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JIEN NUNAVIK MINING EXPLORATION LTD.

GPS-POSITIONED GROUND MAGNETIC SURVEY

ONAMAN RIVER PROJECT

COUGHLAN LAKE & CASTLEWOOD LAKE AREAS, ONTARIO, CANADA

LOGISTICS AND INTERPRETATION REPORT

17N110

DECEMBER 2017



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Map Number	GPS-positioned Ground Magnetic Survey	Scale
1.1	Total Field Profiles (nT)	1:5000
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10.0	Geophysical Interpretation	1:5000



1. GEOPHYSICAL INTERPRETATION

□ GPS-POSITIONED GROUND MAGNETIC SURVEY

The area of investigation is located between longitudes 87° 40' to 87° 38' W, and latitudes 49° 59' to 50° 00' N. The magnetic survey method is a useful mapping tool, outlining both lithological and structural trends. The principal aim of this study is to improve the geological understanding (lithological discrimination & tectonic features) of the Onaman River property, as well as to locate favorable structures with which the gold / or base metals mineralization could be associated.

The regional aeromagnetic vertical gradient anomaly presented in Figure 1 shows that the eastern grid and the north-eastern part of the western grid are both associated with a broad (~800 m in width) positive magnetic anomaly of 175 nT in amplitude. This large feature is not completely defined to the north of the study grid (no aeromagnetic survey available) and appears affected by a fault interpreted NE-SW. Apparently, this fault was also identified in the present magnetic survey.

The recorded ground total magnetic values within the Onaman River property are distributed over a large range with anomalous intensities varying from 53 500 nT to 66 510 nT (average of 56 730 nT). The most dominant feature on map 1.2 (figure 2) is a system of magnetic lineaments (dyke-like structures), trending NNW. These delineated trends show a discontinued character caused probably by a fault network mostly oriented NE-SW.

The magnetic lineaments (**ON-01a**, **ON-01b**, **ON-01c** and **ON-02**) located in the southern and western parts of the main grid (west grid) are characterized by a dipolar signature. This unusual signature is caused either by the natural remanent magnetization (NRM) or is caused by the dip of the causative source which is towards the SW.

Amplitude of the outlined magnetic lineaments vary from 1000 to 2450 nT above a local background of about 56 600 nT. The highest amplitude (up to 2500 nT) is recorded on anomaly **ON-01a**. 2D magnetic inversion shows that the depth-to-top of the discontinued lineament (**ON-01a** to **ON-01c**) is close to the surface (≤ 10 m in depth) and its width is estimated between 35 m and 50 m.

Another dominant magnetic feature within the study grid is **ON-03**. This positive magnetic trend reaches an amplitude of 850 nT above a local background of 56 600nT. This anomaly is trending N-S, and remains open-ended to the north.

To the eastern side of **ON-03**, a few magnetic trends were highlighted by the present survey. These NNW striking anomalous trends show positive signatures and their amplitudes vary from 150 to 600 nT above a relative high background (for the eastern magnetic trends) of about 56 800 nT. It is worth pointing the presence of a discrete E-W magnetic anomaly at coordinates 453 045 mE, 5 538 730 mN, at line 87+00N. Amplitude of this anomaly is about 450 nT and its surface expression measures approximately 70 x 40 m.

To further characterize the delineated anomalies within the Onaman River project, enhancement techniques consisting of analytic signal amplitude (ASIG) and first vertical derivative (1VD) were calculated in order to clarify the expected signatures and to accentuate shallow magnetic features (enhance detail and sharpen sources) at the expense of deep features (figures 3 & 4).



□ 3D INVERSION

A 3D magnetic inversion was also performed in order to produce a model of the architecture that should help in the definition of geometry of the magnetic structures laying within the Onaman River property and their physical properties.

The 3D potential field inversion was performed using Voxi-MAG3D, a program developed by Geosoft. For the Onaman River Project, the earth model was discretized horizontally at 12.5 m intervals beneath the area of data and 6.25 m vertically.

The final inversion result is illustrated in figure 5 as 3D magnetic susceptibility isosurfaces. For geophysical / geological data integration purposes, the recovered 3D model is also delivered as Autocad dxf and UBC files.

The magnetic inversion has shown a possible 3D geometry of the geology of the Onaman River property, highlighting most of the magnetic structures lying within the study area. The interpreted subsurface magnetic susceptibility values range from 0.003 to 0.2 SI. The highest susceptibility values exceeding 0.2 SI are located within the causative source of the magnetic lineament **ON-01a**. The magnetic susceptibilities of the other sources generally vary between 0.015 and 0.09 SI. According to the defined susceptibility model, the highlighted dike structures appears as shallow and outcropping units. The magnetic lineament **ON-01** could correspond to iron formations (BIF).

It must be noted that in the absence of hard constraints applied to the 3D magnetic field inversion as is the case in this study and the non-uniqueness of potential field, the recovered model is considered as one possible solution from an infinite number of solutions that could explain the observed data. Only sampling by drilling through the delineated magnetic anomalies may give the final answer to the nature of the rock formations lying within the studied property.

The inferred surface projection of all relatively moderate to high magnetic features, were plotted in green axes on the *Geophysical Interpretation map* (10.0). A few lineations that are indicative of faults have been mapped and reported on the previous *map* (10.0).

□ CONCLUSION

High resolution ground magnetic surveys are considered essential components of any mineral exploration program. It is indirectly used to search structures and lithological units where gold or base metals bearing mineralization could be located. This method has also the ability to map directly hydrothermal alteration zones.

In this project, interpretation of the ground magnetic survey enables the identification of most of the magnetic structures within the study grid. A possible 3D geometry of the geology (magnetic structures) of the Onaman River property was proposed. For the identification of any mineralized targets, a direct geophysical method such as IP/Resistivity or EM should be conducted in order to locate these zones.



The interpretation of the geophysical data embodied in this report is essentially a geophysical appraisal of the Onaman River Project. As such, it incorporates only as much geoscientific information as the author had on hand at the time. Geologists thoroughly familiar with the studied area may be in a better position to evaluate the geological significance of the various geophysical signatures. Moreover, as time passes and data provided by follow-up programs are compiled, the interpretation with the models defined in this study may be downgraded or upgraded.

