



PO Box 219  
14579 Government Road  
Larder Lake, Ontario  
P0K 1L0, Canada  
Phone (705) 643-1122  
Fax (705) 643-2191



# **Magnetometer and VLF EM Surveys Over the**

**TIMMINS MAGNESITE  
PROPERTY  
DELORO GRID  
Adams and Deloro  
Townships, Ontario**

## TABLE OF CONTENTS

<b>1.</b>	<b>SURVEY DETAILS .....</b>	<b>3</b>
1.1	PROJECT NAME.....	3
1.2	CLIENT .....	3
1.3	LOCATION .....	3
1.4	ACCESS .....	3
1.5	SURVEY GRID .....	4
<b>2.</b>	<b>SURVEY WORK UNDERTAKEN .....</b>	<b>5</b>
2.1	SURVEY LOG.....	5
2.2	PERSONNEL .....	6
2.3	SURVEY SPECIFICATIONS.....	6
<b>3.</b>	<b>OVERVIEW OF SURVEY RESULTS.....</b>	<b>7</b>
3.1	SUMMARY INTERPRETATION.....	7

## LIST OF APPENDICES

- APPENDIX A: STATEMENT OF QUALIFICATIONS**
- APPENDIX B: THEORETICAL BASIS AND SURVEY PROCEDURES**
- APPENDIX C: INSTRUMENT SPECIFICATIONS**
- APPENDIX D: LIST OF MAPS (IN MAP POCKET)**

## LIST OF TABLES AND FIGURES

Figure 1: Location of the Timmins Magnesite Property.....	3
Table 1: Survey Log .....	6

## 1. SURVEY DETAILS

### 1.1 PROJECT NAME

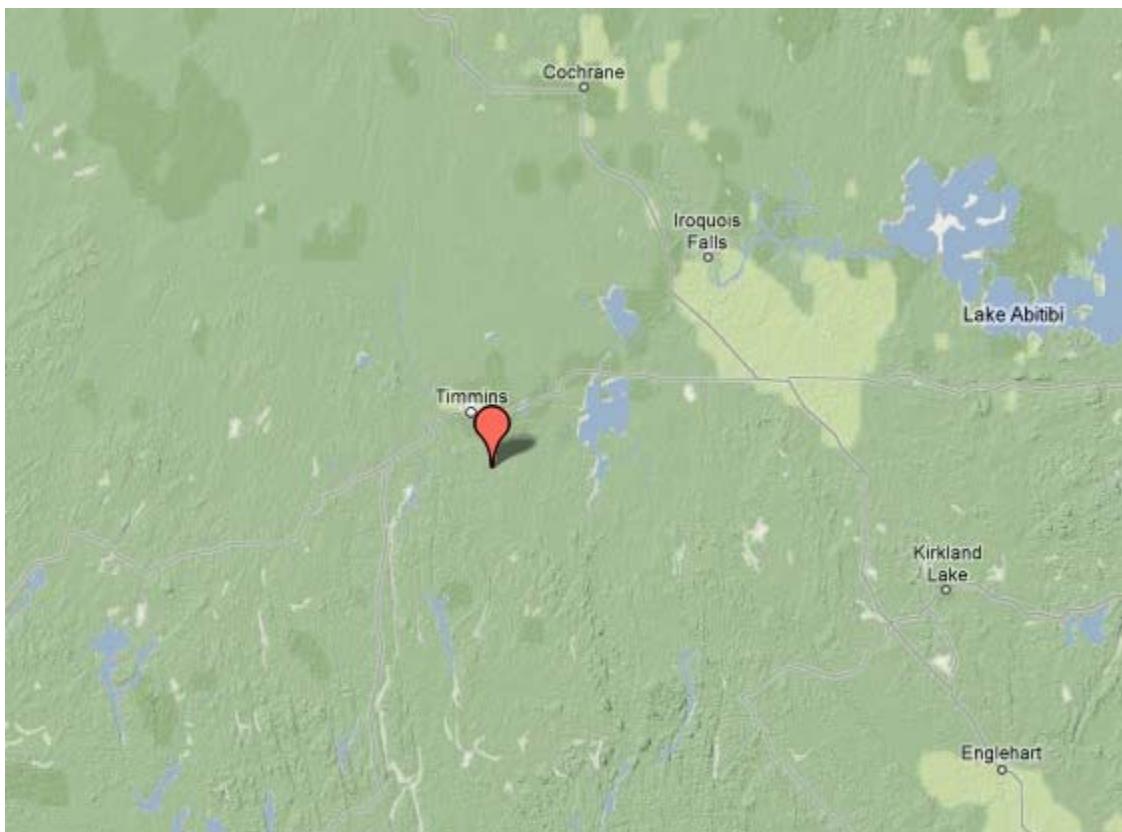
This project is known as the **Timmins Magnesite Property**.

