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November 15 , 2015
NTS: 041O15

Total Magnetic Field and VLF Surveys on the Rollo Property

Claims 4275244, 4275245, 4275246, 4276732

Rollo Township

Porcupine Mining Division

378000E, 5301500N
UTM Z17N NAD83

Report Prepared for/by:

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3048 Seneca Dr.
Oakville ON, L6L 1A9

Contents

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Introduction

The Rollo property consists of 8 unpatented mining claims in Rollo Township in the Porcupine Mining Division totaling 93 claim units. Information about the claims is available in Table 1 below. A regional scale location map of the property is shown in Map 1, and a detailed claim map is shown in Map 2.

Table 1. Summary of claim holdings.

Claim	Township	Size
4275236	Rollo	8
4274859	Rollo	8
4276732	Rollo	12
4275244	Rollo	9
4276738	Rollo	16
4275245	Rollo	12
4276737	Rollo	16
4275246	Rollo	12

Location and Access

The property is located approximately 115 km southwest of Timmins, and 190 km northwest of Sudbury. Access to the property is by a well maintained lumber road, accessible by summer, and intermittently in the winter depending on the road maintenance due to logging operations. The property can be accessed from the north via highway 101 to the Folyet Timber road 10 km east of Folyet. Access from the south is from the Dore road at the 50 km marker west of the Sultan industrial road and highway 144 junction. A logging road loops through the southern and west portion of the claim group. Map 2 shows road access for the claim group.

Past Work

The claim groups have seen limited exploration work. Hanson Lake Resources Ltd. completed a magnetic /VLF survey in the area to the south of Hanson Lake, approximately in the northeast area of current claim group. The survey showed E/W to WNW/ESE striking, discontinuous conductors (Meikle, 1988).

Kenty Resources Ltd. completed a geophysical program (magnetics, IP) survey in the southeast of Rollo township (Meikle R. , 1988), as well as a geological mapping program (Graham, 1983). Follow-up work consisted of diamond drilling of 10 hole (~1000 meters) in shallow holes, with a primary focus around the southern creek. Low gold values were associated with argillite units near the creek, with lesser

amounts of tuffs and agglomerate intersected. The best values encountered were up to 0.34 g/t in the argillite unit. Drilling to the north intersected rhyolite to rhyodacite units with sporadic pyrite and quartz veining. Exploration work was carried out between 1983 and 1987. Geological mapping showed mafic volcanics to the north and south, with argilite and tuffs in the central area near the E/W trending river in the south of Rollo township. Sporadic outcrop made interpretation difficult. Lamprophyre dikes were noted in the south with the mafic volcanics near the township boundary. Observations support the regional geological interpretation (Hopkins, 1988).

The claim has been flown by airborne EM and magnetic surveys (Ontario Geological Survey, 1981), and mapped on a regional scale (Heather & Shore, 1999).

Regional Geology

The claim group is generally underlain by mafic volcanics, that appear to be pillowed to the north of the claim groups (Heather & Shore, 1999). A high strain zone is indicated on the claim group on current claims 4276737. Quartz feldspar porphyries are indicated to the south of the Hanson Lake, which may be present in the northeast area of the claim group. The south area of the claim group is shown to be underlain by felsic volcanics with variable graphite. This shows as a airborne EM anomaly (Ontario Geological Survey, 1981). Regional magnetics show relatively flat magnetic features trending EW to east-southeast across the claim group, parallel to interpreted geology on the regional map (Heather & Shore, 1999).

Current Work Program

The current work program looked to complete a reconnaissance survey on claims 4275244, 4275245, 4275246, and 4276732 with a total field magnetic and VLF survey. Three distinct grids were completed on each of the claims. Survey lines were completed at 200 meter intervals, except on the southwest grid, as more detailed 100 m interval lines were completed.

A total of 22.7 km of magnetic/VLF and 9.5 km of magnetic survey lines were completed on the three grids with 19.6 km on the east grid, 8 km on the northwest grid, and 4.5 km on the southwest grid. The purpose was to identify structures on the claim group for follow-up work with more detailed geophysical and prospecting surveys for potential gold mineralization.

Magnetic Survey

A GSM-19 Overhauser Magnetometer with a synchronized GPS system was used to collect magnetic field readings. Readings were collected at 2 second intervals, and were corrected for diurnal variations using a stationary proton procession magnetometer and applied using Gem-Link 5.2 software. Base station readings were collected at 15 second intervals using a reference field of 56,000 nT. A summary of the magnetometer specifications is shown in Table 2.

Table 2. Specifications for GSM-19 Overhausser Magnetometer

Sensitivity:	0.022 nT @ 1Hz
Resolution:	0.01 nT
Accuracy:	0.1 nT
Range:	20,000 - 120,000 nT
Sampling Interval:	2 s

VLF Survey

VLF readings were taken at paced distances of approximately 10 - 20 meters depending on the terrain. The Cutler, Maine (24.0 kHz) station was used and percentage in-phase and out-of-phase (quadrature) components measured relative to the horizontal field. Only station readings with signal strengths greater than seven picoTesla (7 pT) were utilized in interpretation. The instrument has self-leveling features, and a sensitivity of 0.1 % for phase component measurements.

Data Processing and Interpretation

Magnetic field measurements were selected for signal strength values greater than 39 to ensure quality readings. Magnetic field measurements were interpreted using Surfer 11 software employing the Kriging interpolation method with an anisotropic search radius. The resulting grid was smoothed using a 9x9 Gaussian filter to better delineate trends, and the resulting contour map is shown in Map 4.

The VLF profiles were interpolated linearly with respect to line direction from the raw VLF in-phase and out-of-phase components. These were overlain on a map with projection of the IP/OP readings projected perpendicular to the line direction, at a scale of 1 cm to 50 %.

The interpolated VLF profiles were sampled at 10 meter intervals, and used in a 4-point Fraser filter calculation. The resulting Fraser filter values were plotted at the midpoint of the four points, and contoured to aid in the interpretation of the VLF survey.

Results

A general overview of the magnetic results for the NW, SW, and E grids is shown in Map 7. This map shows that the south appears to have magnetic lows to the north of magnetic high just to the north of the Rollo and Swayze township boundaries. This coincides with the approximate location of the contact between the felsic volcanic rocks and intrusive mafic rocks on the regional geological map. The north area, observed at the to the north of the lower magnetic areas of this contact appear to trend ESE/WNW, agreeing the with the regional trend of the rocks. To the north of this lower magnetic unit appears to be a contact with a variably magnetized area of rocks, with the contact appearing to show magnetic high and low anomalies along strike. This contact appears to correspond to a weak VLF anomaly.

The northwest shows a prominent NE/SW trending magnetic feature observed on the airborne magnetic survey (Ontario Geological Survey, 1981). This is flanked to the north may a magnetic low of local high

magnetic intensity. The south of the NW grid shows several local maxima, the largest of which appears to correspond with a VLF anomaly.

Southwest Grid

The southwest grid shows an E/W trending magnetic high and low, with variable magnetism along strike. It appears as though the anomalies become truncated to the west, although extended lines would be needed to better define the anomaly to the west. Results from the magnetic field survey are shown in Map 4a. A large VLF-EM response is seen crossing from the magnetic high to magnetic low region, with a discontinuous cross over observed to the north of the magnetic highs. From the regional geological map, this may be caused by a conductive contrast between the felsic volcanics/sediments and the intrusive body. A conductive layer in the unit to the north may cause increased VLF-EM response as well. VLF profiles are shown in Map 4b, and Map 4c shows VLF profiles and the total magnetic field.

Northwest Grid

A NE/SW trending magnetic high is observed to cross the grid in the northern area of the grid. The regional geological map does not show a diabase dyke, but the narrow elongated airborne feature may be explained by this. Smaller dikes are indicated in this area on the regional map. There is a magnetic low to the north of this linear feature, most pronounced in the center of the grid. To the south, 3 local maxima occur, as well a 300 meter wide EW magnetic high. Magnetic results are shown in Map 5a. The E/W elongated magnetic high corresponds with a weakly pronounced VLF-EM crossover that looks to increase to the east, and is trending just north of east. VLF profiles are shown in Map 5b, and Map 5c shows VLF profiles and the total magnetic field. Note that the results are very noisy on the southern half of the western most line and may be due to low signal quality for the VLF data.