Respectfully submitted, -
Abitibi Geophysics Inc. -



Madjid Chemam, P. Geo.,
OGQ # 1259
Geophysicist

MC/jg

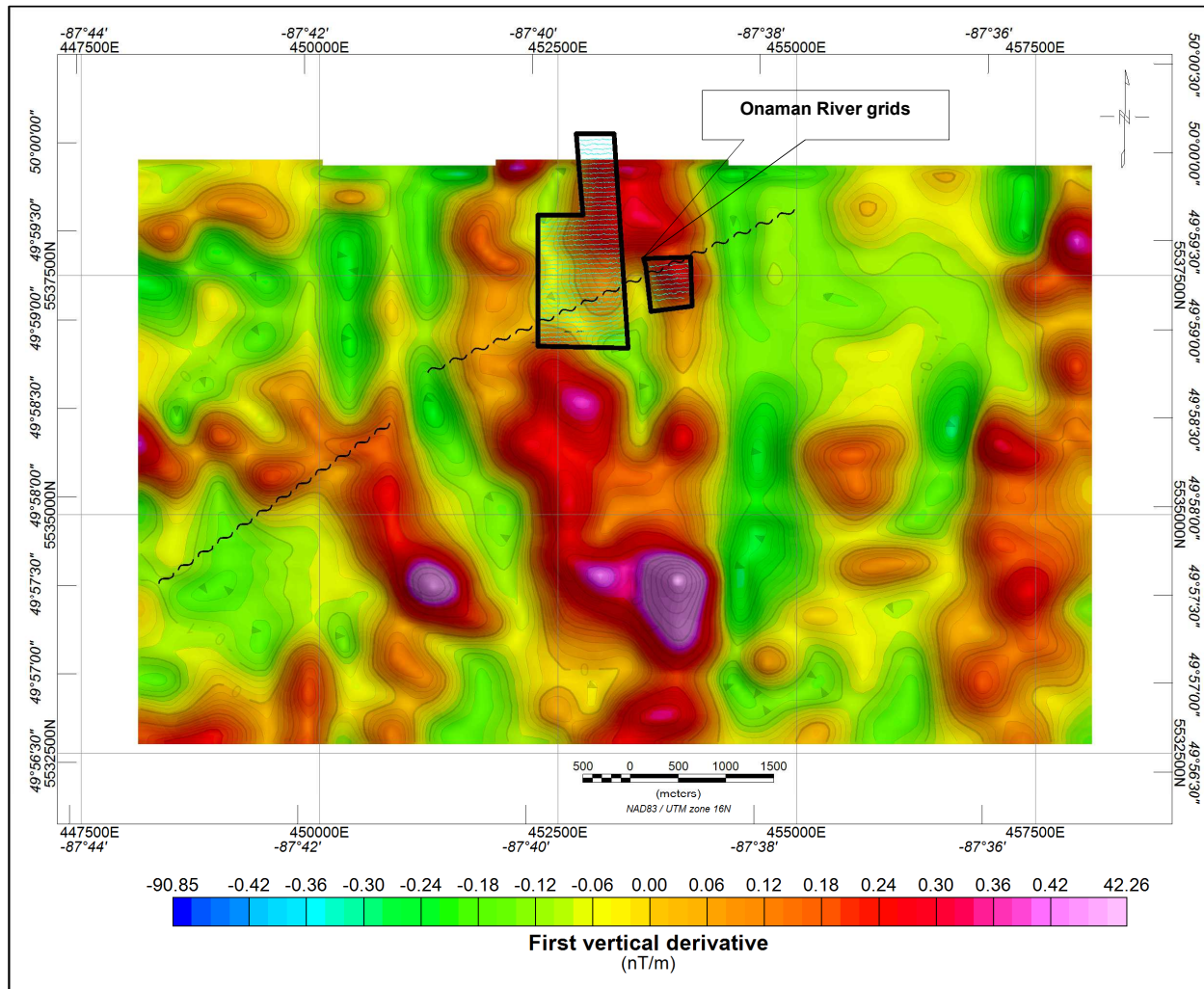


Figure 1. Regional vertical gradient anomaly map of the Onaman River region

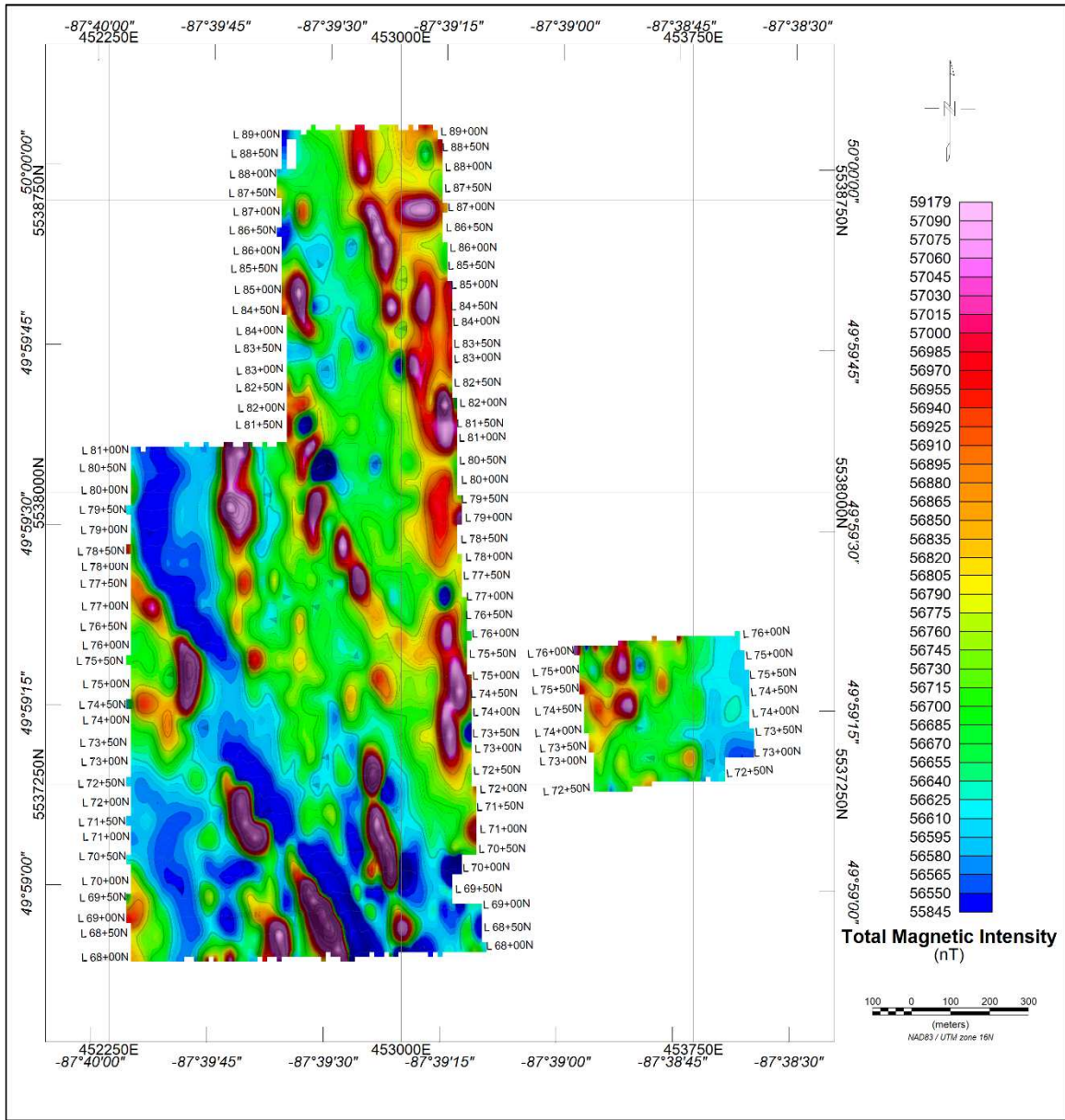


Figure 2. Total ground magnetic field contour map of the Onaman River Project

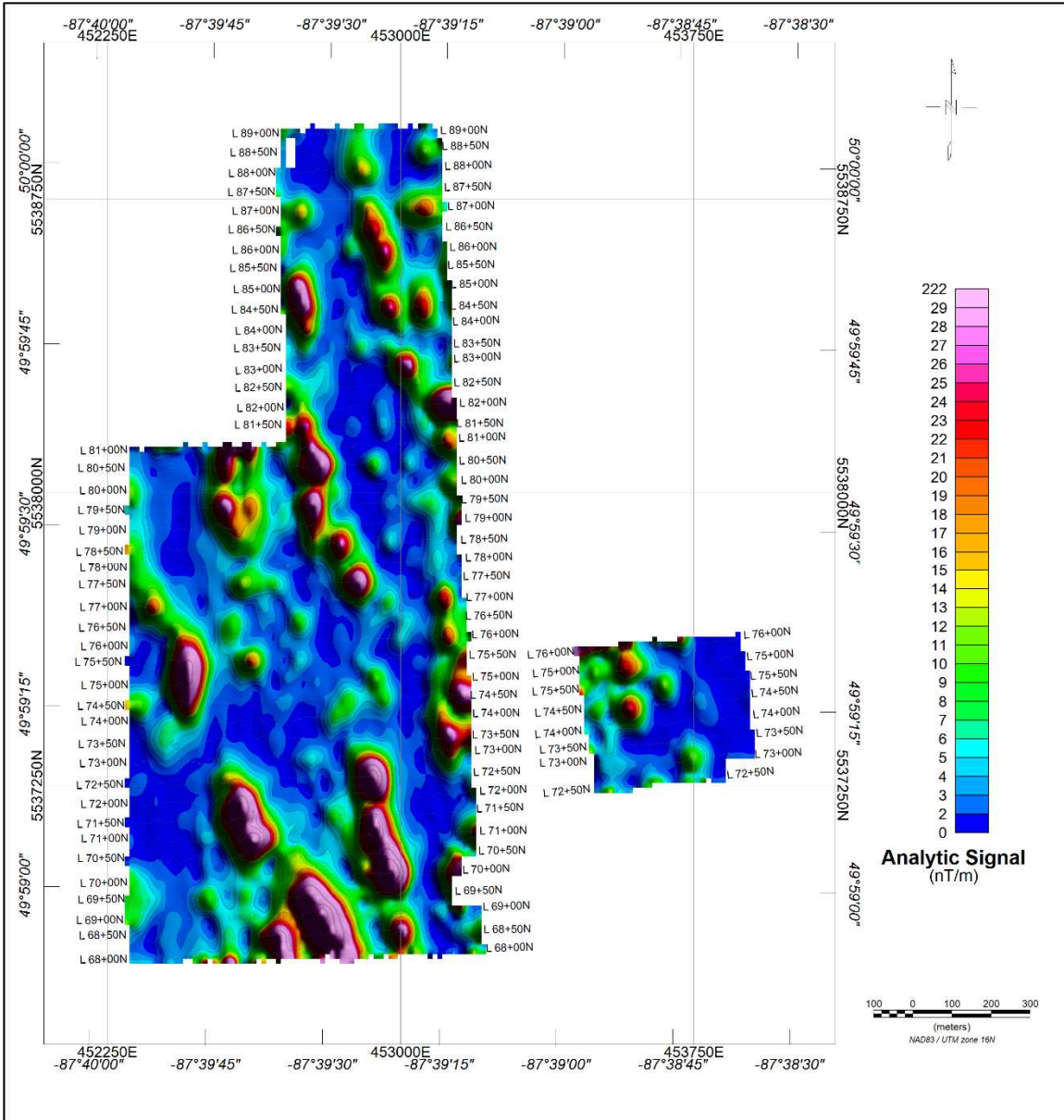


Figure 3. Analytic signal (Total Gradient Amplitude) contours map of the Onaman River Project

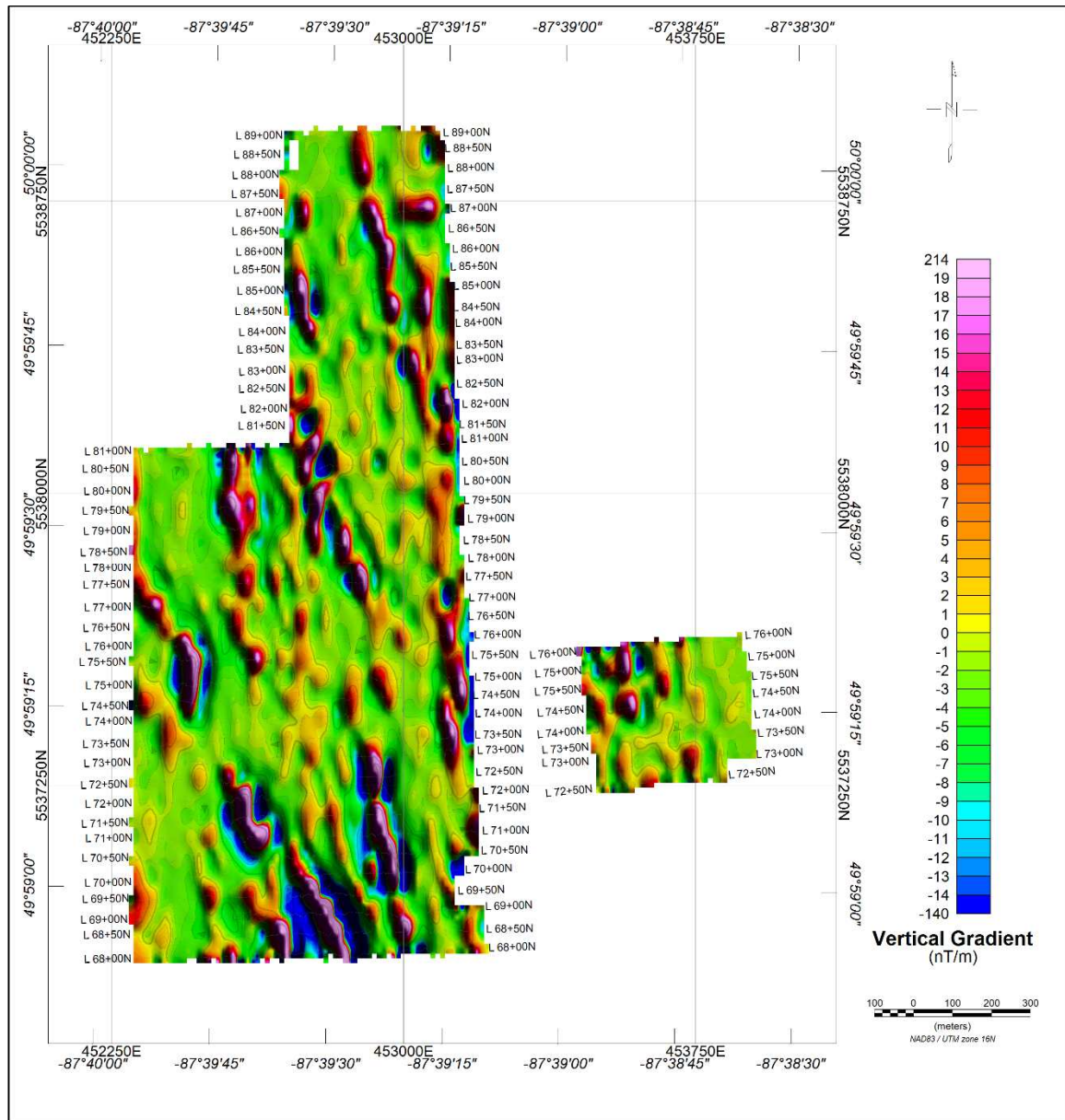


Figure 4. Calculated vertical gradient contours map of the Onaman River Project

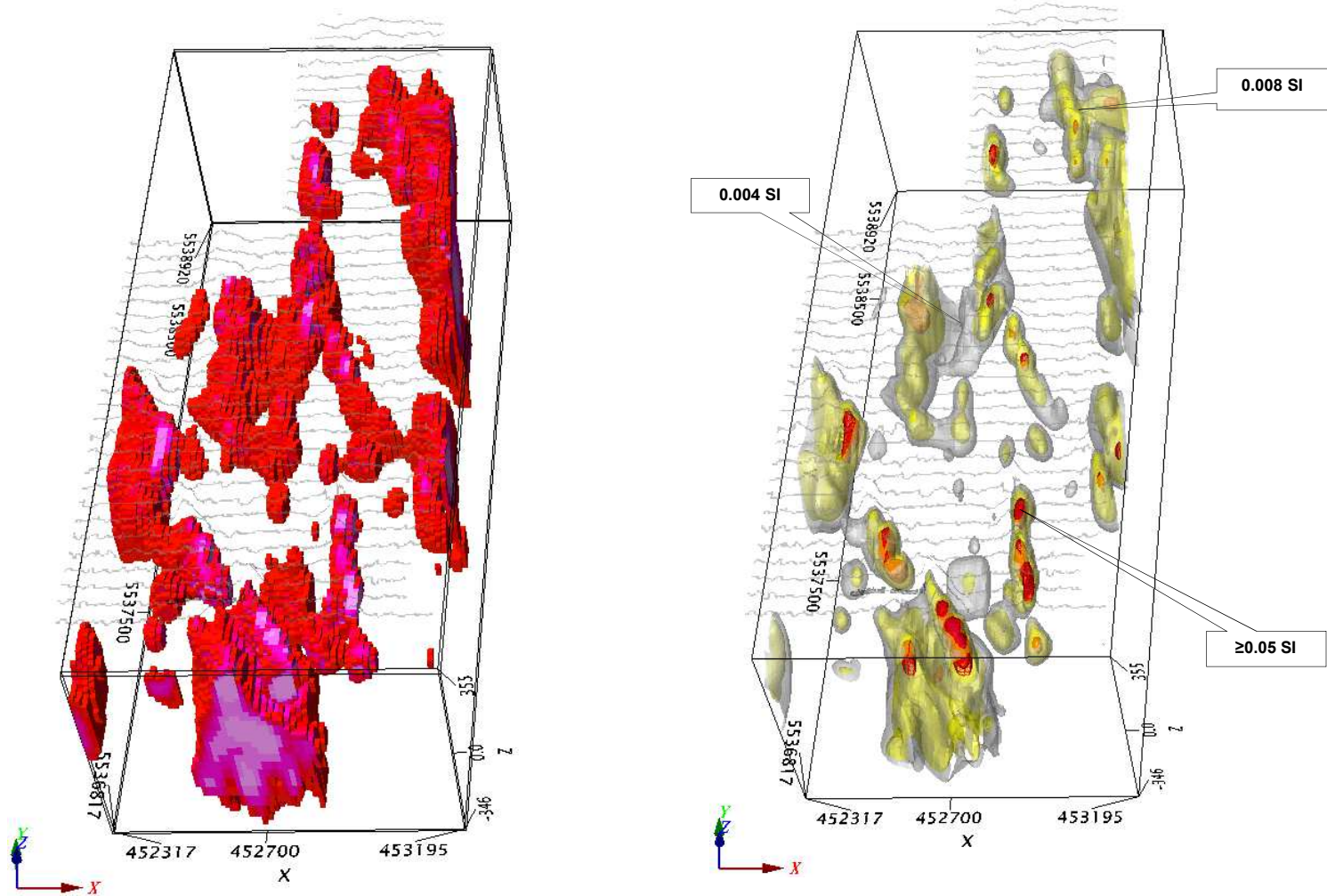


Figure 5. Subsurface magnetic susceptibility voxels (left) and isosurfaces (right), Onaman River Project



2. MANDATE

- PROJECT ID* **Onaman River Project**
(Our reference: **17N110**) -
- GENERAL LOCATION* 200 km north-east of Thunder Bay, Ontario, Canada
- CUSTOMER* **Jien Nunavik Mining Exploration Ltd.**
147 Cartier Avenue, Suite 301
Pointe Claire, QC, H9S 4R9
www.jnmel.com

Telephone: (514) 505-3521
- REPRESENTATIVE* **Mr. Maxim Boisvert, Eng., M.B.A.**
Geological Engineer
Canadian Royalties Inc.
Maxime.boisvert@canadianroyalties.com

Tel: 514-879-1688, # 2651
- SURVEY TYPE* GPS-positioned Ground Magnetic
- GEOPHYSICAL OBJECTIVE* To improve the geological understanding (lithological discrimination) of the property

