

# INTERNATIONAL MILLENNIUM MINING CORP.

# Magnetometer and VLF EM Surveys Over the HOUNDCHUTE PROPERTY

Gillies Limit Township, Ontario

#### **TABLE OF CONTENTS**

1.	Survey Details	3
1.1	Project Name	3
1.2	CLIENT	
1.3	LOCATION	3
1.4	Access	4
1.5	Survey Grid	
2.	SURVEY WORK UNDERTAKEN	5
2.1	Survey Log	
2.2	Personnel	5
2.3	SURVEY SPECIFICATIONS	5
3.	OVERVIEW OF SURVEY RESULTS	7
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 Houndchute Property	3
Figure 2: Claim Map with Houndchute Property Traverses	4
Table 1: Survey Log	5



#### 1. SURVEY DETAILS

#### 1.1 PROJECT NAME

This project is known as the Houndchute Property.

#### 1.2 CLIENT

International Millennium Mining Corp. 3<sup>rd</sup> Floor, 120 Lonsdale Ave Vancouver, BC V7M 2E8

#### 1.3 LOCATION

The Houndchute Property is located approximately 11km south of Cobalt, Ontario. The survey grid is located in Gillies Limit and covers part of mining claims 3007492, 4243947, 1140510 and 4258216 within the Larder Lake Mining Division.

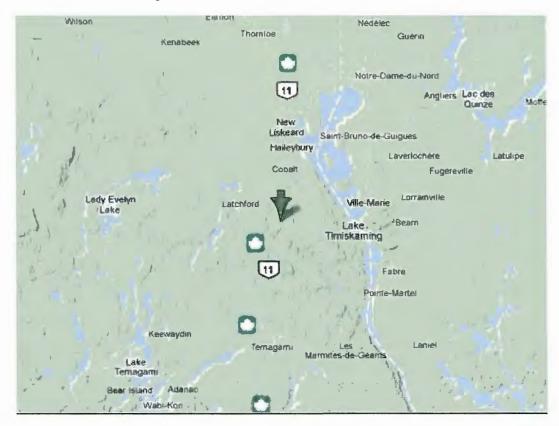


Figure 1: Location of Houndchute Property



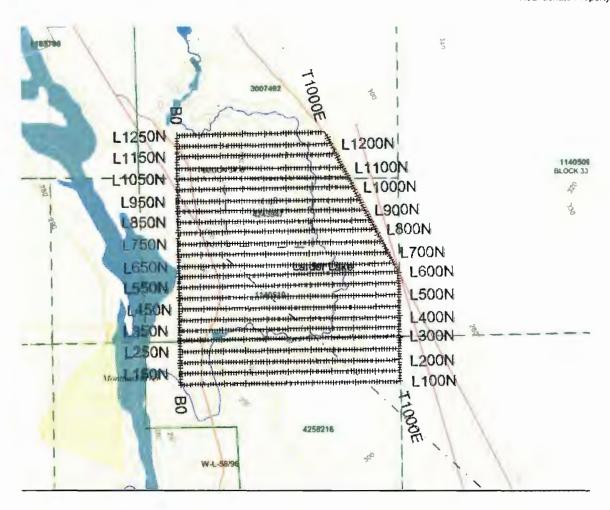


Figure 2: Claim Map with Houndchute Property Traverses

#### 1.4 ACCESS

The Houndchute property can be accessed by a vehicle and snow machine on an all season gravel road. The Coleman Road is located south of the community of Cobalt, Ontario. This road is followed east for approximately 2km. At this point, the Silverfields Road was followed for 10.5km by snow machine to where the survey area crosses the road.

#### 1.5 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 12.5m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 12.5m along these controlled traverses. The GPS used was a Garmin 76 with an external antenna for added accuracy.