East Grid

The east grid shows a moderate to weak VLF-EM anomaly near the contact area of the higher and lower magnetic units, trending ESE/WNW. This area is thought to represent a geological contact as opposed to a narrow conductive feature. The contact area appears to be variable magnetized to the north. The north area has some weak, short EW trending conductors, that appear to flank magnetic highs.

The south of the grid shows a contact area between the mapped intrusive unit. Of note, it appears there are slight north of east trending conductors that are weak to moderate, and are interesting as they occur sub parallel to the geological contact inferred from the magnetic data.

Conclusions and Recommendations

The results show some regional anomalies that would be good to follow up on with more detailed geophysical work, as well as prospecting to determine the potential for the anomalies to host gold mineralization.

East Grid

On the east grid, the contact defined by variable magnetic highs and lows should be covered with 50-100 meter lines, with prospecting to determine the cause of the anomalies.

The south of the east grid had some more detailed lines at 50 meter spacing completed on the contact between the regional mafic intrusives. A survey at 100 meter spacing to connect the SW and E grids along this anomaly may indicate its continuity. Additionally, prospecting may be a useful tool to determine the potential for gold mineralization along this contact zone. The area of weak conductors in the southwest area of the grid should be a primary target for prospecting in this zone.

NW Grid

Regional structures were fairly well defined by the survey. Prospecting on the larger southern local magnetic high with coincident VLF anomaly is recommended to determine the cause. Prospecting on the north edge of the magnetic high in the north of the grid is also recommended to determine the potential for gold mineralization in association with the NE trending regional structure.

SW Grid

A large ridge coinciding with the contact zone on the regional geological map should give ample opportunity for prospecting. Some quartz veining was observed by the author during the survey on the logging road, and any mineralized rock should be sampled to determine the potential for gold mineralization in this area. Extension of the survey area to the east to connect with the east grid, as well as to the west to better define the anomaly on the west of the grid area is recommended.

Works Cited

Graham, R. (1983). *Geological Assessment Work Report on the 44 Claims in Rollo Township Ontario For Kenty Resources Ltd.* Callander: Geoconsulting Services.

Heather, K., & Shore, G. (1999). *Geology, Swayze Greenstone Belt, Ontario, Open File 3384a (Sheet 1).* Ottawa: Geological Survey of Canada.

Hopkins, A. (1988). *Summary Report on the 1987-8 "CSE." (Flow-thro) Programs; Diamond Drilling on the 44-Claim Property of Kenty Explorations Ltd.*

Meikle, R. (1988). *Geophysical Report on the Rollo Township Property for Hanson Lake Resources Ltd.* Timmins: Exsics Exploration Ltd.

Meikle, R. (1988). *Geophysical Report on the Rollo TWP Property for Kenty Resources Ltd.* Timmins: Exsics Exploration Ltd.

Ontario Geological Survey. (1981). *Airborne Electromagnetic and Total Intensity Magnetic Survey, Swayze Area, Rollo Lake Sheet, District of Sudbury by Questor Surveys Limited; Map 80 537.* Ontario Geological Survey.

Appendix A: Statement of Author Qualifications

1. I have graduated from Queen's University with a Bachelor of Science Degree in Engineering, majoring in geological engineering
2. I hold a current Ontario prospector's license (License Number: 1007743)
3. I have conducted and interpreted previous radiometric, magnetic, and VLF surveys over the past 3 years.

To the best of my knowledge and abilities, the statements, information and conclusions made in this report and accompanying maps and figures are correct.

Signed:

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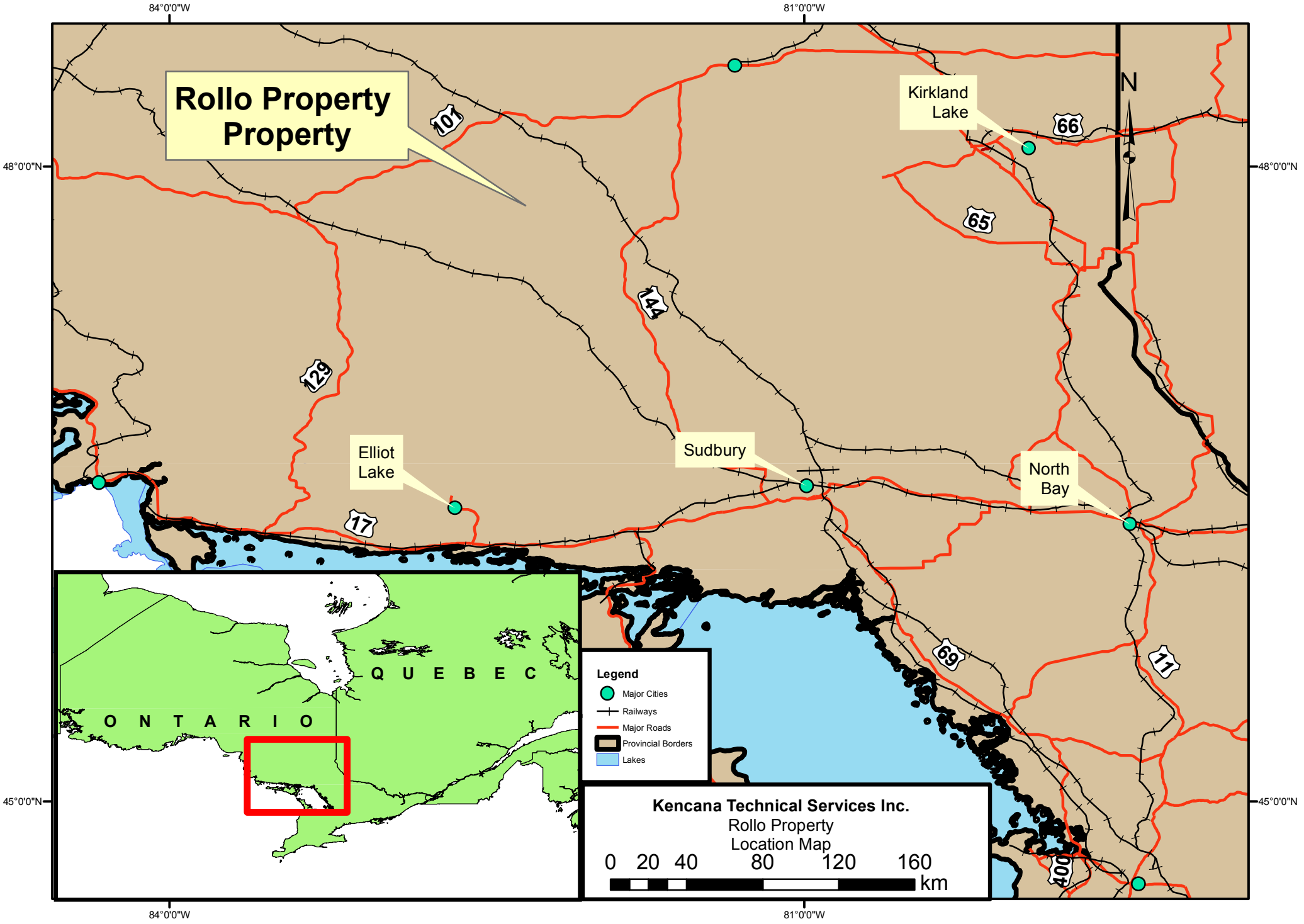
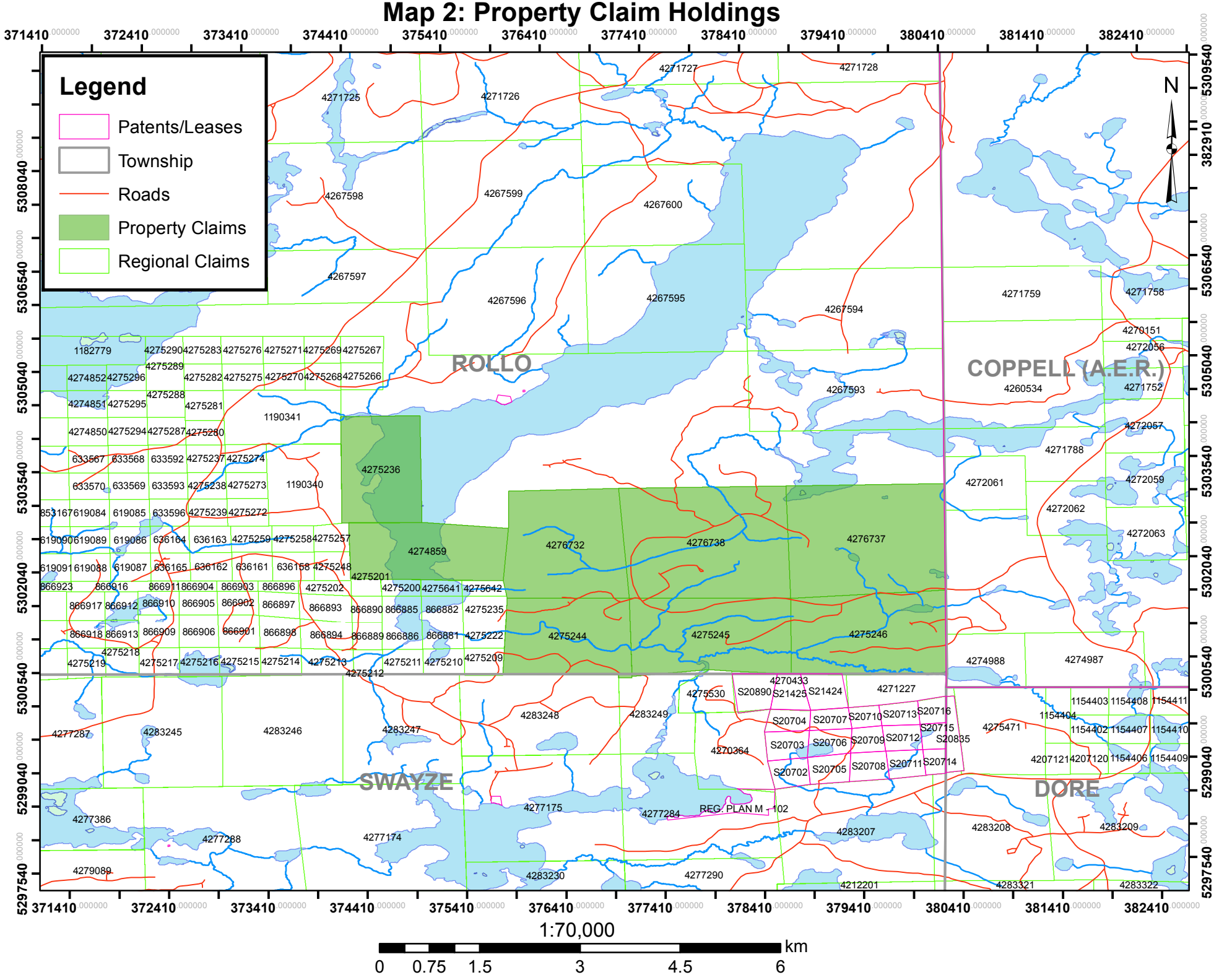
Lucas Currah

