

**Assessment Report on airborne high-resolution  
quad magnetic survey  
Conducted on the “Cobalt West Claims”**

**Coleman Twp  
Larder Lake Mining District**

**UTM Zone 17  
Nad 83 Projection  
Centred on  
591196N to 5249230N**

**Work Conducted on  
Claims 4275168, 4275169**

**Work Conducted From Sept 1<sup>st</sup>, 2016 to Oct. 20th, 2016**

**Prepared by:**

Martin Ethier, MSc.

Hinterland Geoscience & Geomatics

**For:  
Brixton Metals Corporation  
20 October 2016**

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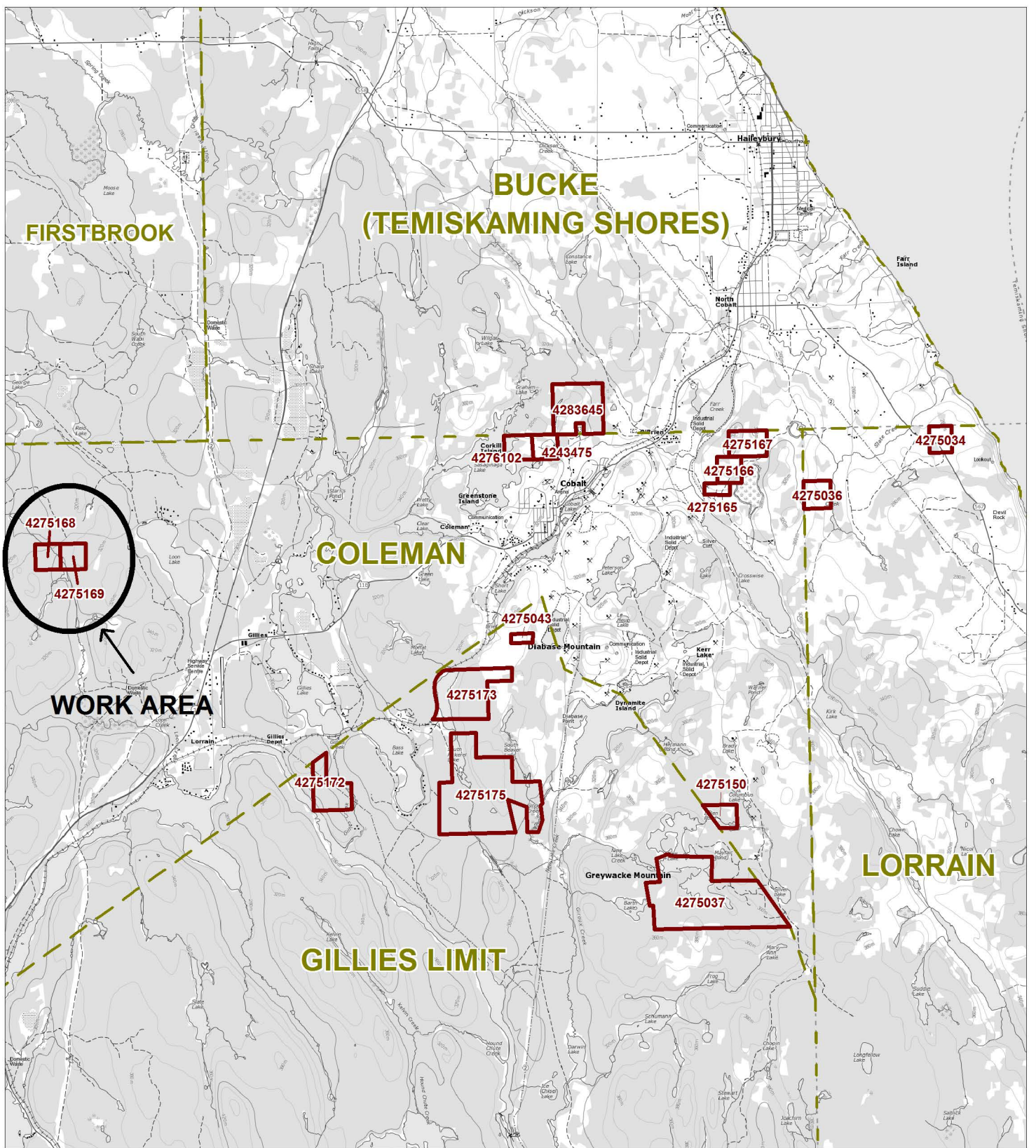
## 1- Summary

Brixton Metals Corp. is exploring for minerals on several blocks of contiguous mining patents/mining claims covering parts of six townships (Bucke, Coleman, Gillies Limit, Lorrain, South Lorrain, Harris and Casey) in the historic Cobalt Mining Camp.

This report consists of mainly of a helicoptered airborne high-resolution quad magnetic survey. The costs of the labor described above, plus the direct costs of planning the work, writing and producing this report are filed herein as assessment work. This work will help devise all future exploration efforts especially with the requirements for carrying exploration plans and permits. No permits were needed to perform this work.

## 2 - Property Description and Location

The “CobaltWest” claims are located on western side of Highway 11 and Coleman Township. The two east-west contiguous claims can be access by Portage Bay road where their northern boundary straddles it. They are 3.8km westerly from Hwy 11 and 1.5km west of Loon Lake. On the Ontario Geological Survey map 2474 (Fistbrook and Parts of Surrounding Townships), the area is mapped as Nipissing Diabase with possible fault zone at Loon Creek. There is no visible outcrop within the claims mainly because they are overlain by thick glacial sand.



**LEGEND**

- Township
- Brixton Mining Claims

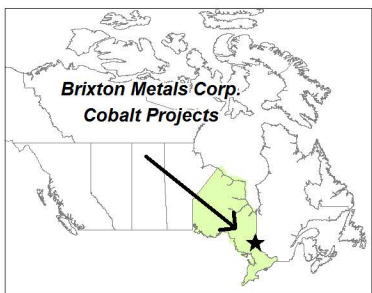


Image Reference:  
Toporama 31M05 ver.7

Projection: UTM Zone 17 (NAD 83)

**Cobalt West Claims  
Cobalt Area**

Scale - 1 : 85,000	Date: Oct 20th, 2016
<b>Figure - 1</b>	Author: M.Ethier

**BRIXTON METALS**

### **3.0 Survey Procedures**

Prior to survey execution, planning of the flight lines was conducted on each area according prescribed specification. Navigation files were developed in proprietary planning software based on provided boundary files for each survey area. The software exported formatted files that were imported into the onboard navigation system use by the pilot and operator during survey. Typically, tie lines are flown first followed by survey lines in a sequential order. Any reflights determined by the quality control geophysicist were reflight immediately and integrated into the master database.

After each flight, the data was exported from the field computer, processed and checked for quality control issues. This procedure was completed at the end of each survey day in order to notify the helicopter operate of any concerns or flights prior to the next survey day.

All accepted data was imported into Geosoft for further processing and trimming. The database survey line path was trimmed to the property boundary plus 100m. Total line km's calculated for the survey (as shown in Table 1) were based on a flush boundary and the additional 100m provided as an added benefit.

During survey, the average altitude of the gradiometer was ~ 40 m. The height for the towed system was closely monitored with the use of a laser altimeter. Best effort is made to ensure close contouring to the regional topography, however, certain obstructions such as tall trees or steep topography may require higher flight altitudes due to safety concerns. Based on an average survey speed of ~110 km/h and a sampling frequency of 10 Hz, data samples were recorded at intervals of approximately 3 m.

All ancillary equipment used to guide navigation (laser altimeter, radar altimeter and GPS) were all mounted directly on the gradiometer in order to calculate precise location and position with minimal geometric error.

## 4.0 Equipment

### 4.1 The Helicopter

Heli Explore, based out of Lasarre Quebec, were commissioned by K8aranda Geophysique to tow the geophysical equipment throughout the project. The helicopter used was a Eurocopter AStar 350 BA with registration C-GWMO as shown in Figure 6. The AStar BA helicopter is capable of towing geophysical equipment in challenging topography at a wide range of temperatures. On a full tank of fuel, an AStar BA is capable of 3 hours of continuous flying with the current payload. Navigation of the helicopter was accomplished using differential GPS and high precision altimeters.



Figure 6 - The survey was flown with a Eurocopter AStar BA (*photo from [www.heliexplore.ca](http://www.heliexplore.ca)*)

## **4.2 The Gradiometer**

The equipment used on this project was a 4-sensor potassium magnetic gradiometer designed by K8aranda Geophysique Ltd. The gradiometer system was attached to the helicopter by a 100 ft long tow cable. The tow cable is designed to hold the weight of the system and integrates a shear pin as a weak link. Cables for the magnetic and laser altimeter data follow the tow cable to the helicopter.

The gradiometer is constructed with a fiberglass shell with pods design to house each magnetic sensor. The pods each contain an adjustable gimble and removable covers for easy access and realignment. In total, the gradiometer contains four (4) sensors mounted within the Y-Z plane at the front of the frame: one (1) located at the top of the frame, 1 at the base of the frame and two (2) on the outer edges of the frame (see Figure 7). The center, bottom sensor is used for the total magnetic intensity measurement and combined with the top sensor at ~2.9 m away for the measured vertical gradient. The two outside sensors are separated by 10 metres and used for the cross-line gradient measurement. The length of the bird is ~7 metres and weighs approximately ~180 kg. The bird can be disassembled into multiple components for ease of transport.

This gradiometer is uniquely designed to keep a large separation between the equipment electronics and the magnetic sensors. This allows for cleaner data collection unaffected by electronic noise. By design, the sensor positions allow for the measurement of the cross-line (difference between bottom sensors) and the vertical (distance between the top and bottom sensors) gradients. The inline gradient is calculated by applying the same difference formula to 2 consecutive records that occur approximately 3 metres from each other.



Figure 1 – Eagle Geophysics quadrimag gradiometer “White Eagle”.

Table 3 - Specifications for the GEM Systems Magnetometer Section

<b><i>Sensitivity:</i></b>	+/- 0.0005 nT
<b><i>Absolute accuracy:</i></b>	+/- 0.5 nT over operating range maximum
<b><i>Sample rate:</i></b>	10 Hz (0.1 sec)
<b><i>Dynamic range:</i></b>	20,000 to 120,000 nT, 5,000 nT/m gradient
<b><i>Heading error:</i></b>	+/-0.05 nT maximum for all sensor orientations
<b><i>Operating temperature:</i></b>	-32° C to +40° C normally
<b><i>Tuning method:</i></b>	Dynamic re-starting at 30,000 nT
<b><i>Volume of sensor:</i></b>	35 mm <sup>3</sup>

The gradiometer data is collected at a rate of 10 samples per second (10Hz) and merged with all ancillary data. The combined data stream (including mag, gps, vlf and radar information) is then sent up the tow cable to the data acquisition system in the helicopter. Specifications for the magnetometer sensors are given in Table 3.



### **4.3 The VLF-EM System**

Located within the magnetic gradiometer were two (2) VLF (very low frequency) EM receivers that can be tuned to any of the operational VLF transmitters worldwide. Typically, two orthogonal stations are chosen based on proximity and include Cutler, Maine (24.0 kHz), La Moure, North Dakota (25.2 kHz) and Jim Creek, Seattle (24.8 kHz). For this survey, both 25.2 kHz and 24.0 kHz frequencies were recorded, however, both revealed similar response with 24.0 kHz having the strongest signal.

Measurements of the in-phase, quadrature-phase and total field are taken at a 10 Hz sample rate. The in-phase measurement is easily affected by variations in the sensor orientation and may not be useful in areas of rugged topography or where bird movement is significant. The quadrature-phase measurements are dependent on bird direction, therefore, directional rectification is required. The resulting signal measured by the sensors can reveal weak conductors that are energized by the strong VLF signals.

### **4.4 The Magnetometer Base Station**

In order to remove fluctuations in the Earth's magnetic field (diurnal), two redundant base stations were setup daily to record the Earth's field at fixed position in an area with no external interference. Redundant stations are preferred in the event one fails during a survey day. Each base station included a spare potassium sensor (same sensors as used in the gradiometer) connected to a dedicated laptop. Each setup was powered by two 12V batteries with enough power to easily last a full day. The magnetic data readings were logged in communications software and synchronized to UTC time for direct correlation with survey data. Base station data was collected at a rate of 10 Hz.