#### 2. SURVEY WORK UNDERTAKEN

#### 2.1 SURVEY LOG

January 27, 2011   Locate survey area and begin survey.   100N   0   1000E   1000	Date	Description	Line	Min Extent	Max Extent	Total
January 28, 2011 Continue survey. 150N 0 1000E 1000						
1250N   0   675E   675     0   650N   1250N   600     1000E   100N   1325N   1325     325N   1325     325N   1325N   1325     325N   1325N   1325N   1325     325N   1300E   1000E   1000E   1000E     250N   150E   1000E   850     0   100N   650N   550     350N   0   1000E   1000     400N   0   1000E   1000     450N   0   750E   750     350N   0   1000E   1000     450N   0   750E   750     350N   0   1000E   1000     450N   0   750E   750     350N   0   1000E   1000     550N   0   975E   1000E   725     550N   0   975E   975     575N   0   937.5E   937.5E     550N   0   875.5E   875.5E     575N   0   750E   837.5E   875.5E     575N   0   750E   875.5E     575N   0   750E   750     575N   0   750E   750	January 27, 2011	Locate survey area and begin survey.	100N	0	1000E	1000
1250N   0   675E   675     0   650N   1250N   600     1000E   100N   1325N   1325     325N   1325     325N   1325N   1325     325N   1325N   1325N   1325     325N   1300E   1000E   1000E   1000E     250N   150E   1000E   850     0   100N   650N   550     350N   0   1000E   1000     400N   0   1000E   1000     450N   0   750E   750     350N   0   1000E   1000     450N   0   750E   750     350N   0   1000E   1000     450N   0   750E   750     350N   0   1000E   1000     550N   0   975E   1000E   725     550N   0   975E   975     575N   0   937.5E   937.5E     550N   0   875.5E   875.5E     575N   0   750E   837.5E   875.5E     575N   0   750E   875.5E     575N   0   750E   750     575N   0   750E   750	January 28, 2011	Continuo que que	1508	ļ. —	10005	1000
OE 650N 1250N 600	January 20, 2011	Continue survey.				
January 29, 2011   Continue survey.   200N   0   1000E   1000   1000E   1000   250N   150E   1000E   850   0E   100N   650N   550   0E   100N   650N   550   0E   100N   650N   550   0E   100N   0E   1000E   1000   1000E   10						
January 29, 2011   Continue survey.   200N   0   1000E   1000   850						
250N   150E   1000E   850			10000	10014	132314	1323
250N   150E   1000E   850   0E   100N   650N   550	January 29, 2011	Continue survey.	200N	0	1000E	1000
DE			250N	150E	1000E	850
350N			0E			550
350N	1	<u> </u>	0501		4505	450
400N	January 30, 2011	Continue survey.				
450N   0   750E   750						
January 31, 2011 Continue survey.       450N       750E       1000E       250         500N       0       1000E       1000						
S00N   0   1000E   1000   1000E   1000   1000E   1000   1000E   1000   1000E   1000   1000E   1000   1000E			45UN	<u> </u>	/5UE	750
S00N   0   1000E   1000   1000E   1000   1000E   1000   1000E   1000   1000E   1000   1000E   1000   1000E	January 31, 2011	Continue survey	450N	750F	1000E	250
S50N   0   1000E   1000   1000E   1000   600N   275E   1000E   725   725   1000E   725   725   1000E   725	January 31, 2011	Containe survey.				
