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# **ASHLEY GOLD MINES LIMITED**

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

### **BEEEMER PROPERTY**

#### **Beemer Township, Ontario**

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## 1. SURVEY DETAILS

### 1.1 PROJECT NAME

This project is known as the **Beemer Property**.

### 1.2 CLIENT

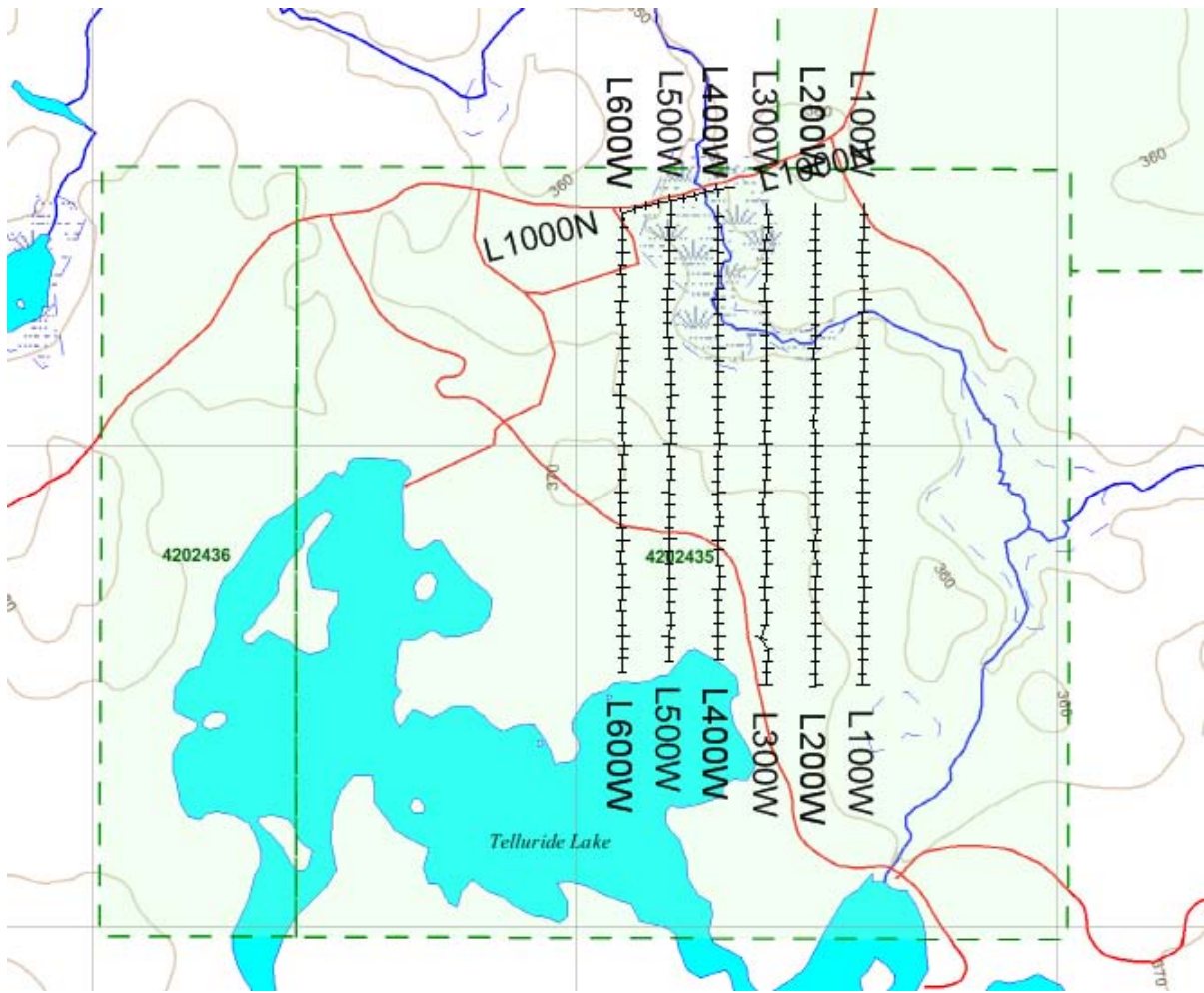
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Larder Lake, Ontario  
P0K1L0

### 1.3 LOCATION

The Beemer Property is located approximately 45km south of Timmins, Ontario. The magnetic traverse area is located in Beemer Township and covers mining claims 4202436 and 4202435, within the Porcupine Mining Division.



***Figure 1: Location of Beemer Property***



**Figure 2: Claim Map with Beemer Property Traverses**

#### 1.4 ACCESS

Access to the property was attained with a 4x4 truck via Pine Street South within the City of Timmins. Pine Street South was taken south for approximately 50km at which point a series of forestry access roads provided access directly to the traverse area.

