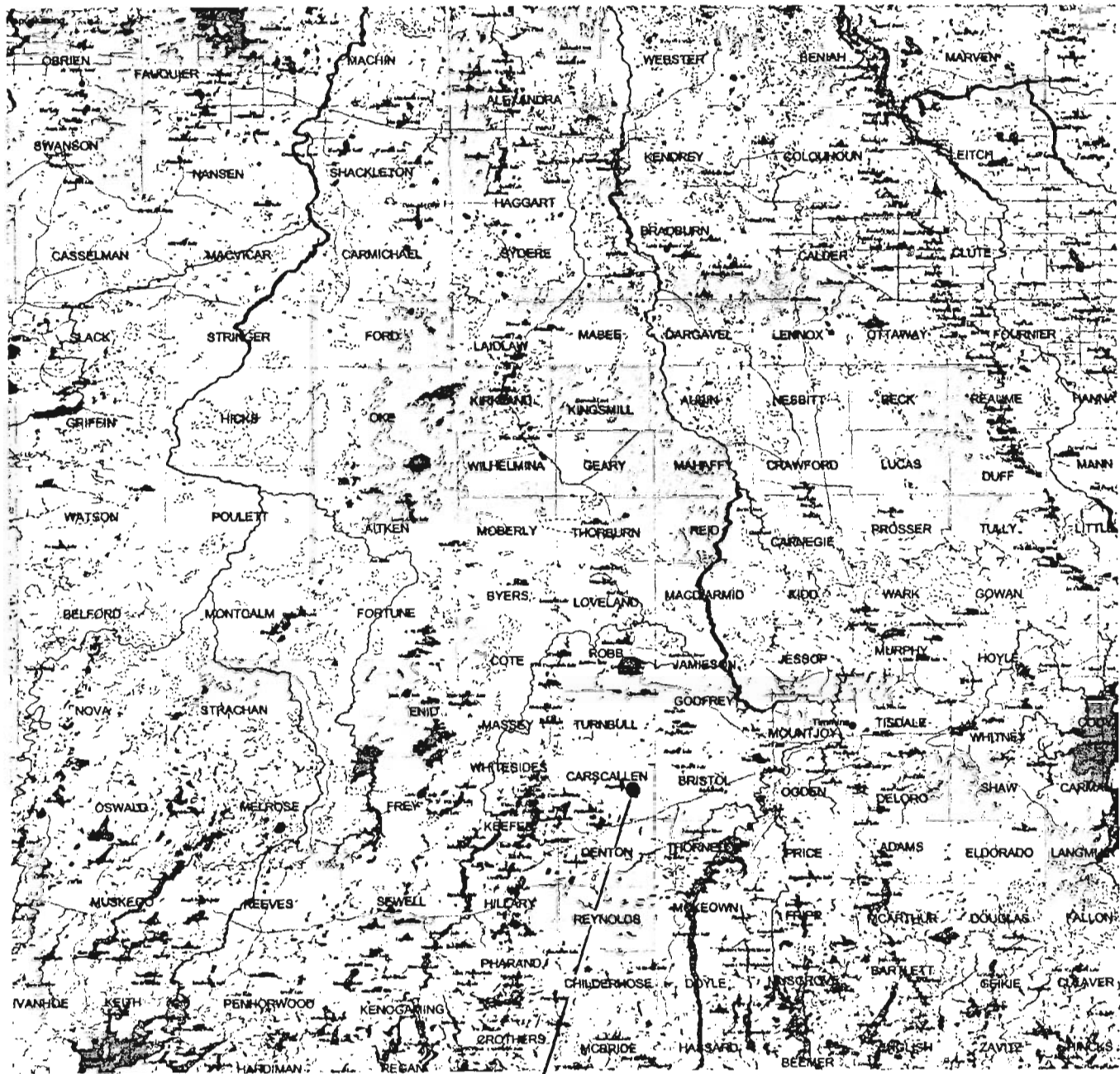
- ⊙ National capital / Capitale nationale
- Provincial capital / Capitale provinciale
- Other populated places / Autres lieux habités
- Trans-Canada Highway / La Transcanadienne
- Major road / Route principale
- - - International boundary / Frontière internationale
- - - Provincial boundary / Limite provinciale



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 Suite 13, Hollinger Bldg, Timmins Ont.  
 Telephone: 705-267-4151, 267-2424

CLIENT:	SANDGOLD CORPORATION	
PROPERTY:	BIG MARSH PROPERTY	
TITLE:	CARSCALLEN TOWNSHIP	
<b>LOCATION MAP</b>		
Date: JUNE./08	Scale:	NTS:
Drawn: J.C. Grant	Interp: J.C. Grant	Job No.: E-

Fi



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CLIENT: SANDGOLD CORPORATION