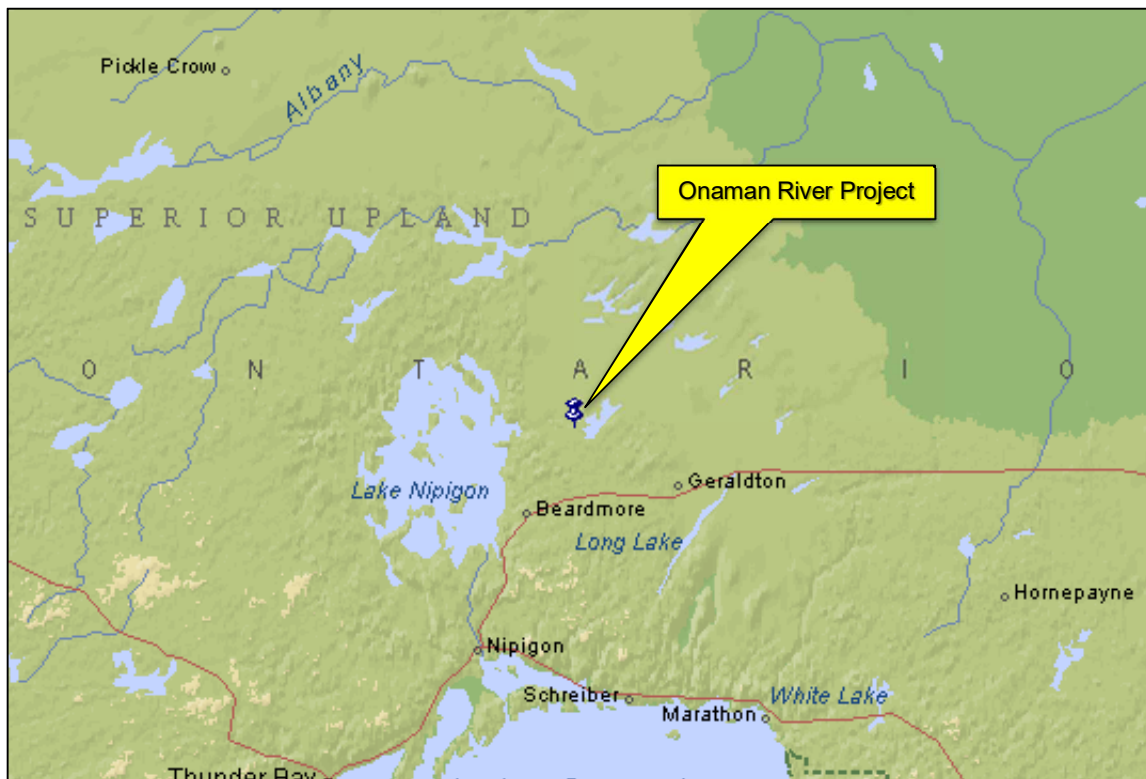


Figure 6. General location of the Onaman River Project



3. ONAMAN RIVER MINERAL PROPERTY

- LOCATION* **Coughlan Lake & Castlewood Lake areas, Ontario, Canada**
Centered on 49°59'30" N and 87°39'15" W
NAD83 / UTM zone 16N : 453 100 mE, 5 537 900 mN
NTS sheets: **42L/04 & 42E/13**
- NEAREST SETTLEMENT* **Jellicoe:** approximately 40 kilometres to the south.
Geraldton: approximately 60 kilometres to the south-east.
- ACCESS* By the Trans-Canada Highway from the small community of Jellicoe and then via Road 801 which runs off the highway to the north for about 50 km. A road branching off to the east of Road 801 leads to the Onaman grid after driving about 25 km.
- GEOMORPHOLOGY* The topography on the Property is relatively flat with hills from 15 to 30 m high. Average elevation within the study grid ranges from 300 to 345 m above sea level (average 320 m). The Property lies within the central plateau section of the Boreal Forest Region. The ground is forested with a mature growth mixture of white birch, jackpine, black spruce and aspen. Hydrographically, small ponds and streams were encountered throughout the property.
- MINING LAND TENURE* The claims encompassed in the present project are wholly (100%) owned by Jien Nunavik Mining Exploration Ltd.
- CULTURAL FEATURES* No cultural features were observed on the grid.
- SECURITY AND ENVIRONMENT* As part of the Abitibi Geophysics Inc. EHS program, geophysical operator received first aid training and was provided with safety equipment and specialized training for the geophysical techniques utilized on this project. In addition, the operator was provided with a satellite telephone for emergency communication. No incident was reported during this project.
- SURVEY GRID* The magnetic survey was carried out over two separated grids:
 - The west grid consists of 43 lines (from L 68+00N to L 89+00N).
 - The east grid contains 8 short lines (from L 72+50N to L 76+00N).All the traverses are regularly spaced at 50 m and oriented 88°N. The lines vary in length from about 0.4 to roughly 0.9 km.

Refer to figure 7 for a plan view of the zone covered by the present survey.
- COORDINATE SYSTEM* Projection : Universal Transverse Mercator, zone 16N
Datum : NAD83

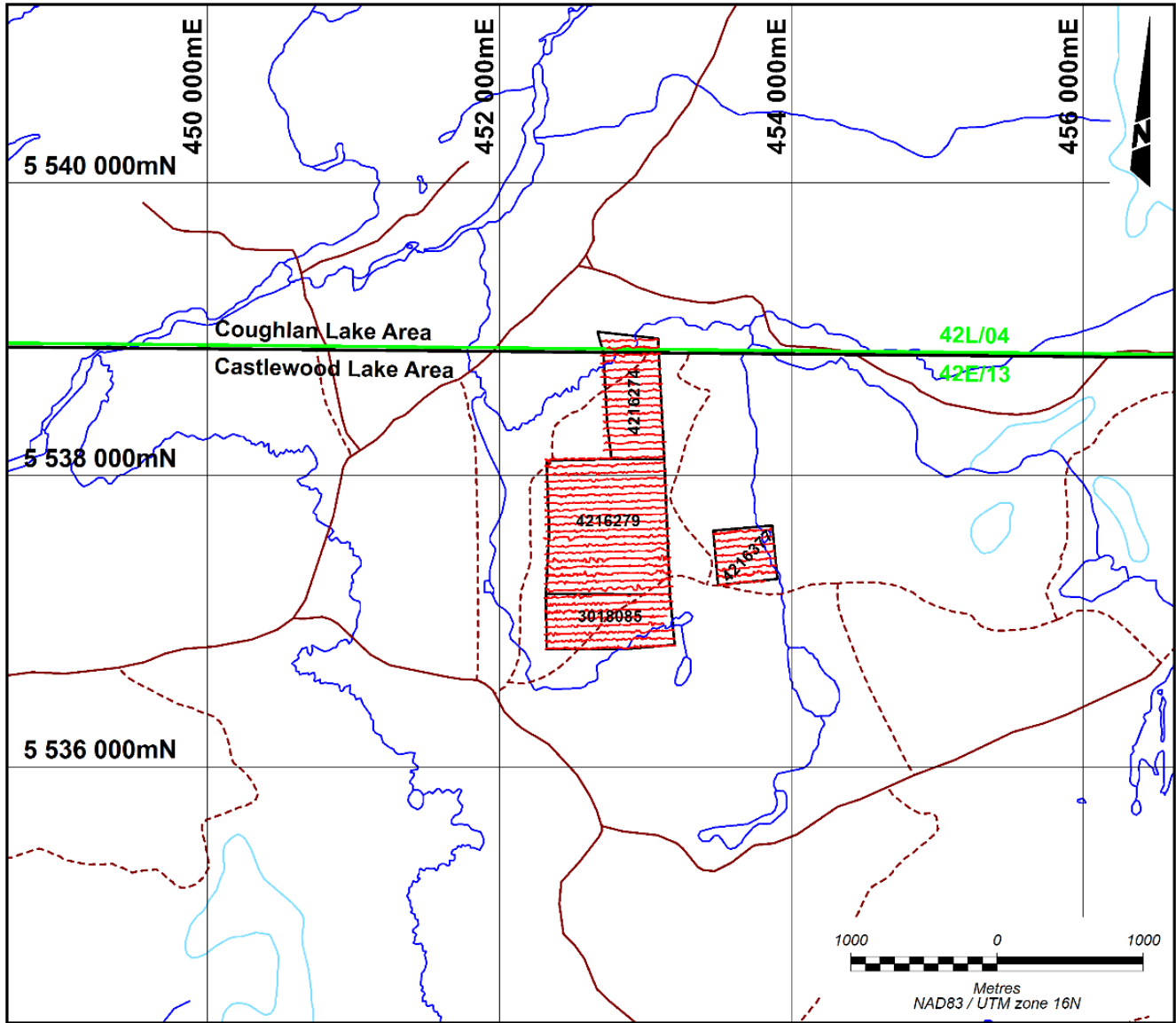


Figure 7. Index of claims and ground magnetic survey coverage over the Onaman River Project



4. GPS-POSITIONED GROUND MAGNETIC SURVEY

- ❑ **TYPE OF SURVEYS** Measurement of the Total Magnetic Field (TMF) with GPS readings every 2 seconds. The plotted values were corrected for diurnal variations using readings from a synchronized MAG base station.
- ❑ **PERSONNEL**

Francis Charbonneau,	Crew Chief, geophysical operator
Carole Picard, Tech.,	Plotting
Madjid Chemam, P. Geo.,	QC, interpretation and report
Pierre Bérubé, Eng.,	Final validation of product conformity
- ❑ **DATA ACQUISITION** November 22nd to 28th, 2017
- ❑ **SURVEY COVERAGE** **33.0 km**
- ❑ **FIELD MAGNETOMETER**

GEM Systems GSM-19W, s/n: 8102971.
Proton precession magnetometer with Overhauser effect
Resolution: 0.01 nT / 1 m
Absolute accuracy: 0.2 nT / 2-5 m
Range: 10 000 to 120 000 nT
Gradient tolerance: >10 000 nT / m
Samples at: 2 s
Operating Temperature: -40C to +55C
TMI sensor elevation: 1.8 m above ground
- ❑ **BASE STATION**

GEM Systems GSM-19, v7, s/n 7082476
Proton precession magnetometer with Overhauser effect
Resolution: 0.01 nT
Absolute accuracy: 0.2 nT
Cycle time: 10 seconds
Reference field: 56 700 nT
Location (NAD83 / 16N): (451 882 mE; 5 536 590 mN)
- ❑ **QUALITY CONTROL**
(RECORDS AVAILABLE UPON REQUEST)
 - Before the survey:**
 - ✓ All magnetometers were successfully field-tested on both Abitibi Geophysics' private and field control station.
 - Every day during data acquisition:**
 - ✓ Every morning, the operator had to successfully test for any magnetic contamination.
 - ✓ In the evening, the geophysical operator reviewed the base station and the mobile unit recordings using our proprietary MAGneto® processing and QC software.



- ❑ **QUALITY CONTROL (CON'T)** (RECORDS AVAILABLE UPON REQUEST)
 - ✓ The geophysical operator ensures no active geomagnetic activity would be encountered during the survey by visiting the Space Weather Canada website: www.spaceweather.gc.ca/forecast-precision.

At the Base of Operations:

- ✓ Field QCs were inspected & validated.
- ✓ All profiles were inspected and all detected spikes were removed manually from the database.

❑ **QUALITY STATISTICS**

Table 2. Quality statistics, GPS-positioned Ground Magnetic Survey

Onaman River Project		
November 22, 2017		
Reading	Reading towards	
	North	South
Field magnetometer, Combo A - s/n: 8102971		
1	56753.48 nT	56754.75 nT
2	56753.44 nT	56754.73 nT
3	56753.43 nT	56754.90 nT
Average	56753.45 nT	56754.79 nT
Abs. Difference	1.34 nT (must be ≤ 2 nT)	



5. DATA PRESENTATION

❑ TOTAL MAGNETIC FIELD

The total magnetic field (TMF) was gridded using Bi-directional Line Gridding algorithm (BIGRID GX) with grid cell size of 12.5 m. One pass of a 3 x 3 Hanning filter was applied to the resulted grid to improve the overall appearance of the final *Total Magnetic Field Contours* map (1.2).

The Geosoft colour table (Clra64.tbl) was used with linear intervals of 20 nT, from 56 380 nT to 57 360 nT.

❑ ANALYTIC SIGNAL

The Analytic signal (Total Gradient Amplitude) has been utilized widely for mapping changes in basement structures, fabric and trends. This transformation is useful in locating the edges of magnetic source bodies, particularly where remanence complicates interpretation.

The Analytic signal is calculated by taking the square root of the sum of the squares of each of the directional first derivatives of the total magnetic field:

$$|A(x, y)| = \sqrt{\left(\frac{\partial T}{\partial x}\right)^2 + \left(\frac{\partial T}{\partial y}\right)^2 + \left(\frac{\partial T}{\partial z}\right)^2}$$

The resulting shape of the analytic signal is expected to be centered above the magnetic body.

In this project, the FFT method (GRIDASIG GX) is used to derive the Analytic signal anomaly from the total field (map 1.6).

The Geosoft colour table (Clra64.tbl) was used with linear intervals of 1 nT/m, from 0 nT to 64 nT.

❑ MAPS PRODUCED

A plot of four (4) magnetic maps at scale 1:5000, is inserted in pouches at the end of this report.