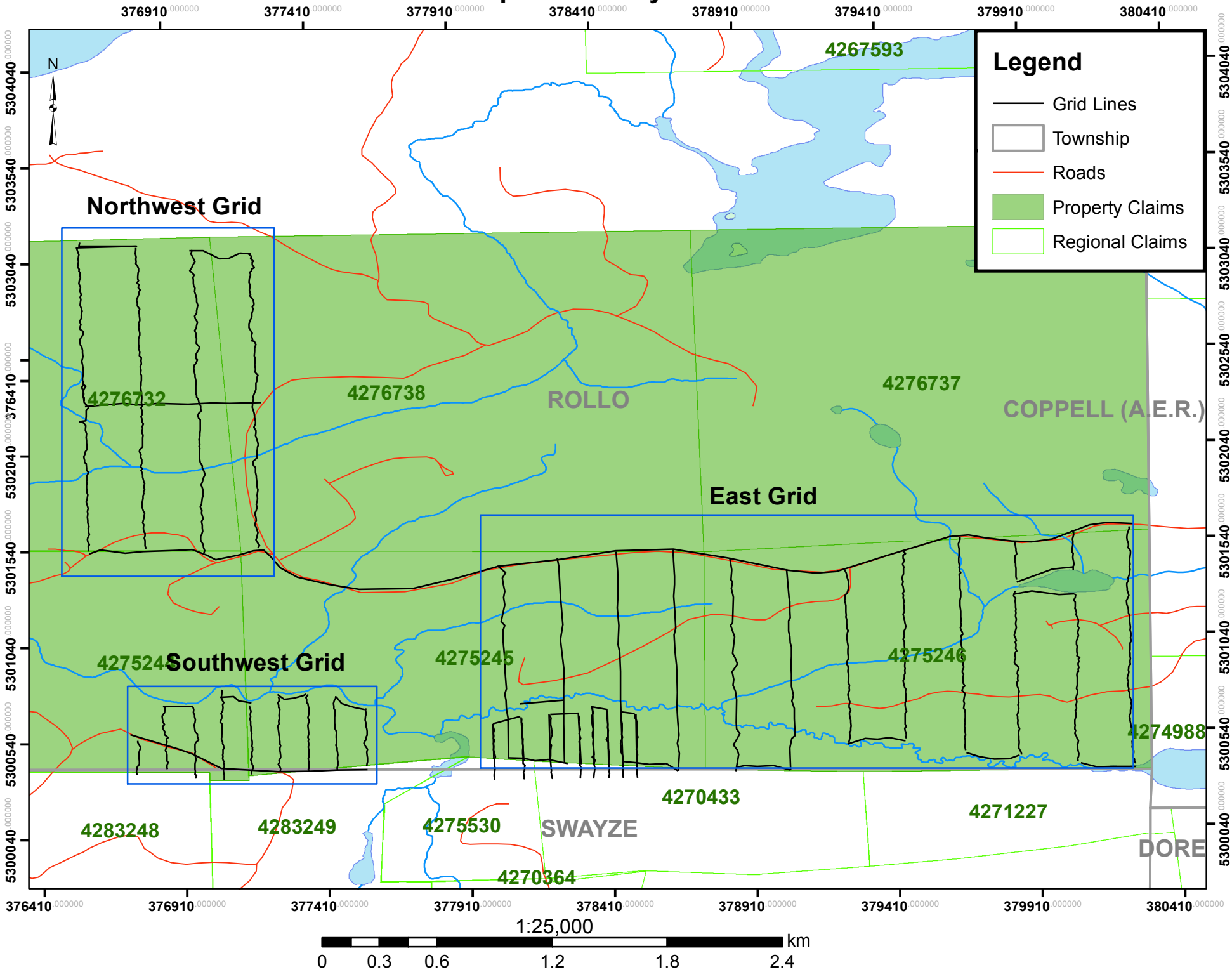
November 15th, 2015

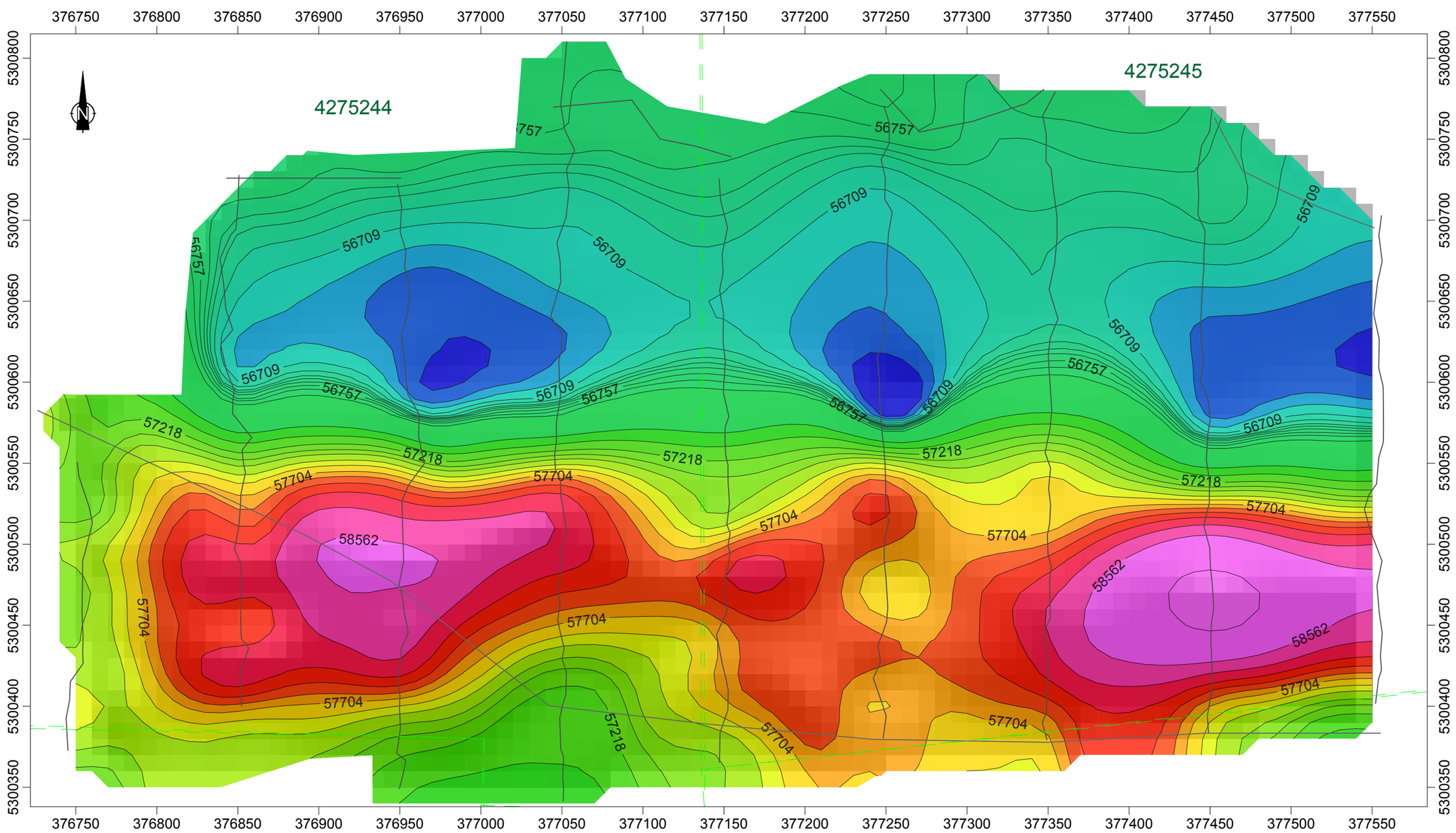

84°0'0"W
81°0'0"W
48°0'0"N
45°0'0"N
Rollo Property
Property
Kirkland
Lake
Elliot
Lake
Sudbury
North
Bay
N
101
66
65
144
129
17
69
11
400
Q U E B E C
O N T A R I O
Legend
Major Cities
Railways
Major Roads
Provincial Borders
Lakes
Kencana Technical Services Inc.
Rollo Property
Location Map