#### 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 25m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 25m 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

Date	Description	Line	Min Extent	Max Extent	Total Survey
August 27, 2010	Locate survey area and begin survey.	100W	0	1000N	1000
		200W	0	1000N	1000
		300W	0	1000N	1000
		400W	50N	1000N	950
		500W	50N	1000N	950
		600W	25N	975N	950
		1000N	600W	375W	225

**Table 1: Survey Log**

### 2.2 PERSONNEL

Jason Ploeger of Larder Lake, Ontario conducted all the magnetic data collection and Bill Bonney of Kirkland Lake, Ontario was responsible for the GPS control and GPS waypoint 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 for diurnal correction.

A total of 6.075 line kilometers of no grid magnetometer/VLF EM survey was read over the Beemer Property on August 27<sup>th</sup>, 2010. This consisted of 696 magnetometer samples taken.

### 3. OVERVIEW OF SURVEY RESULTS

#### 3.1 SUMMARY INTERPRETATION

This area was covered by a previous east-west striking mag survey. The results from that dataset appeared to be inconclusive on the strike of the magnetic and VLF responses because of the survey orientation. This survey appears to better delineate the magnetic fabric.

The magnetic survey indicates the presence of what appears to be a folded geologic unit. This magnetic unit appears to strike from line 100W at 225N through to 600W at 425N. This then extends off the survey area and appears to strike back at 600W and 650N through 100W at 950N. This may reflect a geologic unit that is rich in magnetite, such as an ultramafic.

The VLF EM survey indicates the presence of three conductive axis. These can be seen trending at approximately 290° through 100W at 875N, 200W at 700N and 200W at 425N. These strong axis all appear to have an associated magnetic depression and may reflect a conductive structural feature or graphitic horizon.

The central region of the survey area appears more magnetically stable with a few magnetically high regions, which most likely represents a similar ultramafic region. Through this region appears to strong VLF EM axis bearing at approximately 300°. These bedrock anomalies most likely represent a strong shearing or conductive structure. This axis should be further investigated through geophysics and prospecting.

**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 geophysical 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 **Ashley Gold Mines Limited**.
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  
August 2010



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 spheric) 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)