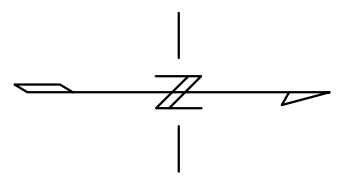
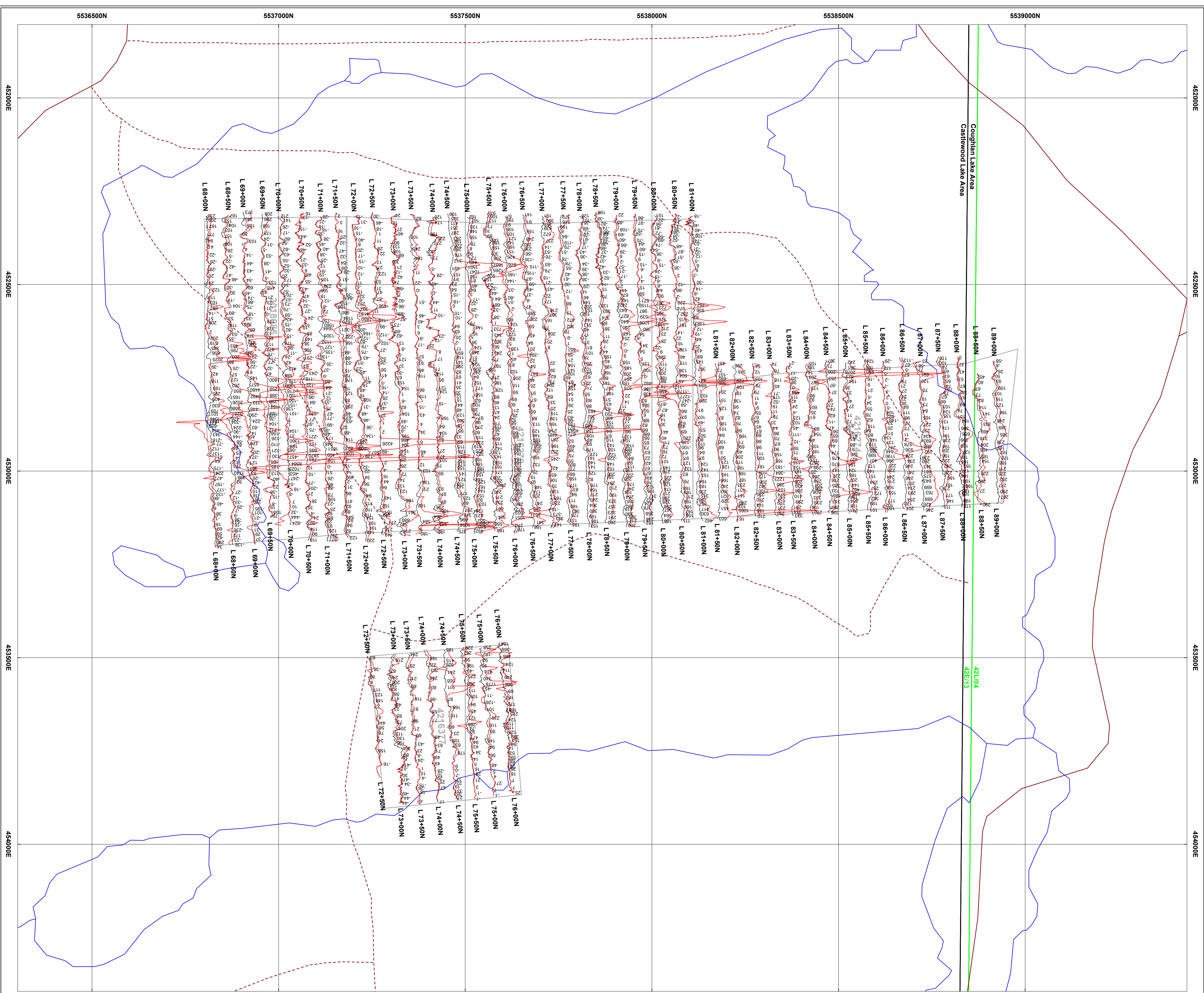
All plan maps are registered to the NAD83 / UTM zone 16N, grid coordinate system as collected in the field.

Our Quality System requires that at least two qualified persons inspect every final map before being approved and included in a final report.

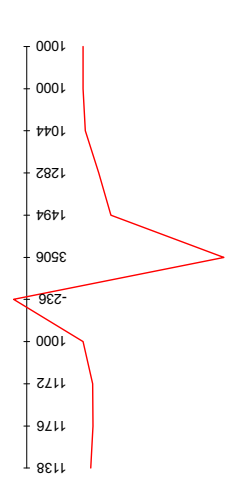
❑ DIGITAL DATA

The above-described maps are delivered in the Oasis Montaj map file format on DVD-Rom.

A copy of all survey acquisition data (ASCII text format) and processed data (Geosoft Montaj databases) are also delivered on DVD-Rom.

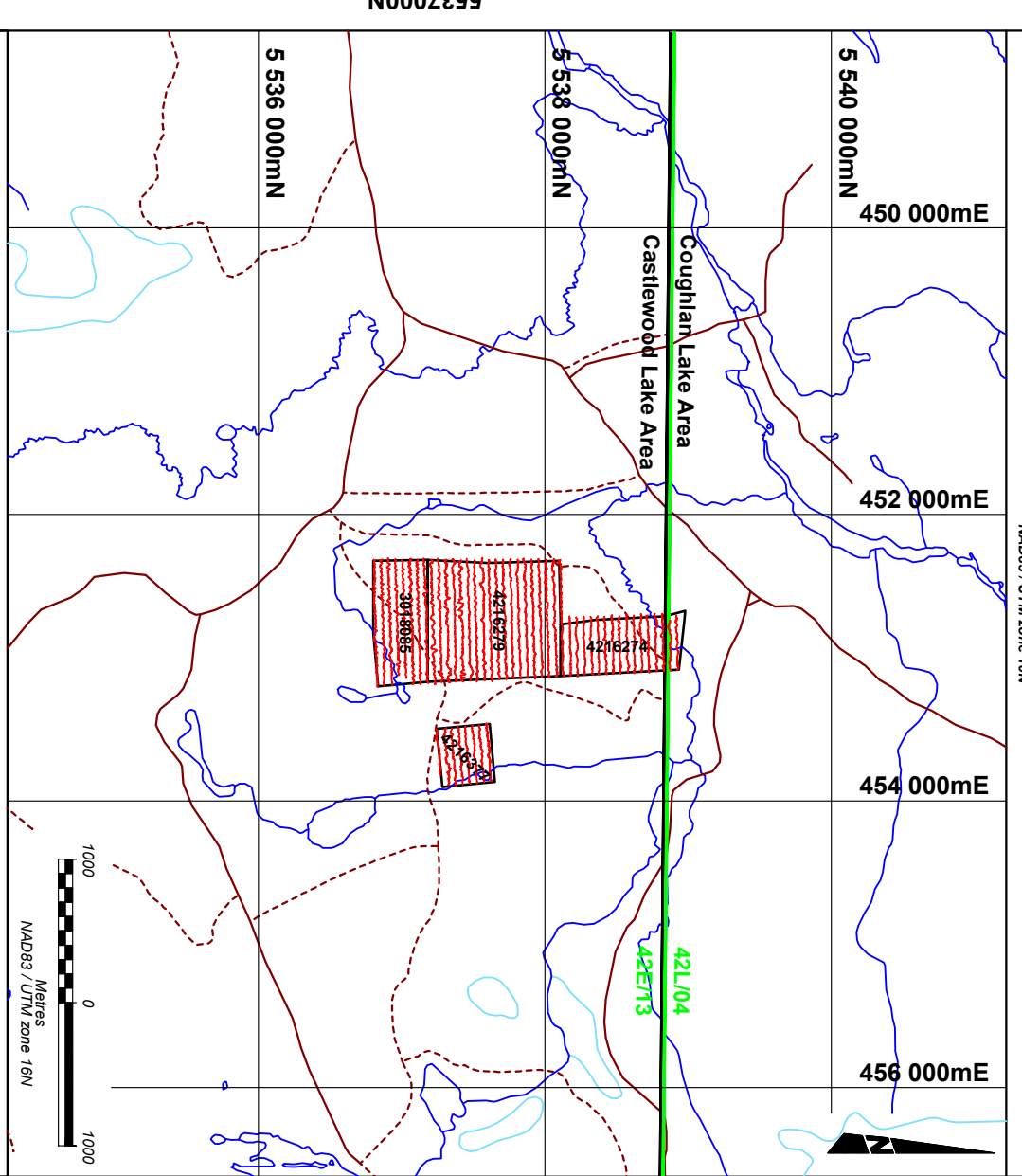


Legend
Total Field Profiles



Base level: 56800 nT
 Profile scale: 1000 nT/cm
 Survey line instrument:
 GSM-15W from GEM Systems
 Base station instrument:
 GSM-19 from GEM Systems, cycle of 10 s

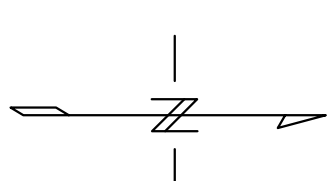
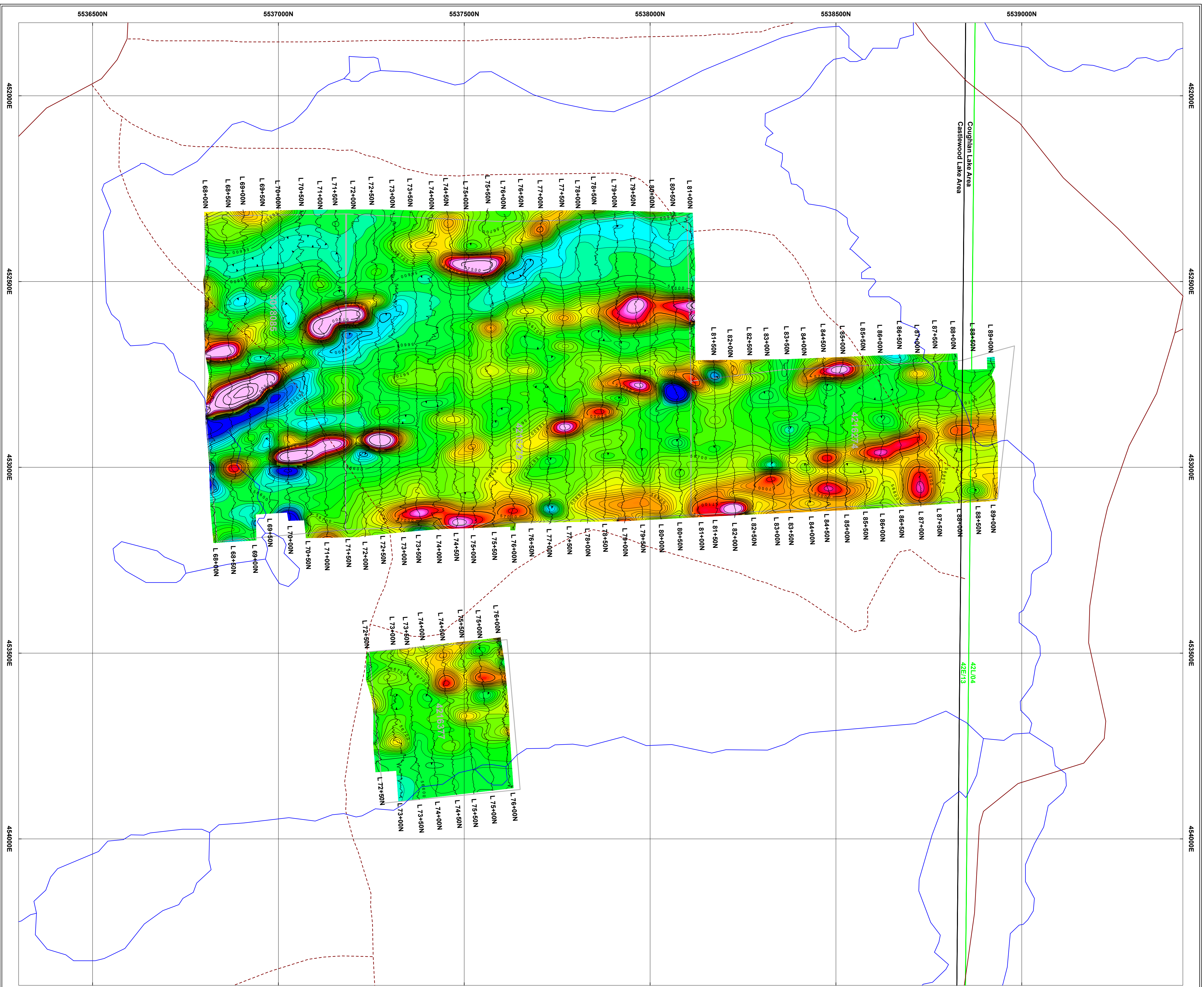
Scale 1:5000



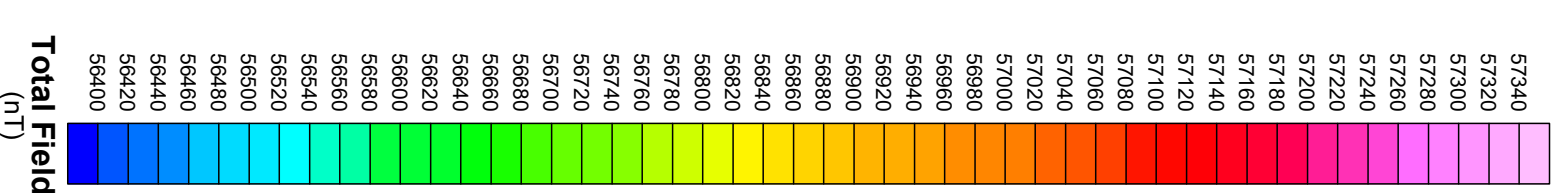
Jien Nunavik Mining Exploration Ltd.
Onaman River Project
Coughlan Lake & Castlewood Lake Areas, Ontario

GPS-located Ground Magnetic Survey
(nT)

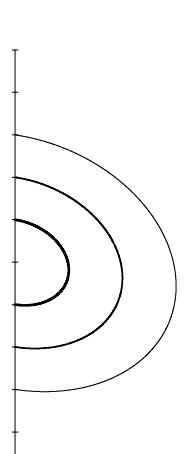
Interpreted by: M. Chennam, P. Geo. 201712
 Surveyed by: Amlibi Geophysics Inc. 201711
 Approved by: P. Bréche, Eng. 201712
 Reference maps: 421/04 & 42E/13 Scale 1:5000
 Project no.: 1714110 Map no.: 11