February 1, 2011 Continue survey.  600N  600N  0  275E  725  650N  0  975E  975  700N  0  962.5E  962.5  750N  0  937.5E  900N  600N  0  937.5E  937.5  February 2, 2011 Continue survey.  800N  0  887.5E  887.5  900N  0  850E  850  950N  750E  837.5E  87.5  February 3, 2011 Continue survey.  950N  0  750E  750  1000N  0  750E  750  1100N  0  762.5E  762.5  1150N  0  1000E  1000  1050N  0  787.5E  787.5						
February 1, 2011 Continue survey.         600N         0         275E         275           650N         0         975E         975           700N         0         962.5E         962.5           750N         0         937.5E         937.5           February 2, 2011 Continue survey.         800N         0         900E         900           850N         0         887.5E         887.5           900N         0         850E         850           950N         750E         837.5E         87.5           February 3, 2011 Continue survey.         950N         0         750E         750           1000N         0         812.5E         812.5         762.5           1150N         0         600E         600           February 4, 2011 Complete survey.         300N         0         100E         1000           February 4, 2011 Complete survey.         300N         0         100E         1000           1050N         0         787.5E         787.5         1150N         600E         725E         125				-		
650N   0   975E   975   975   976   970N   0   962.5E   962.5   962.5   962.5   962.5   962.5   962.5   962.5   962.5   962.5   960N   0   937.5E   937.5			000.1	2.02	10002	
650N   0   975E   975   975   976   970N   0   962.5E   962.5   962.5   962.5   962.5   962.5   962.5   962.5   962.5   962.5   960N   0   937.5E   937.5	February 1, 2011	Continue survey.	600N	0		275
750N   0   937.5E   937.5			650N	0		975
February 2, 2011 Continue survey.  800N 0 900E 900 850N 0 887.5E 887.5 900N 0 850E 850 950N 750E 837.5E 87.5  February 3, 2011 Continue survey.  950N 0 750E 750 1000N 0 812.5E 812.5 1100N 0 762.5E 762.5 1150N 0 600E 600  February 4, 2011 Complete survey. 300N 0 1000E 1000 February 4, 2011 Complete survey. 300N 0 787.5E 787.5			700N	0	962.5E	962.5
850N   0   887.5E   887.5   900N   0   850E   850   950N   750E   837.5E   87.5   87			750N	0	937.5E	
850N   0   887.5E   887.5   900N   0   850E   850   950N   750E   837.5E   87.5   87	February 2, 2011	Captions surrou	OOON		0005	000
900N   0   850E   850   950N   750E   837.5E   87.5   87	rebruary 2, 2011	Continue survey.				
950N   750E   837.5E   87.5						
February 3, 2011 Continue survey. 950N 0 750E 750 1000N 0 812.5E 812.5 1100N 0 762.5E 762.5 1150N 0 600E 600  February 4, 2011 Complete survey. 300N 0 1000E 1000 1050N 0 787.5E 787.5 1150N 600E 725E 125				_		
1000N   0   812.5E   812.5			93011	730L	037.3E	07.5
1000N   0   812.5E   812.5	February 3, 2011	Continue survey.	950N	0	750E	750
1100N   0   762.5E   762.5   1150N   0   600E   600   February 4, 2011   Complete survey.   300N   0   1000E   1000   1050N   0   787.5E   787.5   1150N   600E   725E   125			1000N	0	812.5E	812.5
1150N   0   600E   600				0		762.5
1050N 0 787.5E 787.5 1150N 600E 725E 125				0	600E	
1050N 0 787.5E 787.5 1150N 600E 725E 125	Esharani 4 2044	Complete guaray	14005	0	10005	1000
1150N 600E 725E 125	reducing 4, 2011	Complete survey.				
				-		
		-	1200N	0	700E	700