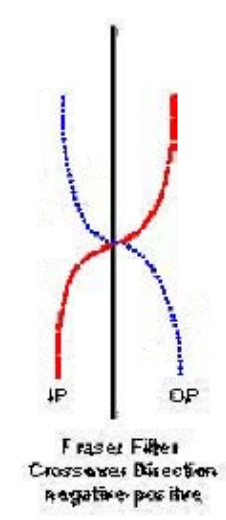
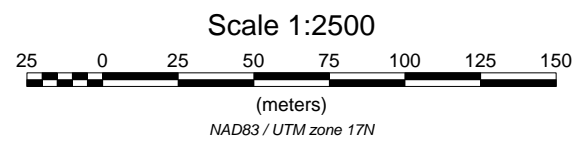
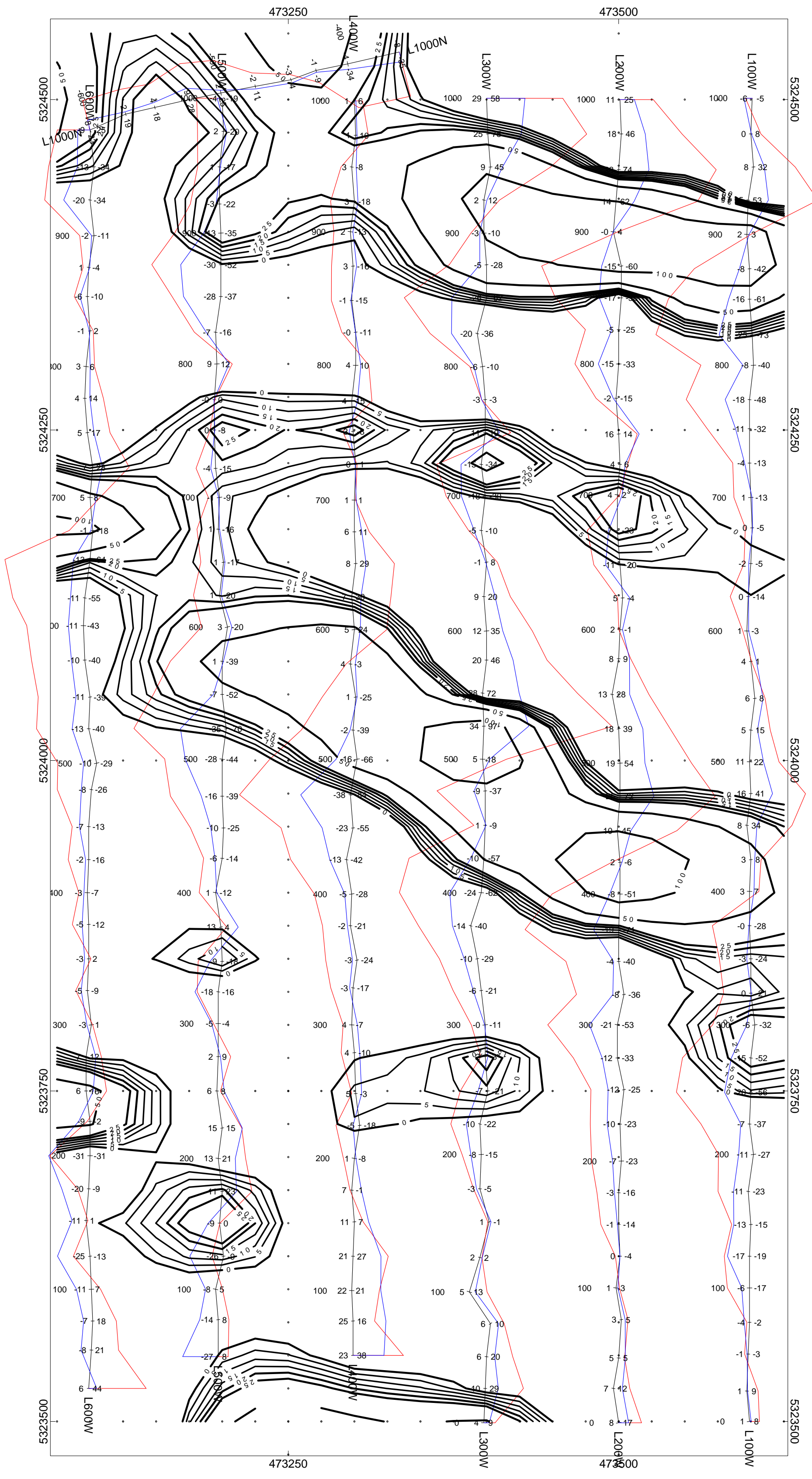
Posted profiled TFM plan map (1:2500)

- 1) ASHLEY-BEEMER-MAG-CONT

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

- 2) ASHLEY-BEEMER-VLF-NAA

**TOTAL MAPS=2**



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**BEEMER PROPERTY**  
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VLF IN PHASE/OUT PHASE PROFILE  
 VLF FRASER FILTERED CONTOURED PLAN MAP  
 24.0kHz NAA - CUTLER USA

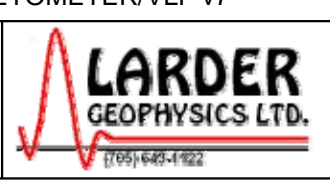
In Phase: Posted Right/Bottom (Red)  
 Out Phase: Posted Left/Top (Blue)

Vertical Profile Scales: 2.5%/mm  
 Contour Interval: 0, 5, 10, 15, 20, 25, 50, 100