Legend
Total Field Contours

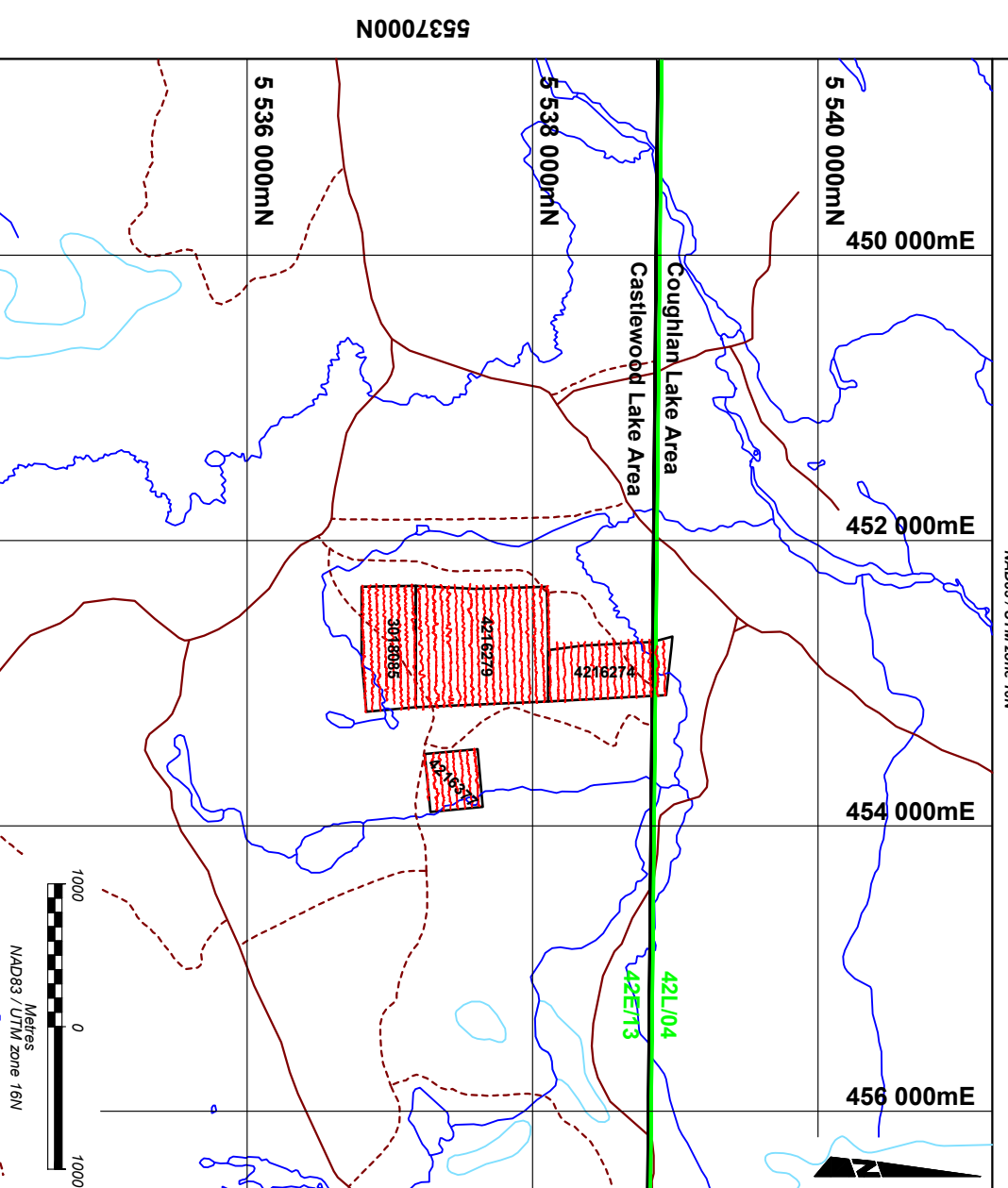


Unit: nT
Survey line instrument:
GSM-19W from GEM Systems
Base station instrument:
GSM-19 from GEM Systems, cycle of 10 s



5536500N 5537000N 5537500N 5538000N 5538500N 5539000N

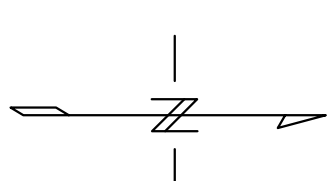
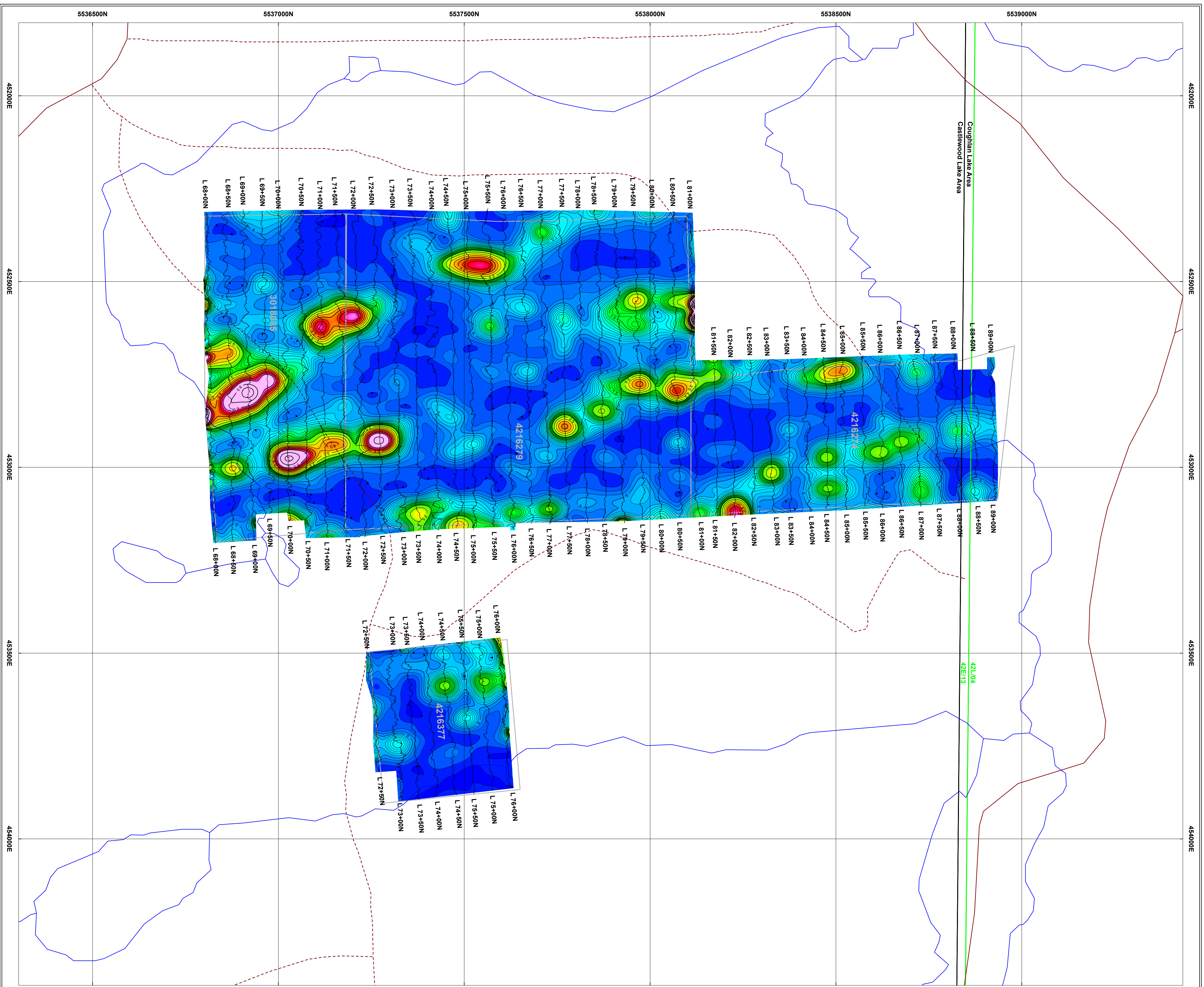
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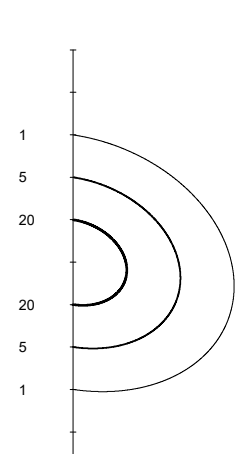
Jien Nunavik Mining Exploration Ltd.
Onaman River Project
Coughlan Lake & Castlemore Lake Areas, Ontario
GPS-positioned Ground Magnetic Survey
Total Field Contours (nT)

Interpreted by: M. Cheman, P. Geo. 2017/12
 Surveyed by: Abitibi Geophysics Inc. 2017/11
 Approved by: P. Bréche, Eng. 2017/12
 Reference maps: 421/04 & 42E/13 Scale 1:5000
 Project no.: 1714110 Map no.: 1.2

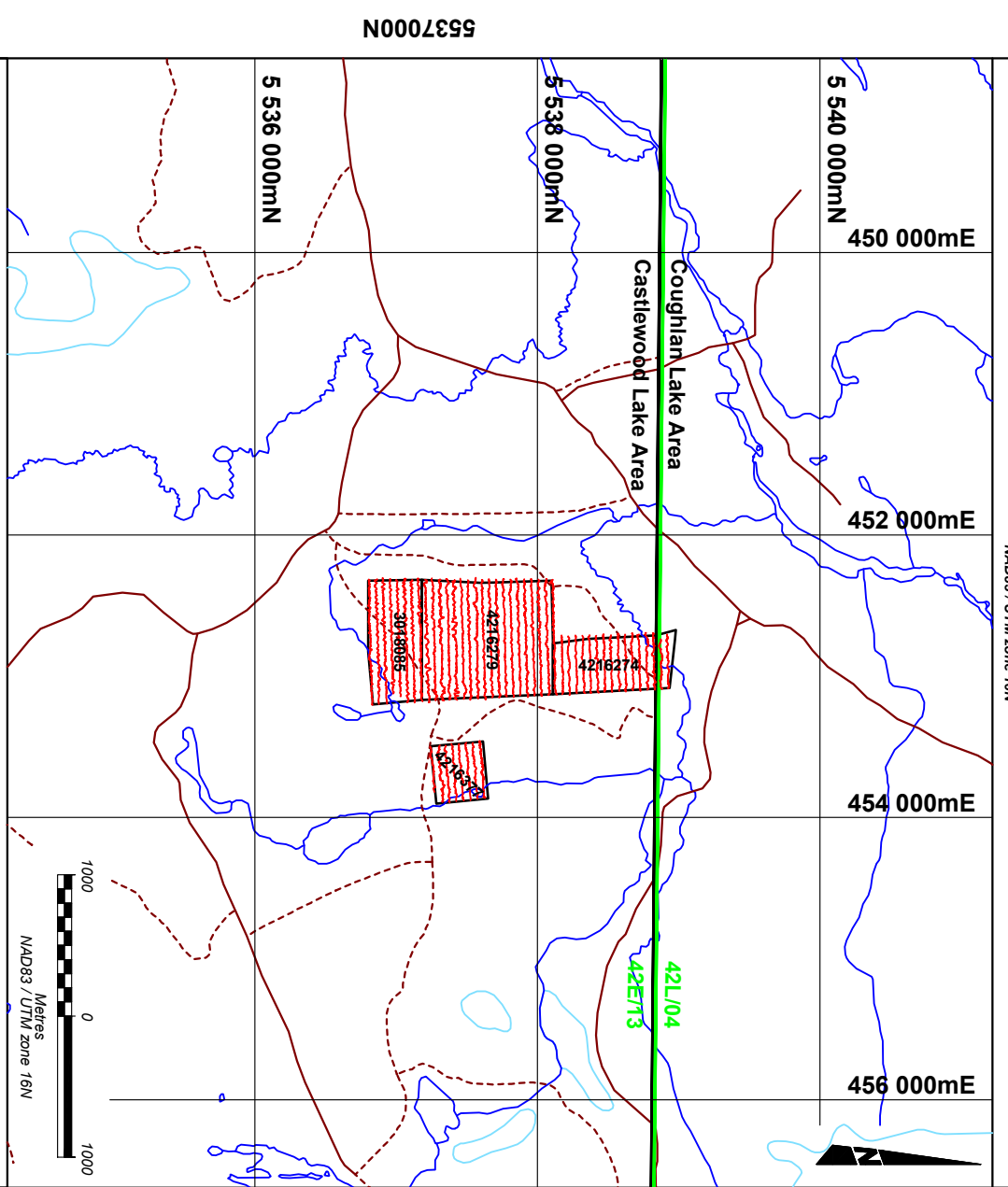
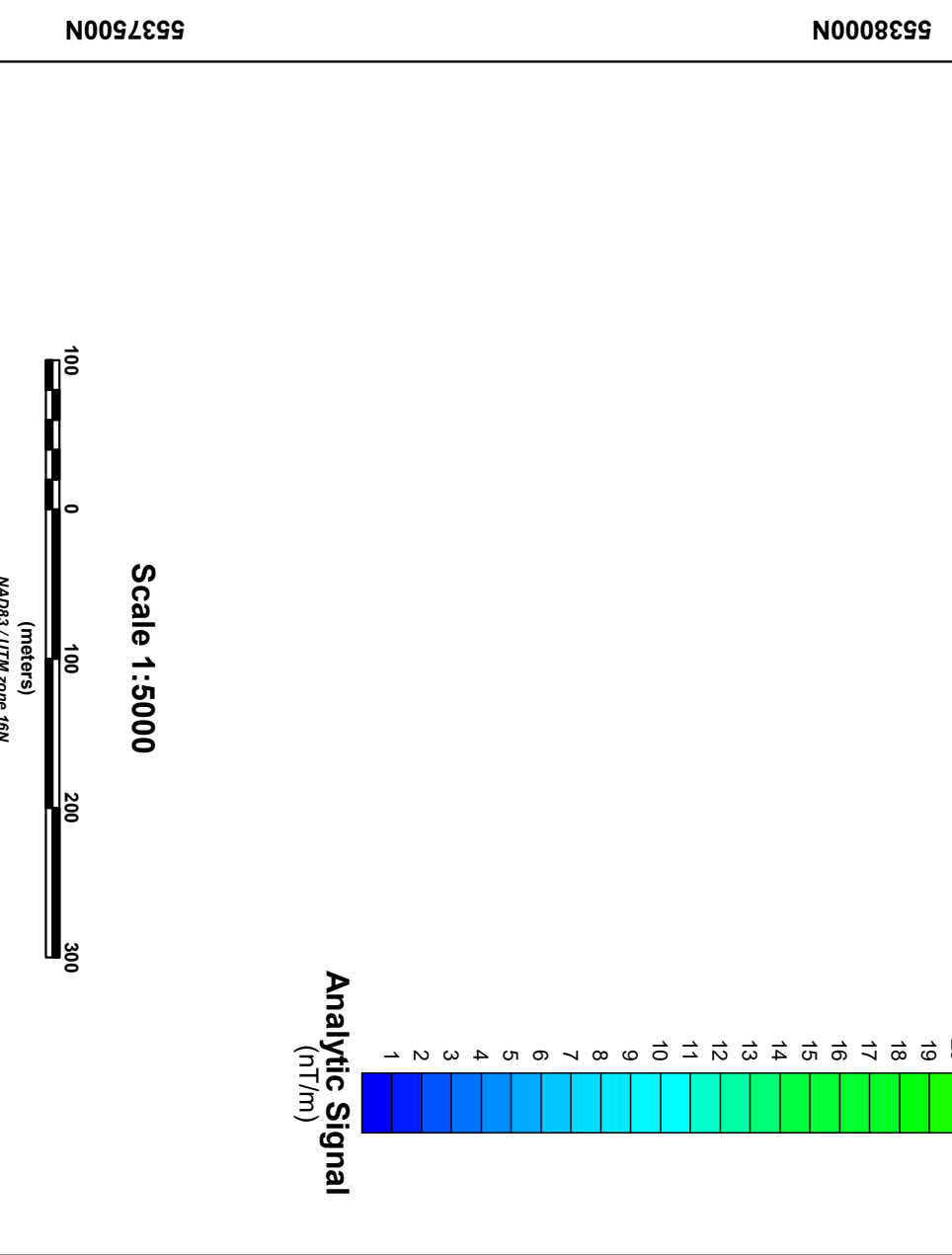




