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**CANADIAN EXPLORATION SERVICES LTD**

**PALISADE RESOURCES CORP.**

**Q2141 – Cunningham Property  
VLF Survey**

**C Jason Ploeger, P.Geo. – April 19, 2017**

# **SKEAD HOLDINGS LTD.**

## **Abstract**

CXS was contracted to perform VLF survey over the Cunningham Property for Skead Holdings Ltd. This survey was performed in May 2016 and covered a portion of the Cunningham Property. Approximately 14 kilometers of no grid VLF was performed. The survey outlined several north trending systems.

**SKEAD HOLDINGS LTD.**

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## 1. SURVEY DETAILS

### 1.1 PROJECT NAME

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

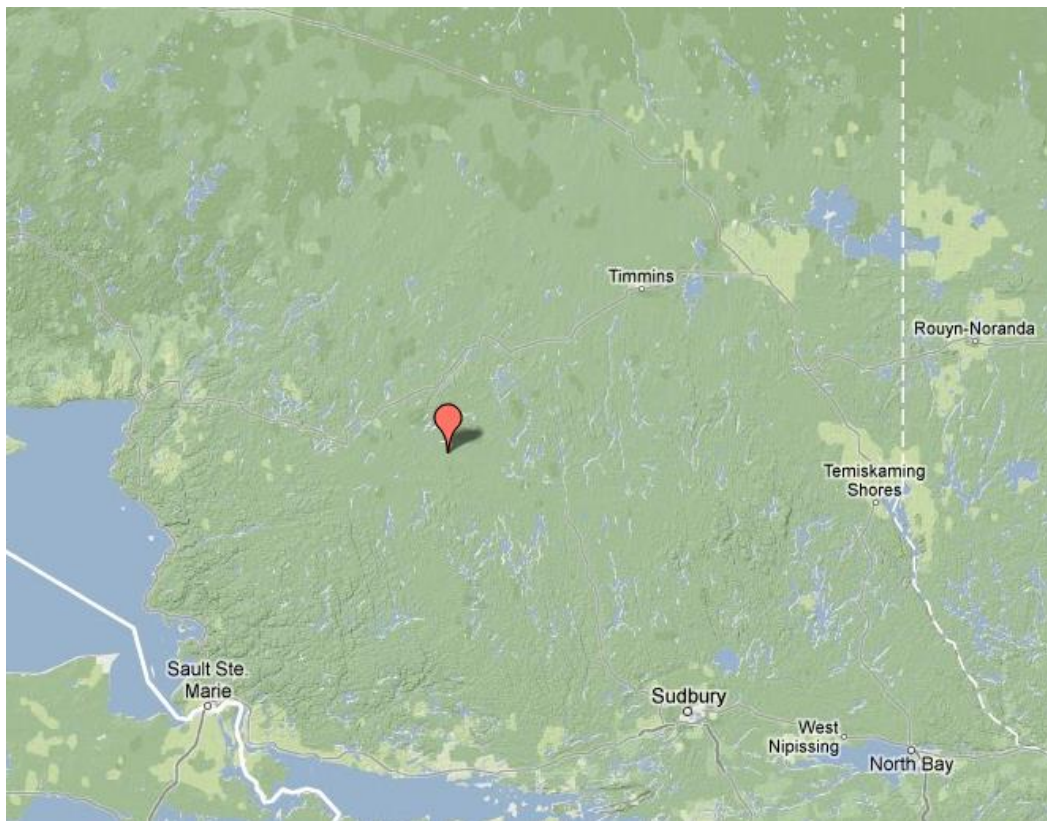
### 1.1 CLIENT

SKEAD HOLDINGS LTD.

28 Ford St.  
Sault Ste. Marie, Ontario  
P6A 4N4

### 1.2 LOCATION

The Cunningham Property is located in Cunningham Township approximately 10km northeast of Sault, Ontario. The survey area covers claim numbered 4260803, 4259264 and 4284299, within the Porcupine Mining Division.