### 1.2 CLIENT

GLOBEX MINING ENTERPRISES INC.  
86-14<sup>th</sup> Street  
Rouyn-Noranda, Quebec  
J9X 2J1

### 1.3 LOCATION

The Timmins Magnesite Property is located approximately 10km south of the town of Timmins, Ontario.



**Figure 1: Location of the Timmins Magnesite Property**

### 1.4 ACCESS

Access to the property was attained with a 4x4 truck via Pine Street South in Timmins. Near Kilometer 12, MacArthur Road branches east and is taken for an additional 2.5 kilometers. At this point the Adams grid crosses the road. An unnamed road to the north at the power lines was then taken for the final 3km where the Deloro grid crosses the road.

## 1.5 SURVEY GRID

The 62.925 km grid was established prior to survey execution with lines spaced at 50 to 100 meter intervals and stations were located at 25m intervals. The baseline was oriented, north 0° for a distance of 2.975km.

## 2. SURVEY WORK UNDERTAKEN

### 2.1 SURVEY LOG

Date	Description	Line	Min Extent	Max Extent	Total Survey (m)
18 June 2010	Locate survey area and begin survey.	400S	700E	1900E	1200
		ON	700E	2600E	1900
		2600E	100S	200N	300
		2500E	125S	350N	475
		2400E	150S	375N	525
		2300E	150S	375N	525
		2200E	0	525N	525
19 June 2010	Continue survey.	400S	375W	700E	1075
		ON	300W	700E	1000
		2100E	0	525N	525
		2000E	0	550N	550
		1900E	775S	575N	1350
		1800E	775S	475N	1250
		1700E	0	600N	600
		1600E	0	600N	600
20 June 2010	Continue survey.	1700E	800S	0	800
		1600E	800S	0	800
		1500E	825S	375N	1200
		1400E	825S	600N	1425
		1350E	1150S	0	1150
		1300E	1150S	575N	1725
21 June 2010	Continue survey. Demob for a scheduled break.	1250E	1150S	0	1150
		1200E	1150S	575N	1725
		1150E	1150S	0	1150
		1100E	1150S	550N	1700
28 June 2010	Reoccupy survey area and continue survey.	1050E	1150S	0	1150
		1000E	1150S	525N	1675
		950E	1150S	0	1150
		900E	1150S	475N	1625
		850E	1150S	0	1150
		800E	1150S	350N	1500
29 June 2010	Continue survey.	700E	0	350N	350
		650E	1150S	0	1150
		600E	1150S	350N	1500
		550E	1150S	0	1150
		500E	1150S	575N	1725
		450E	1150S	0	1150
		400E	1150S	600N	1750
30 June 2010	Continue survey.	750E	1150S	0	1150
		700E	1150S	0	1150
		350E	1150S	0	1150
		300E	1150S	600N	1750
		250E	1150S	0	1150
		200E	1150S	0	1150
1 July 2010	Continue survey.	200E	0	600N	600
		150E	1150S	0	1150

Date	Description	Line	Min Extent	Max Extent	Total Survey (m)
		100E	1150S	600N	1750
		50E	1150S	0	1150
		0	0	600N	600
		100W	0	575N	575
		1150S	300W	1350E	1650
2 July 2010	Complete survey and demob from Timmins.	0	1150S	0	1150
		100W	1150S	0	1150
		200W	1150S	550N	1700
		300W	1150S	550N	1700

**Table 1: Survey Log**

## 2.2 PERSONNEL

Bruce Lavalley of Sudbury, Ontario conducted all the magnetic data collection.