Legend
Analytic Signal Contours



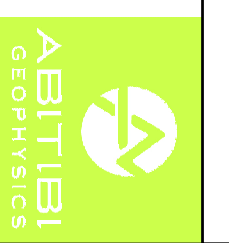
Unit: nT/m
Survey line instrument:
GSM-19W from GEM Systems
Base station instrument:
GSM-19 from GEM Systems, cycle of 10 s

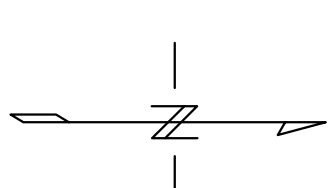
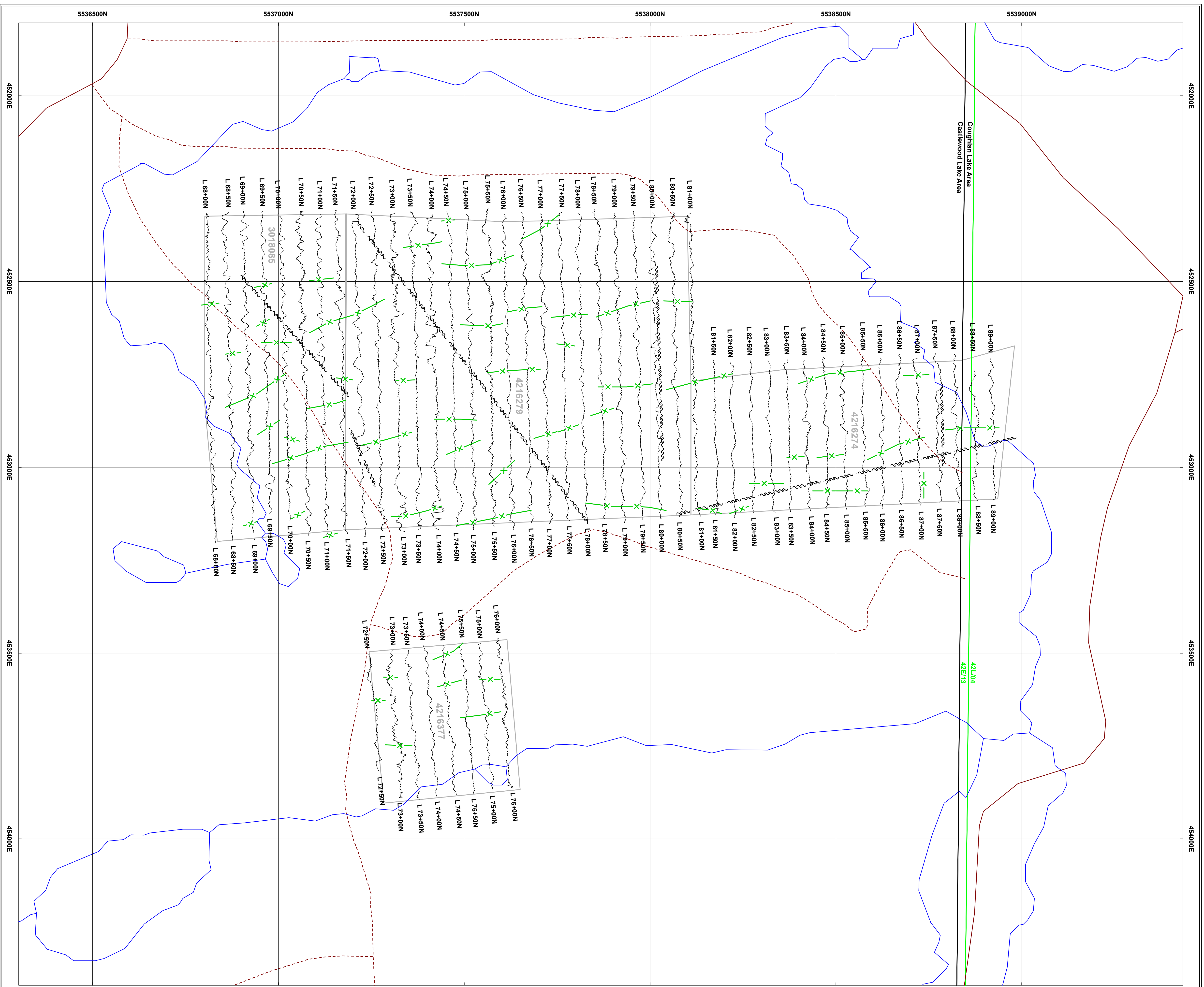


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Onaman River Project
Coughlan Lake & Castlemore Lake Areas, Ontario

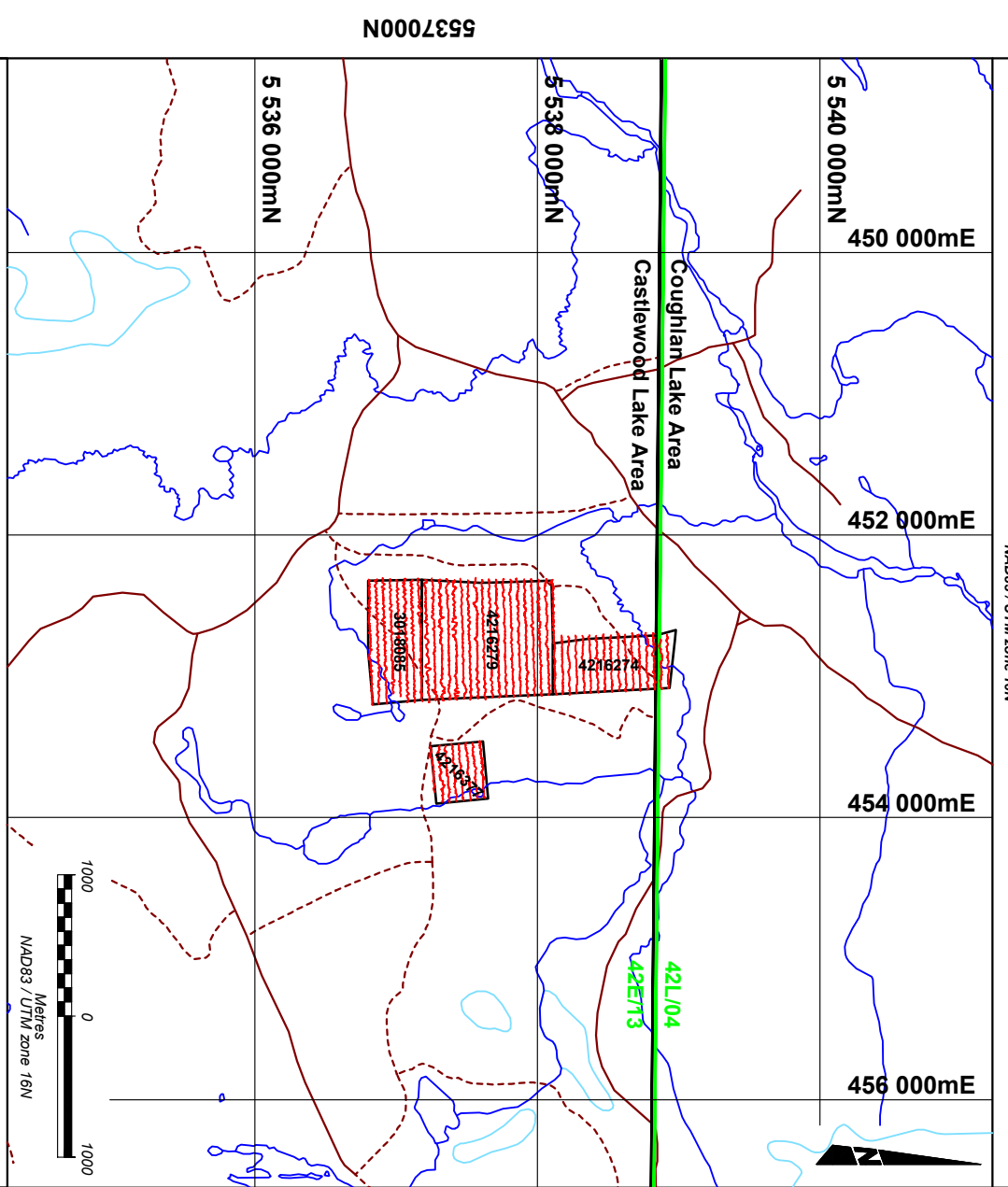
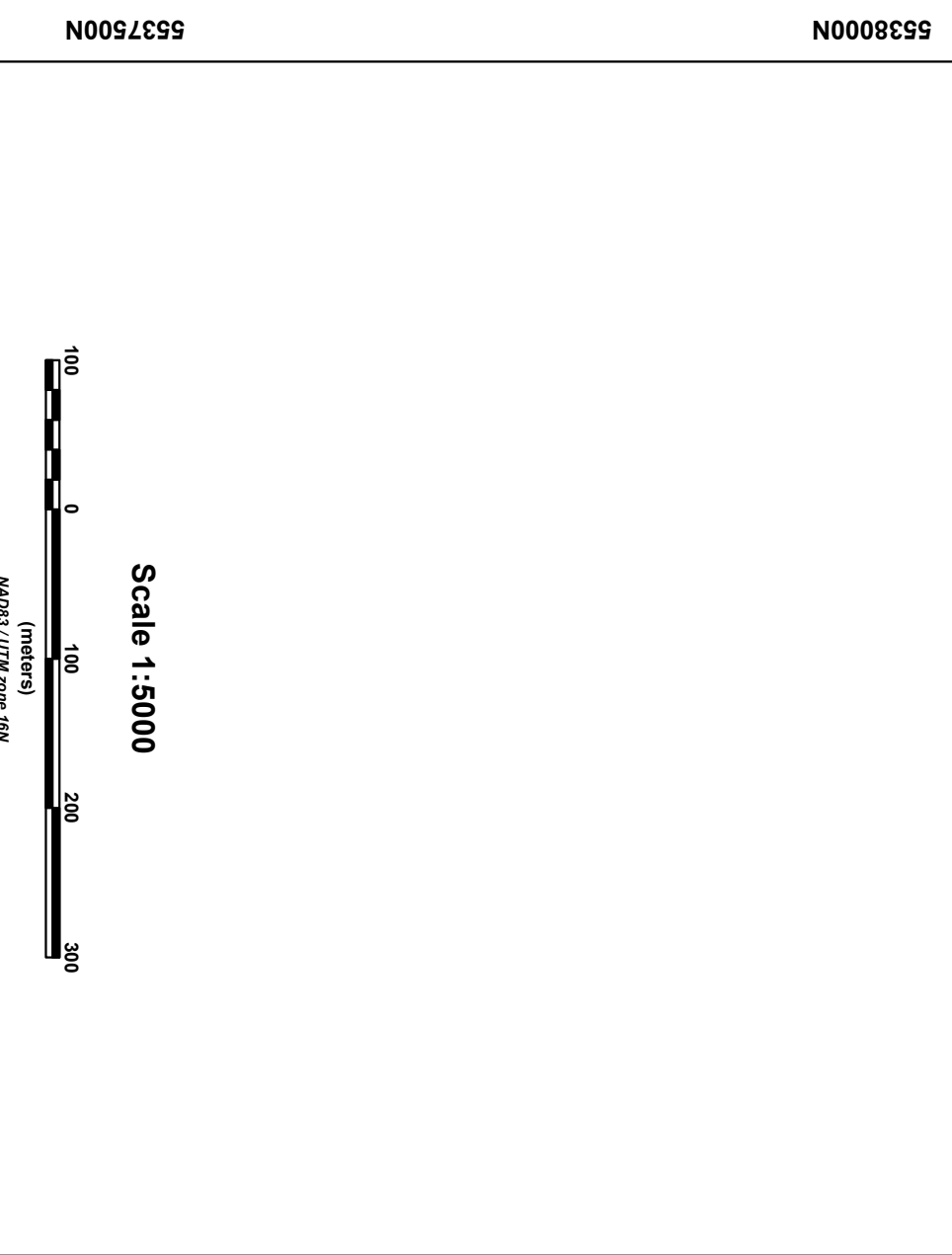
GPS-positioned Ground Magnetic Survey
Calculated Analytic Signal Contours
(nT/m)