### **5.5 Altimeter**

Two altimeters were used during the survey in order to monitor and collect altitude data of the magnetic gradiometer. Both altimeters were mounted directly to the belly of the gradiometer structure for the most accurate measurements. The primary altimeter was mounted in the rear of the gradiometer, a Multiwave Sensors laser altimeter, and was used for navigation and was capable of seeing both topography and vegetation elevations. Laser altimeter data was recorded as the magnetometers exact height above ground and was used to generate the Digital Terrain Model (DTM) product. A second altimeter, a Free Flight TRA 3500 radar altimeter, was monitored for topographic detailing and as a redundancy to the laser altimeter.

### **5.6 Navigation**

Flight path navigation was achieved using a Novatel V4.0 GPS receiver (WAAS enabled) which connected directly to proprietary navigation software called Maglog from Geometrics. Prior to survey commencement, navigation files were generated for each survey area and imported into the Maglog software providing an easy to follow plan view of all survey lines.

## **5.0 Processing**

Data processing was achieved within Geosoft's Oasis Montaj through the use of several custom scripts and a concise data quality control plan. The methods used during this survey are detailed below.

### **5.1 Base Maps**

Base maps used in this project were generated using Geosoft control files. General map layers include, data view, inset map, specifications and legends. The data view of all base maps was surrounded by coordinate reference points in both UTM NAD83 and Lat / Long positions. Within the data layer, GIS layers such as lakes, rivers, roads and topography have been imported from Geogratia servers. Mineral license boundaries have also been imported from provincial datasets. Survey data such as block boundaries, flight path, geophysical grids and contour lines are overlaid on top of all base layers.

Topographic shading has been derived from 90 m resolution digital elevation model (DEM) data provided by the NASA Shuttle Radar Topography Mission (SRTM) and shaded at an inclination and declination of 45°.

### **5.2 Flight Path**

The geophysical survey flight path is merged with the incoming magnetic data string at the same sampling rate of 10 Hz. No additional interpolation is required on the flight path data. All lines have been trimmed to a boundary 100m outside of the required boundary providing a small amount of additional data. A low pass filter is applied to the flight path prior to finalization.

### **5.3 Terrain Clearance**

The digital terrain model (DTM) was derived by subtracting the laser altimeter value (located on the magnetic gradiometer) from the GPS measured elevation (mean point above sea level). The DTM grids were microleveled and re-sampled into the database to remove line to line banding caused by slight pitch changes in the magnetic bird based on flight direction. The DTM values are to be considered relative as they have not been tied into any surveyed geodetic point.

### **5.4 Magnetic Data Processing**

In ideal conditions, all four (4) magnetic data sensors will record clean data that roughly follow one another. In some situations, dramatic swings in the magnetometer can cause one or more of these sensors to become unlocked. The process of re-locking is generally fairly quick and only results in a dropout that is less than 3-4 seconds. In these situations, the dropped magnetic data is deleted from the data and replaced with "dummy" values. A quality control channel, called "MagX\_Lock" gives an indication if the sensor has lost lock. Loss of lock is rare within survey lines (unless in rough terrain) and typically only occurs on turn-arounds. In the event of excessive dropouts, the magnetic sensors will be adjusted to a new azimuth and dip to better couple with the Earth's magnetic field.

A secondary magnetic recording station was setup near the base location which remains stationary and clear of electromagnetic interference and ferrous objects. The base magnetometer continually collects data at a rate of 10 Hz during all survey operations. This data represents the diurnal and is later subtracted from the acquired airborne magnetic data during preliminary processing. This procedure is only performed on the Total Magnetic Intensity product as it is not required for the gradient calculations.

As the horizontal gradients are dependent on line direction, positive polarity is defined as to the north and east. On south and west direction lines, the horizontal gradients are multiplied by -1.

The magnetic data from the individual sensors as well as the computed total magnetic intensity have no filtering applied. The computed gradients are lightly filtered to remove high frequency noise common in areas of rough terrain or flying conditions. The magnetic data grids were tie line-leveled and the resulting grids micro-leveled.

#### **6.4.1 Magnetic Analytic Signal**

The magnetic analytic signal (ASIG) is calculated by taking the square root of the sum of the squares of each of the 3 axis components of the gridding total magnetic intensity data. The equation for the analytic signal is:

$$ASIG = \sqrt{\left[ \left(\frac{dT}{dx}\right)^2 + \left(\frac{dT}{dy}\right)^2 + \left(\frac{dT}{dz}\right)^2 \right]}$$

where  $dT/dx$  is the in-line gradient,  $dT/dy$  is the cross-line gradient and  $dT/dz$  is the vertical gradient of the total magnetic field.

In general, the analytic signal is a gradient product that ignores the effects of target orientation. This "turns" all responses, regardless of how they interact with the earth's magnetic field, into the positive direction. Therefore, both negative anomalies & dipole effects will appear positive centered of the target source.

The analytic signal can be used to map the edge of large magnetic bodies as well as bring to light anomalous trends that can appear insignificant in a TMI grid. The nature of the algorithm also strips out effects of deep regional responses and focuses more on the near surface.

### **5.4.2 Magnetic Tilt Derivative**

The magnetic tilt derivative (TDR) combines all three gradients (X, Y and Z) to produce what is called a tilt angle. This product highlights very subtle, near surface structures in the dataset where the zero contour line of the grid is said to represent geology contacts or edges of bodies.

The magnetic tilt derivative is calculated by the following equation:

$$\text{TDR} = \tan^{-1} \left[ \frac{dT/dz}{\sqrt{\left( dT/dx^2 + dT/dy^2 \right)}} \right]$$

where  $dT/dx$  is the in-line gradient,  $dT/dy$  is the cross-line gradient and  $dT/dz$  is the vertical gradient of the total magnetic field.

### **6.5 VLF-EM Data Processing**

The measured VLF components were converted into a digital signal and then appended to the data string in the main magnetometer console. This entire data string is then transmitted up the tow cable to the data acquisition system in the helicopter. Processing of the VLF data included:

- Polarity reversal of alternating quadrature-phase measurements based on line direction;
- Removal of erroneous data points; and
- Grid Microleveling for filtering line-by-line variations.

## **6.0 Deliverables**

The deliverables listed below have been generated as part of the survey contract.

### **6.1 Hardcopy Products**

Hardcopy map products are provided at scales appropriate to the size of the survey area: typically 1:10,000 or 1:20,000 scale. All map products are produced using publically available GIS data sourced from Geogratias servers and typically include topographic contours, water bodies, rivers, swamps, roads, trails and power lines. All maps also include a scale bar, north arrow, coordinate outlines (UTM NAD83 and Lat/Lon WGS84), flight lines with line numbers and specific geophysical data grids. A legend is provided on each map containing survey details, technical information, projection parameters, colour legend bar, contour intervals and GIS base layer types. All maps also include an inset map at a 1:10,000,000 scale showing the regional location of the project area.

In the case of large map products, multiple plates are generated in order to maintain lower scales and fit a 36" or 42" plotter.

### **6.2 Digital Products**

All geophysical data included ancillary data are provided in a Geosoft GDB database. Database columns are identified in Appendix B. Below is a list of all delivered digital products:

- Geosoft Databases (\*.GDB)
- Geosoft Grids (\*.GRD)
- Geosoft Maps (\*.MAP)
- Adobe Maps (\*.PDF)
- Final Report (\*.PDF)

The gridding cell size used for all grids produced as part of this project was 15 m. To view the above Geosoft file formats, a free viewer has been provided in the digital archive or can be downloaded from Geosoft's website ([www.geosoft.com](http://www.geosoft.com)). All PDF's can be viewed in the Adobe Acrobat Viewer also available in the digital archive or at the Adobe website ([www.adobe.com](http://www.adobe.com)).

### **6.3 Deliverables**

The following map products were delivered in digital (Geosoft Map & PDF) format only (in addition to those above).

- Total Magnetic Intensity (TMI)

- Measured vertical magnetic gradient (VGRAD)
- Measured cross-line magnetic gradient (CGRAD)
- Calculated in-line magnetic gradient (IGRAD)
- Magnetic Tilt Derivative (TDR)
- Magnetic Analytic Signal (ASIG)
- VLF Total Field (VLF-TF)
- VLF In-Phase (VLF-IP)
- VLF Quadrature (VLF-QD)

The following grid products were delivered in Geosoft grid format only (in addition to those above).

- Digital Terrain Model (DTM)

## **7.0 Conclusion**

The above structural interpretation has identified a wide range of geologic structures including regional and localized structures. Many of the identified structures could have been conduits for hydrothermal transportation of mineralization and should be closely examined in areas where they intersect intrusions, VLF anomalies or other features of interest. Grab samples should be taken in areas where surface exposure is more likely (characterized by a strong, sharp magnetic signature) along with a soil chemistry analysis, both of which may provide valuable information in advancing this exploration program.

Data surrounding these claims should be analyzed to determine extent and to identify any cross-cutting features not apparent within the claim areas themselves.

## **8.0 Recommendations**

1. Concentrate exploration in areas where delineating structures and faults intersect the regional fold or other features of interest.
2. Conduct ground truthing and possibly geochemistry in areas where the magnetic data suggests near surface exposure and in areas where the VLF correlates well with the magnetic data.
3. Digital products from this report should be made available in either MapInfo or ArcView format as registered tiff files for integration into a GIS compilation.
4. Conduct an advanced level interpretation of the magnetic data, integrate with geology and possibly model selected structures.

Respectively Submitted,



Sean Scrivens P.Geol.  
President  
GeoPulse Inc.  
December, 2015

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

Sean Scrivens  
Professional Geoscientist  
4145 Armitage Ave.  
Dunrobin, ON, K0A1T0  
Telephone: 613-408-7880  
Email: sscrivens@xplor.net

I, Sean Scrivens P. Geo. (APGO #1623) do hereby certify that:

I have reviewed all the items within the Report titled: "Quadrimag Survey Report"

I am a graduate of the Carleton University and hold a BSc (with honors) in Computational Geophysics (2004).

I am a current member in good standing with the Association of Professional Geoscientists of Ontario (APGO), member # 1623;