## 2.3 SURVEY SPECIFICATIONS

The survey was conducted with a GSM-19 v7 Overhauser magnetometer/VLF with a second GSM-19 magnetometer for a base station mode for diurnal correction.

A total of 62.925 line kilometers of magnetic survey was conducted between June 18<sup>th</sup> and July 2<sup>nd</sup>, 2010. This consisted of 5034 magnetometer and VLF EM samples taken at 12.5m intervals.

### 3. OVERVIEW OF SURVEY RESULTS

#### 3.1 SUMMARY INTERPRETATION

Varied magnetic signatures appear throughout the property. From this, it appears that two magnetic domains may exist.

The first magnetic domain is a generally magnetically stable domain which is the magnetic median of the survey area. This represents the country rock which most likely is a mafic flow.

The most predominant of these magnetic features appears to be a magnetic high located in the north-east portion of the survey area. This magnetic high appears to cover the majority of survey lines 1700E and eastward. The southwest and northwest extents of the survey area also appear to be magnetically elevated and most likely fall within this magnetic domain. These areas most likely represent an ultramafic intrusive.

East west through the baseline area of the property appears a narrow magnetically high signature. This may represent a regional dike; however most likely is related to the potential ultramafic intrusive. This linear feature appears to bisect a circular magnetic anomaly which extends from 200E to 1000E and 250N and 450S. North of the baseline, the circular feature is represented by a magnetic high with the area south of the baseline being represented by a magnetically neutral region with a magnetically high hollow. This may represent an alteration of the south part of this feature.

The VLF EM survey does not highlight any intense VLF EM signatures. The VLF EM signatures that do appear most likely represent geological contacts.

**APPENDIX A****STATEMENT OF QUALIFICATIONS**

I, C. Jason Ploeger, hereby declare that:

1. I am a geophysicist (non-professional) with residence in Larder Lake, Ontario and am presently employed as Geophysics Manager of Larder Geophysics Ltd. of Larder Lake, Ontario.
2. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.
3. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.
4. I am a member of the Ontario Prospectors Association, a director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.
5. I do not have nor expect an interest in the properties and securities of **Globex Mining Enterprises Inc.**
6. I am responsible for the final processing and validation of the survey results and the compilation of the presentation of this report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

Larder Lake, ON  
July 2010



C. Jason Ploeger, B.Sc. (geophysics)  
Geophysics Manager of Larder Geophysics Ltd.

## APPENDIX B

### THEORETICAL BASIS AND SURVEY PROCEDURES

#### TOTAL FIELD MAGNETIC SURVEY

Base station corrected Total Field Magnetic surveying is conducted using at least two synchronized magnetometers of identical type. One magnetometer unit is set in a fixed position in a region of stable geomagnetic gradient, and away from possible cultural effects (i.e. moving vehicles) to monitor and correct for daily diurnal drift. This magnetometer, given the term 'base station', stores the time, date and total field measurement at fixed time intervals over the survey day. The second, remote mobile unit stores the coordinates, time, date, and the total field measurements simultaneously. The procedure consists of taking total magnetic measurements of the Earth's field at stations, along individual profiles, including Tie and Base lines. A 2 meter staff is used to mount the sensor, in order to optimally minimize localized near-surface geologic noise. At the end of a survey day, the mobile and base-station units are linked, via RS-232 ports, for diurnal drift and other magnetic activity (ionospheric and sferic) corrections using internal software.

For the gradiometer application, two identical sensors are mounted vertically at the ends of a rigid fiberglass tube. The centers of the coils are spaced a fixed distance apart (0.5 to 1.0m). The two coils are then read simultaneously, which alleviates the need to correct the gradient readings for diurnal variations, to measure the gradient of the total magnetic field.

#### VLF Electromagnetic

The frequency domain VLF electromagnetic survey is designed to measure both the vertical and horizontal in-phase (IP) and Quadrature (OP) components of the anomalous field from electrically conductive zones. The sources for VLF EM surveys are several powerful radio transmitters located around the world which generate EM radiation in the low frequency band of 15-25kHz. The signals created by these long-range communications and navigational systems may be used for surveying up to several thousand kilometres away from the transmitter. The quality of the incoming VLF signal can be monitored using the field strength. A field strength above 5pT will produce excellent quality results. Anything lower indicates a weak signal strength, and possibly lower data quality. A very low signal strength (<1pT) may indicate the radio station is down.