Interpreted by: M. Chennan, P. Geo. 2017/12
 Surveyed by: Abitibi Geophysics Inc. 2017/11
 Approved by: P. Brébois, Eng. 2017/12
 Reference maps: 421/04 & 42E/13 Scale 1:5000
 Project no.: 1714110 Map no.: 1.8





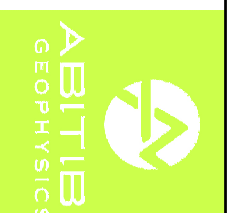
- Legend**
- GPS-positioned Ground Magnetic Survey
- Magnetic High Trend
 ---X--- Questionable Continuity
 ---X--- Definite Continuity
- Miscellaneous Symbols
- ~~~~~ Observed Fault / Shear
 ~~~~~ Geophysically Inferred Fault / Shear



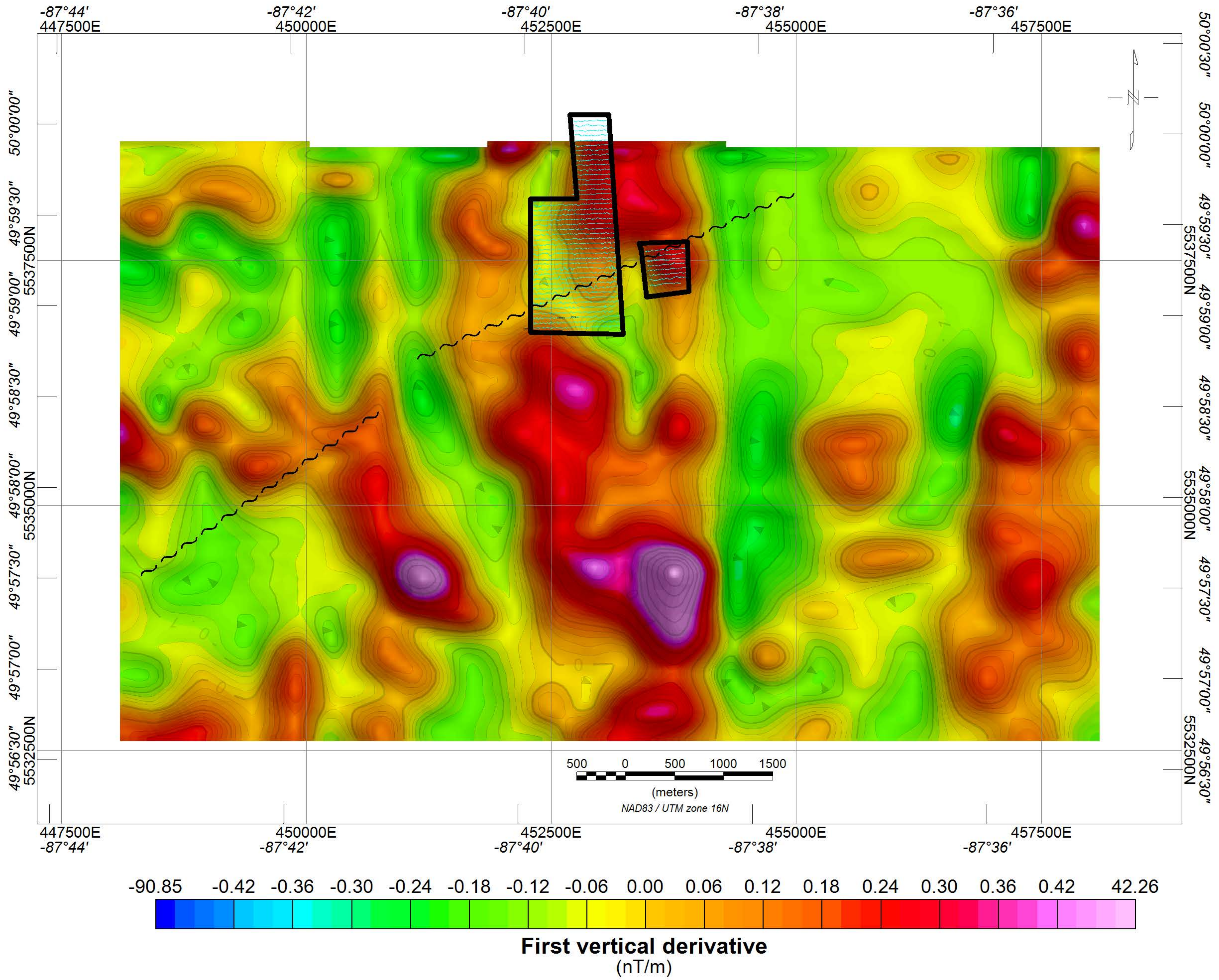
**Jien Nunavik Mining Exploration Ltd.**  
**Onaman River Project**  
**Coughlan Lake & Castlemore Lake Areas, Ontario**

**Geophysical Interpretation**

Interpreted by: M. Cheman, P. Geo. 2017/12  
 Surveyed by: Abitibi Geophysics Inc. 2017/11  
 Approved by: P. Bréche, Eng. 2017/12  
 Reference maps: 421/04 & 42E/13 Scale 1:5000  
 Project no: 1714110 Map no: 1/0

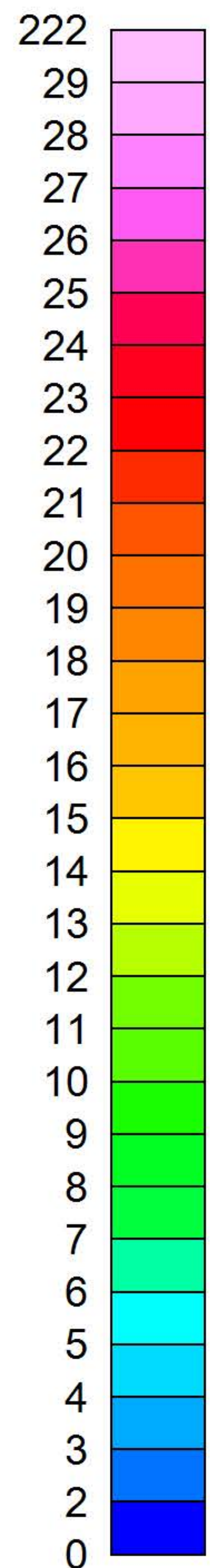
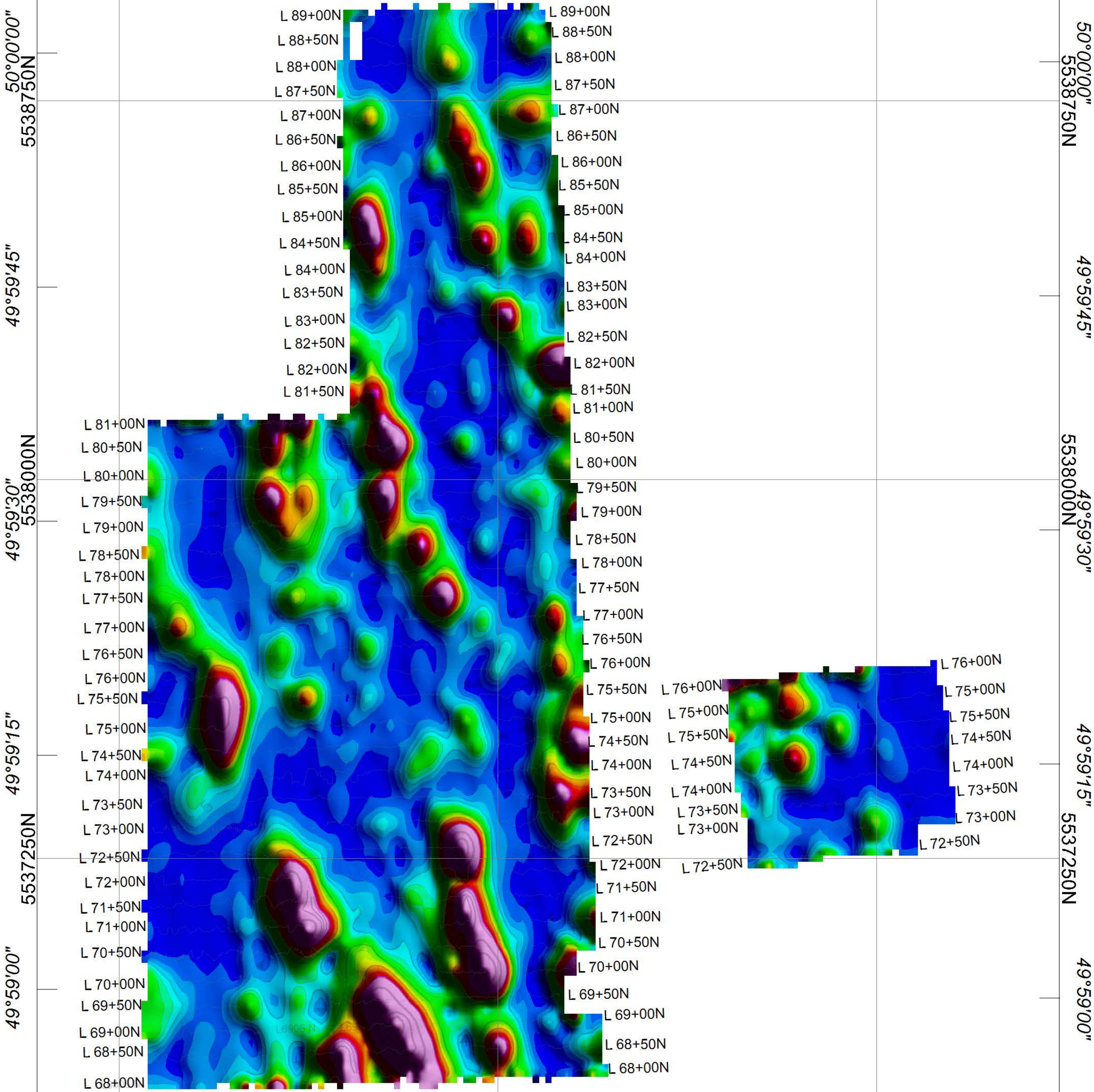
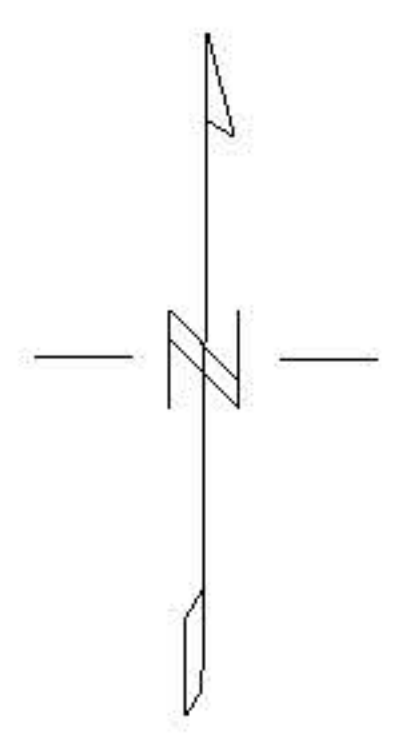




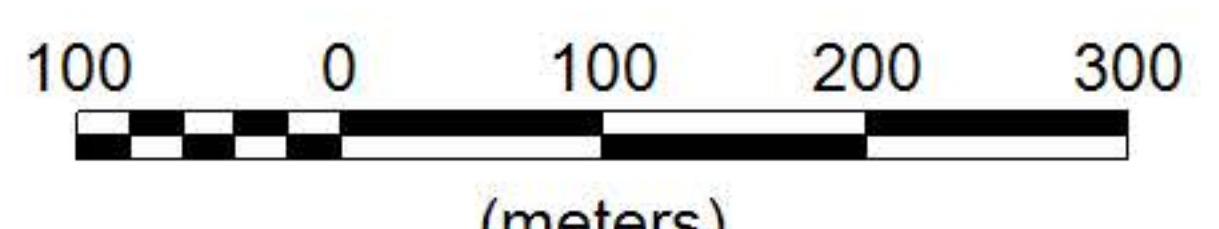




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**Analytic Signal**  
(nT/m)