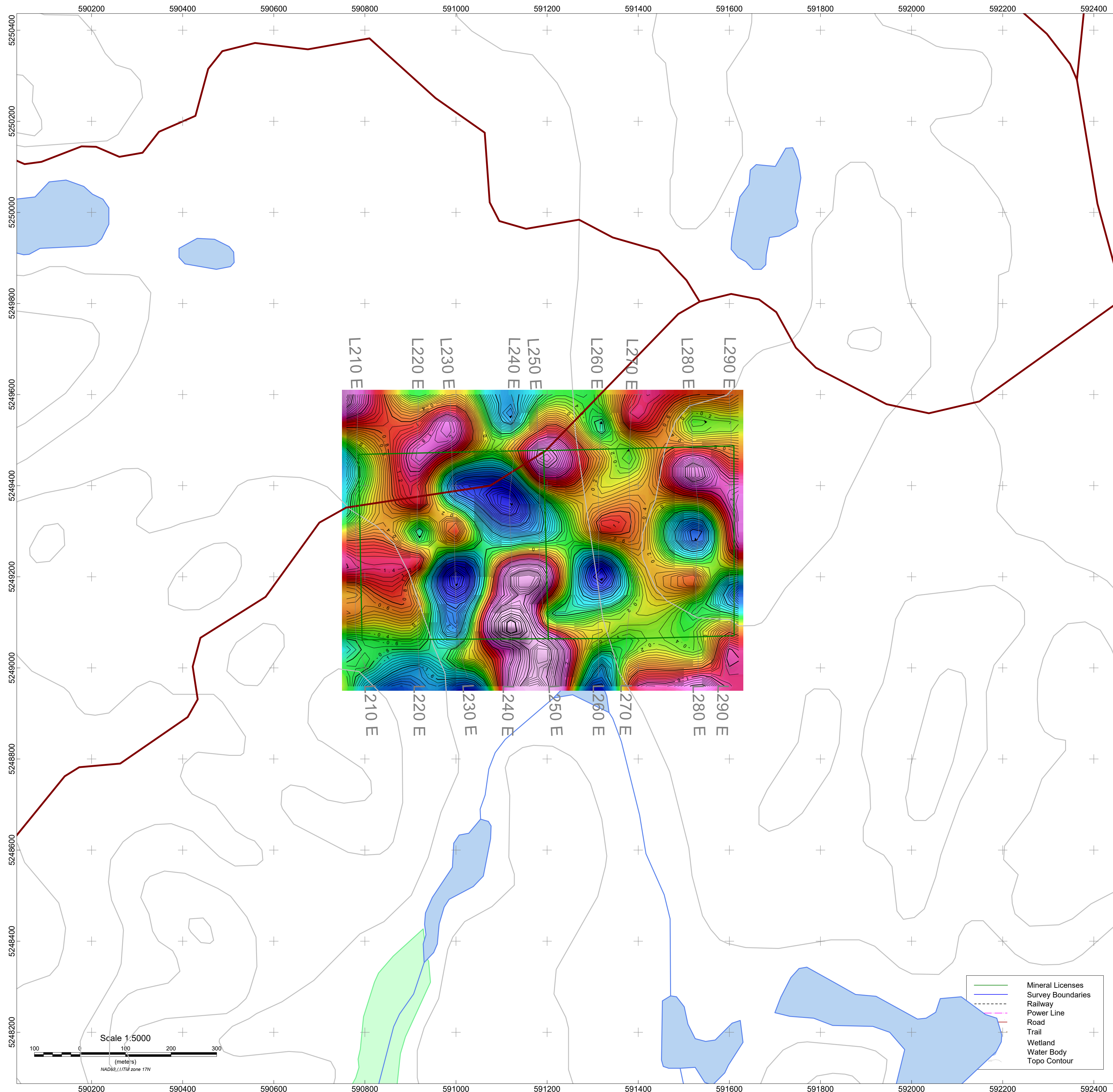
I have been a practicing geophysicist in the mineral exploration and environmental sectors for over 10 years and as a Professional Geoscientist for 6 years.

I am currently acting as an external geophysical consultant to Eagle Geophysics Ltd.

I currently own no common shares or share options with Teraex Engineering International.

Dated December 23<sup>rd</sup>, 2015.





The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data (www.geogratis.ca)  
 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



**Survey Specifications:**

Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2015  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 100 m  
 Flight Line Direction: N0°E  
 Tie Line Spacing: N/A  
 Tie Line Direction: N/A  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**

Data Acquisition: GEM Systems GEMDAS  
 System: Quad-axis Magnetic Gradiometer, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-30 Potassium Vapor  
 Vertical Separation: 2.90 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.001 nT  
 Heading Error: +/- 0.15 nT or less  
 Gradient Tolerance: 5,000 nT/m maximum  
 VLF Station # 1: Cutler Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Sperry AA-300 @10 Hz, +/- 5% on bird  
 GPS System: Novatel v4.0 @10 Hz, 1-5 m  
 Base station Unit: GSM-19 @1 Hz, +/- 0.01 nT

**Navigation:**

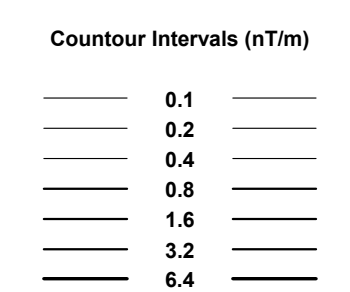
System: CD-GPS (Canadian Differential)  
 Equipment: AgNav and Novatel v 4.0  
 Elevation: Sperry AA-300 radar altimeter in helicopter

**Data Processing:**

Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

**Coordinate System:**

Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



**Brixton Metals Corp.**  
 Lorrain, Ontario

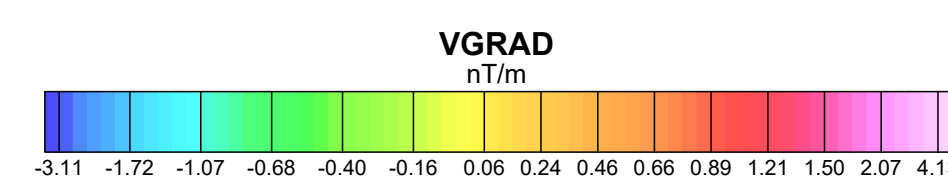
**Vertical  
 Magnetic Gradient  
 Cobalt West 2**

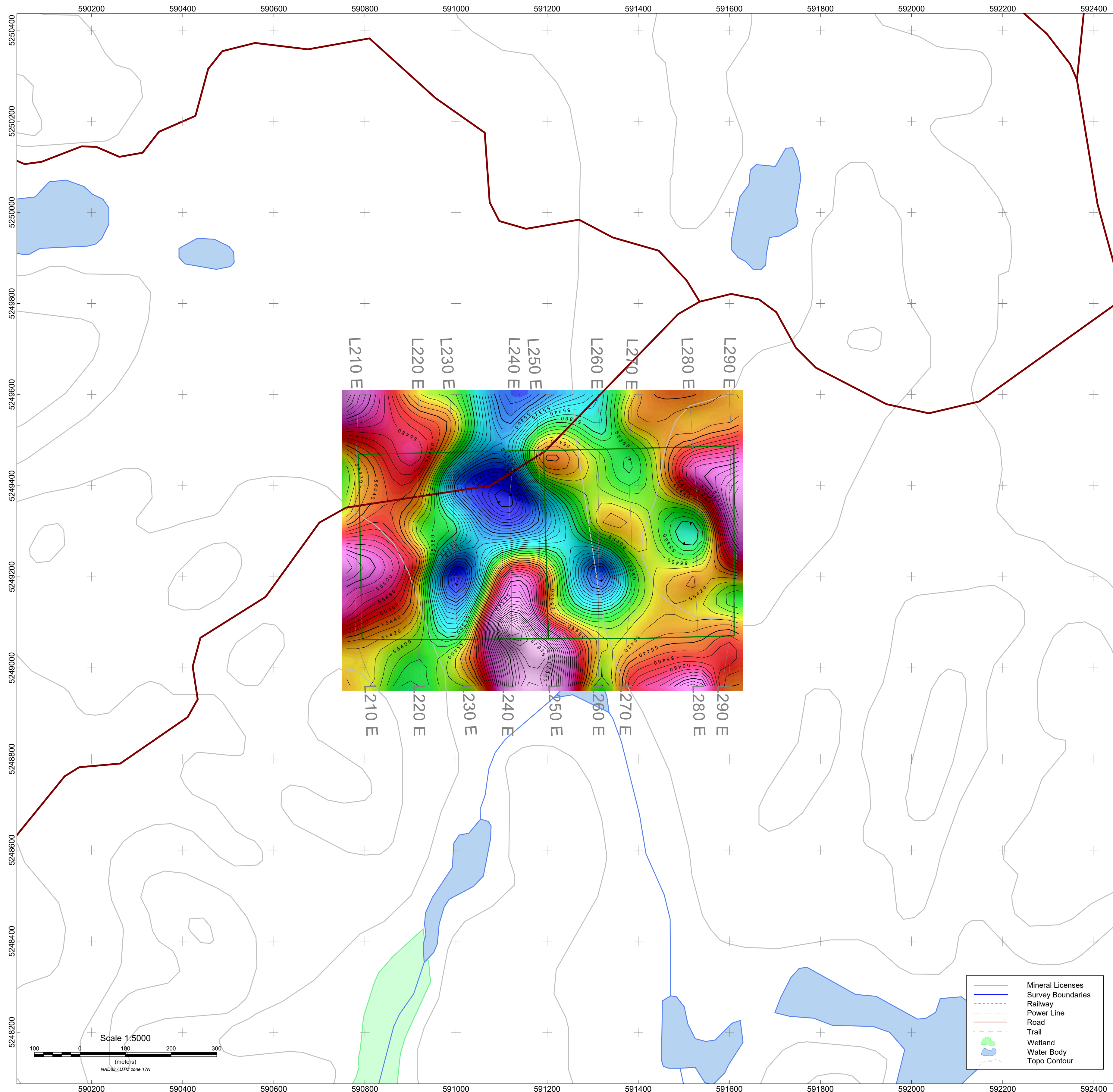


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 www.geopulse.ca





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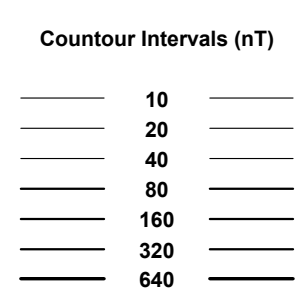
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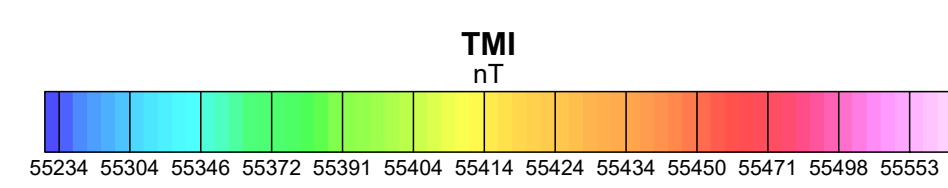
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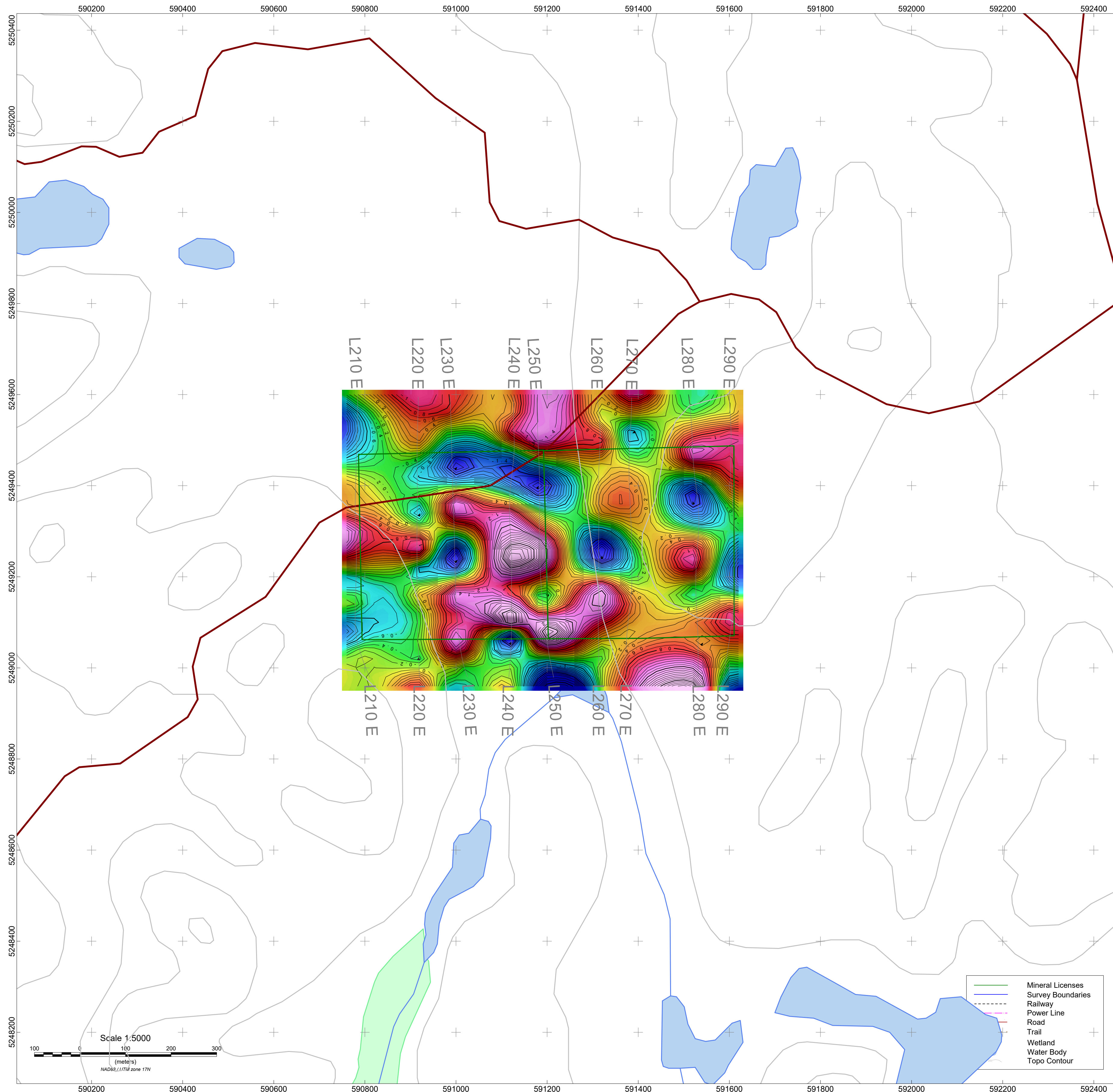
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**Brixton Metals Corp.**  
 Lorrain, Ontario