PROPERTY: BIG MARSH PROPERTY

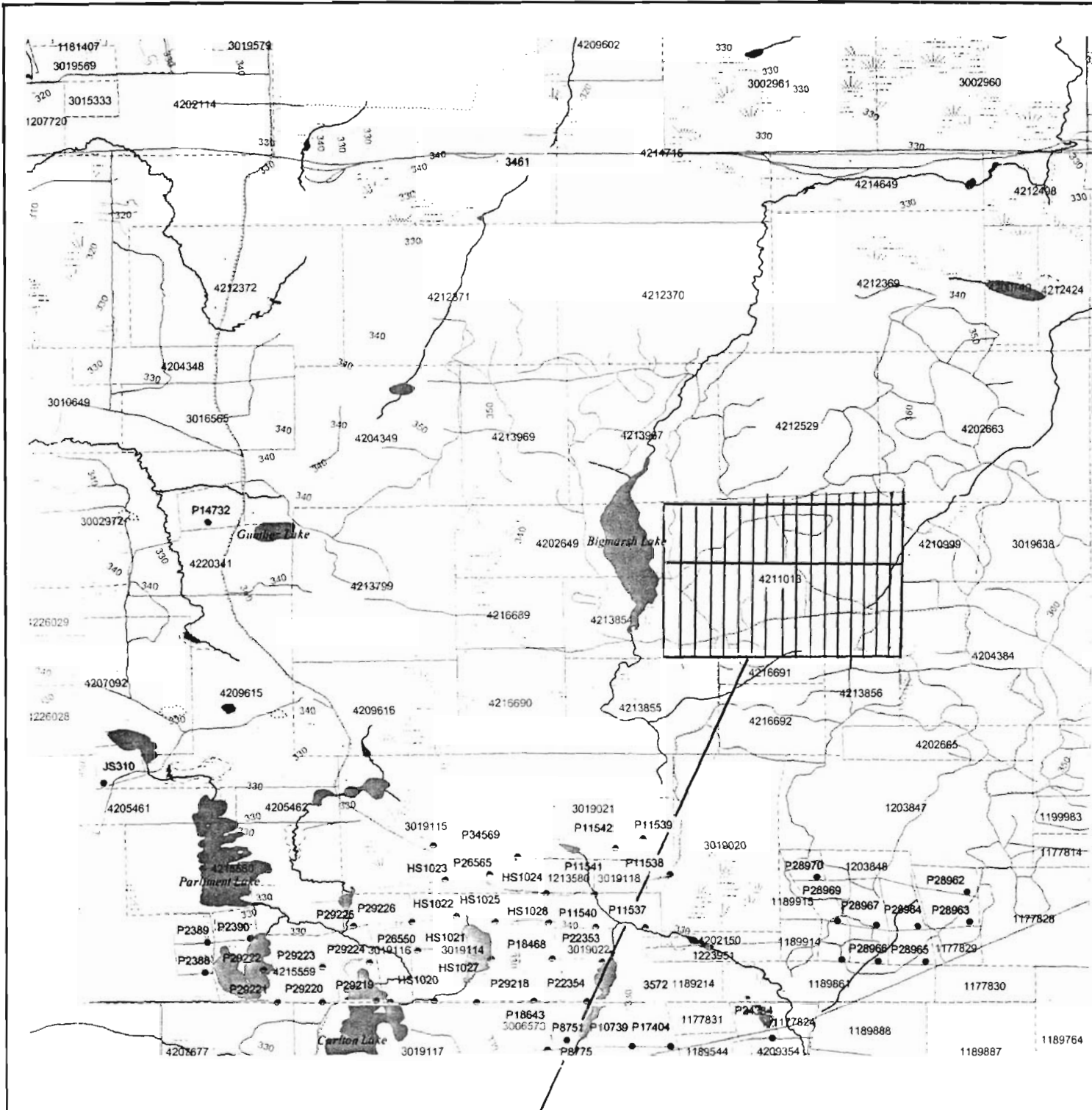
TITLE: CARSCALLEN TOWNSHIP

**PROPERTY LOCATION MAP**

Fi

Date: JUNE./08 Scale: 1:600,000 NTS:

Drawn: J.C. Grant Interp: J.C. Grant Job No.: E-



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CLIENT: SANDGOLD CORPORATION		
PROPERTY: BIG MARSH PROPERTY		
TITLE: CARSCALLEN TOWNSHIP		
<b>CLAIM BLOCK/GRID MAP</b>		
Date: JUNE./08	Scale: 1:60,000	NTS:
Drawn: J.C. Grant	Interp: J.C. Grant	Job No.: E-601

Fig.

**PERSONNEL:**

The field crew directly responsible for the collection of the raw magnetic and VLF-EM, data were as follows.

E. Jaakkola	Timmins, Ontario
R. Bradshaw	Timmins, Ontario

The ground program was completed under the direct supervision of J.C. Grant and all of the plotting and compilation was completed by in-house staff.

**GROUND PROGRAM:**

The ground program was completed in two phases. The first phase was to establish a detailed metric grid across the property. This was done by first cutting a base line across the grid from the west boundary to the east boundary of the claim block. Lines were then turned off of this base line at 100 meter intervals from line 900MW to and including 900ME. All of these cross lines were then cut and chained with 25 meter station intervals to the north and south boundaries of the claim block. A north and south tie line were also cut parallel to the base line to control the cross lines. In all, a total of 32.20 kilometers of grid lines were established across the property.

Upon the completion of the line cutting, a detailed, Total Field Magnetic and a VLF-EM survey was then completed across all of the cut lines. This survey was done using the Scintrex, Envi Mag system for both the field unit and for the magnetic base station recorder. Specification for this unit can be found as Appendix A of this report. The entire program was completed between May 20<sup>th</sup> and June 20<sup>th</sup> 2008

The following parameters were kept constant throughout the survey.