The EM field is planar and horizontal at large distances from the EM source. The two components, electric (E) and magnetic (H), created by the source field are orthogonal to each other. E lies in a vertical plane while H lies at right angles to the direction of propagation in a horizontal plane. In order to ensure good coupling, the strike of possible conductors should lie in the direction of the transmitter to allow the H vector to pass through the anomaly, in turn, creating a secondary EM field.

The VLF EM receiver has two orthogonal aerials which are tuned to the frequency of the transmitting station. The direction of the source station is located by rotating the sensor around a vertical axis until a null position is found. The VLF EM survey procedure consists of taking measurements at stations along each line on the grid. The receiver is rotated about a horizontal axis, right angles to the traverse and the tilt recorded at the null position.

## APPENDIX C

### GSM 19



#### Specifications

##### Overhauser Performance

Resolution: 0.01 nT  
 Relative Sensitivity: 0.02 nT  
 Absolute Accuracy: 0.2nT  
 Range: 20,000 to 120,000 nT  
 Gradient Tolerance: Over 10,000nT/m  
 Operating Temperature: -40°C to +60°C

##### Operation Modes

Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.  
 Base Station: Time, date and reading stored at 3 to 60 second intervals.  
 Walking Mag: Time, date and reading stored at coordinates of fiducial.  
 Remote Control: Optional remote control using RS-232 interface.  
 Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

##### Operating Parameters

Power Consumption: Only 2Ws per reading. Operates continuously for 45 hours on standby.  
 Power Source: 12V 2.6Ah sealed lead acid battery standard, other batteries available  
 Operating Temperature: -50°C to +60°C

##### Storage Capacity

Manual Operation: 29,000 readings standard, with up to 116,000 optional. With 3 VLF stations: 12,000 standard and up to 48,000 optional.

Base Station: 105,000 readings standard, with up to 419,000 optional (88 hours or 14 days uninterrupted operation with 3 sec. intervals)

Gradiometer: 25,000 readings standard, with up to 100,000 optional. With 3 VLF stations: 12,000, with up to 45,000 optional.

##### Omnidirectional VLF

Performance Parameters: Resolution 0.5% and range to  $\pm 200\%$  of total field. Frequency 15 to 30 kHz.

Measured Parameters: Vertical in-phase & out-of-phase, 2 horizontal components, total field coordinates, date, and time.

Features: Up to 3 stations measured automatically, in-field data review, displays station field strength continuously, and tilt correction for up to  $\pm 10^\circ$  tilts.

Dimensions and Weights: 93 x 143 x 150mm and weighs only 1.0kg.

## Dimensions and Weights

### Dimensions:

Console: 223 x 69 x 240mm

Sensor: 170 x 71mm diameter cylinder

### Weight:

Console: 2.1kg

Sensor and Staff Assembly: 2.0kg

## Standard Components

GSM-19 magnetometer console, harness, battery charger, shipping case, sensor with cable, staff, instruction manual, data transfer cable and software.

## Taking Advantage of a “Quirk” of Physics

Overhauser effect magnetometers are essentially proton precession devices except that they produce an order-of magnitude greater sensitivity. These "supercharged" quantum magnetometers also deliver high absolute accuracy, rapid cycling (up to 5 readings / second), and exceptionally low power consumption.

The Overhauser effect occurs when a special liquid (with unpaired electrons) is combined with hydrogen atoms and then exposed to secondary polarization from a radio frequency (RF) magnetic field. The unpaired electrons transfer their stronger polarization to hydrogen atoms, thereby generating a strong precession signal-- that is ideal for very high-sensitivity total field measurement. In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and reduces noise (i.e. generating RF frequencies are well out of the bandwidth of the precession signal).

In addition, polarization and signal measurement can occur simultaneously - which enables faster, sequential measurements. This, in turn, facilitates advanced statistical averaging over the sampling period and/or increased cycling rates (i.e. sampling speeds).

The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities.