**Total  
 Magnetic Intensity  
 Cobalt West 2**





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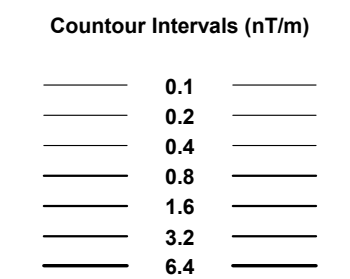
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**Coordinate System:**

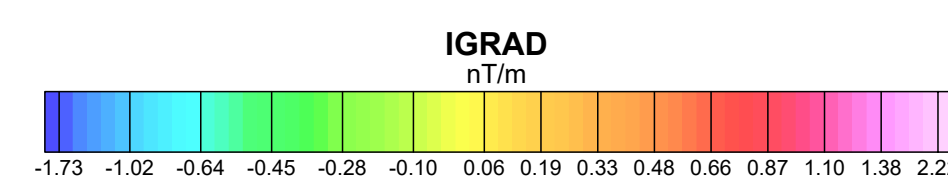
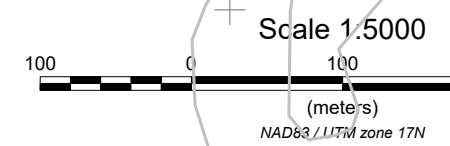
Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE

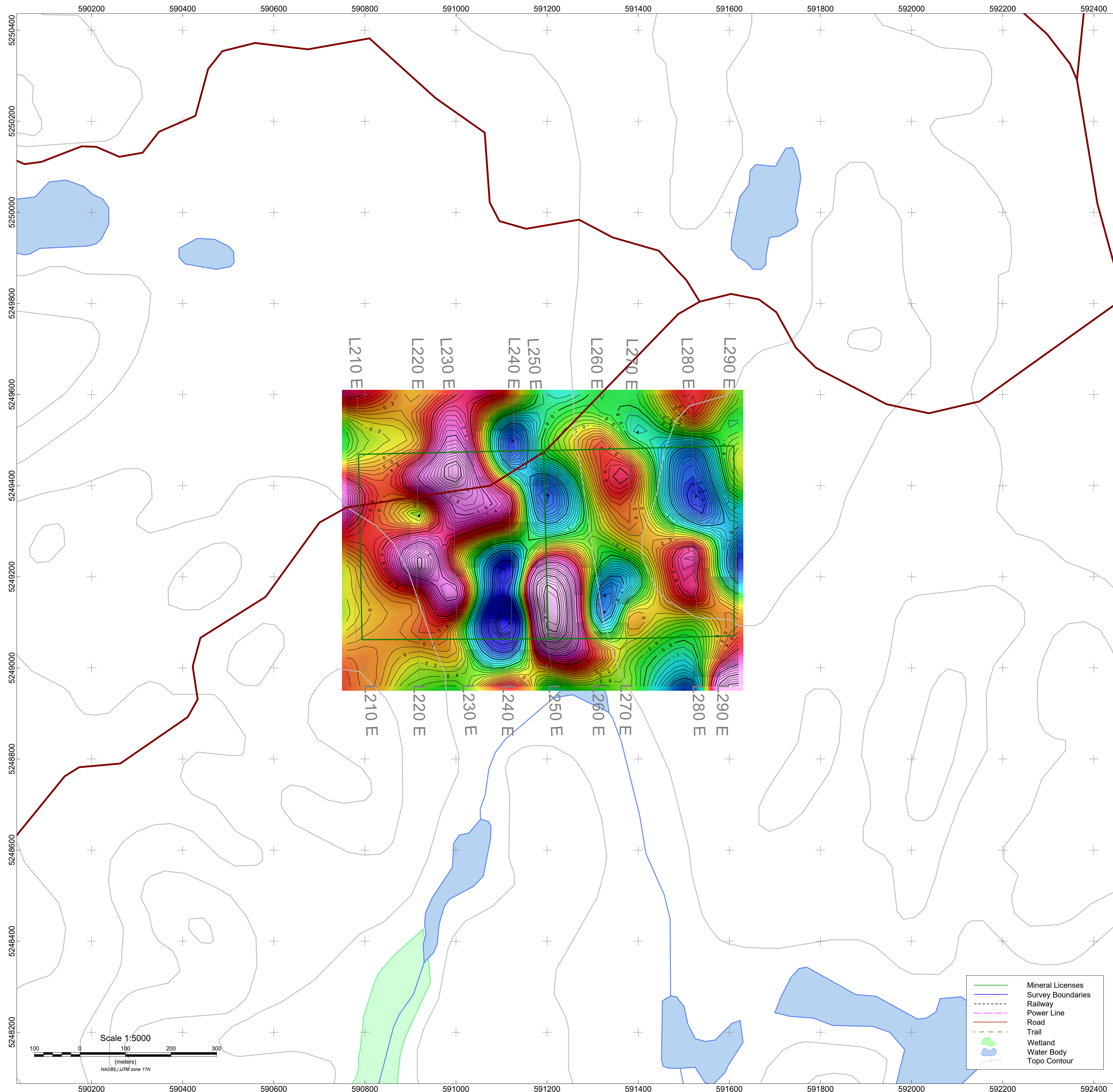


**Brixton Metals Corp.**  
 Lorrain, Ontario

**In-Line  
 Magnetic Gradient  
 Cobalt West 2**

- Mineral Licenses
- Survey Boundaries
- Railway
- Power Line
- Road
- Trail
- Wetland
- Water Body
- Topo Contour





The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data (www.geogratis.ca)  
 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



**Survey Specifications:**

Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2015  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 100 m  
 Flight Line Direction: N0°E  
 Tie Line Spacing: N/A  
 Tie Line Direction: N/A  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**

Data Acquisition: GEM Systems GEMDAS  
 System: Quad-axis Magnetic Gradiometer, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-30 Potassium Vapor  
 Vertical Separation: 2.90 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.001 nT  
 Heading Error: +/- 0.15 nT or less  
 Gradient Tolerance: 5,000 nT/m maximum  
 VLF Station # 1: Cutler Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Sperry AA-300 @10 Hz, +/- 5% on bird  
 GPS System: Novatel v4.0 @10 Hz, 1-5 m  
 Base station Unit: GSM-19 @1 Hz, +/- 0.01 nT

**Navigation:**

System: CD-GPS (Canadian Differential)  
 Equipment: AgNav and Novatel v 4.0  
 Elevation: Sperry AA-300 radar altimeter in helicopter

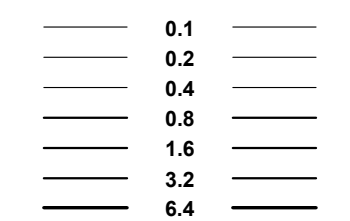
**Data Processing:**

Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

**Coordinate System:**

Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE

**Contour Intervals (nT/m)**



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 Lorrain, Ontario

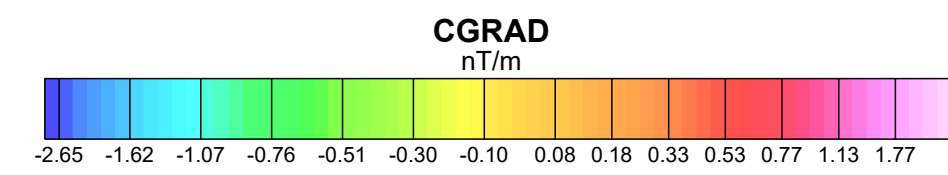
**Cross-Line  
 Magnetic Gradient  
 Cobalt West 2**

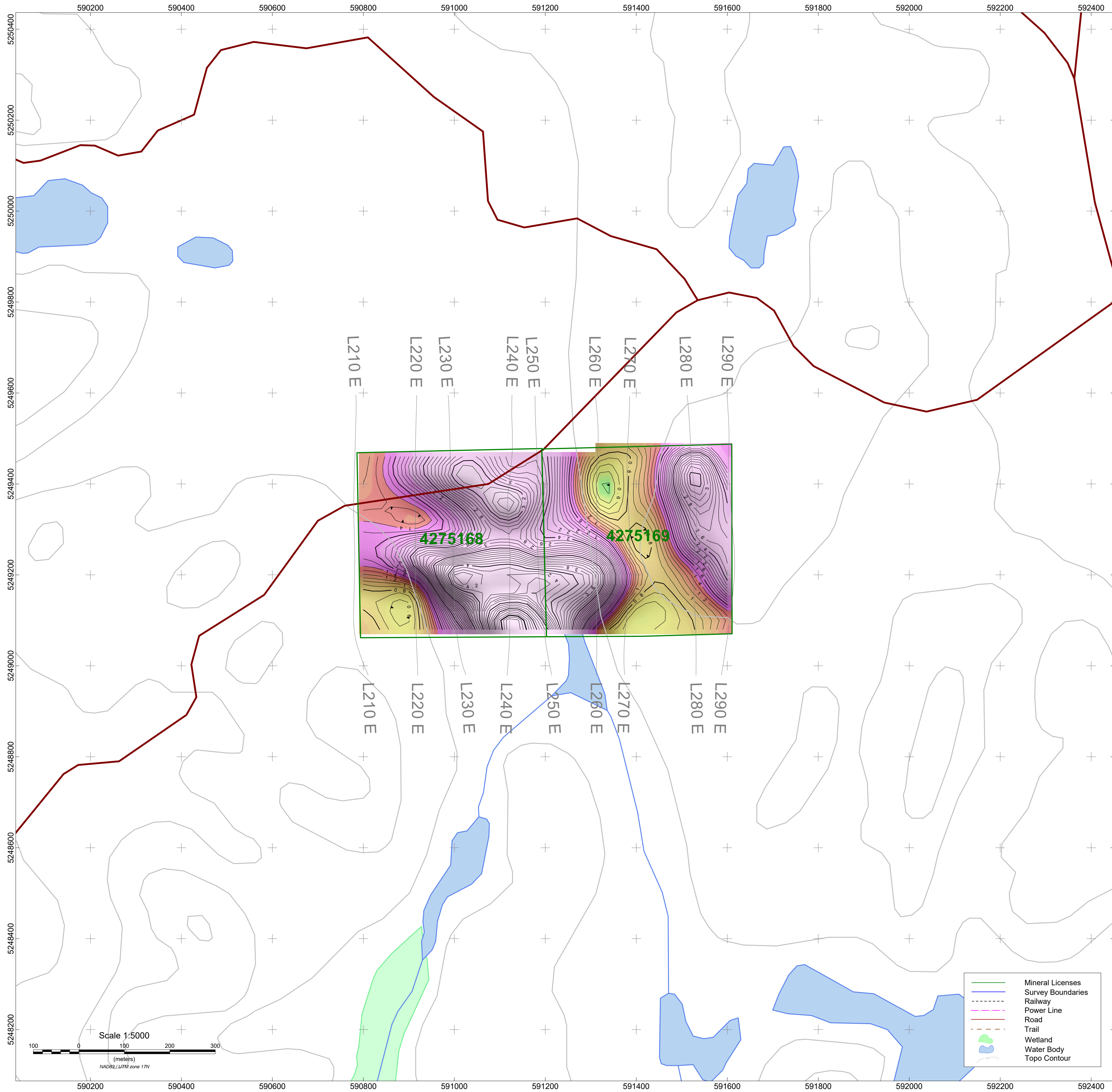


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The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data (www.geogratis.ca)  
 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