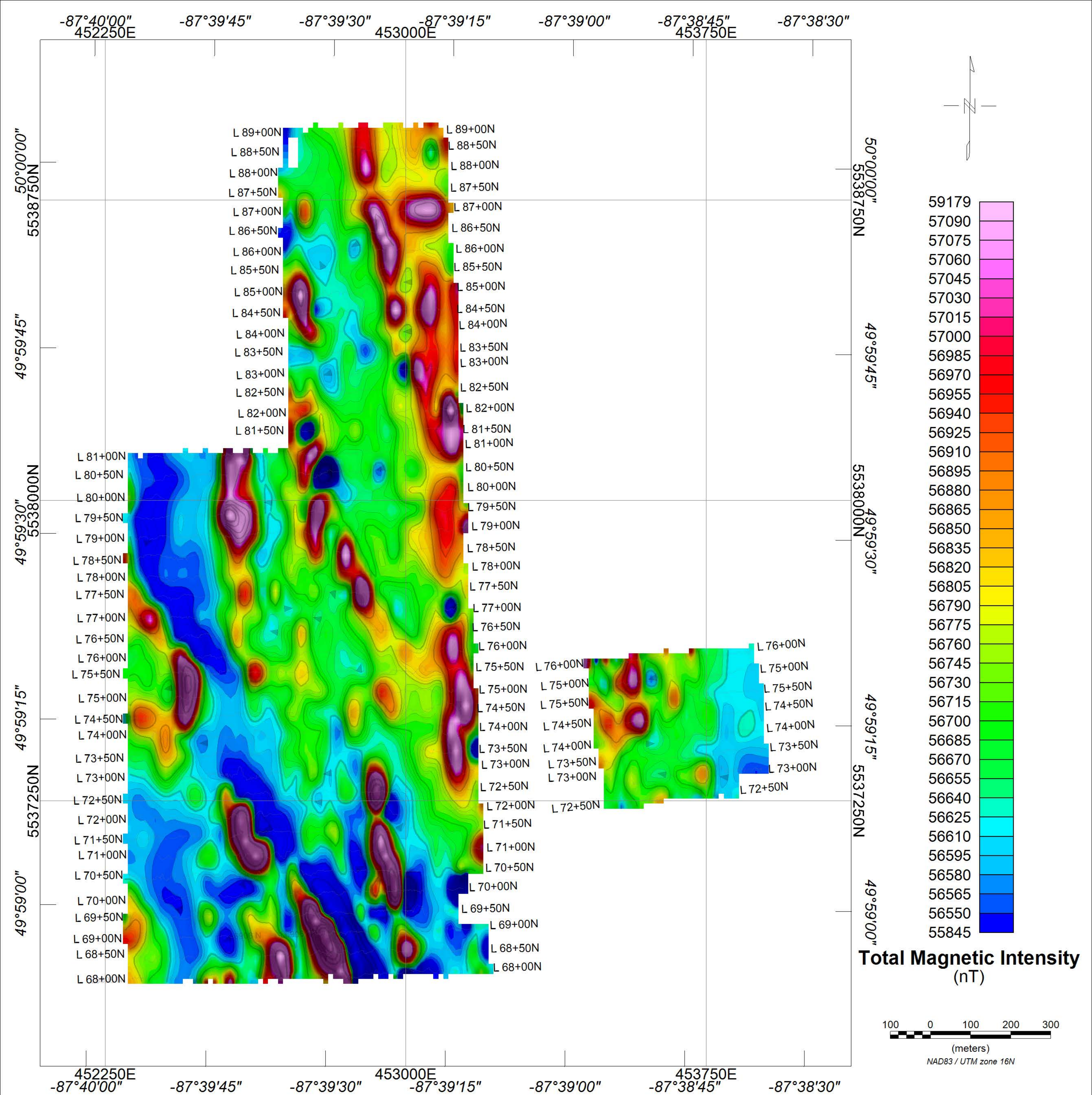
(meters)  
NAD83 / UTM zone 16N

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50°00'00" 5538750N  
49°59'45"  
49°59'30" 5538000N  
49°59'15" 5537250N  
49°59'00"

50°00'00" 5538750N  
49°59'45"  
49°59'30" 5538000N  
49°59'15" 5537250N  
49°59'00"





-87°40'00" 452250E    -87°39'45"    -87°39'30" 453000E    -87°39'15"    -87°39'00"    -87°38'45" 453750E    -87°38'30"

50°00'00" 5538750N  
49°59'45"  
49°59'30" 5538000N  
49°59'15" 5537250N  
49°59'00"

L 89+00N  
L 88+50N  
L 88+00N  
L 87+50N  
L 87+00N  
L 86+50N  
L 86+00N  
L 85+50N  
L 85+00N  
L 84+50N  
L 84+00N  
L 83+50N  
L 83+00N  
L 82+50N  
L 82+00N  
L 81+50N  
L 81+00N  
L 80+50N  
L 80+00N  
L 79+50N  
L 79+00N  
L 78+50N  
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L 77+00N  
L 76+50N  
L 76+00N  
L 75+50N  
L 75+00N  
L 74+50N  
L 74+00N  
L 73+50N  
L 73+00N  
L 72+50N  
L 72+00N  
L 71+50N  
L 71+00N  
L 70+50N  
L 70+00N  
L 69+50N  
L 69+00N  
L 68+50N  
L 68+00N

50°00'00" 5538750N  
49°59'45"  
49°59'30" 5538000N  
49°59'15" 5537250N  
49°59'00"

59179  
57090  
57075  
57060  
57045  
57030  
57015  
57000  
56985  
56970  
56955  
56940  
56925  
56910  
56895  
56880  
56865  
56850  
56835  
56820  
56805  
56790  
56775  
56760  
56745  
56730  
56715  
56700  
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56670  
56655  
56640  
56625  
56610  
56595  
56580  
56565  
56550  
55845

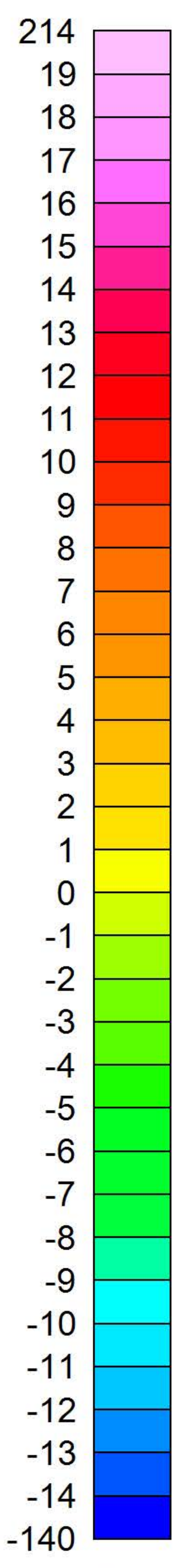
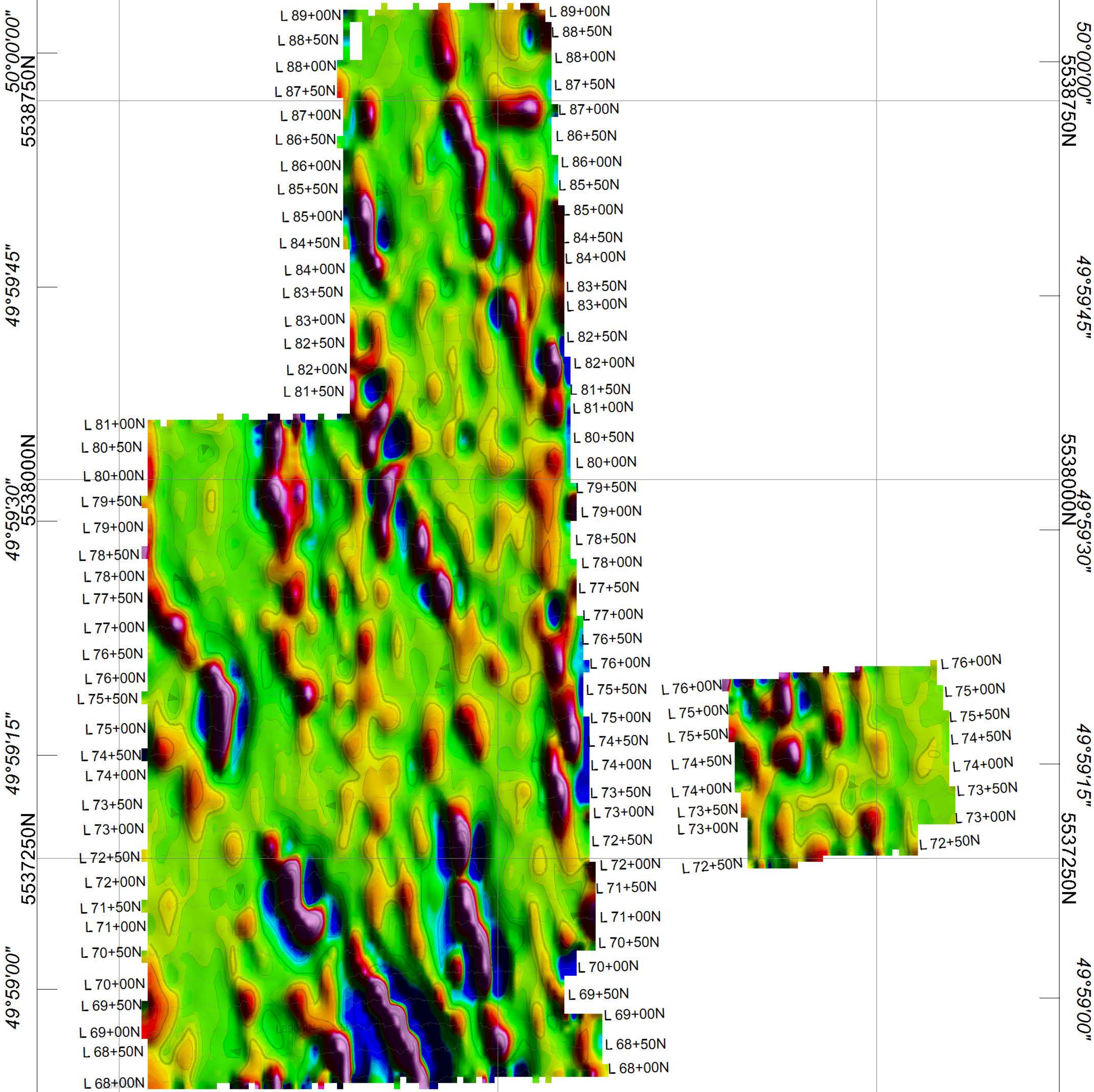
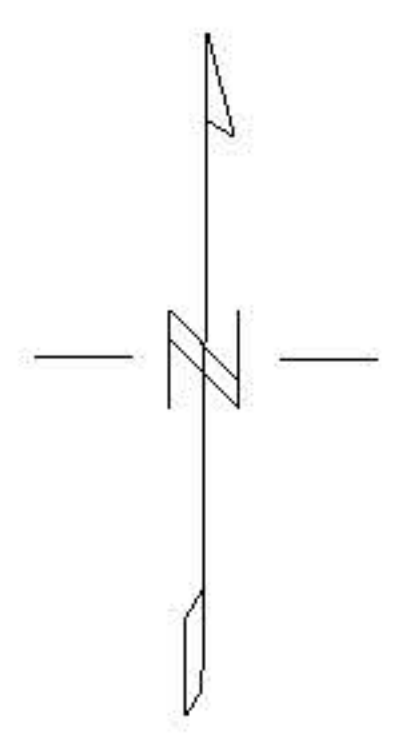
**Total Magnetic Intensity**  
(nT)

100 0 100 200 300  
(meters)  
NAD83 / UTM zone 16N

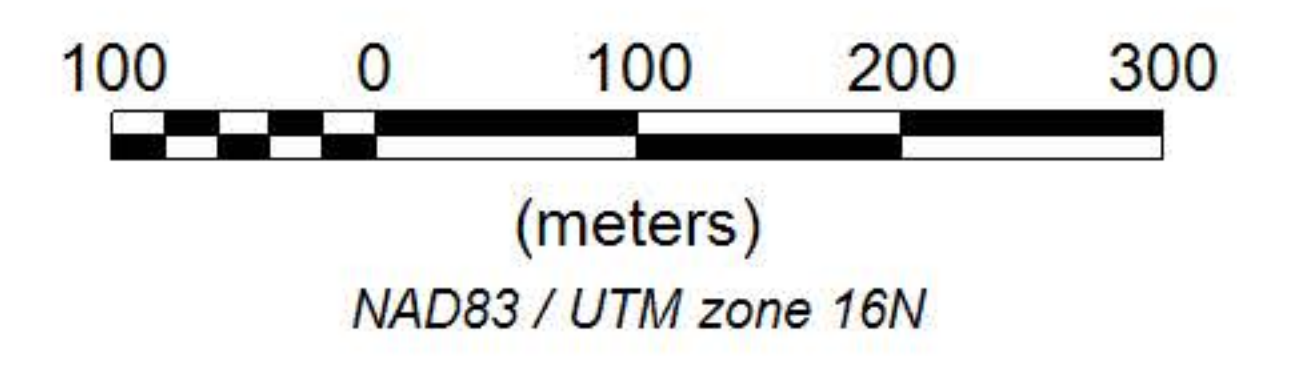
452250E -87°40'00"    -87°39'45"    -87°39'30" 453000E    -87°39'15"    -87°39'00"    -87°38'45" 453750E    -87°38'30"



-87°40'00" 452250E    -87°39'45"    -87°39'30" 453000E    -87°39'15"    -87°39'00"    -87°38'45" 453750E    -87°38'30"



**Vertical Gradient**  
(nT/m)



452250E    -87°39'45"    -87°39'30" 453000E    -87°39'15"    -87°39'00"    453750E    -87°38'45"    -87°38'30"