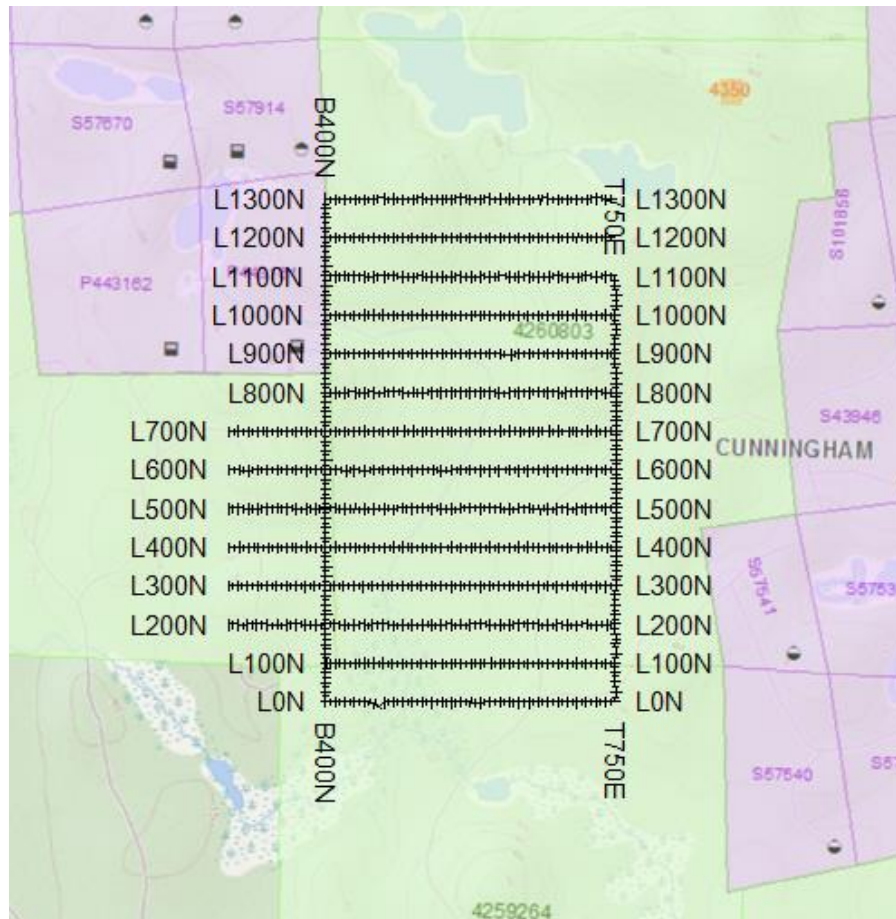
**Figure 1: Location of the Cunningham Property**

### 1.3 ACCESS

Access to the property was attained with a 4x4 truck by travelling on Highway 129 for approximately 28 km from the Town of Chapleau the taking Regional Rd 667 for approximately 47km. From that point, ATV's were used to travel for an additional 20km north and east on a series of old logging roads to the beginning of the property.

### 1.4 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 12.5m in front of the VLF EM operator. GPS waypoints and VLF EM samples were taken every 12.5m along these controlled traverses. The GPS used was a Garmin GPSMAP 62s with an external antenna for added accuracy.



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

## 1. SURVEY WORK UNDERTAKEN

### 1.1 SURVEY LOG

2. Date	Description	Line	Min Extent	Max Extent	Total Survey (meters)
May 13, 2016	Locate survey area and clear access. Begin survey.	0N	0	750E	750
		100N	0	750E	750
		200N	250W	750E	1000
		300N	250W	750E	1000
		0E	0N	500N	500
		400E	0N	300N	300
May 14, 2016	Continue VLF EM survey.	400N	250W	750E	1000
		500N	250W	750E	1000
		600N	250W	750E	1000
		700N	250W	750E	1000
May 15, 2016	Complete VLF EM survey.	800N	0	750E	750
		900N	0	750E	750
		1000N	0	750E	750
		1100N	0	750E	750
		1200N	0	750E	750
		1300N	0	750E	750
		0E	500N	1300N	800
		750E	800N	1100N	300

**Table 1: Survey Log**

### 2.1 PERSONNEL

Claudia Moraga operated the VLF EM and Bruce Lavalley navigated and collecting the GPS waypoints. Both are from Britt, Ontario.