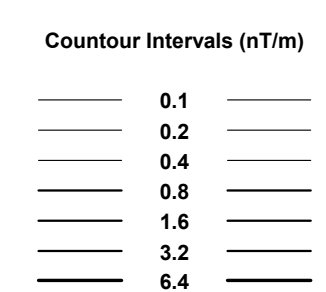
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

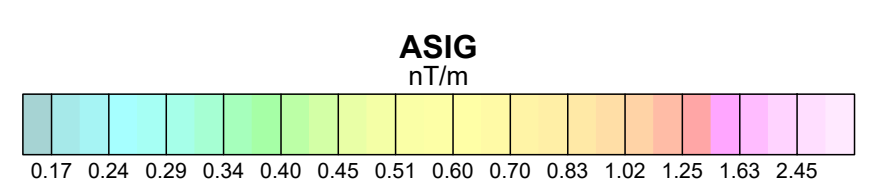
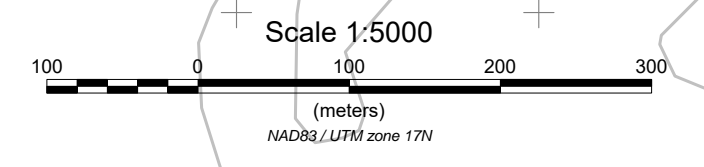
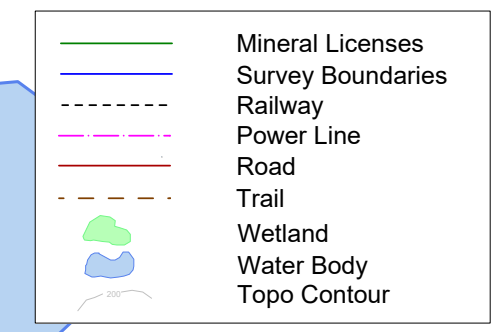
**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE

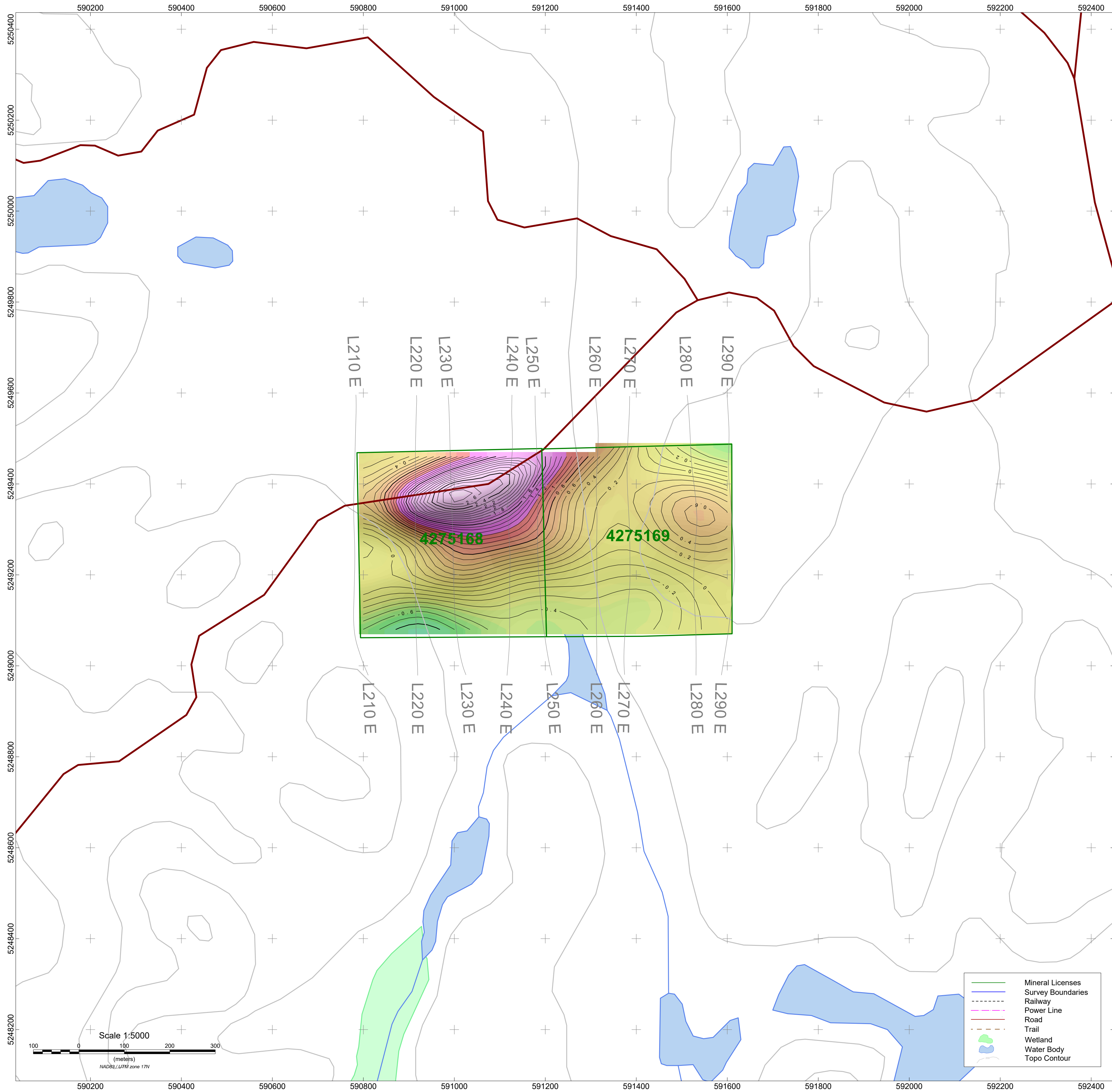


**Brixton Metals Corp.**  
 Cobalt, Ontario

# Magnetic Analytic Signal

## Cobalt West





The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data (www.geogratis.ca)  
 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



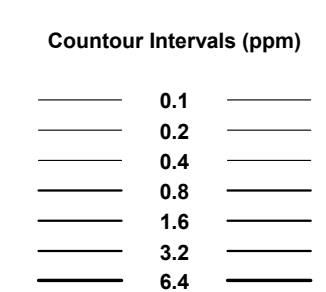
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

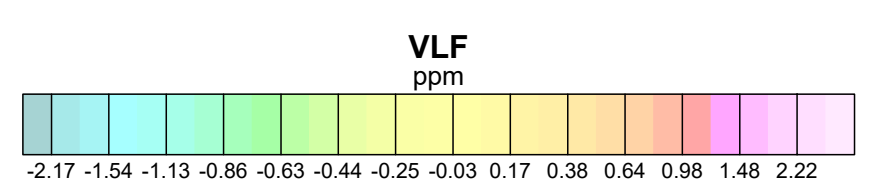
**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

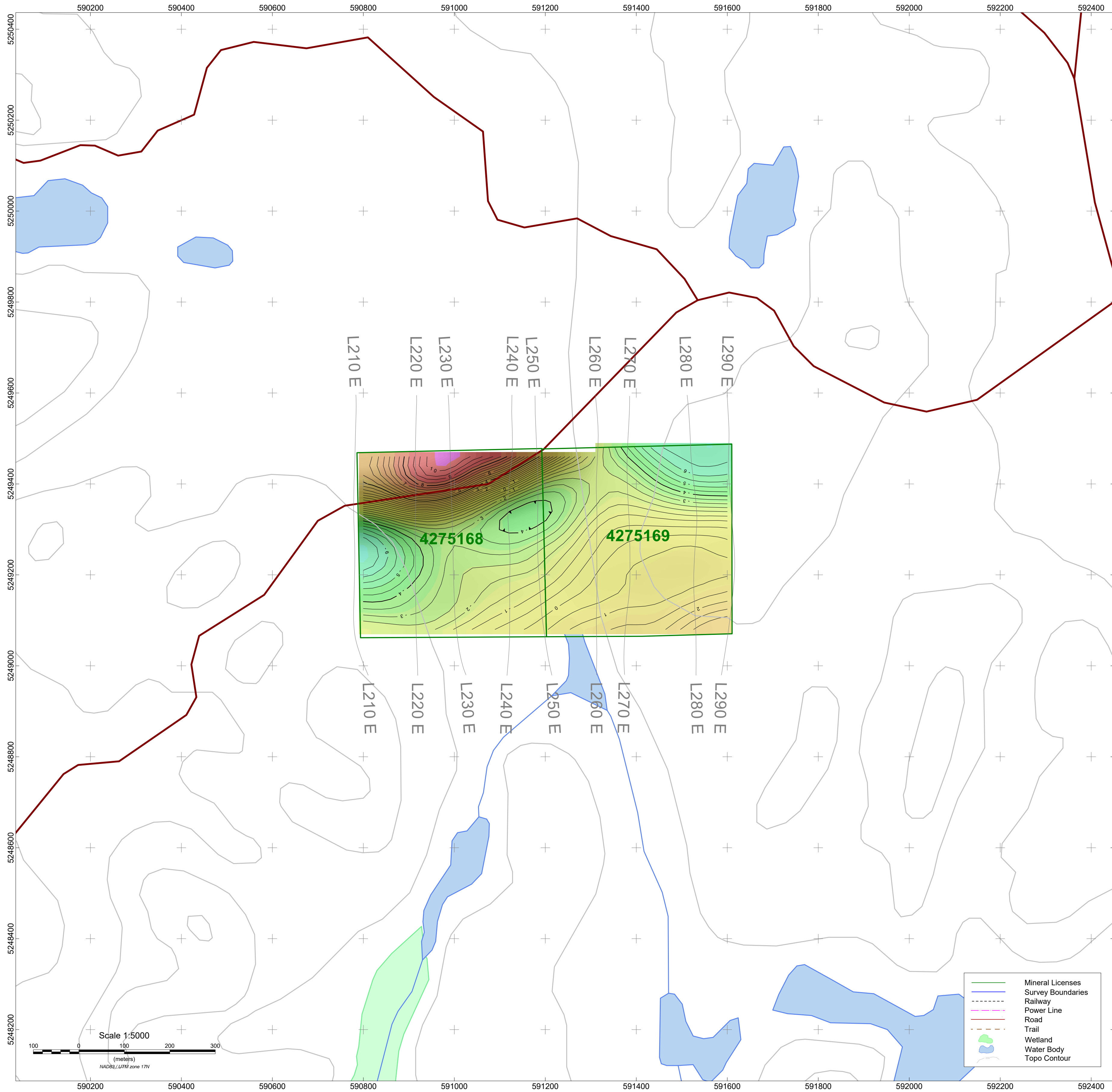
**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



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 Cobalt, Ontario

**VLF Total Field**  
**Culter, Maine (24.0 kHz)**  
 Cobalt West





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 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



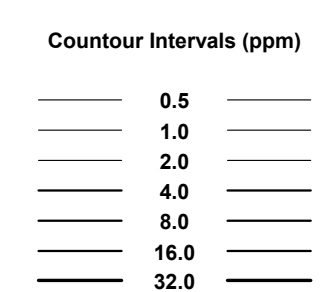
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



