



CANADIAN EXPLORATION SERVICES LTD

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Elk Lake Mining Company Limited

VLF EM Survey Over the

Elk Lake Property

James Township, Ontario

TABLE OF CONTENTS

1.	SURVEY DETAILS	3
1.1	PROJECT NAME.....	3
1.2	CLIENT	3
1.3	LOCATION	3
1.4	ACCESS.....	4
1.5	SURVEY GRID	4
2.	SURVEY WORK UNDERTAKEN.....	5
2.1	SURVEY LOG.....	5
2.2	PERSONNEL	5
2.3	SURVEY SPECIFICATIONS.....	5
3.	OVERVIEW OF SURVEY RESULTS.....	6
3.1	SUMMARY INTERPRETATION	6

LIST OF APPENDICES

- APPENDIX A: STATEMENT OF QUALIFICATIONS**
- APPENDIX B: THEORETICAL BASIS AND SURVEY PROCEDURES**
- APPENDIX C: INSTRUMENT SPECIFICATIONS**
- APPENDIX D: LIST OF MAPS (IN MAP POCKET)**

LIST OF TABLES AND FIGURES

Figure 1: Location of the Elk Lake Property.....	3
Figure 2: Claim Map with Elk Lake Property Traverses.....	4
Table 1: Survey Log	5

1. SURVEY DETAILS

1.1 PROJECT NAME

This project is known as the **Elk Lake Property**.

1.2 CLIENT

Elk Lake Mining Company Ltd.
P.O. Box 219
14579 Government Road
Larder Lake, Ontario
P0K 1K0

1.3 LOCATION

The Elk Lake Property is located in James Township approximately 2 km southwest of Elk Lake, Ontario. The survey area covers claims numbered 4269818, 4269819, 4269820 and 4273173 located in James Township, within the Larder Lake Mining Division.



Figure 1: Location of the Elk Lake Property

1.4 ACCESS

Access to the property was attained with a 4x4 truck from Elk Lake on highway 560 towards Gowganda for approximately 2 km.

1.5 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 12.5m in front of the magnetometer operator. GPS waypoints and VLF 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.