## APPENDIX C

### GARMIN GPS 76



#### **GPS Performance**

Receiver: WAAS-enabled, 12 parallel channel GPS receiver continuously tracks and uses up to 12 satellites to compute and update your position

#### **Navigation Features**

**Waypoints/icons:** 500 with name and graphic symbol, 10 nearest (automatic), 10 proximity

**Routes:** 50 reversible routes with up to 50 points each, plus MOB and TracBack® modes

**Tracks:** Automatic track log; 10 saved tracks let you retrace your path in both directions

**Trip computer:** Current speed, average speed, resettable max. speed, trip timer and trip distance

**Alarms:** Anchor drag, approach and arrival, off-course, proximity waypoint, shallow water and deep water

**Tables:** Built-in celestial tables for best times to fish and hunt, sun and moon rise, set and location

**Map datums:** More than 100 plus user datum

**Position format:** Lat/Lon, UTM/UPS, Maidenhead, MGRS, Loran TDs and other grids, including user grid

#### **Acquisition times**

**Warm:** Approximately 15 seconds

**Cold:** Approximately 45 seconds

**AutoLocate®:** Approximately 2 minutes

**Update rate:** 1/second, continuous

#### **GPS accuracy**

**Position:** < 15 meters, 95% typical\*

**Velocity:** 0.05 meter/sec steady state

#### **WAAS accuracy**

**Position:** < 3 meters, 95% typical\*

**Velocity:** 0.05 meter/sec steady state

#### **Power**

**Source:** Two "AA" batteries (not included)

**Battery Life:** Up to 16 hours

#### **Physical**

**Size:** 2.7"W x 6.2"H x 1.2"D (6.9 x 15.7 x 3.0 cm)

**Weight:** 7.7 ounces

#### **Display**

1.6"W x 2.2"H (4.1 x 5.6 cm)

180 x 240 pixels, high-contrast

FSTN with bright backlighting

<b>Case:</b>	Fully gasketed, high-impact plastic alloy, waterproof to IEC 529 IPX7 standards
<b>Interfaces:</b>	RS232 with NMEA 0183, RTCM 104 DGPS data format and proprietary Garmin®
<b>Antenna:</b>	Built-in quadrifilar, with external antenna connection (MCX)
<b>Differential:</b>	DGPS (USCG and WAAS capable)
<b>Temperature range:</b>	5°F to 158°F (-15°C to 70°C)
<b>Dynamics:</b>	6 g's
<b>User data storage:</b>	Indefinite, no memory battery required

Specifications obtained from [www.garmin.com](http://www.garmin.com).

**APPENDIX D****LIST OF MAPS (IN MAP POCKET)**

Posted contoured TFM plan map (1:5000)

- 1) GLOBEX-DELORO-MAG-CONT

Posted profiled contoured VLF plan maps (1:5000)