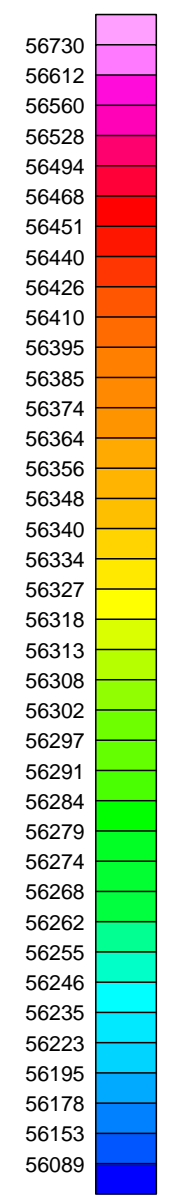
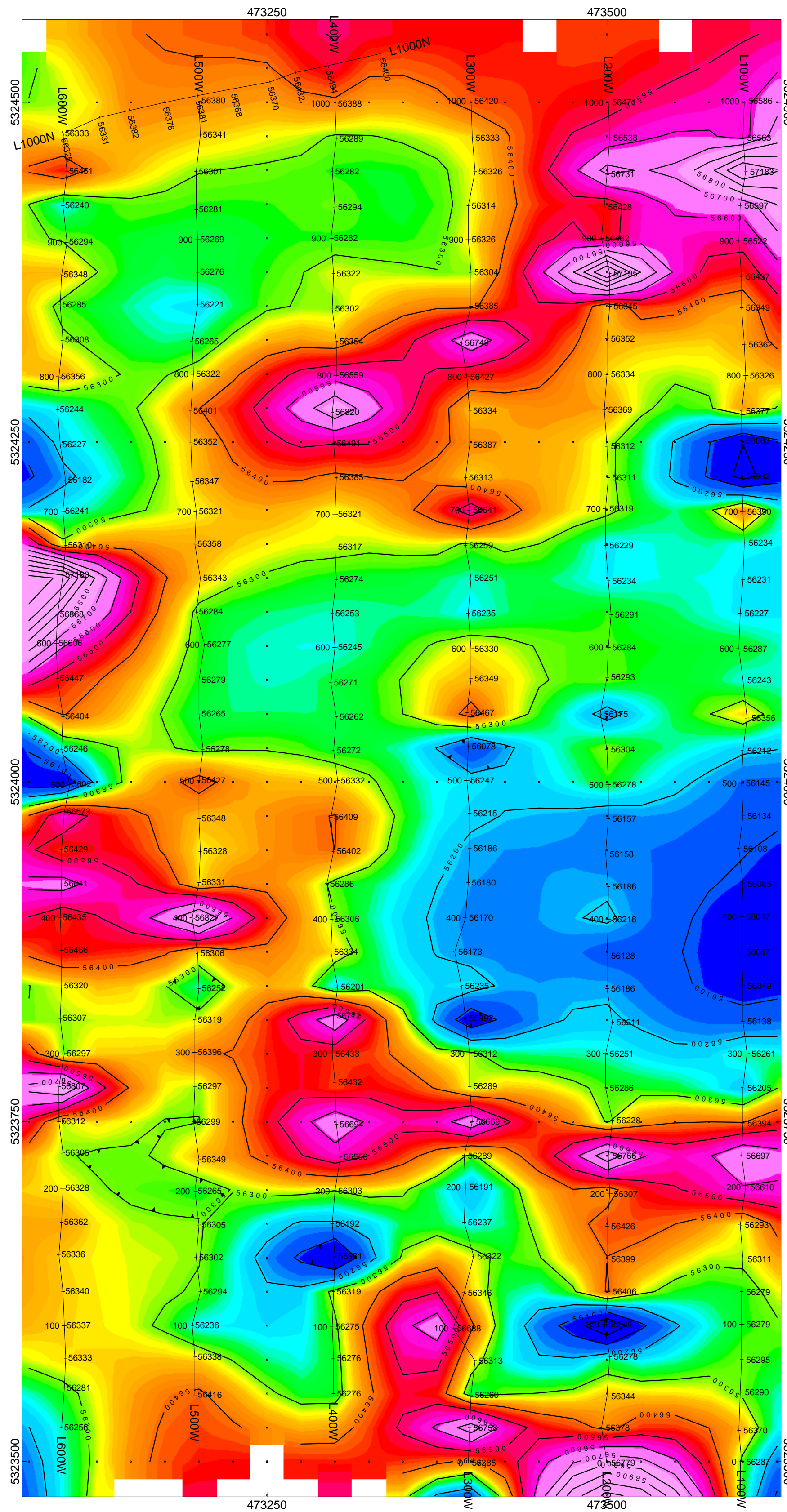
Station Separation: 25 meters  
 Posting Level: 0

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

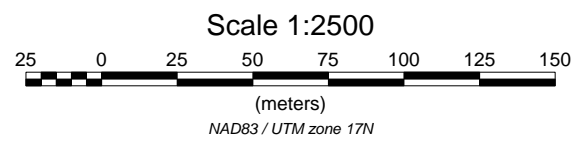
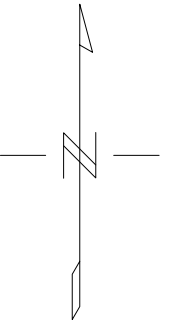
Receiver Operated By: Jason Ploeger  
 GPS Operated By: Bill Bonney  
 Processed by: C Jason Ploeger, B.Sc.  
 Map Drawn By: C Jason Ploeger, B.Sc.  
 August 2010







**TOTAL FIELD MAGNETIC**  
nanoTesla (nT)



**ASHLEY GOLD MINES LTD.**  
**BEEMER PROPERTY**  
**Beemer Township, Ontario**

TOTAL FIELD MAGNETIC CONTOURED PLAN MAP  
Base Station Corrected

Posting Level: 0nT  
Field Inclination/Declination: 74degN/12degW  
Station Separation: 25 meters  
Total Field Magnetic Contours: 100nT

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

Receiver Operated By: Jason Ploeger  
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