### 2.2 SURVEY SPECIFICATIONS

The survey was conducted with a GSM-19 v7 VLF.

A total of 13.9 line kilometers of VLF EM was read over the Cunningham Property between May 13<sup>th</sup> and May 15<sup>th</sup>, 2016. This consisted of 1112 VLF EM samples taken at a 12.5m sample interval.



---

### **3. OVERVIEW OF SURVEY RESULTS**

#### **3.1 SUMMARY**

No culture was noticed during the course of the survey that would interfere with the results.

Historic work was noted during the survey. This included 2 diamond drill casings and two historic trenches. A trench and drill hole were both located on line 1200N with the trench located near 600E and the drill casing located near 700E. A second drill casing was located near line 1100N and 750E, with the final trench located near 625 on line 1000N.

Generally, the VLF EM indicates a north-south fabric to the VLF signatures. The strong signatures appear as two parallel axis, separated by 100-125 meters. Three of these occur in a north-south strike across the survey area. These axis appear to be horizontally shifted, which may indicate that they are from the same source and are either folded or shifted through a structural feature.

Another axis appears on over tieline 750E between 800N and 1100N. This is the region that the historic trenches and drill holes were noted. I would recommend examining these features to assist in the determining the source of this anomaly.



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## APPENDIX A

### STATEMENT OF QUALIFICATIONS

I, C. Jason Ploeger, hereby declare that:

1. I am a professional geophysicist with residence in Larder Lake, Ontario and am presently employed as a Geophysicist and Geophysical Manager of Canadian Exploration Services Ltd. of Larder Lake, Ontario.
2. I am a Practising Member of the Association of Professional Geoscientists, with membership number 2172.
3. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.
4. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.
5. I am a member of the Ontario Prospectors Association, a Director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.
6. I do not have nor expect an interest in the properties and securities of **Skead Holdings Ltd.**
7. I am responsible for the final processing and validation of the survey results and the compilation of the presentation of this report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.



C. Jason Ploeger, P.Geo., B.Sc.  
Geophysical Manager  
Canadian Exploration Services Ltd.

Larder Lake, ON  
April 19, 2017

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## APPENDIX B

### THEORETICAL BASIS AND SURVEY PROCEDURES

#### VLF EM SURVEY

The frequency domain VLF electromagnetic survey is designed to measure both the vertical and horizontal in-phase (IP) and Quadrature (OP) components of the anomalous field from electrically conductive zones. The sources for VLF EM surveys are several powerful radio transmitters located around the world which generate EM radiation in the low frequency band of 15-25kHz. The signals created by these long-range communications and navigational systems may be used for surveying up to several thousand kilometers away from the transmitter. The quality of the incoming VLF signal can be monitored using the field strength. A field strength above 5pT will produce excellent quality results. Anything lower indicates a weak signal strength, and possibly lower data quality. A very low signal strength (<1pT) may indicate the radio station is down.

The EM field is planar and horizontal at large distances from the EM source. The two components, electric (E) and magnetic (H), created by the source field are orthogonal to each other. E lies in a vertical plane while H lies at right angles to the direction of propagation in a horizontal plane. In order to ensure good coupling, the strike of possible conductors should lie in the direction of the transmitter to allow the H vector to pass through the anomaly, in turn, creating a secondary EM field.

The VLF EM receiver has two orthogonal aerials which are tuned to the frequency of the transmitting station. The direction of the source station is located by rotating the sensor around a vertical axis until a null position is found. The VLF EM survey procedure consists of taking measurements at stations along each line on the grid. The receiver is rotated about a horizontal axis, right angles to the traverse and the tilt recorded at the null position.