- 2) GLOBEX-DELORO-VLF-NML

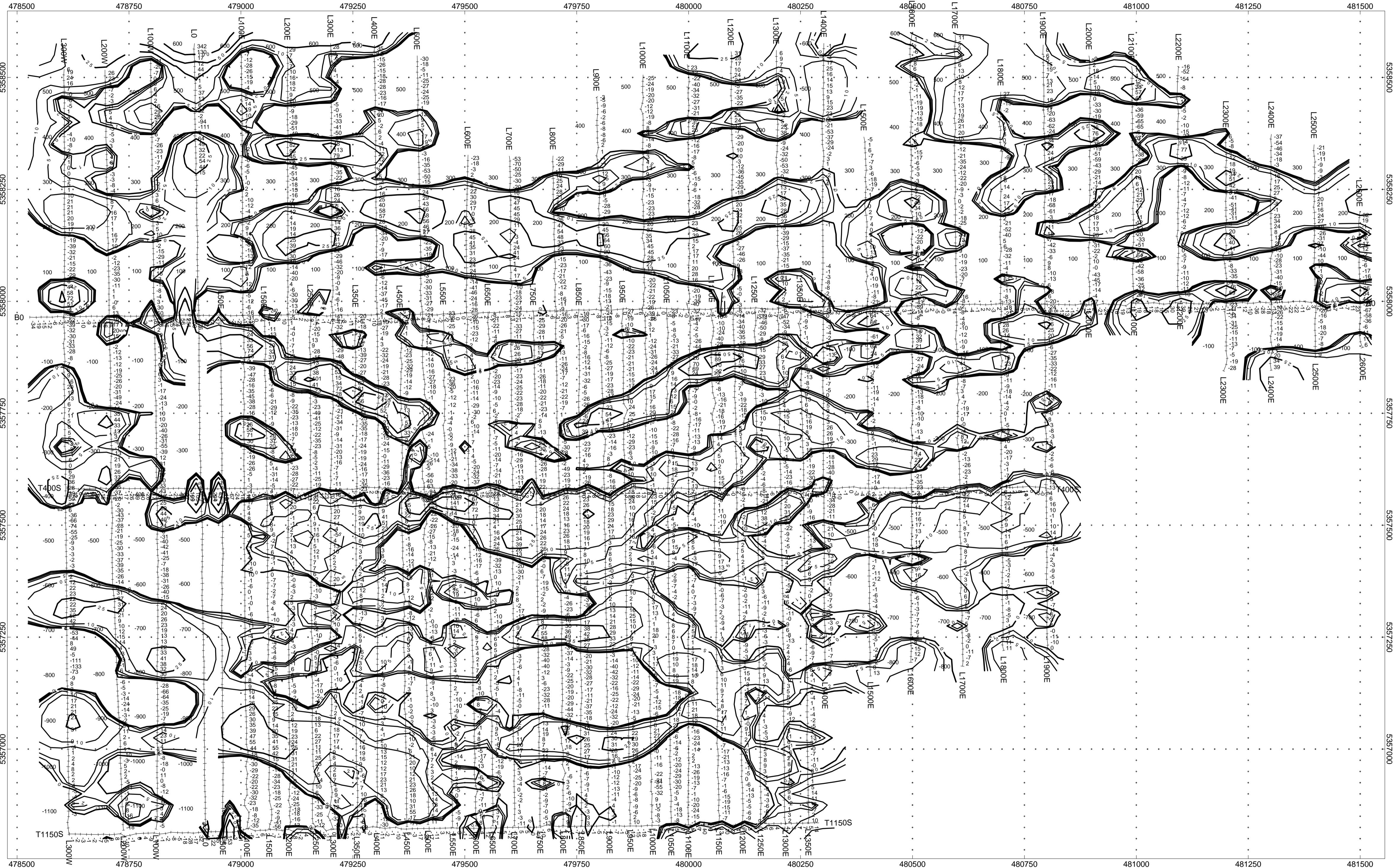
Posted fraser filtered contoured VLF plan maps (1:5000)

- 3) GLOBEX-DELORO-VLF-NML-FRASER

Claim Map with Grid Location (1:20000)

- 4) GLOBEX-DELORO-GRID

**TOTAL MAPS=4**



GI QBEX MINING ENTERPRISES INC.

**DELORO GRID  
IMMIN'S MAGNESITE PROPERTY  
Towns and Deloro Townships, Ontario**

LF FRASER FILTERED CONTOURED PLAN MAP  
25.2kHz NML- LaMORRE USA  
Projection: NAD 83, Zone 17