**MAGNETIC SURVEY:**

Line spacing	100 meters
Station spacing	25 meters
Reading Interval	12.5 meters
Diurnal Monitoring	base station recorder
Record interval	30 seconds
Reference field	57,000 nT
Datum subtracted	56,500 nT
Unit accuracy	+/- 0.1 Nt
Parameters measured	Systematic measurements of the earth's total field, in (nT)

Upon the completion of the magnetic survey, the collected magnetic data was corrected through the base station data to eliminate diurnal variances and the data had a background of 56,500 nT removed from each corrected reading for ease in plotting purposes only. The corrected and leveled data was then plotted directly onto a base map at a scale of 1:2500 and then contoured at 10 gamma intervals wherever possible. A copy of this contoured base map is included in the back pocket of this report.

### **VLF-EM SURVEY:**

Line spacing:	100 meter intervals
Station spacing:	25 meters
Reading intervals:	12.5 meters
Transmitter station/frequency:	Cutler Maine, 24.0 kHz
Transmitter direction:	Azimuth 115 degrees
Parameters measured:	In phase and quadrature components, Field strength
Parameters plotted:	In phase component, in percent

Upon the completion of the surveys, the collected in phase data was then plotted directly onto a base map at a scale of 1:2500 and then profiled at 1cm to +/- 10 percent. Any and all conductor axis were then interpreted and placed on this base map. The Government Airborne survey that was issued in 1988 showed a number of conductors scattered across the grid area and these conductors have also been added to the VLF-EM base map for correlation. A copy of this profiled base map with full interpretation of all VLF-EM conductor axis is included in the back pocket of this report.

### **SURVEY RESULTS:**

The results of the geophysical program will be discussed in detail in the following text. The magnetic and VLF-EM surveys are excellent methods for outlining the geological structures across the survey area.

### **MAGNETIC SURVEY RESULTS:**

The magnetic survey was very successful in locating and outlining the geological structures underlying the grid area. The most predominant structures outlined by the magnetic survey is a north-south striking magnetic high that generally parallels the north half of line 0+00 from 150MN to the north end of the grid line and continues off of the grid to the north. This magnetic structure appears to have run into a probable fault like cross structure that generally cuts across the entire grid in a northwest to southeast direction and can be traced from line 900ME at 300MS to at least line 900MW at 600MN. This cross structure continues off of the grid in both directions as well.



The predominant magnetic high continues south of this fault like unit and lies between line 0+00 at the base line and 200ME at 375MS. The southern portion of the zone again butts up against a magnetic low unit that may represent a second fault like structure that parallels the above mentioned fault like unit.

There appears to be a second dike like unit striking north to south that parallels lines 900MW and 800MW and it also continues off of the grid in both directions. This unit has also been cross cut and or offset by the same two fault like structures that has affected the main magnetic unit to the east.

The two northwest to southeast striking fault like units are well defined in the magnetics but appear to consist of a different rock composition. The northern structure is represented by a narrow magnetic high were as the southern zone is represented by a magnetic low that is broadening to the south.

A weak magnetic high unit is also defined between lines 900ME to 200ME from 50MN to 300MN. The northern end of this zone is terminated by the dike like unit paralleling line 0+00. The southern extension of the zone continues off of the grid to the southeast.

#### **VLF-EM SURVEY RESULTS:**

The VLF-EM survey was successful in locating a number of conductive horizons across the grid area. At least 4 to 5 of these zones lie within the swarm of airborne targets that had been identified in the 1988 release. The most significant zones are the two parallel features that strike across lines 900ME to 0+00 north of the base line that generally correlate with the government airborne targets. These two zones also lie within and along the edges of the weak magnetic high unit that cross cuts the same grid area.

Another VLF zone strikes northwest from line 800ME at 200MS to line 500ME at 100MN and correlates to the northern boundary of the major fault like cross structure.

A good VLF zones also cuts across lines 900ME at 400MS to line 700ME at 300MS and parallels the southern edge of the fault zone. This zone may extend as far as line 400ME at 425MS possibly having been faulted and or folded to the southwest.

There is an isolated zone between lines 400ME and 300ME at 250MS that also may correlate to the extreme southern edge of the fault zone.

A final area of conductivity can be followed from line 700ME to 900MW and generally correlates to the southern swarm of airborne targets. The northern section of this VLF zone generally correlates to the magnetic low unit that covers most of the southern central portion of the grid area. The VLF zone is spotty in places but does follow the magnetic trend.

**CONCLUSIONS AND RECOMMENDATIONS:**

The surveys were successful in locating and outlining the underlying geological characteristics of the property. Both survey methods are ideal mapping tools and have proven to be very good at outlining the dikes, faults, shears and contacts. The purpose of these ground methods was to outline areas of activity that would then be followed up by further surveys and or geological mapping and possible MMI surveys.

Should further geophysical surveys be considered, then and Induced Polarization,(IP), survey should be considered as the conductive zones outlined by the VLF survey may be indicative of dissemination which would lend itself well to the IP survey method. One must keep in mind that the VLF-EM survey is a good mapping tool for defining the underlying geological characteristics of the property. However various geological settings may also affect the VLF signal: sheets of graphitic sedimentary rock, clay-filled fault zones, geological contacts, lake bottom sediments and man made material such as buried cables.