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## APPENDIX C

### GSM 19



### Specifications

#### Overhauser Performance

Resolution: 0.01 nT  
Relative Sensitivity: 0.02 nT  
Absolute Accuracy: 0.2nT  
Range: 20,000 to 120,000 nT  
Gradient Tolerance: Over 10,000nT/m  
Operating Temperature: -40°C to +60°C

#### Operation Modes

Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.  
Base Station: Time, date and reading stored at 3 to 60 second intervals.  
Walking Mag: Time, date and reading stored at coordinates of fiducial.  
Remote Control: Optional remote control using RS-232 interface.  
Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

#### Operating Parameters

Power Consumption: Only 2Ws per reading. Operates continuously for 45 hours on standby.  
Power Source: 12V 2.6Ah sealed lead acid battery standard, other batteries available  
Operating Temperature: -50°C to +60°C

#### Storage Capacity

Manual Operation: 29,000 readings standard, with up to 116,000 optional.  
With 3 VLF stations: 12,000 standard and up to 48,000 optional.  
Base Station: 105,000 readings standard, with up to 419,000 optional (88 hours or 14 days uninterrupted operation with 3 sec. intervals)  
Gradiometer: 25,000 readings standard, with up to 100,000 optional. With 3 VLF stations: 12,000, with up to 45,000 optional.

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## Omnidirectional VLF

Performance Parameters: Resolution 0.5% and range to  $\pm 200\%$  of total field.  
Frequency 15 to 30 kHz.

Measured Parameters: Vertical in-phase & out-of-phase, 2 horizontal components, total field coordinates, date, and time.

Features: Up to 3 stations measured automatically, in-field data review, displays station field strength continuously, and tilt correction for up to  $\pm 10^\circ$  tilts.

Dimensions and Weights: 93 x 143 x 150mm and weighs only 1.0kg.

## Dimensions and Weights

Dimensions:

Console: 223 x 69 x 240mm

Sensor: 170 x 71mm diameter cylinder

Weight:

Console: 2.1kg

Sensor and Staff Assembly: 2.0kg

## Standard Components

GSM-19 magnetometer console, harness, battery charger, shipping case, sensor with cable, staff, instruction manual, data transfer cable and software.

## Taking Advantage of a “Quirk” of Physics

Overhauser effect magnetometers are essentially proton precession devices except that they produce an order-of magnitude greater sensitivity. These "supercharged" quantum magnetometers also deliver high absolute accuracy, rapid cycling (up to 5 readings / second), and exceptionally low power consumption.

The Overhauser effect occurs when a special liquid (with unpaired electrons) is combined with hydrogen atoms and then exposed to secondary polarization from a radio frequency (RF) magnetic field. The unpaired electrons transfer their stronger polarization to hydrogen atoms, thereby generating a strong precession signal-- that is ideal for very high-sensitivity total field measurement. In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and reduces noise (i.e. generating RF frequencies are well out of the bandwidth of the precession signal).

In addition, polarization and signal measurement can occur simultaneously - which enables faster, sequential measurements. This, in turn, facilitates advanced statistical averaging over the sampling period and/or increased cycling rates (i.e. sampling speeds).

- 
- The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities

**APPENDIX C**

**GARMIN GPS MAP 62S**



Physical & Performance:	
Unit dimensions, WxHxD:	2.4" x 6.3" x 1.4" (6.1 x 16.0 x 3.6 cm)
Display size, WxH:	1.43" x 2.15" (3.6 x 5.5 cm); 2.6" diag (6.6 cm)
Display resolution, WxH:	160 x 240 pixels
Display type:	transflective, 65-K color TFT
Weight:	9.2 oz (260.1 g) with batteries
Battery:	2 AA batteries (not included); NiMH or Lithium recommended
Battery life:	20 hours
Waterproof:	yes (IPX7)
Floats:	no
High-sensitivity receiver:	yes

Interface:	high-speed USB and NMEA 0183 compatible
<b>Maps &amp; Memory:</b>	
Basemap:	yes
Preloaded maps:	no
Ability to add maps:	yes
Built-in memory:	1.7 GB
Accepts data cards:	microSD™ card (not included)
Waypoints/favorites/locations:	2000
Routes:	200
Track log:	10,000 points, 200 saved tracks
<b>Features &amp; Benefits:</b>	
Automatic routing (turn by turn routing on roads):	yes (with optional mapping for detailed roads)
Electronic compass:	yes (tilt-compensated, 3-axis)
Touchscreen:	no
Barometric altimeter:	yes
Camera:	no
<u>Geocaching-friendly:</u>	yes (paperless)
<u>Custom maps compatible:</u>	yes
Photo navigation (navigate to geotagged photos):	yes
Outdoor GPS games:	no
Hunt/fish calendar:	yes
Sun and moon information:	yes