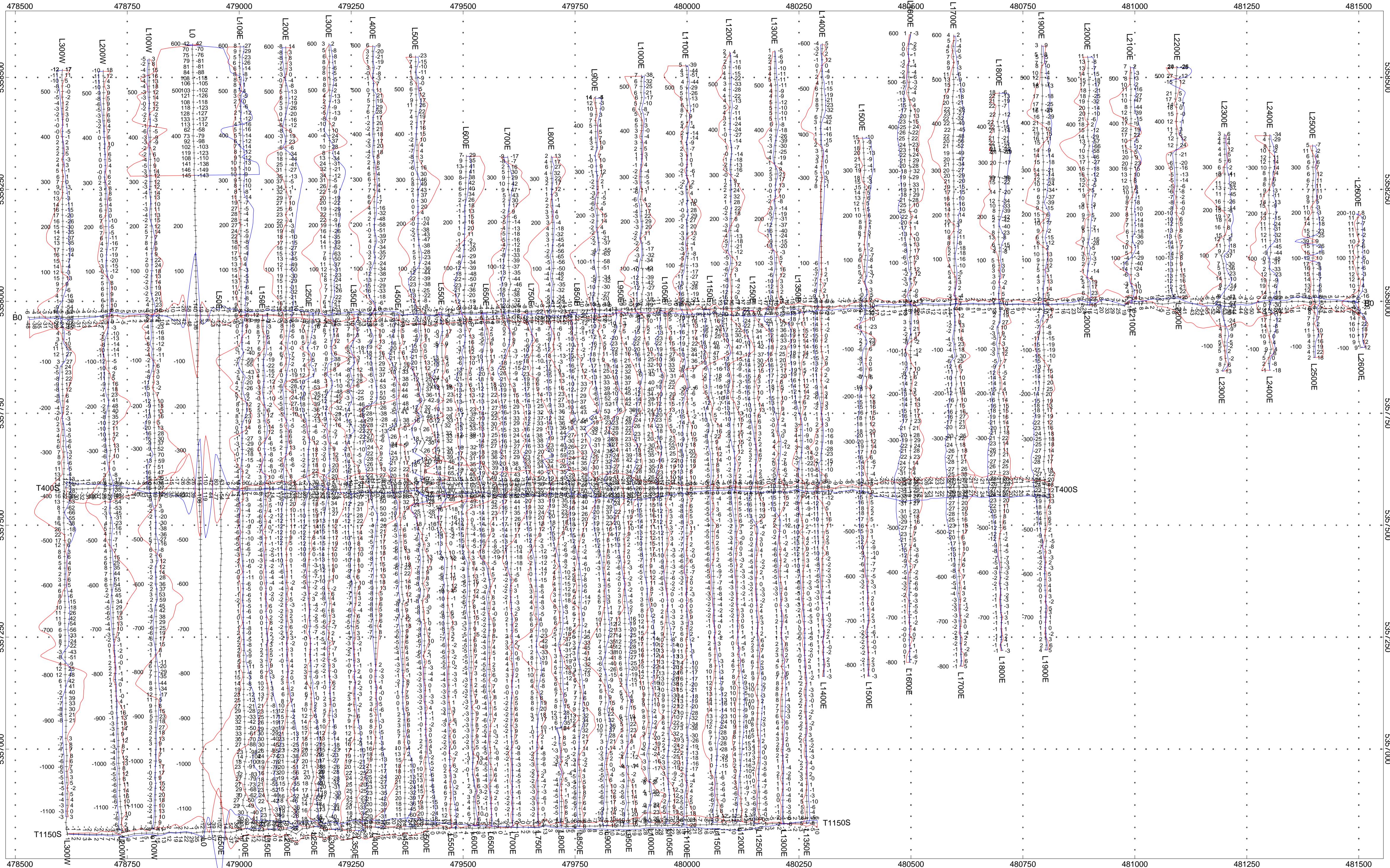
Contour Interval: 0,5,10,15,20,25,50,100  
Station Separation: 12.5 meters  
Posting Level: 0

## SM-19 OVERHAUSER MAGNETOMETER/VLF v7

Operated by: Bruce Lavallee  
C Jason Ploeger, B.Sc.  
Jason Ploeger



A scale bar diagram titled "Scale 1:5000". It features a horizontal line with tick marks at 0, 100, 200, and 300. Below the line, the word "(meters)" is written in parentheses. At the bottom, the text "NAD83 / UTM zone 17N" is displayed.



---

CLOREX MINING ENTERPRISES INC.

**DELORO GRID  
TIMMINS MAGNESITE PROPERTY  
Adams and Deloro Townships, Ontario**

VLF IN PHASE/OUT PHASE PROFILE PLAN MAP  
25.2kHz NML- LaMORRE USA  
Projection: NAD 83, Zone 17

Out Phase: Posted Left/Top (Blue Dotted)  
Vertical Profile Scales: 5%/mm  
Contour Interval: 0,5,10,15,20,25,50,100  
Station Separation: 12.5 meters