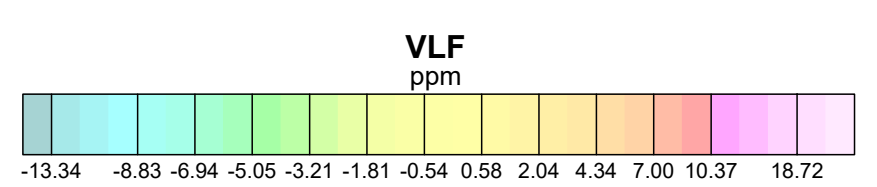
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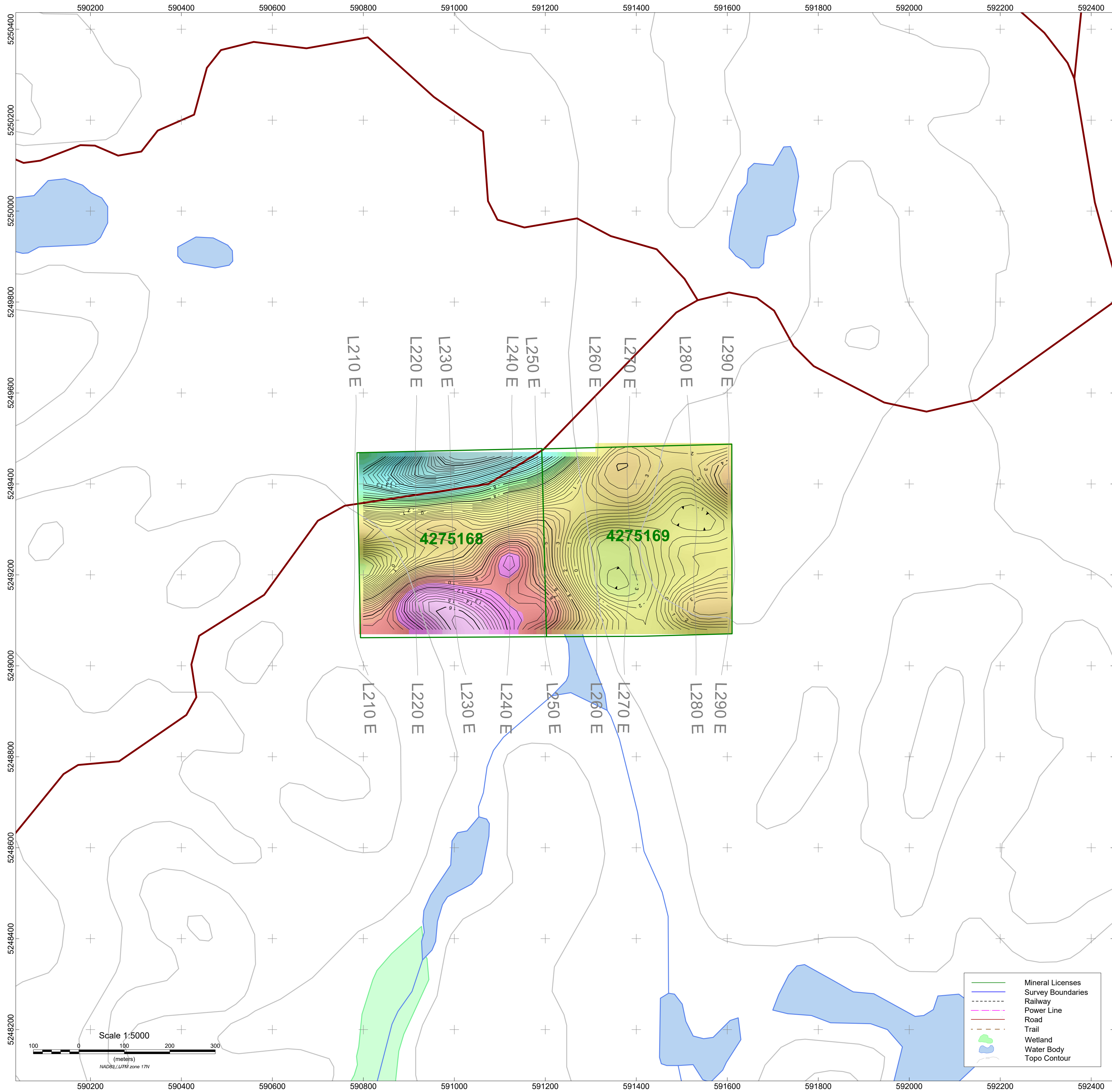
**VLF Quadrature**  
 Culter, Maine (24.0 kHz)  
 Cobalt West



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 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



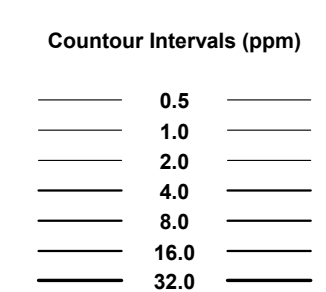
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

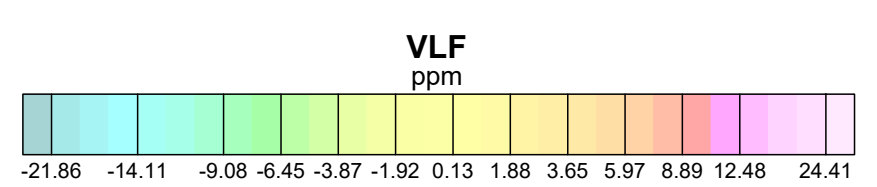
**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE

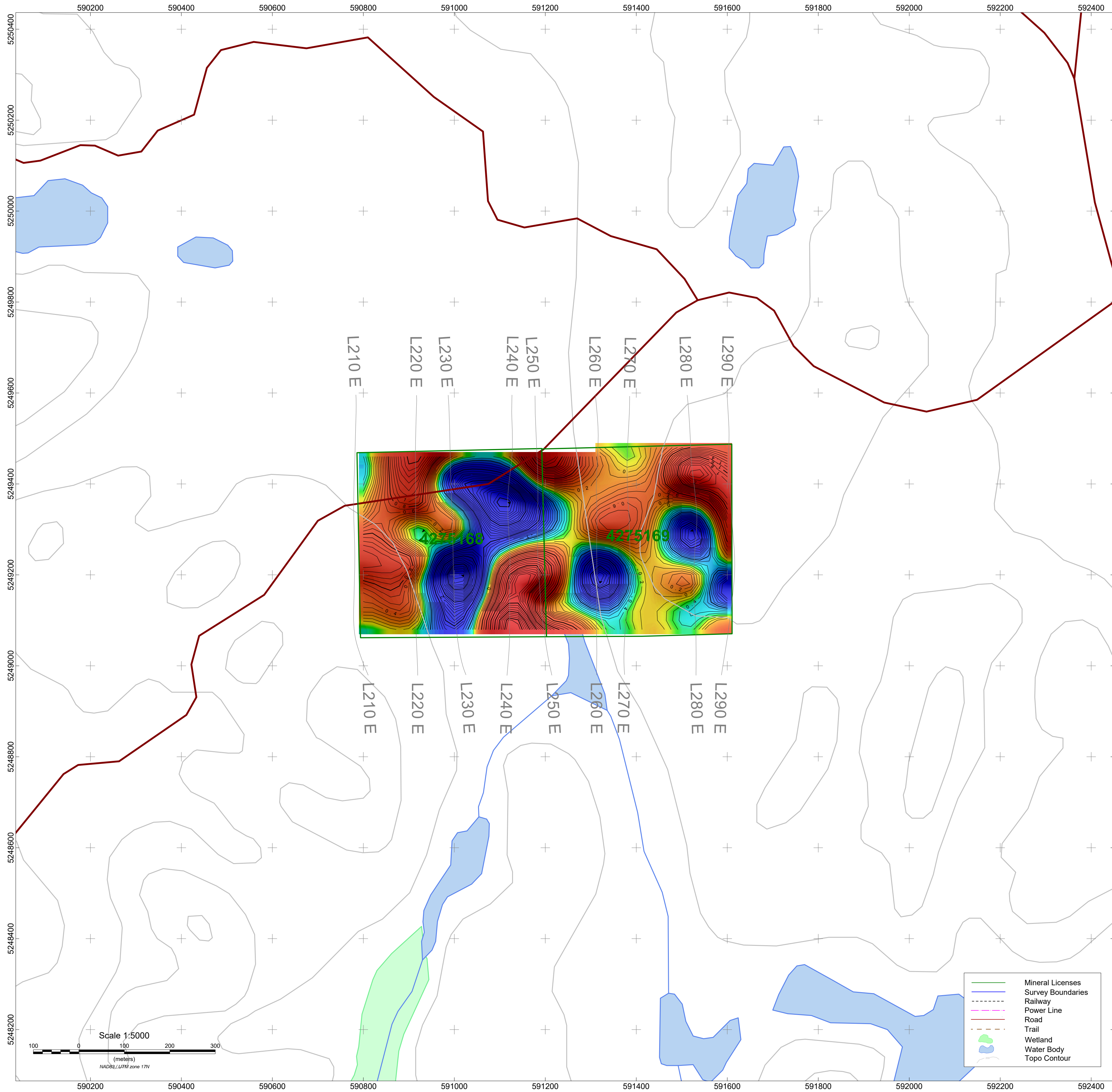


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**VLF In-Phase**  
**Culter, Maine (24.0 kHz)**  
 Cobalt West







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 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



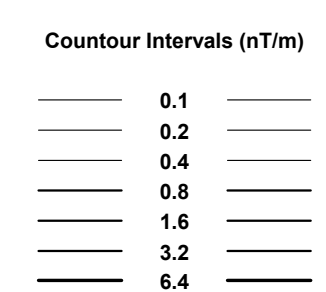
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

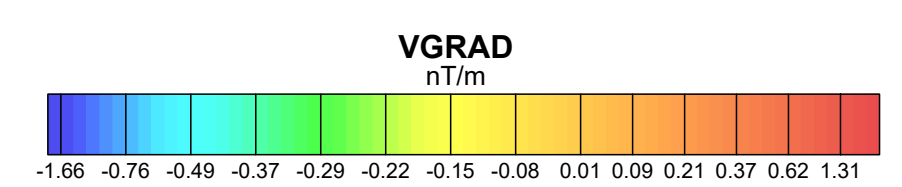
**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

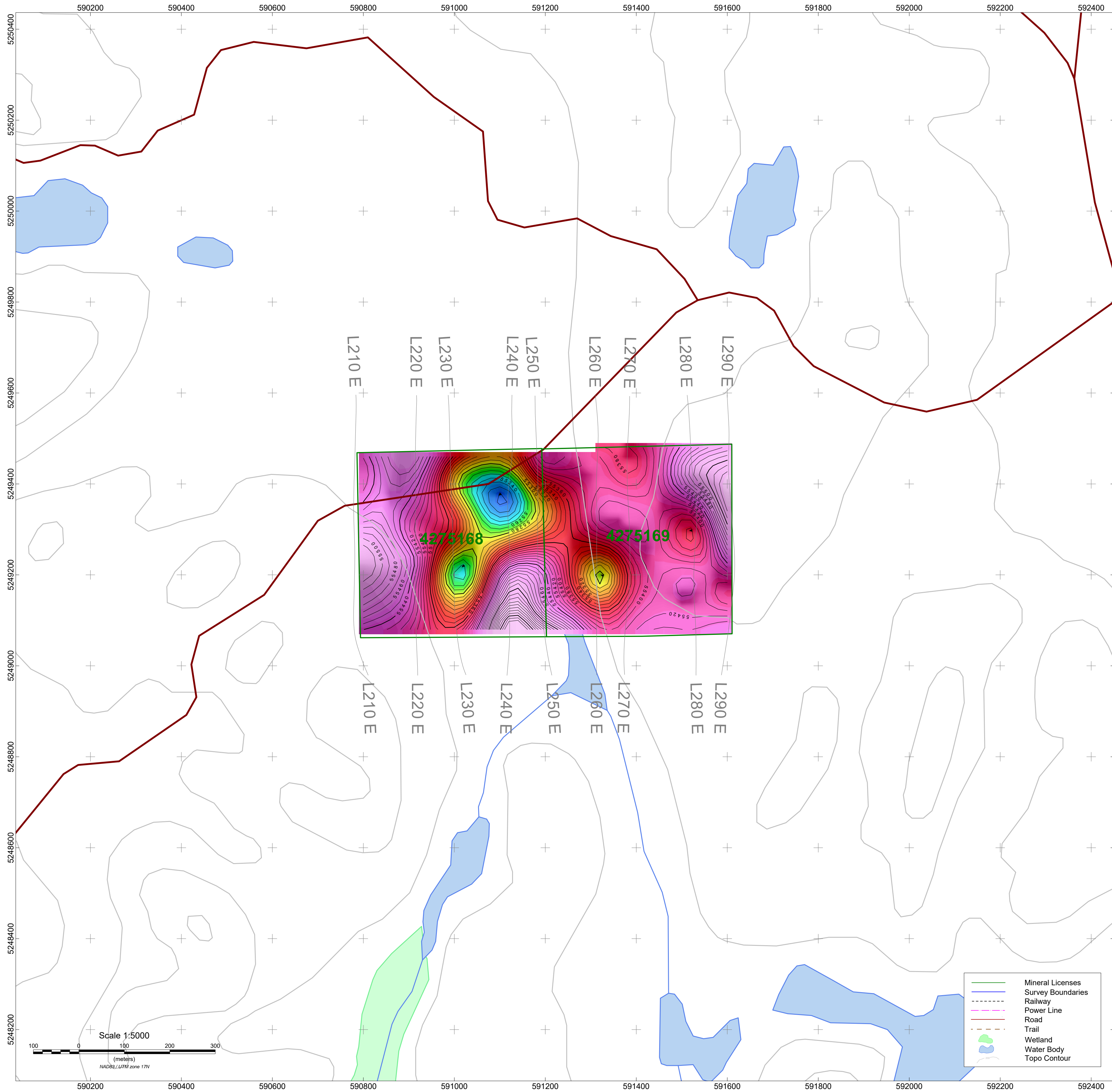
**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