Tide tables:	yes
Area calculation:	yes
Custom POIs (ability to add additional points of interest):	yes
Unit-to-unit transfer (shares data wirelessly with similar units):	yes
Picture viewer:	yes
Garmin Connect™ compatible (online community where you analyze, categorize and share data):	yes

- *Specifications obtained from [www.garmin.com](http://www.garmin.com)*

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**APPENDIX D**

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

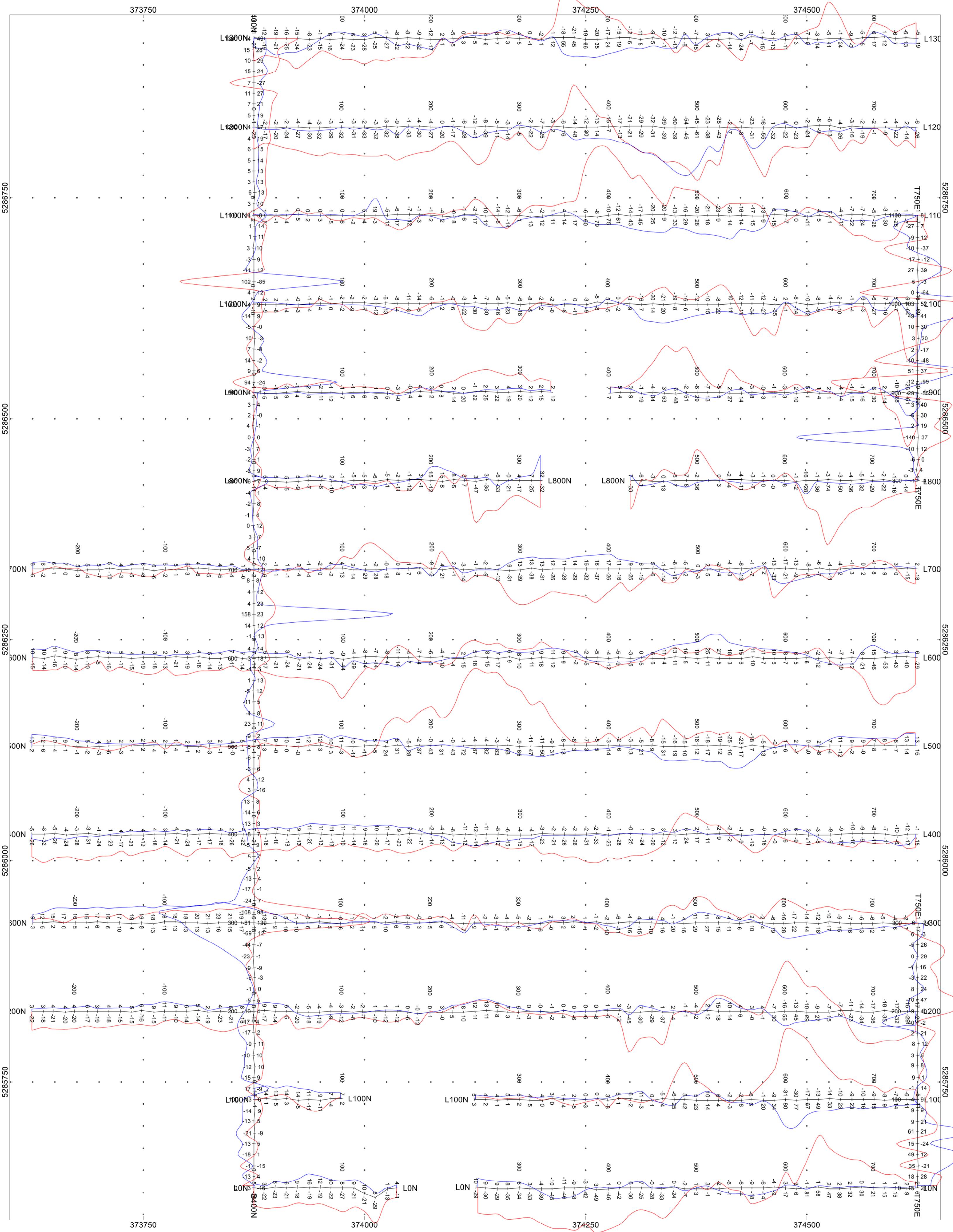
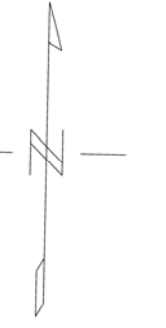
VLF EM Plan Map (1:2500)