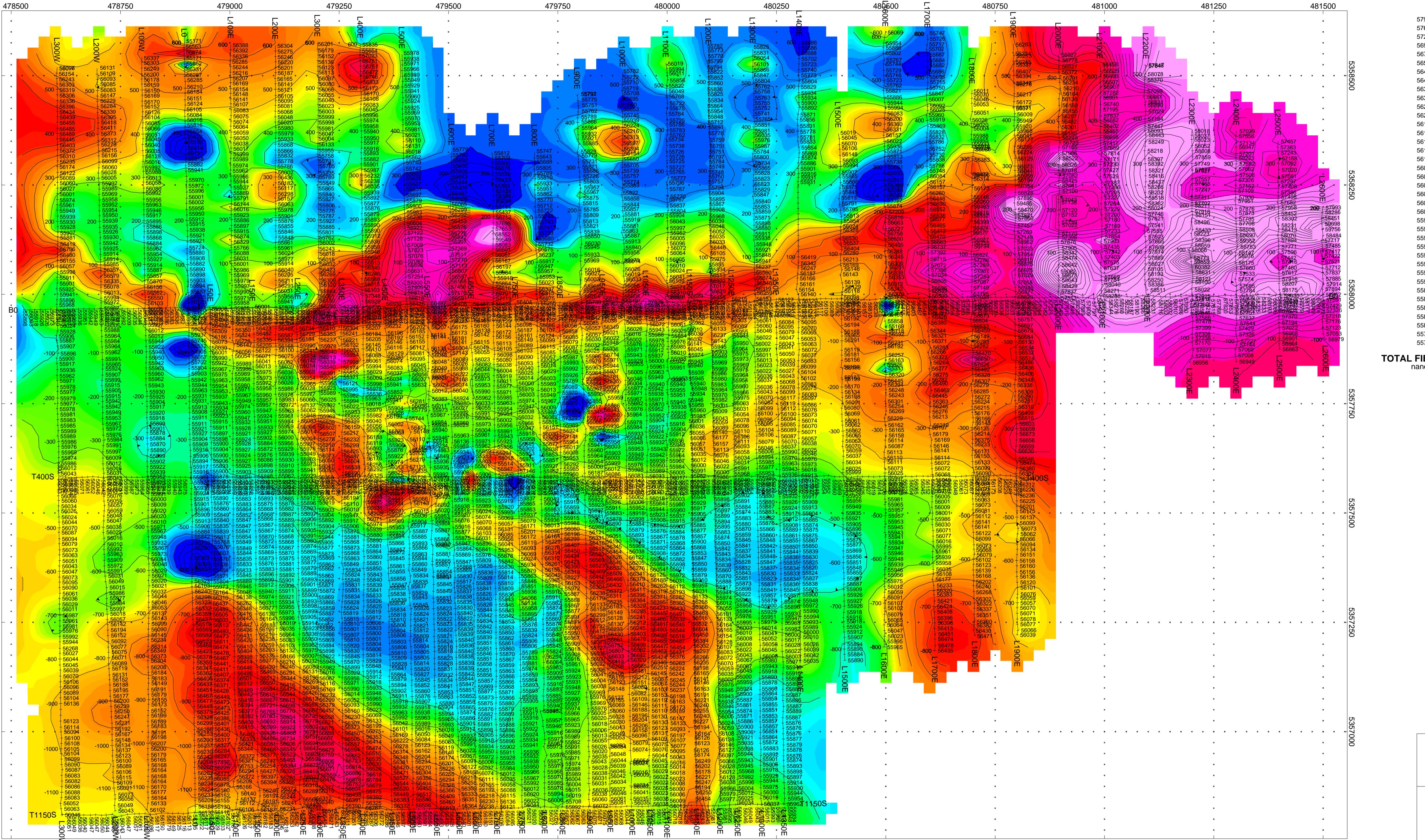
Posting Level: 0  
GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

---

Magnetometer Operated by: Bruce Lavallee  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: Jason Ploeger

 LARDER  
GEOPHYSICS LTD.





**GLOBEX MINING ENTERPRISES INC.**  
**DELORO GRID**  
**TIMMINS MAGNESITE PROPERTY**  
**Adams and Deloro Townships, Ontario**

TOTAL FIELD MAGNETIC CONTOURED PLAN MAP  
Base Station Corrected

Posting Level: On-T  
Field Inclination/Declination: 74degN/1degW  
Station Separation: walkmag 1 second interval  
Total Field Magnetic Contours: 100nT

GSM-19 OVERHAUSER MAGNETOMETER/VLF V7

Magnetometer Operated by: Bruce Lavallee  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: Jason Ploeger  
June 2010