Table 1: Survey Log

#### 2.2 PERSONNEL

Bruce Lavalley of Sudbury, Ontario conducted all the magnetic data collection with Claudia Moraga also of Sudbury, responsible for the GPS control and GPS waypoint collection.

#### 2.3 SURVEY SPECIFICATIONS

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



A total of 24.2875 kilometers of magnetic and VLF EM survey was conducted between January 27<sup>th</sup> and February 4<sup>th</sup>, 2011. This consisted of 1943 magnetic with simultaneous VLF EM samples collected at a 12.5 meter sample interval.



#### 3. OVERVIEW OF SURVEY RESULTS

#### 3.1 SUMMARY INTERPRETATION

The main trend visible in the dataset is a magnetic and VLF EM high response striking north-westerly across the property. This response appears to correlate with that of a powerline and is most likely a cultural response from this.

The majority of the property is covered by a magnetically elevated region. This is most likely representing a huronian cap such as a conglomerate. Striking through this at 340 degrees is a slightly depressed magnetic lineation. This lineation appears to have an associated weak VLF EM response. This may indicate a structural feature with the depletion of magnetite or a dike. On two places along this feature exist a large negative magnetic anomaly with a magnetically high rim. These may indicate a zone of mineralization or iron formations. The circular nature of the southern anomaly may indicate the presence of a kimberlite. Both of these locations should be investigated further.



#### APPENDIX A

#### STATEMENT OF QUALIFICATIONS

- I, C. Jason Ploeger, hereby declare that:
- I am a geophysicist (non-professional) with residence in Larder Lake, Ontario and am presently employed as Geophysical Manager of Larder Geophysics Ltd. of Larder Lake, Ontario.
- 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.
- I have no interest, nor do I expect to receive any interest in the properties or securities of International Millennium Mining Corp.
- 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 February 2011

C. Jason Ploeger, B.Sc. (geophysics) Geophysical 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 inphase (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 ±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 orderof 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 of

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 ari

**Acquisition times** 

Warm: Approximately 15 seconds
Cold: Approximately 45 seconds
AutoLocate®: Approximately 2 minutes

Update rate: 1

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

Case: Fully gasketed, high-impact plastic alloy, waterproof to IEC 529 IPX7 standards

Interfaces: RS232 with NMEA 0183, RTCM 104 DGPS data format and proprietary Garmin®

Antenna: Built-in quadrifilar, with external antenna connection (MCX)

**Differential:** DGPS (USCG and WAAS capable) **Temperature range:** 5°F to 158°F (-15°C to 70°C)

**Dynamics:** 6 g's

User data storage: Indefinite, no memory battery required

Specifications obtained from www.garmin.com



#### APPENDIX D

#### LIST OF MAPS (IN MAP POCKET)

Posted profiled TFM plan map (1:5000)