1) Q2141-SKEAD-CUNNINGHAM-VLF-NAA

Grid Sketch on Claim Map (1:20000)

2) Q2141-SKEAD-CUNNINGHAM-TRAVERSE

**TOTAL MAPS = 2**



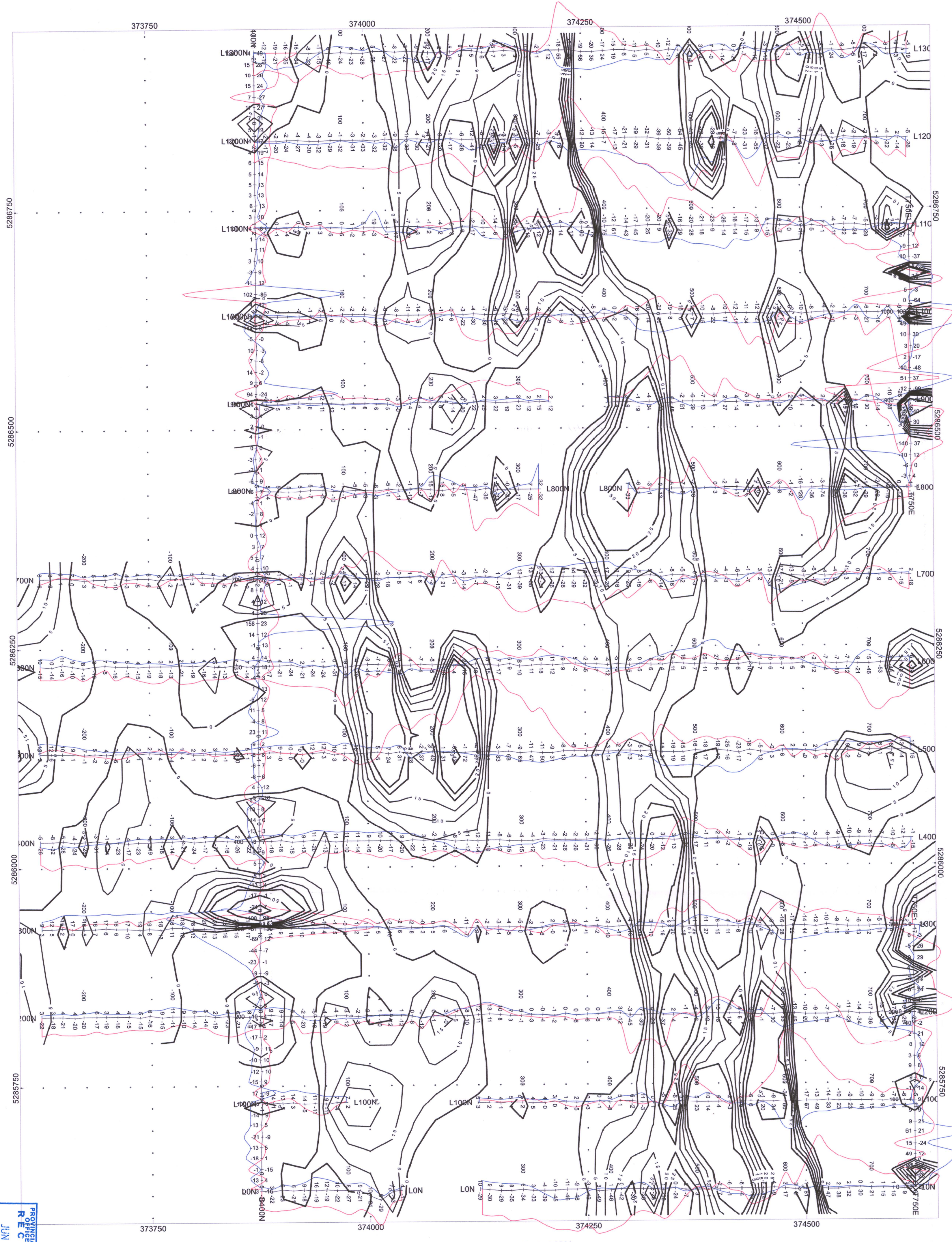
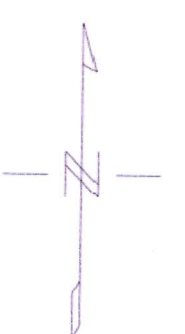
**SKEAD HOLDINGS LTD.**  
**CUNNINGHAM PROPERTY**  
**Cunningham Township, Ontario**