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 Cobalt, Ontario

# Vertical Magnetic Gradient Cobalt West





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 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



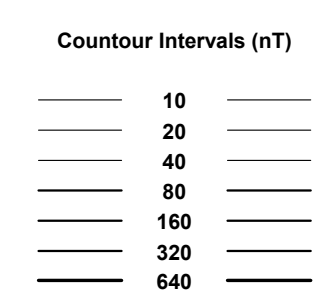
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



**Brixton Metals Corp.**  
 Cobalt, Ontario

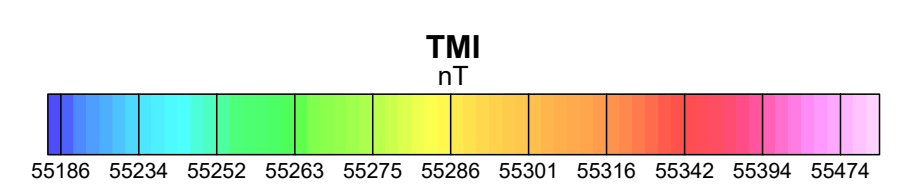
# Total Magnetic Intensity Cobalt West

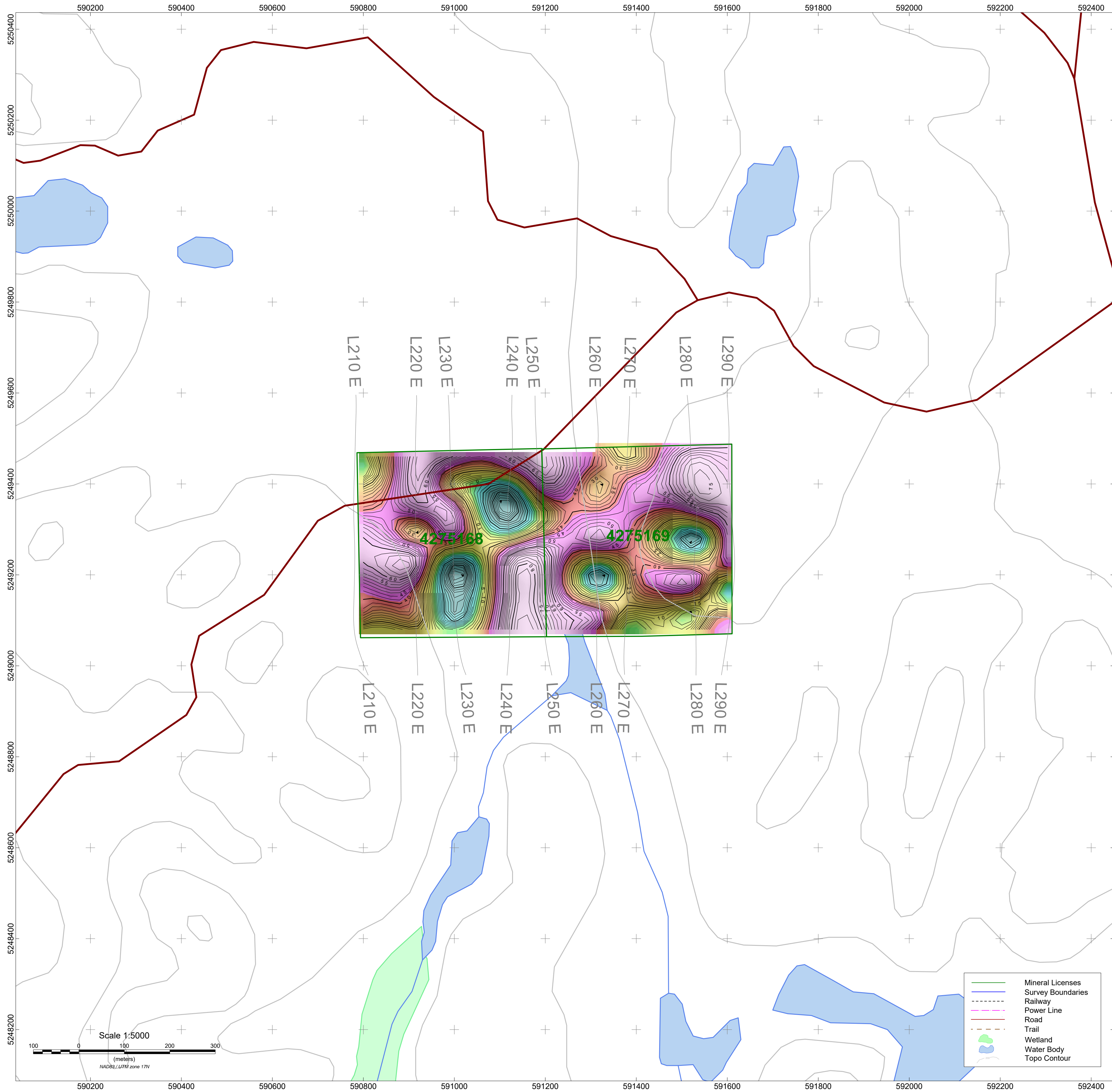


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 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



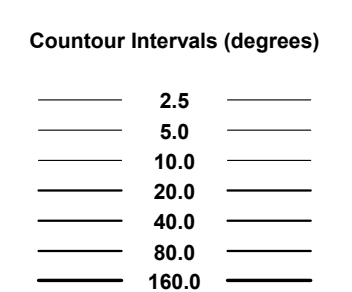
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



**Brixton Metals Corp.**  
 Cobalt, Ontario

# Magnetic Tilt Derivative

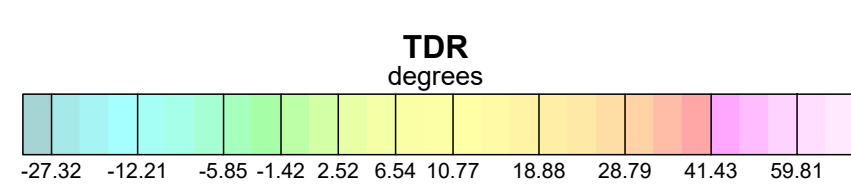
## Cobalt West

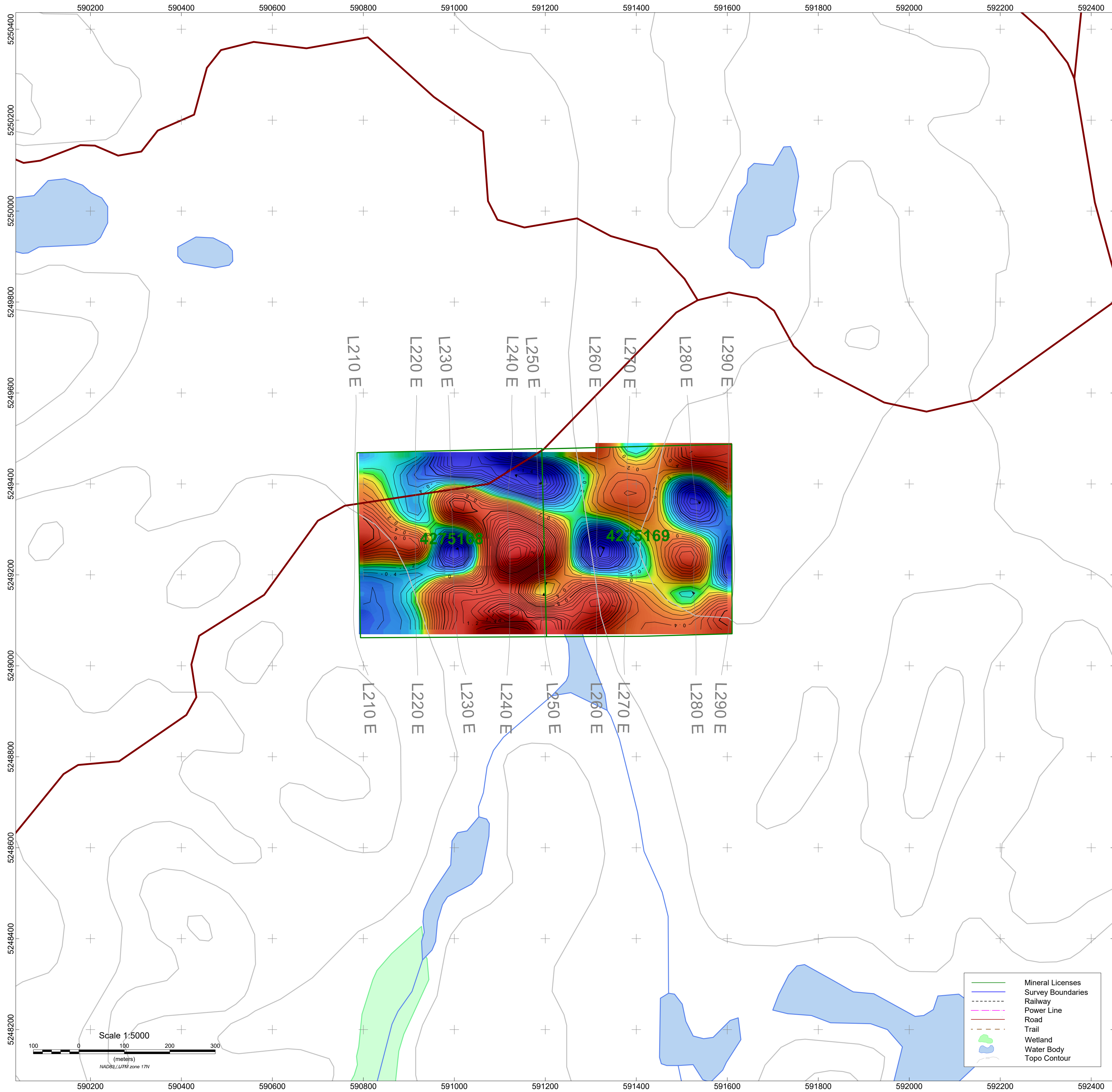


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 www.geopulse.ca





The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data (www.geogratis.ca)  
 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



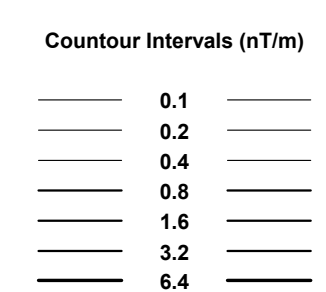
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

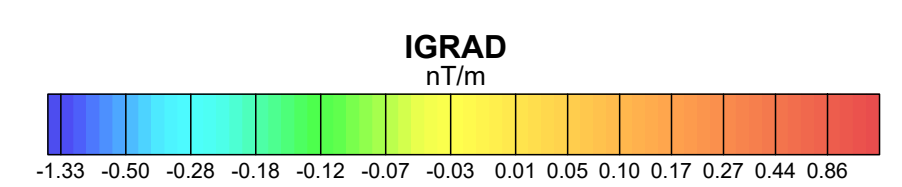
**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