0 20 40 80 120 160
km

Map 2: Property Claim Holdings



Map 3: Grid Layout





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Map 4a: Total Magnetic Field
Southwest Grid

Scale: 1 : 2,500

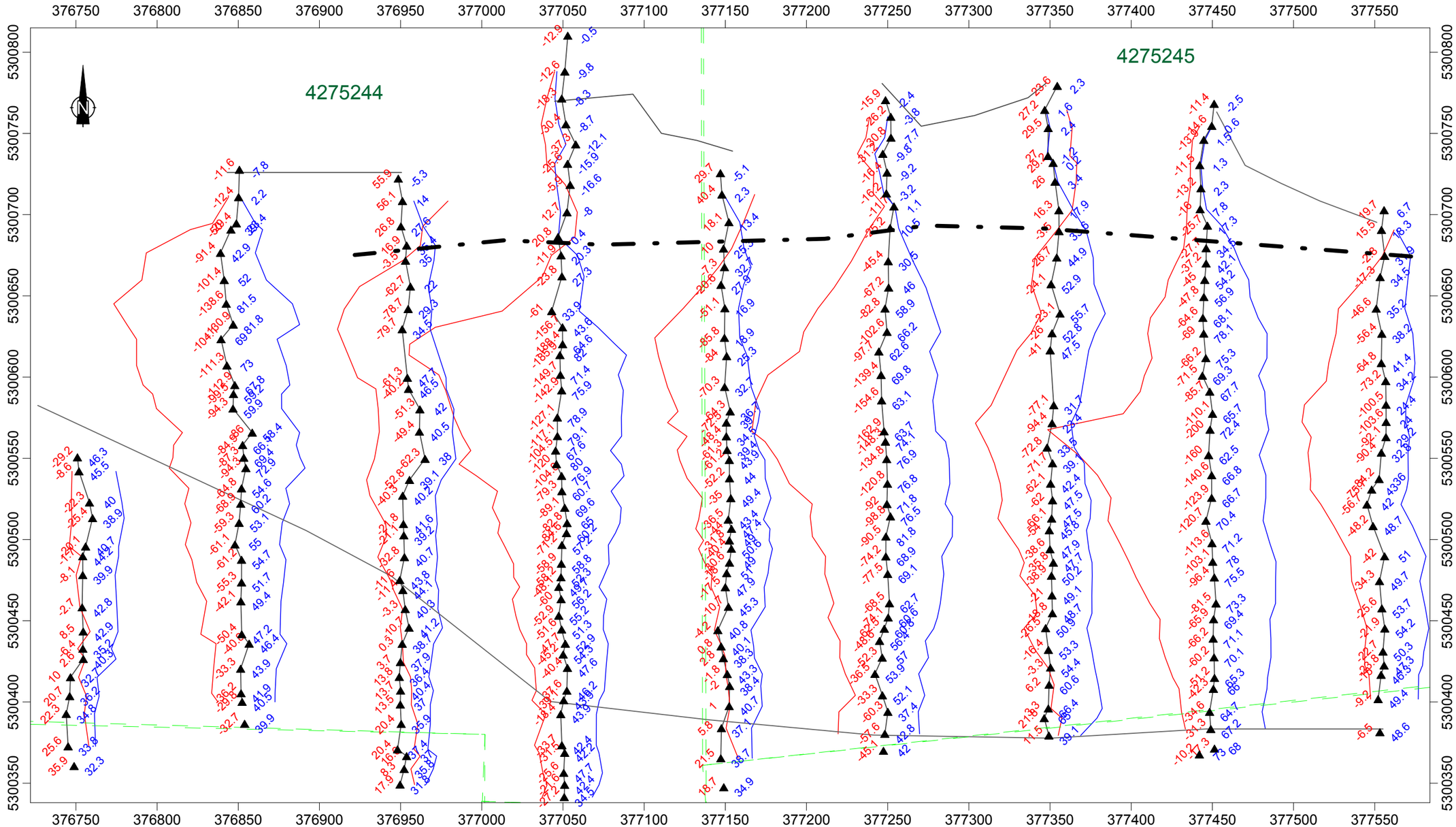
0 50 100 150 200

Datum: UTM NAD83 Z17N

Claims: 4275244, 4275245
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 4.5 km
Date: August, 2015