VLF IN PHASE/OUT PHASE PROFILE  
 24.0kHz NAA - CUTLER USA  
 In Phase: Posted Right/Bottom (Red)  
 Out Phase: Posted Left/Top (Blue)  
 Vertical Profile Scales: 2.5 %/mm  
 Station Separation: 12.5 meters  
 Posting Level: 0  
 GSM-19 VLF v7

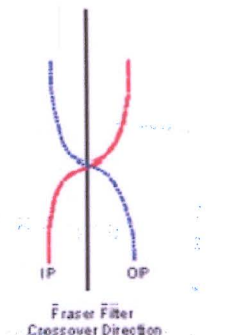
Receiver Operated By: Claudia Moraga  
 GPS Operated By: Bruce Lavalley  
 Processed By: Jason Ploeger  
 Map Drawn By: C Jason Ploeger, PGeo  
 April 2017







2.57904



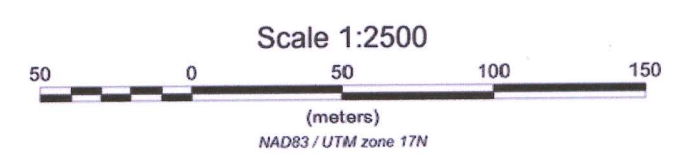
**SKEAD HOLDINGS LTD.**  
**CUNNINGHAM PROPERTY**  
Cunningham Township, Ontario

VLF IN PHASE/OUT PHASE PROFILE  
24.0kHz NAA - CUTLER USA  
In Phase: Posted Right/Bottom (Red)  
Out Phase: Posted Left/Top (Blue)  
Vertical Profile Scales: 2.5 %/mm  
Station Separation: 12.5 meters  
Posting Level: 0  
GSM-19 VLF v7

Receiver Operated By: Claudia Moraga  
GPS Operated By: Bruce Lavalley  
Processed by: Jason Ploeger  
Map Drawn By: C Jason Ploeger, PGeo  
April 2017