The correlation between the VLF zones and any magnetic high and or low signatures also aid in the interpretation of the VLF targets with respect to graphite zones, iron rich sulphide zones and dike and fault like units.

MMI and geology reconnaissance surveys should also be considered to follow up any and all VLF zones as well as the specific magnetic trends and or isolated magnetic highs.

Diamond drilling should also be considered to test the conductive zones at depth.

The close proximity of the Lake Shore gold deposit to the east of the Bigmarsh Lake Property would only add to the priority of zones that have been discussed in this report and to any additional zones outlined by an IP survey.

Respectfully submitted



John C. Grant, CETT, FGAC  
June, 2008

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**CERTIFICATION**

I, John Charles Grant, of 108 Kay Crescent, in the City of Timmins, Province of Ontario, hereby certify that:

- 1). I am a graduate of Cambrian College of Applied Arts and Technology, 1975, Sudbury Ontario Campus, with a 3 year Honors Diploma in Geological and Geophysical Technology.
- 2). I have worked subsequently as an Exploration Geophysicist for Teck Exploration Limited, (5 years, 1975 to 1980), and currently as Exploration Manager and Chief Geophysicist for Exsics Exploration Limited, since May, 1980.
- 3). I am a member in good standing of the Certified Engineering Technologist Association, (CET), since 1984.
- 4). I am in good standing as a Fellow of the Geological Association of Canada, (FGAC), since 1986.
- 5). I have been actively engaged in my profession since the 15<sup>th</sup> day of May, 1975, in all aspects of ground exploration programs including the planning and execution of field programs, project supervision, data compilation, interpretations and reports.
- 6). I have no specific or special interest nor do I expect to receive any such interest in the herein described property. I have been retained by the property holders and or their Agents as a Geological and Geophysical Consultant and Contract Manager.

John Charles Grant, CET., FGAC.



APPENDIX A

# SCINTREX

## ENVI-MAG Environmental Magnetometer/Gradiometer

### Locating Buried Drums and Tanks?

The ENVI-MAG is the solution to this environmental problem. ENVI-MAG is an inexpensive, lightweight, portable "WALKMAG" which enables you to survey large areas quickly and accurately.

ENVI-MAG is a portable, proton precession magnetometer and/or gradiometer, for geotechnical, archaeological and environmental applications where high production, fast count rate and high sensitivity are required. It may also be used for other applications, such as mineral exploration, and may be configured as a total-field magnetometer, a vertical gradiometer or as a base station.

#### The ENVI-MAG

- easily detects buried drums to depths of 10 feet or more
- more sensitive to the steel of a buried drum than EM or radar
- much less expensive than EM or radar
- survey productivity much higher than with EM or radar

### Features and Benefits

#### "WALKMAG" Magnetometer/Gradiometer

The "WALKMAG" mode of operation (sometimes known as "Walking Mag") is user-selectable from the keyboard. In this mode, data is acquired and recorded at the rate of 2 readings per second as the operator walks at a steady pace along a line. At desired intervals, the operator "triggers" an event marker by a single key stroke, assigning coordinates to the recorded data.

#### True Simultaneous Gradiometer

An optional upgrade kit is available to configure ENVI-MAG as a gradiometer to make true, simultaneous gradiometer measurements. Gradiometry is useful for geotechnical and archaeological surveys where small near surface magnetic targets are the object of the survey.

#### Selectable Sampling Rates

0.5 second, 1 second and 2 second reading rates user selectable from the keyboard.

#### Main features include:

- select sampling rates as fast as 2 times per second
- "WALKMAG" mode for rapid acquisition of data
- large internal, expandable memory
- easy to read, large LCD screen displays data both numerically and graphically
- ENVIMAP software for processing and mapping data

ENVI-MAG comprises several basic modules; a lightweight console with a large screen alphanumeric display and high capacity memory, a staff mounted sensor and sensor cable, rechargeable battery and battery charger, RS-232 cable and ENVIMAP processing and mapping software.

For gradiometry applications an upgrade kit is available, comprising an additional processor module for installation in the console, and a second sensor with a staff extender.

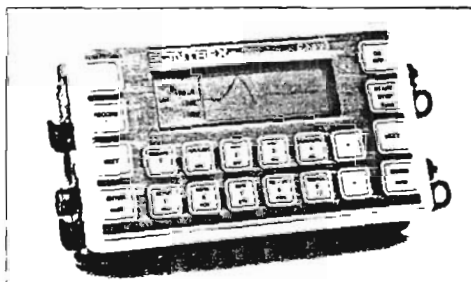


ENVI-MAG Proton Magnetometer in operation

For base station applications a Base Station Accessory Kit is available so that the sensor and staff may be converted to a base station sensor.

#### Large-Key Keypad

The large-key keypad allows easy access for gloved-hands in cold-weather operations. Each key has a multi-purpose function.



Front panel of ENVI-MAG showing a graphic profile of data and large-key keypad

#### Large Capacity Memory

ENVI-MAG with standard memory stores up to 28,000 readings of total field measurements, 21,000 readings of gradiometry data or 151,000 readings as a base station. An expanded memory option is available which increases this standard capacity by a factor of 5.