Total Magnetic Field (nT)
Reference Field: 56000

51157 56603 56653 56675 56692 56709 56723 56739 56746 56757 56769 56789 56992 57103 57218 57309 57389 57500 57593 57704 57795 57907 58052 58266 58562 59420



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Map 4b: VLF Profiles and Conductive Anomalies
Southwest Grid

Scale: 1 : 2,500

0 50 100 150 200

Datum: UTM NAD83 Z17N

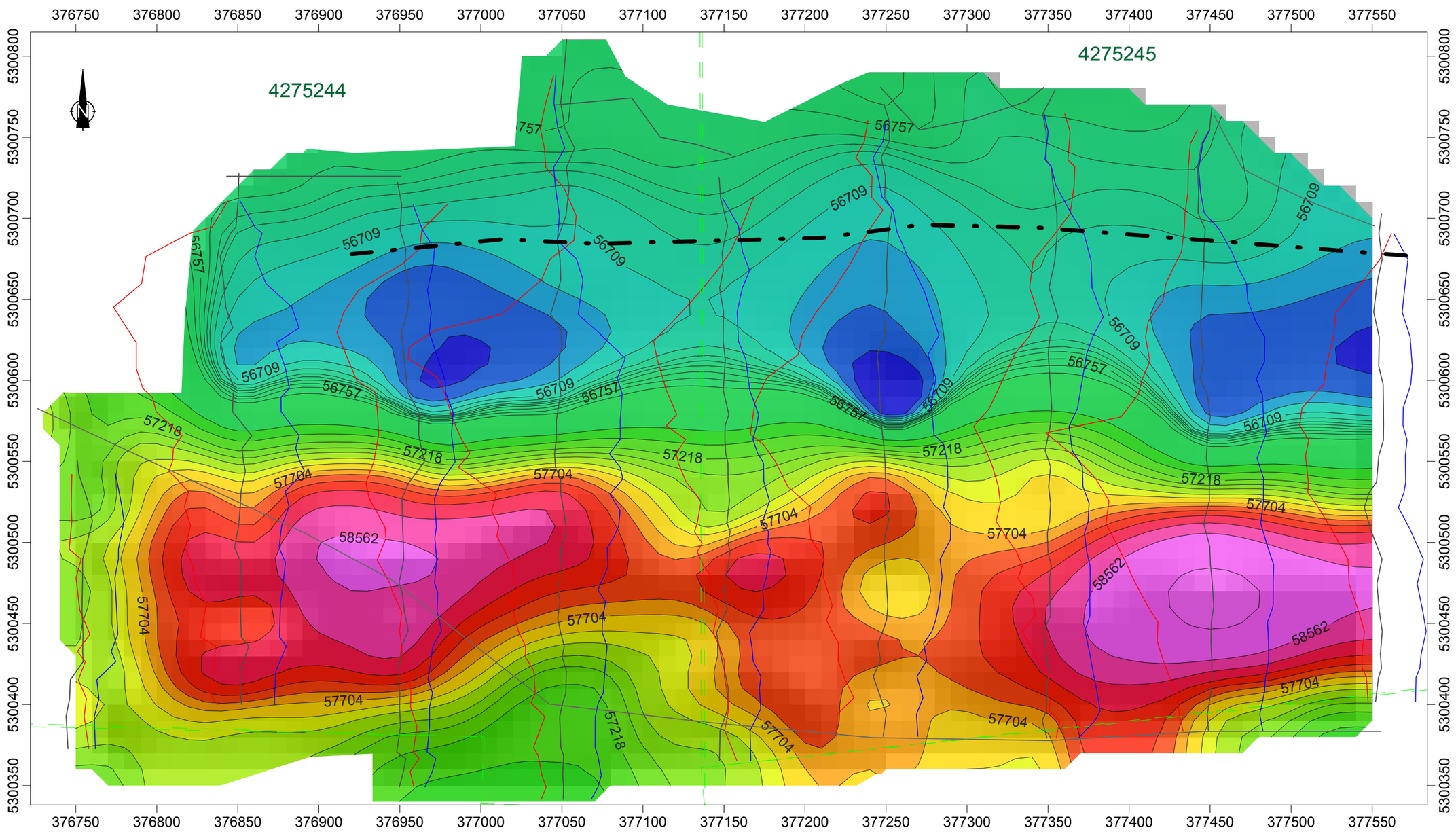
Claims: 4275244, 4275245
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 4.5 km
Date: August, 2015

VLF Legend

Line Location
Quadrature
In-phase

Conductive Anomalies

Measurements



Kencana Technical Services Inc.

Map 4c: Total Magnetic Field and VLF Profiles
Southwest Grid

Scale: 1 : 2,500

0 50 100 150 200

Datum: UTM NAD83 Z17N

Claims: 4275244, 4275245
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 4.5 km
Date: August, 2015

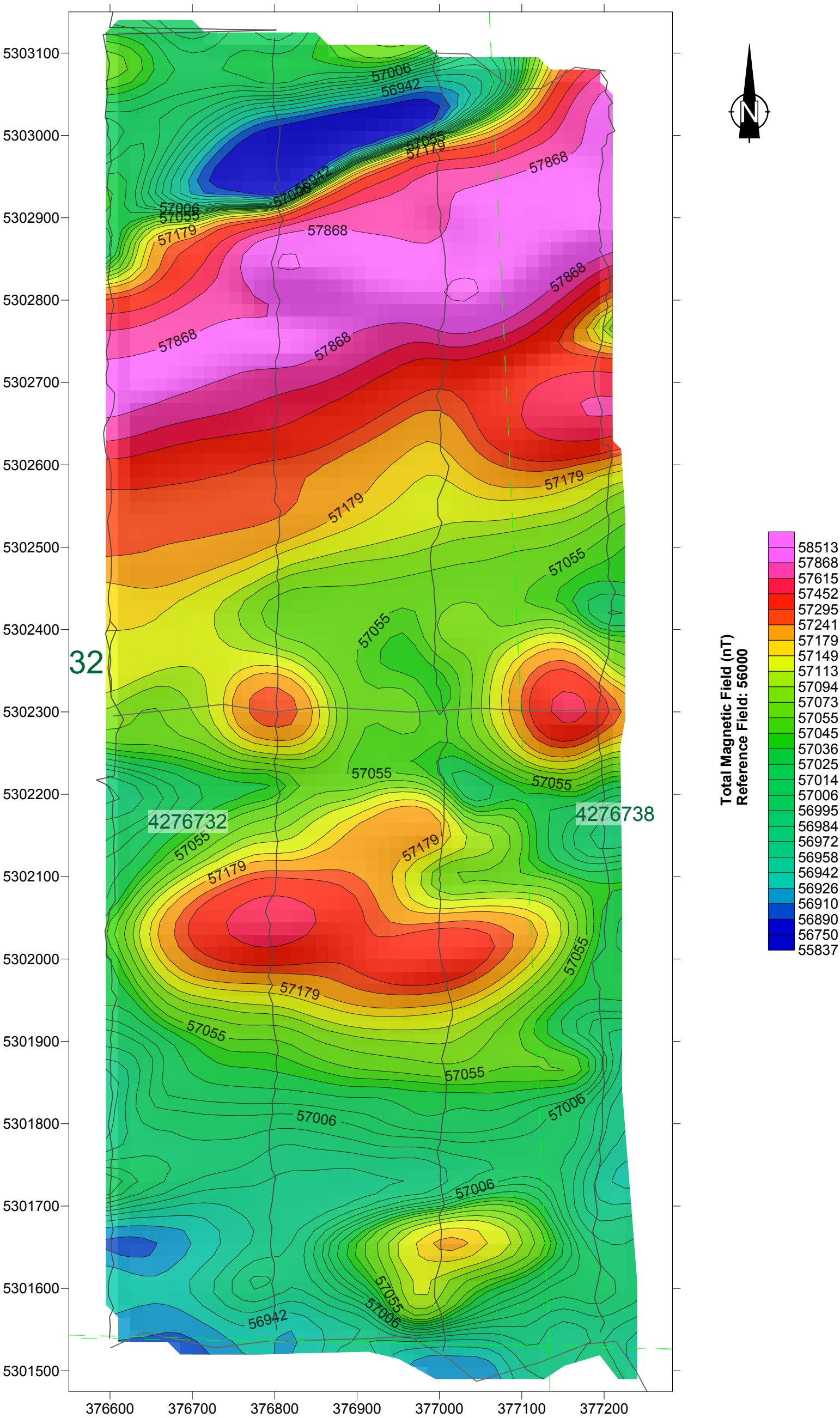
Total Magnetic Field (nT)
Reference Field: 56000