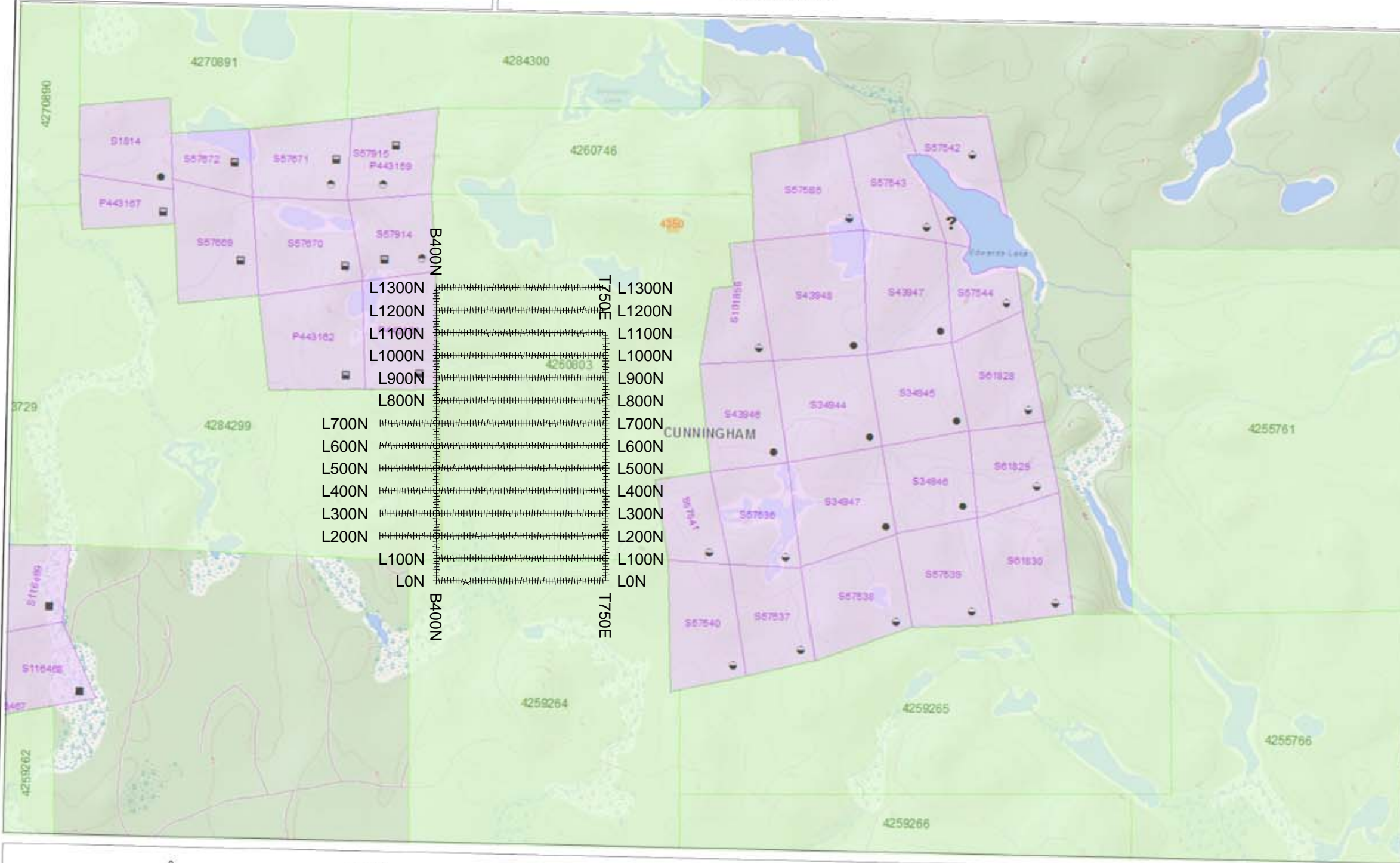


Drawing: Q2141-SKEAD-CUNNINGHAM-VLF-NAA



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### Legend

**Administration Boundaries**

- Mining Division
- Resident Geological District
- Townships and Areas

**Mineral Tenure Grid**

- OMTG Tenure Grid

**Alienations**

- Withdrawal
- Stake

**Unpatented Claim**

- Active
- Pending

**Disposition**

- Disposition

**Disposition Symbols**

- Camp
- Disposition Unknown/Ending
- Freehold Patent Mining Rights Only
- Freehold Patent Surface Rights Only
- Freehold Patent Surface and Mining Rights
- Land Use Permit
- Leasehold Patent Mining Rights Only
- Leasehold Patent Surface Rights Only
- Leasehold Patent Surface and Mining Rights
- License of Occupation Mining Use Only
- License of Occupation Surface Use Only
- License of Occupation Surface and Mining Rights
- License of Occupation Use Not Specified
- Order in Council
- Trees
- WFLA

**Geology Layers**

- AMIS Sites
- AMIS Features
- Drill Holes
- Mineral Occurrences



Projection: Web Mercator

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