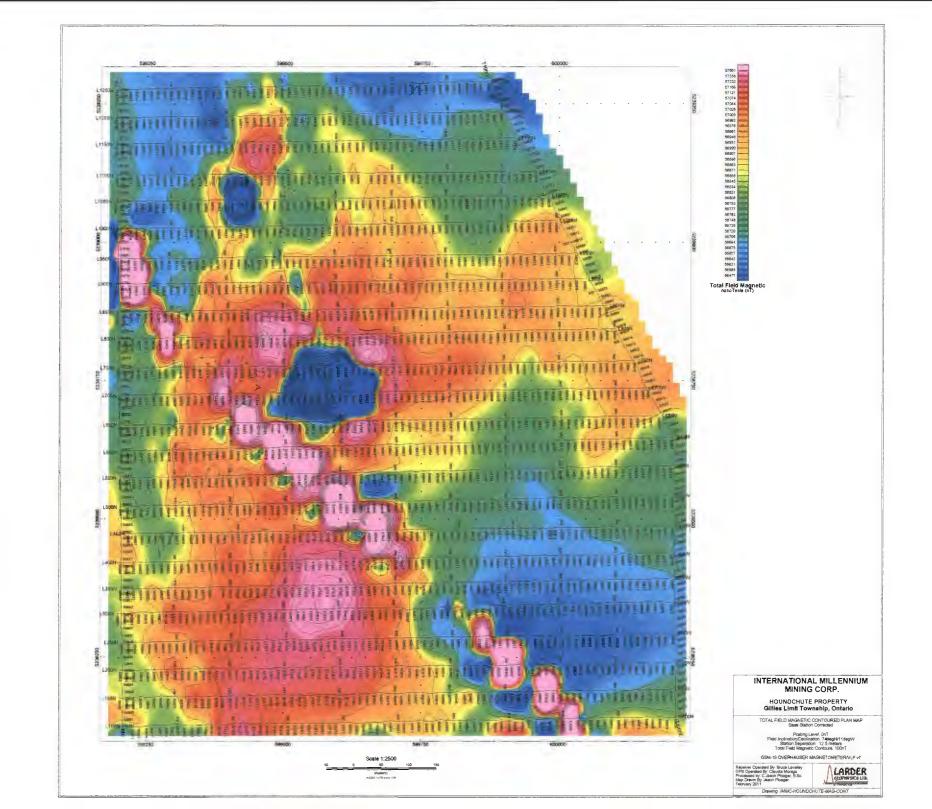
1) IMMC-HOUNDCHUTE-MAG-CONT

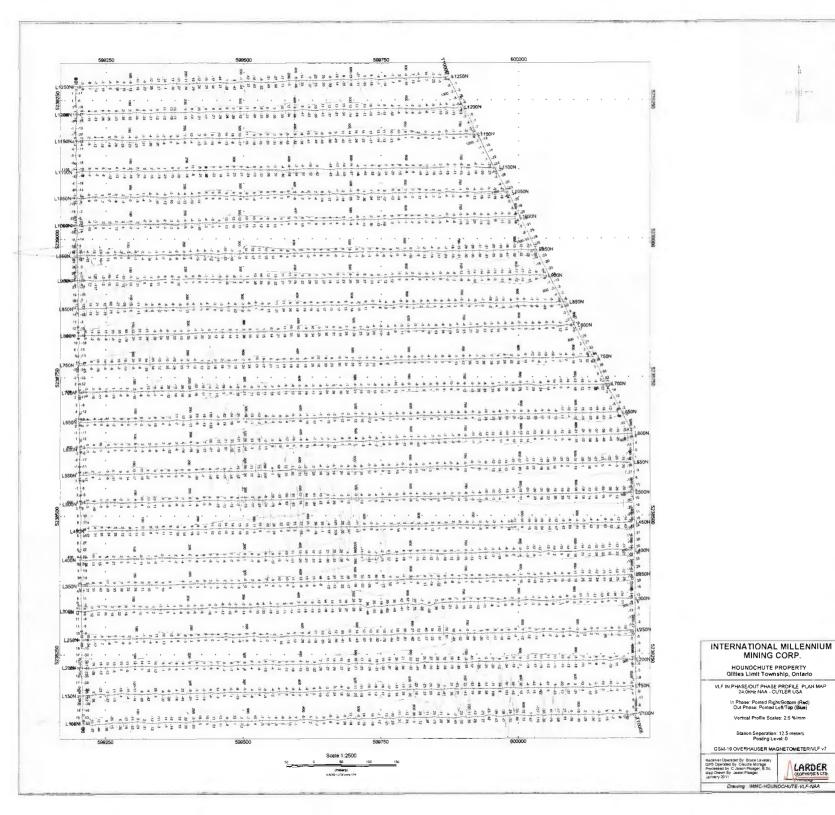
Posted profiled Fraser Filtered VLF EM plan map (1:2500)