55157 56033 56653 56675 56692 56709 56723 56733 56739 56746 56757 56769 56789 56992 57103 57218 57309 57389 57500 57593 57704 57795 57907 58052 58266 58562 59420

VLF Legend

Conductive Anomalies

Line Location
Quadrature
In-phase



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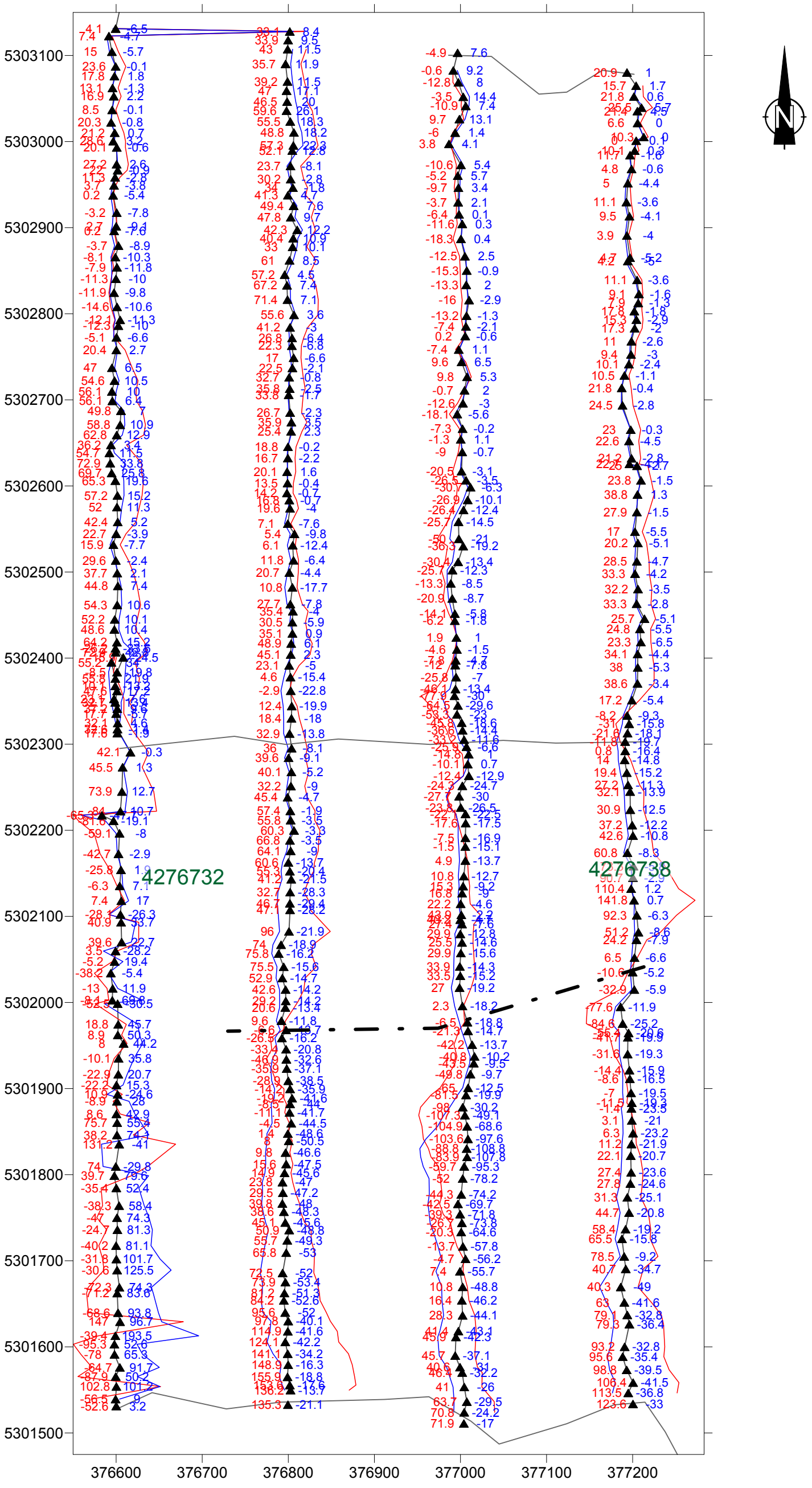
Map 5a: Total Magnetic Field
Northwest Grid

Scale: 1 : 5,000

0 100 200 300 400

Datum: UTM NAD83 Z17N

Claims: 4276732, 4276738
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 8 km
Date: August, 2015



Kencana Technical Services Inc.

Map 5b: VLF Profiles and Conductive Anomalies
Southwest Grid

Scale: 1 : 5,000

0 100 200 300 400

Datum: UTM NAD83 Z17N

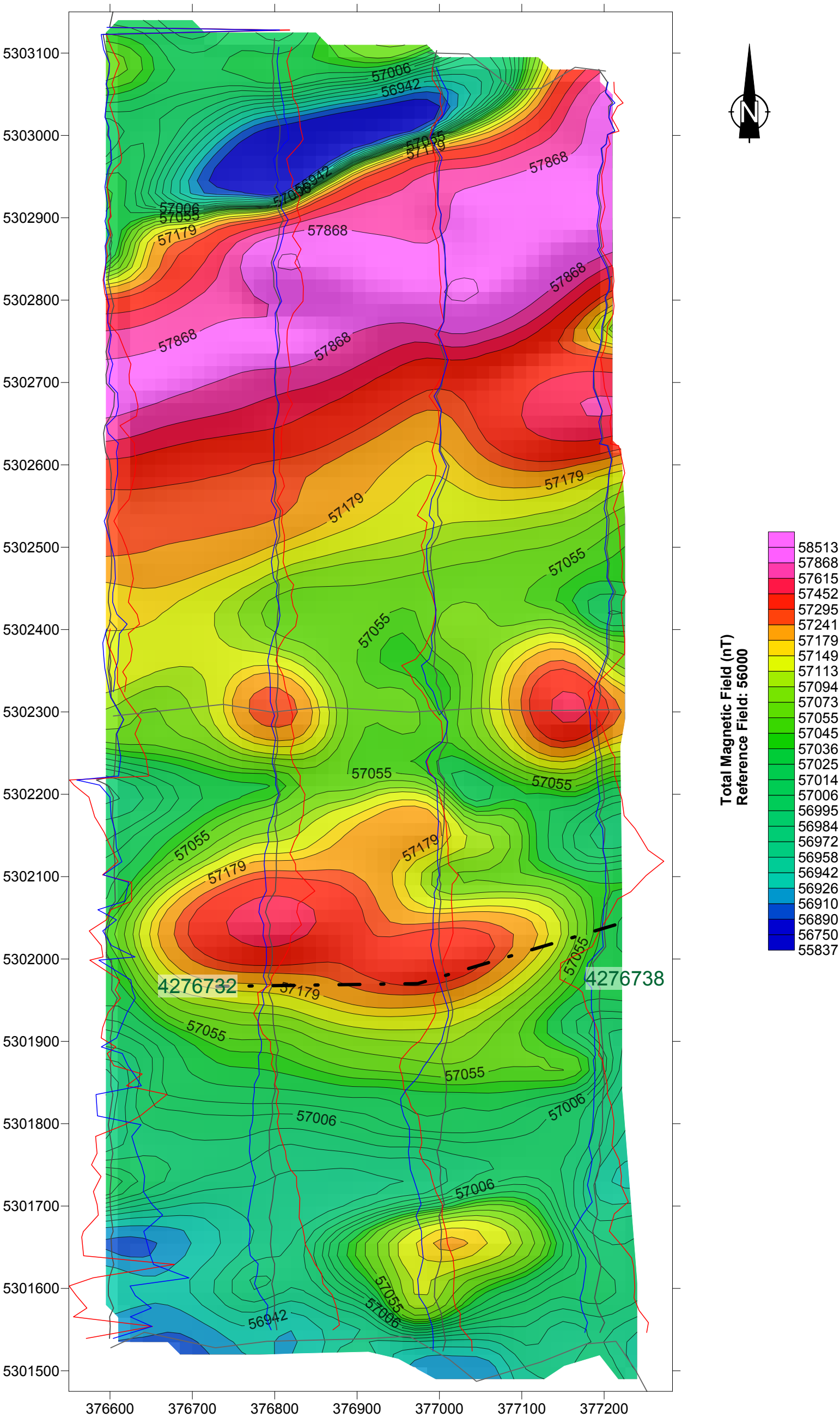
Claims: 4276732, 4276738
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 8 km
Date: August, 2015