#### Easy Review of Data

For quality of data and for a rapid analysis of the magnetic characteristics of the survey line, several modes of review are possible. These include the measurements at the last four stations, the ability to scroll through any or all previous readings in memory, and a graphic display of the previous data as profiles, line by line. This feature is very useful for environmental and archaeological surveys.

#### Highly Productive

The "WALKMAG" mode of operation acquires data rapidly at close station intervals, ensuring high-definition results. This increases survey productivity by a factor of 5 when compared to a conventional magnetometer survey.

#### "Datacheck" Quality Control of Data

"Datacheck" provides a feature wherein, at the end of each survey line, data may be reviewed as a profile on ENVI-MAG's screen. Datacheck confirms that the instrument is functioning correctly and

allows the user to note the magnetic relief (anomaly) on the line.

### Large Screen Display

"Super-Twist" 64 x 240 dot (8 lines x 40 characters), LCD graphic screen provides good visibility in all light conditions. A display heater is optionally available for low-temperature operations below 0°C.



Close-up of the ENVI-MAG screen showing data presented after each reading

### Interactive Menus

The set-up of ENVI-MAG is menu-driven, and minimizes the operator's learning time, and on-going tasks.



Close-up of display of ENVI-MAG showing interactive set-up menu

## Specifications

### Total Field Operating Range

20,000 to 100,000 nT (gammas)

### Total Field Absolute Accuracy

+/- 1nT

### Sensitivity

0.1 nT at 2 second sampling rate

### Tuning

Fully solid state. Manual or automatic, keyboard selectable

### Cycling (Reading) Rates

0.5, 1 or 2 seconds, up to 9999 seconds for base station applications, keyboard selectable

### Gradiometer Option

Includes a second sensor, 20 inch (1/2m) staff extender and processor module

### "WALKMAG" Mode

0.5 second for walking surveys, variable rates for hilly terrain

### Digital Display

LCD "Super Twist", 240 x 64 dots graphics, 8 line x 40 characters alphanumeric

### Display Heater

Thermostatically controlled, for cold weather operations

### Keyboard Input

17 keys, dual function, membrane type

### Notebook Function

32 characters, 5 user-defined MACRO's for quick entry

### Rechargeable Battery and Battery Charger

An "off-the-shelf" lead-acid battery and charger are provided as standard. The low-cost "Camcorder" type battery is available from electronic parts distributors everywhere.

### HELP-Line Available

Purchasers of ENVI-MAG are provided with a HELP-Line telephone number to call in the event assistance is needed with an application or instrumentation problem.

### ENVIMAP Processing and Mapping Software

Supplied with ENVI-MAG, and custom designed for this purpose, is easy-to-use, very user-friendly, menu driven data processing and mapping software called ENVIMAP. This unique software appears to the user to be a single program, but is in fact a sequence of separate programs, each performing a specific task. Under the menu system, there are separate programs to do the following:

- read the ENVI-MAG data and reformat it into a standard compatible with the ENVIMAP software
- grid the data into a standard grid format
- create a vector file of posted values

with line and baseline identification that allows the user to add some title information and build a suitable surround

- contour the gridded data
- autoscale the combined results of the posting/surround step and the contouring step to fit on a standard 8.5 ins. wide dot-matrix printer
- rasterize and output the results of step e) to the printer

ENVIMAP is designed to be as simple as possible. The user is required to answer a few basic questions asked by ENVIMAP, and then simply toggles "GO" to let ENVIMAP provide default parameters for the making of the contour map. The user can modify certain characteristics of the output plot. ENVIMAP'S menu system is both keyboard and mouse operable. HELP screens are integrated with the menu system so that HELP is displayed whenever the user requests it.

### Options Available

- True simultaneous gradiometer upgrade
- Base station upgrade
- Display heater for low temperature operations
- External battery pouch

### Standard Memory

Total Field Measurements: 28,000 readings  
Gradiometer Measurements: 21,000 readings  
Base Station Measurements: 151,000 readings

### Expanded Memory

Total Field Measurements: 140,000 readings  
Gradiometer Measurements: 109,000 readings  
Base Station Measurements: 750,000 readings

### Real-Time Clock

Records full date, hours, minutes and seconds with 1 second resolution, +/- 1 second stability over 12 hours

### Digital Data Output

RS-232C interface, 600 to 57,600 Baud, 7 or 8 data bits, 1 start, 1 stop bit, no parity format. Selectable carriage return delay (0-999 ms) to accommodate slow peripherals. Handshaking is done by X-on/X-off

### Analog Output

0 - 999 mV full scale output voltage with keyboard selectable range of 1, 10, 100, 1,000 or 10,000 nT full scale

### Power Supply

Rechargeable "Camcorder" type, 2.3 Ah, Lead-acid battery.