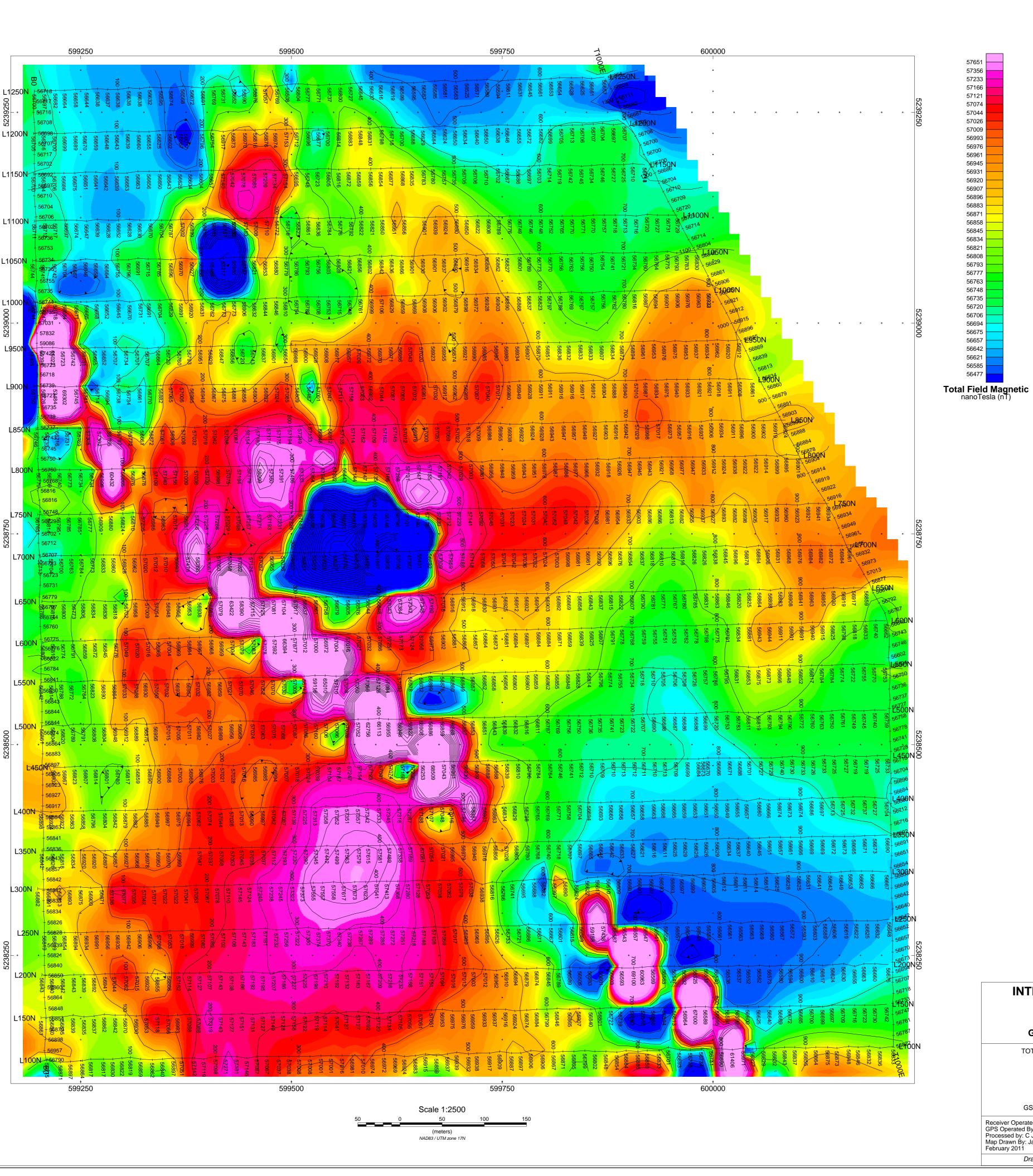
2) IMMC-HOUNDCHUTE-VLF

TOTAL MAPS=2









### INTERNATIONAL MILLENNIUM MINING CORP.

HOUNDCHUTES PROPERTY Gillies Limit Township, Ontario

TOTAL FIELD MAGNETIC CONTOURED PLAN MAP Base Station Corrected

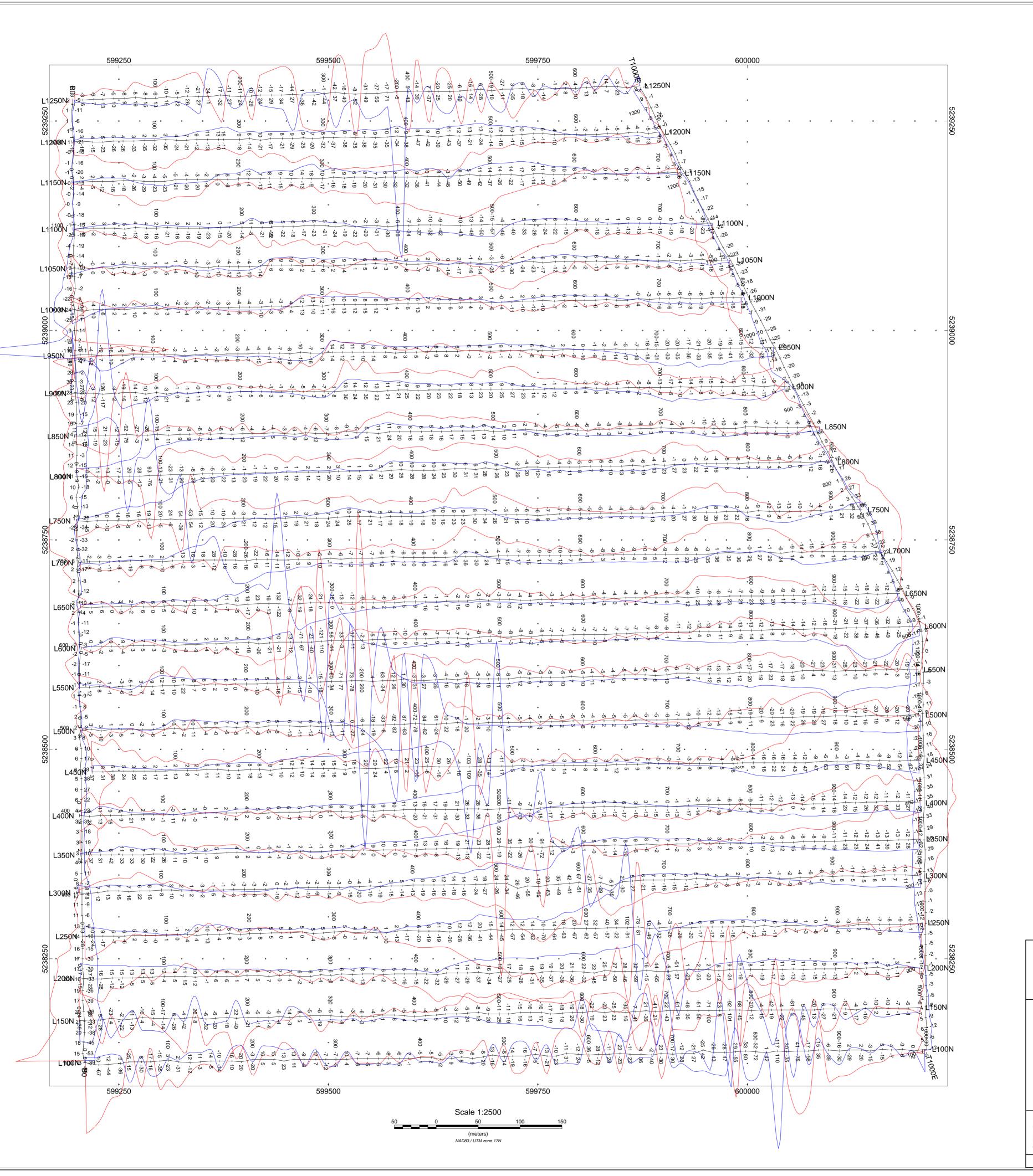
Posting Level: 0nT
Field Inclination/Declination: 74degN/11degW
Station Seperation: 12.5 meters
Total Field Magnetic Contours: 100nT

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

Receiver Operated By: Bruce Lavalley GPS Operated By: Claudia Moraga Processed by: C Jason Ploeger, B.Sc. Map Drawn By: Jason Ploeger



Drawing: IMMC-HOUNDCHUTES-MAG-CONT



## INTERNATIONAL MILLENNIUM MINING CORP.

HOUNDCHUTES PROPERTY Gillies Limit Township, Ontario

VLF IN PHASE/OUT PHASE PROFILE PLAN MAP 24.0kHz NAA - CUTLER USA

> In Phase: Posted Right/Bottom (Red) Out Phase: Posted Left/Top (Blue)

Vertical Profile Scales: 2.5 %/mm

Station Seperation: 12.5 meters

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

Receiver Operated By: Bruce Lavalley GPS Operated By: Claudia Moraga Processed by: C Jason Ploeger, B.Sc. Map Drawn By: Jason Ploeger January 2011

Drawing : IMMC-HOUNDCHUTES-VLF-NAA

LARDER