VLF Legend

Line Location
Quadrature
In-phase

Conductive Anomalies

Measurements



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Map 5c: Total Magnetic Field and VLF Profiles
Southwest Grid

Scale: 1 : 5,000

0 100 200 300 400

Datum: UTM NAD83 Z17N

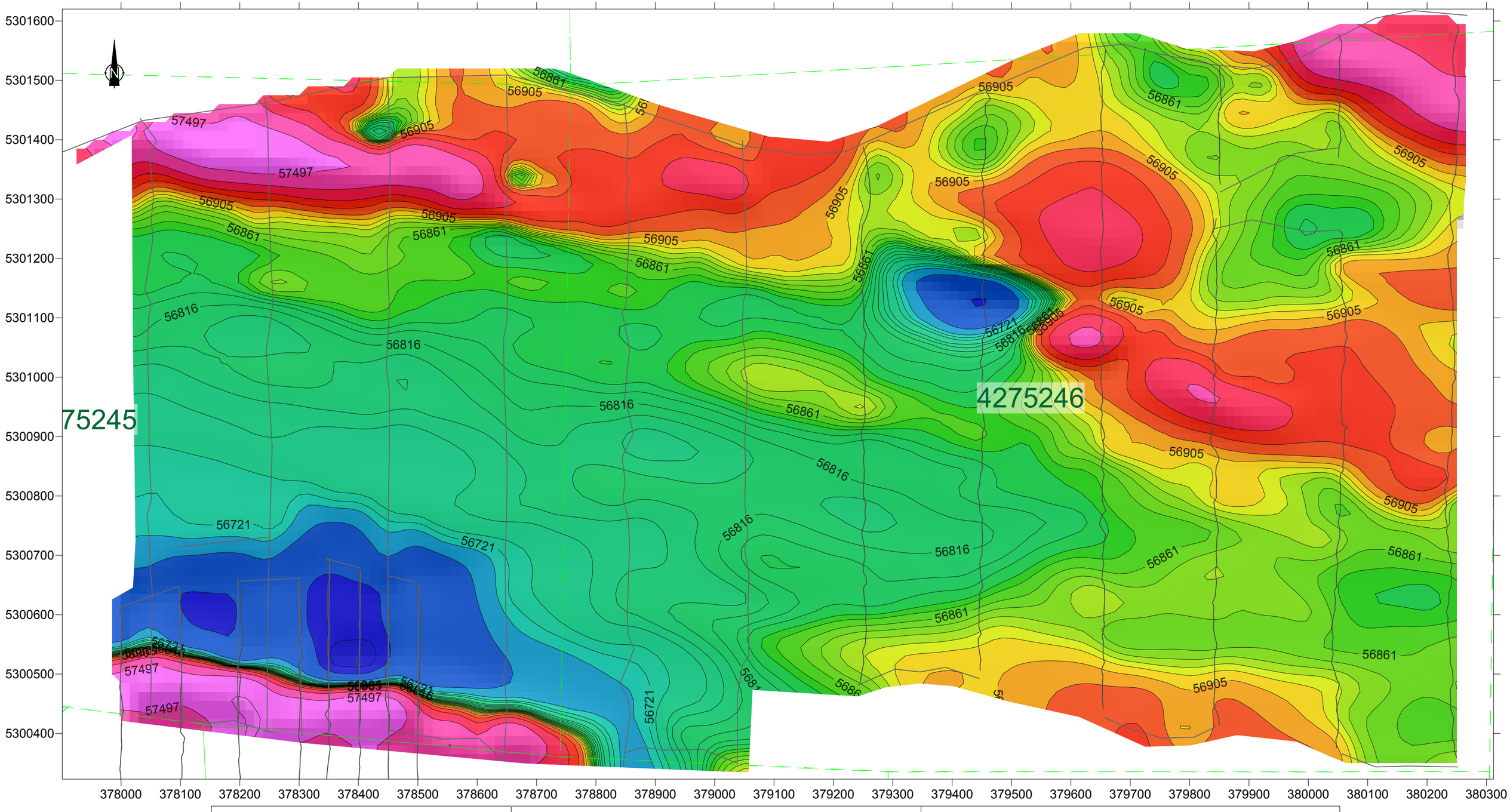
Claims: 4276732, 4276738
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 8 km
Date: August, 2015

VLF Legend

Line Location
Quadrature
In-phase

Conductive Anomalies

Measurements



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Map 6a: Total Magnetic Field
East Grid