12 Volts at 0.65 Amp for magnetometer, 1.2 Amp for gradiometer,

External 12 Volt input for base station operations

Optional external battery pouch for cold weather operations

### Battery Charger

110 Volt - 230 Volt, 50/60 Hz

### Operating Temperature Range

Standard 0° to 60°C  
Optional -40°C to 60°C

### Dimensions

Console - 10 x 6 x 2.25 inches  
(250 mm x 152 mm x 55 mm)

T.F. sensor - 2.75 inches dia. x 7 inches  
(70 mm x 175 mm)

Grad. sensor and staff extender - 2.75 inches dia. x 26.5 inches (70 mm x 675 mm)

T.F. staff - 1 inch dia. x 76 inches (25 mm x 2 m)

### Weight

Console - 5.4 lbs (2.45 kg)  
with rechargeable battery

T. F. sensor - 2.2 lbs (1.15 kg)

Grad. sensor - 2.5 lbs (1.15 kg)

Staff - 1.75 lbs (0.8 kg)

# SCINTREX

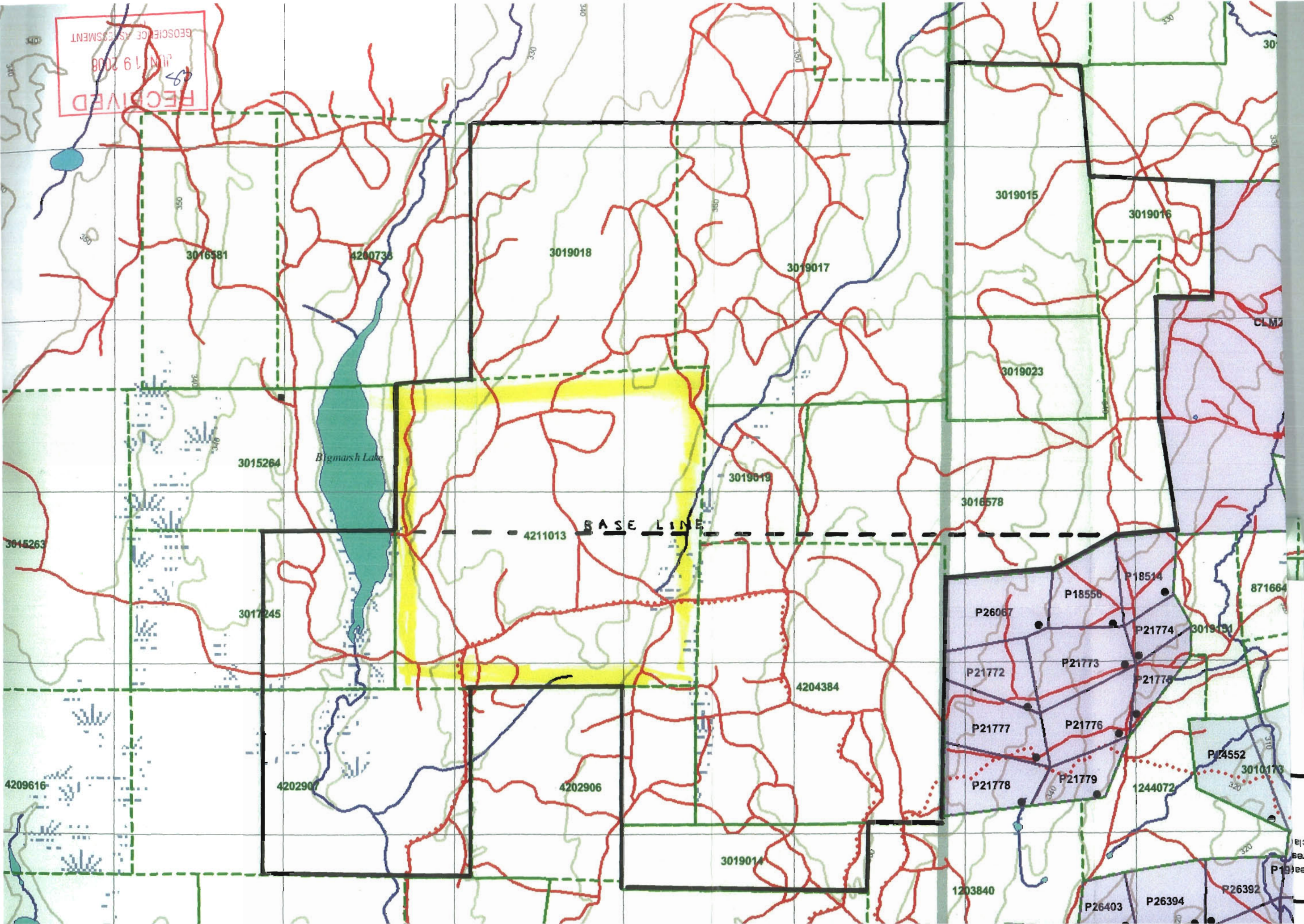
### Head Office

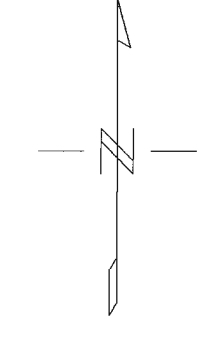
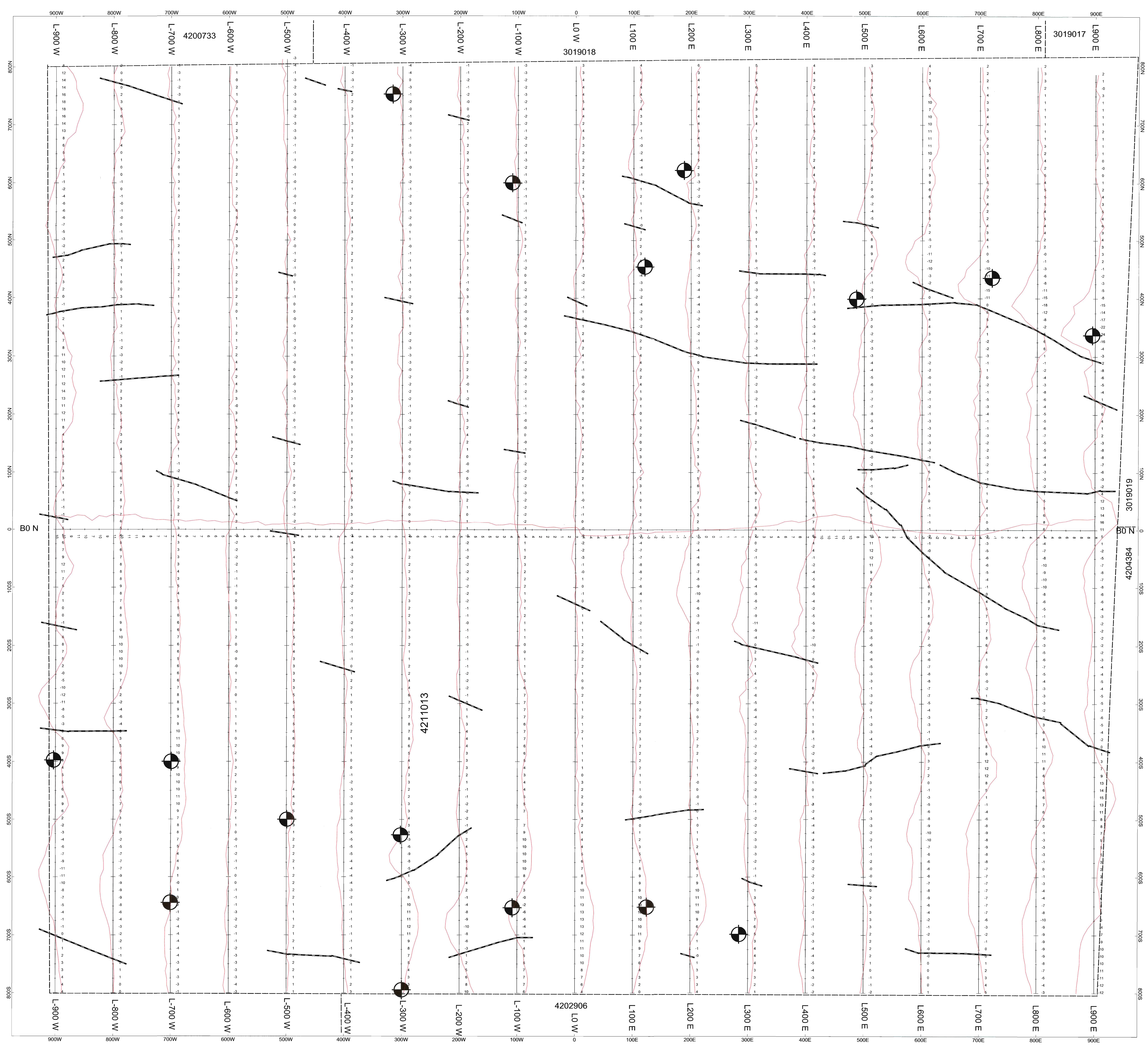
222 Snidercroft Road  
Concord, Ontario, Canada L4K 1B5  
Telephone: (905) 669-2280  
Fax: (905) 669-6403 or 669-5132  
Telex: 06-964570

### In the USA:

Scintrex Inc.  
85 River Rock Drive  
Unit 202  
Buffalo, NY 14207  
Telephone: (716) 298-1219  
Fax: (716) 298-1317

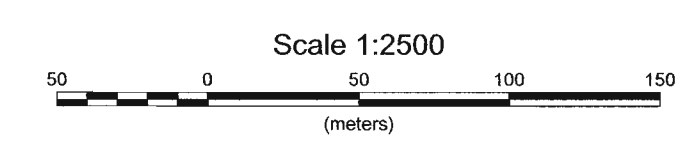
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GEOLOGICAL ASSESSMENT