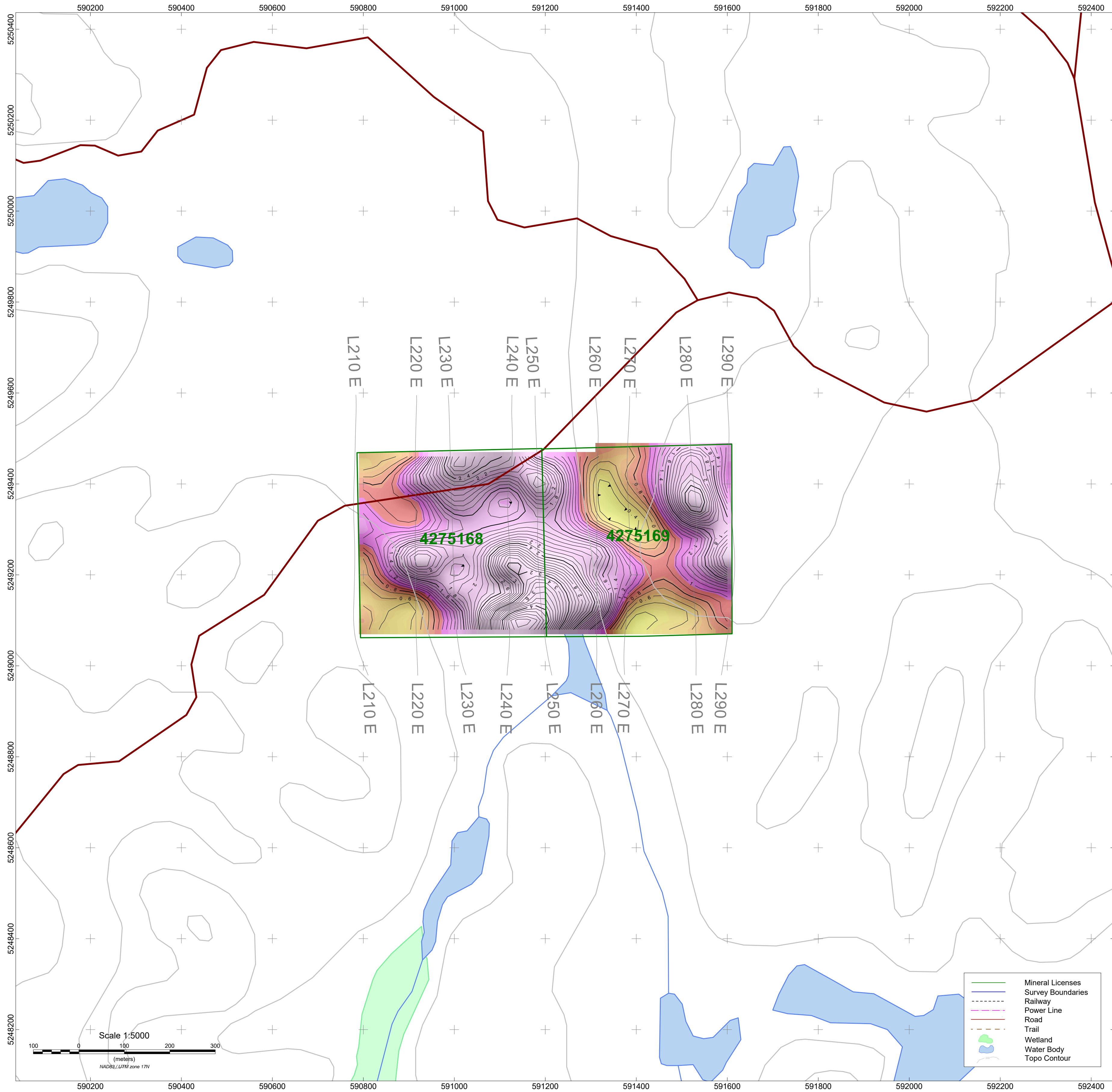
**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



**Brixton Metals Corp.**  
 Cobalt, Ontario

# In-Line Magnetic Gradient Cobalt West





The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data (www.geogratis.ca)  
 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



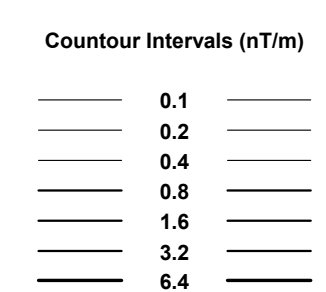
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

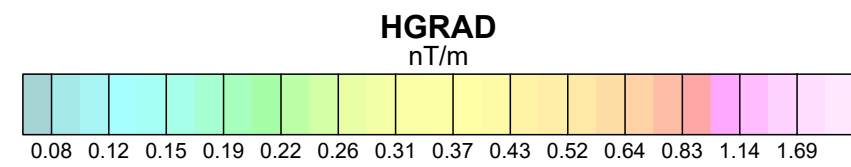
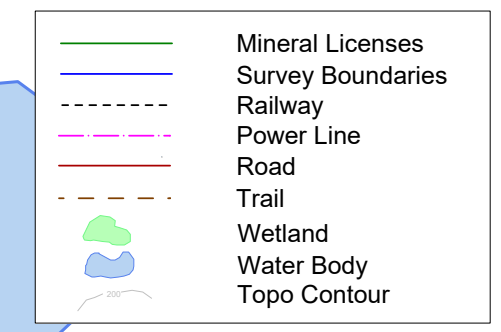
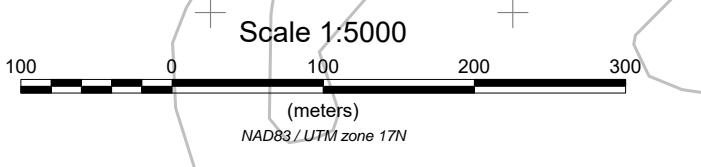
**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

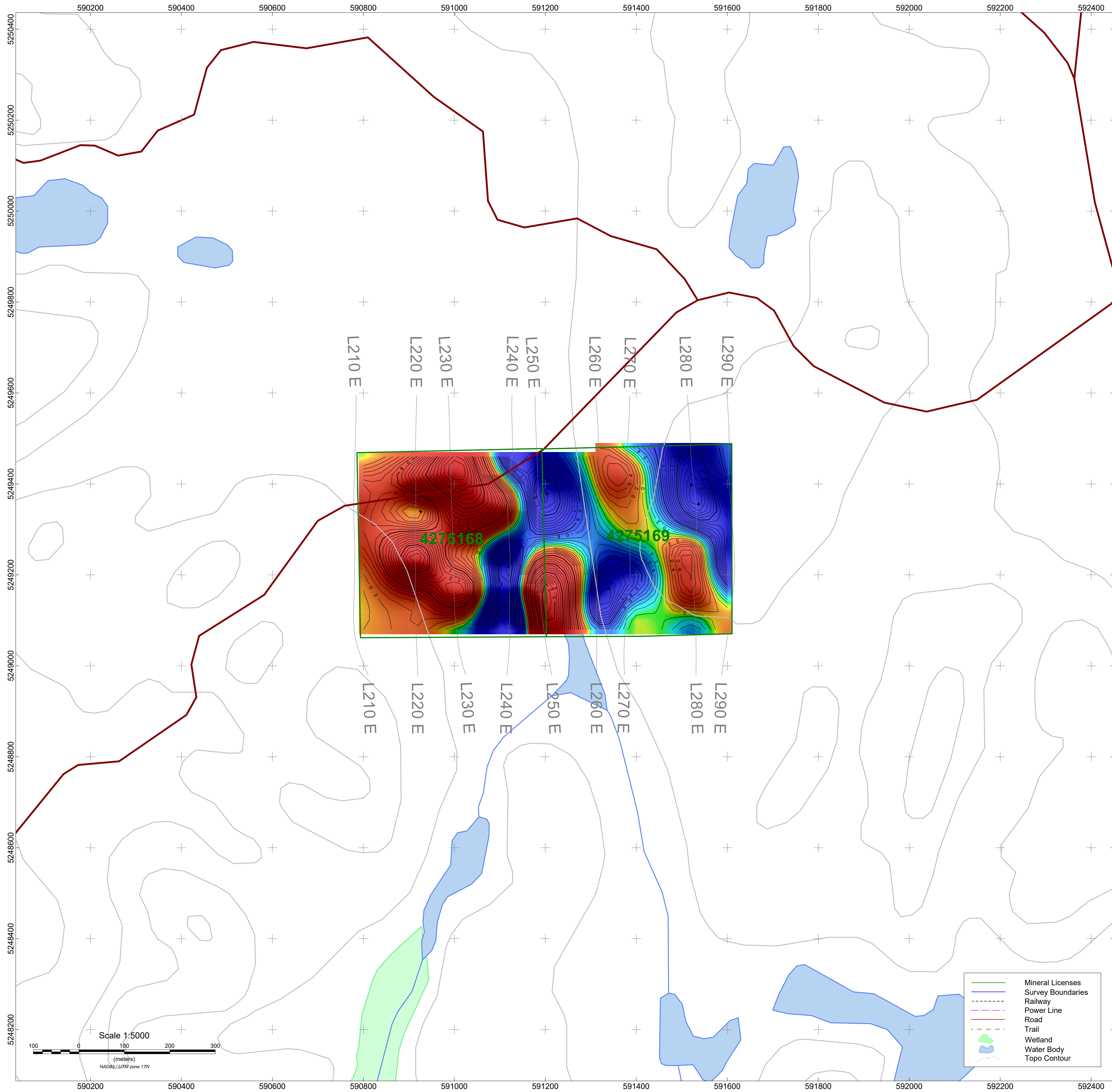
**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



**Brixton Metals Corp.**  
 Cobalt, Ontario

# Horizontal Magnetic Gradient Cobalt West





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 Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data  
 Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database (www.geocomm.com)



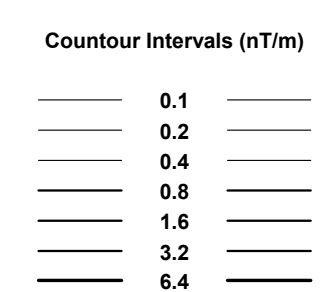
**Survey Specifications:**  
 Base: Saint-Bruno-de-Guigues, QC  
 Date Flown: October 7, 2016  
 Aircraft: AStar AS350  
 Registration: C-GWMO  
 Flight Line Spacing: 50 m  
 Flight Line Direction: N359°E  
 Tie Line Spacing: 500 m  
 Tie Line Direction: N89°E  
 Nominal Bird Height: 45 m  
 Sensor Position: 30 m below aircraft

**Instrumentation:**  
 Data Acquisition: GEM Systems GEMDAS  
 System: QuadriMag WhiteEagle, VLF-EM & AFMAG  
 Magnetometers: 4 GEM System GSMP-35A Potassium Vapor  
 Vertical Separation: 3.00 m  
 Horizontal Separation: 10.0 m  
 Sensitivity: +/- 0.0025 nT  
 Heading Error: +/- 0.05 nT or less  
 Gradient Tolerance: 35,000 nT/m maximum  
 VLF Station # 1: Culter, Maine 24.0 kHz  
 VLF Station # 2: N/A  
 VLF Sensitivity: +/- 5 pT  
 Radar Altimeter: Free Flight TRA3500 @ 10 Hz  
 GPS System: Novatel v4.0 @ 10 Hz, 1-5 m  
 Base station Unit: GSMP-35A Potassium Vapour @ 10 Hz

**Navigation:**  
 System: CD-GPS (Canadian Differential)  
 Equipment: Geometrics MagLog  
 Elevation: Free Flight radar altimeter on bird

**Data Processing:**  
 Total Magnetic Field: Diurnal correction, Micro-leveling  
 Magnetic Gradients: Heading error, Micro-leveling  
 VLF: DC bias, Line direction

**Coordinate System:**  
 Datum: NAD83  
 Major Axis: 6378737.000  
 Eccentricity: 0.81819191  
 Projection: Universal Transverse Mercator Zone 17  
 Central Meridian: 81°W  
 Central Scale Factor: 0.9996  
 False Easting: 500,000 mE



**Brixton Metals Corp.**  
 Cobalt, Ontario

# Cross-Line Magnetic Gradient Cobalt West



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