Scale: 1 : 6,000

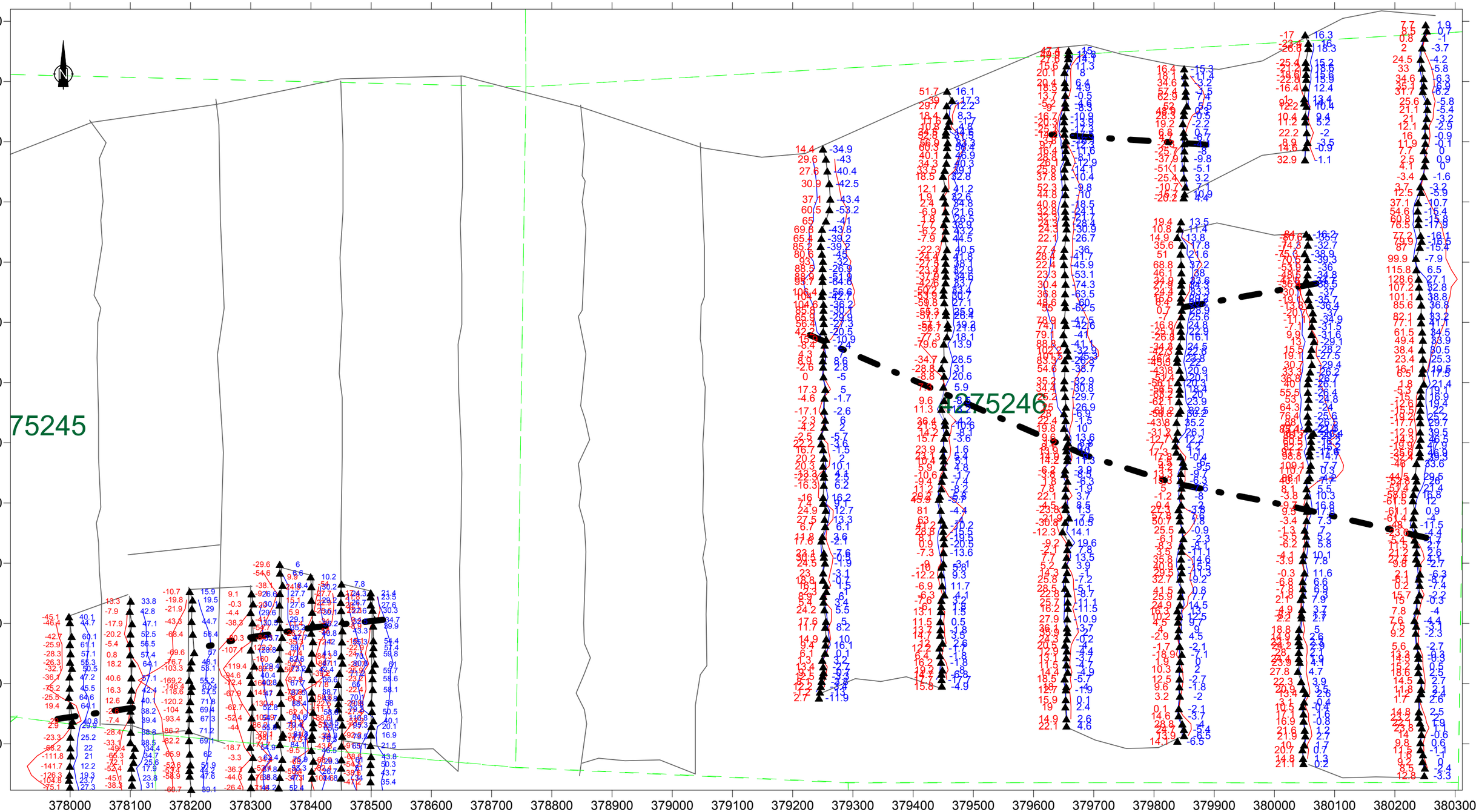
0 100 200 300 400

Datum: UTM NAD83 Z17N

Claims: 4275245, 4275246
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 19.5 km
Date: August, 2015

Total Magnetic Field (nT)
Reference Field: 56000

54415 56355 56438 56632 56697 56721 56741 56773 56788 56803 56816 56829 56837 56846 56852 56861 56869 56877 56885 56893 56905 56922 56958 57020 57162 57497 57753



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Map 6b: VLF Profiles and Conductive Anomalies
East Grid

Scale: 1 : 6,000

0 100 200 300 400

Datum: UTM NAD83 Z17N

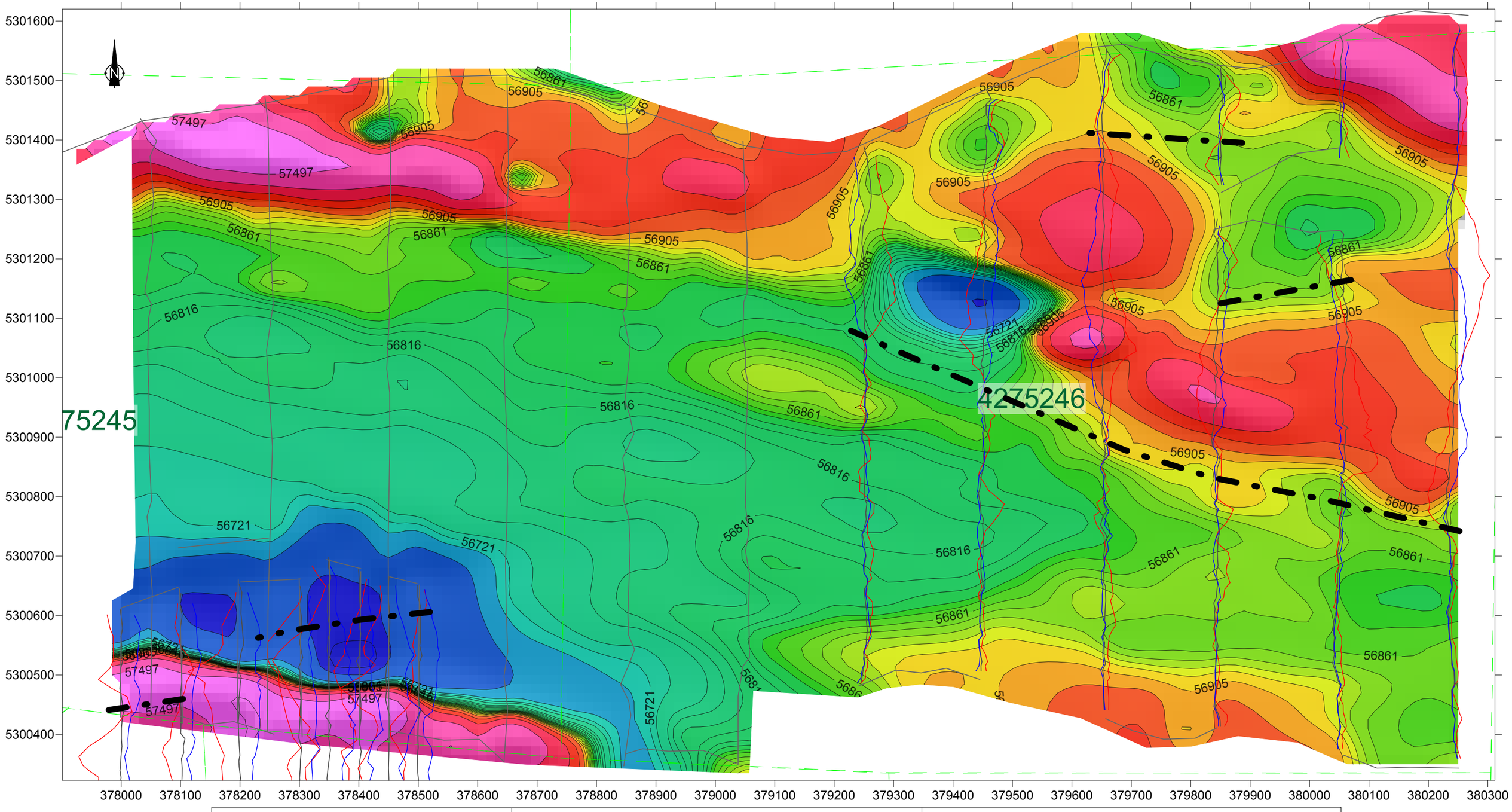
Claims: 4275245, 4275246
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 19.5 km
Date: August, 2015

VLF Legend

Line Location
Quadrature
In-phase

Conductive Anomalies

Measurements



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Map 6c: Total Magnetic Field and VLF Profiles
East Grid

Scale: 1 : 6,000

0 100 200 300 400

Datum: UTM NAD83 Z17N

Claims: 4275245, 4275246
Mining Division: Porcupine
Surveyor: Lucas Currah
Kilometers: 19.5 km
Date: August, 2015

Total Magnetic Field (nT)
Reference Field: 56000

55415 56355 56438 56632 56697 56721 56741 56773 56788 56803 56816 56829 56837 56846 56852 56861 56869 56877 56885 56893 56905 56922 56958 57020 57162 57497 58753

VLF Legend

Line Location
Quadrature
In-phase

Conductive Anomalies

Measurements

Kencana Technical Services Inc.

Map 7: Survey Compilation

Scale: 1 : 10,000

0 100 200 300 400

Datum: UTM NAD83 Z17N

VLF Legend

Line Location

Quadrature

In-phase

Conductive Anomalies

Measurements

Total Magnetic Field (nT)
Reference Field: 56000

59042.5248
58165.186
57807.2972
57600.1308
57460.1576
57327.6544
57226.38
57134.384
57073.4
57032.0184
57000.7956
56964.92
56929.92
56909.8264
56890.6396
56875.272
56858.7548
56841.9588
56823.88
56799.6532
56778.586
56755.4932
56730.5908
56699.8444
56608.6524
56398.4008
55026.35

4276738

4276737

732

244

4275245

4275246

N

376600 376800 377000 377200 377400 377600 377800 378000 378200 378400 378600 378800 379000 379200 379400 379600 379800 380000 380200

5303000 5302800 5302600 5302400 5302200 5302000 5301800 5301600 5301400 5301200 5301000 5300800 5300600 5300400