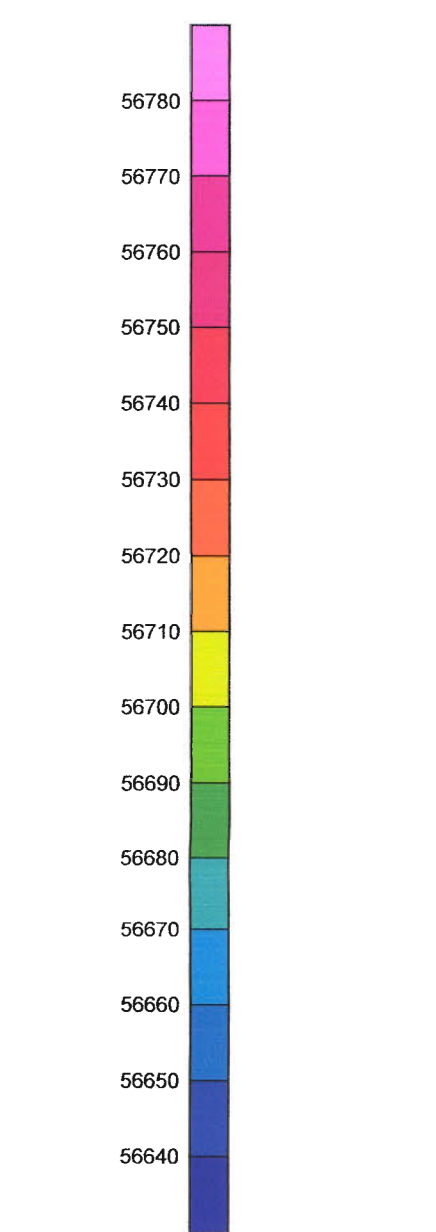
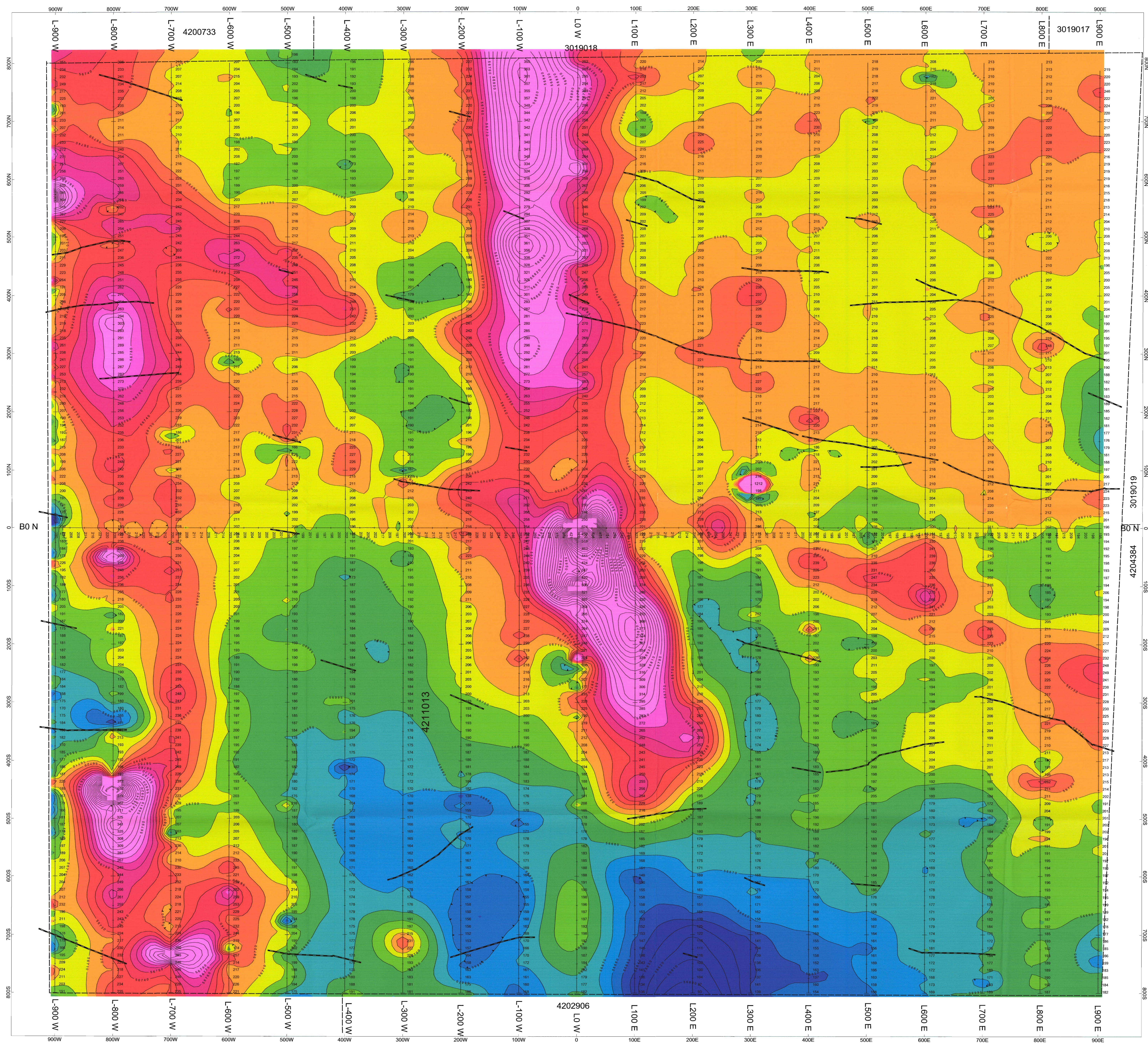


 AIRBORNE ANOMALY / GOVERNMENT SURVEY, 1988

**SANDGOLD CORPORATION**  
 BIGMARSK LAKE PROPERTY-CARSCALLEN TOWNSHIP  
 VLF-EM SURVEY/CUTLER, MAINE 24.0KHZ  
 SCINTREX ENVI MAG SYSTEM  
 PROFILED: 1CM=+/- 10%  
 JUNE/08 EXSICS EXPLORATION LIMITED E-608







SANDGOLD CORPORATION  
 BIGMARSK LAKE PROPERTY-CARSCALLEN TOWNSHIP  
 TOTAL FIELD MAGNETIC SURVEY  
 SCINTREX ENVI MAG SYSTEM  
 CONTOURED: 10m  
 JUNE/08 EXSICS EXPLORATION LIMITED E-608