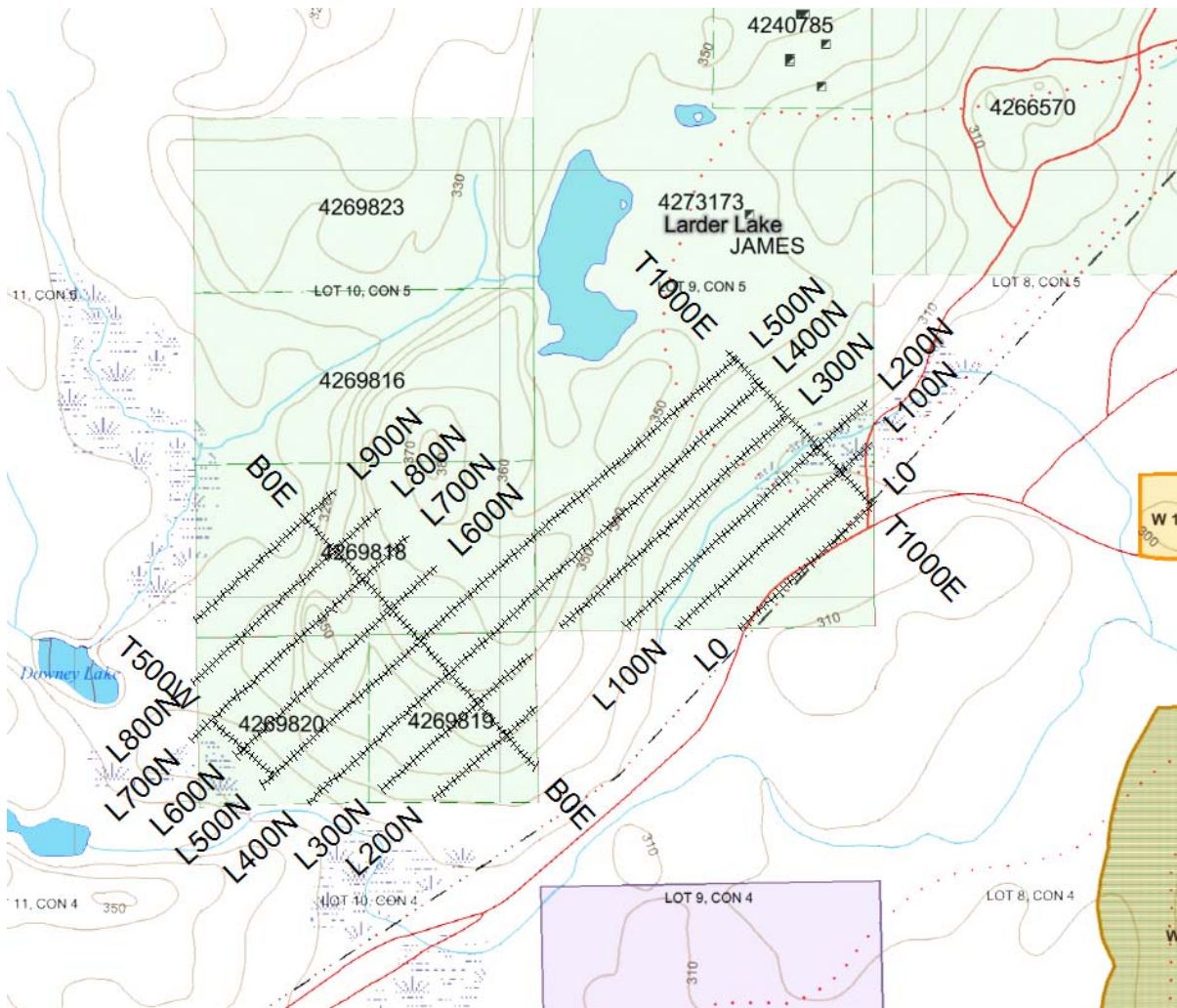


Figure 2: Claim Map with Elk Lake Property Traverses

2. SURVEY WORK UNDERTAKEN

2.1 SURVEY LOG

Date	Description	Line	Min Extent	Max Extent	Total Survey (m)
December 16, 2013	Locate survey area and start data acquisition.	0N	575E	1000E	425
		100N	475E	1100E	625
		200N	400E	775E	775
		300N	100E	1000E	900
		400N	175E	1000E	825
		500N	225E	1000E	775
		1000E	0N	500E	500
		0N	100N	500E	400
		December 17, 2013	Complete VLF EM survey	200N	225W
300N	300W			100E	400
400N	450W			175E	625
500N	500W			225E	725
600N	500W			150E	650
700N	550W			150E	700
800N	450W			150E	600
900N	350W			100E	450
0E	500			900E	400
500W	500			700E	200
					Total

Table 1: Survey Log

2.2 PERSONNEL

Claudia Moraga, of Britt, Ontario conducted all the VLF EM data collection with Bruce Lavalley also of Britt, responsible for the GPS control and GPS waypoint collection.

2.3 SURVEY SPECIFICATIONS

The survey was conducted with a GSM-19 v7.

A total of 10.3 line kilometers of VLF EM was read over the Elk Lake Property on December 16th and 17th, 2013. This consisted of 824 VLF EM samples taken at a 12.5m sample interval.

3. OVERVIEW OF SURVEY RESULTS

3.1 SUMMARY INTERPRETATION

The only VLF EM signature of note falls along the highway. With this association, it is expected that this response is due to culture.

Just because the VLF EM survey failed to indicate any important targets I would not eliminate this technique from any future exploration programs. I would, however, recommend performing a beepmat survey over the same traverses. This could help identify smaller conductive structures that were not strong enough to be visible with in the VLF EM survey.

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 **Elk Lake Mining Company 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
January 21, 2015

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 kilometres away from the transmitter. The quality of the incoming VLF signal can be monitored using the field strength. A field strength above 5pT will produce excellent quality results. Anything lower indicates a weak signal strength, and possibly lower data quality. A very low signal strength (<1pT) may indicate the radio station is down.

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

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

APPENDIX C

GSM 19



Specifications

Overhauser Performance

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

Operation Modes

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

Operating Parameters

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

Storage Capacity

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

Omnidirectional VLF

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

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

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

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

Dimensions and Weights

Dimensions:

Console: 223 x 69 x 240mm

Sensor: 170 x 71mm diameter cylinder

Weight:

Console: 2.1kg

Sensor and Staff Assembly: 2.0kg

Standard Components

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

Taking Advantage of a “Quirk” of Physics

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

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

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

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

Maps & Memory:

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

Features & Benefits:	
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*

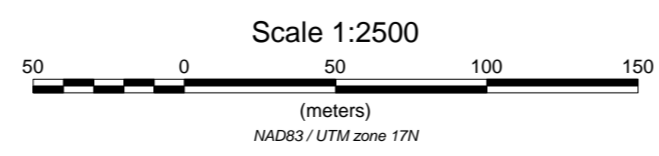
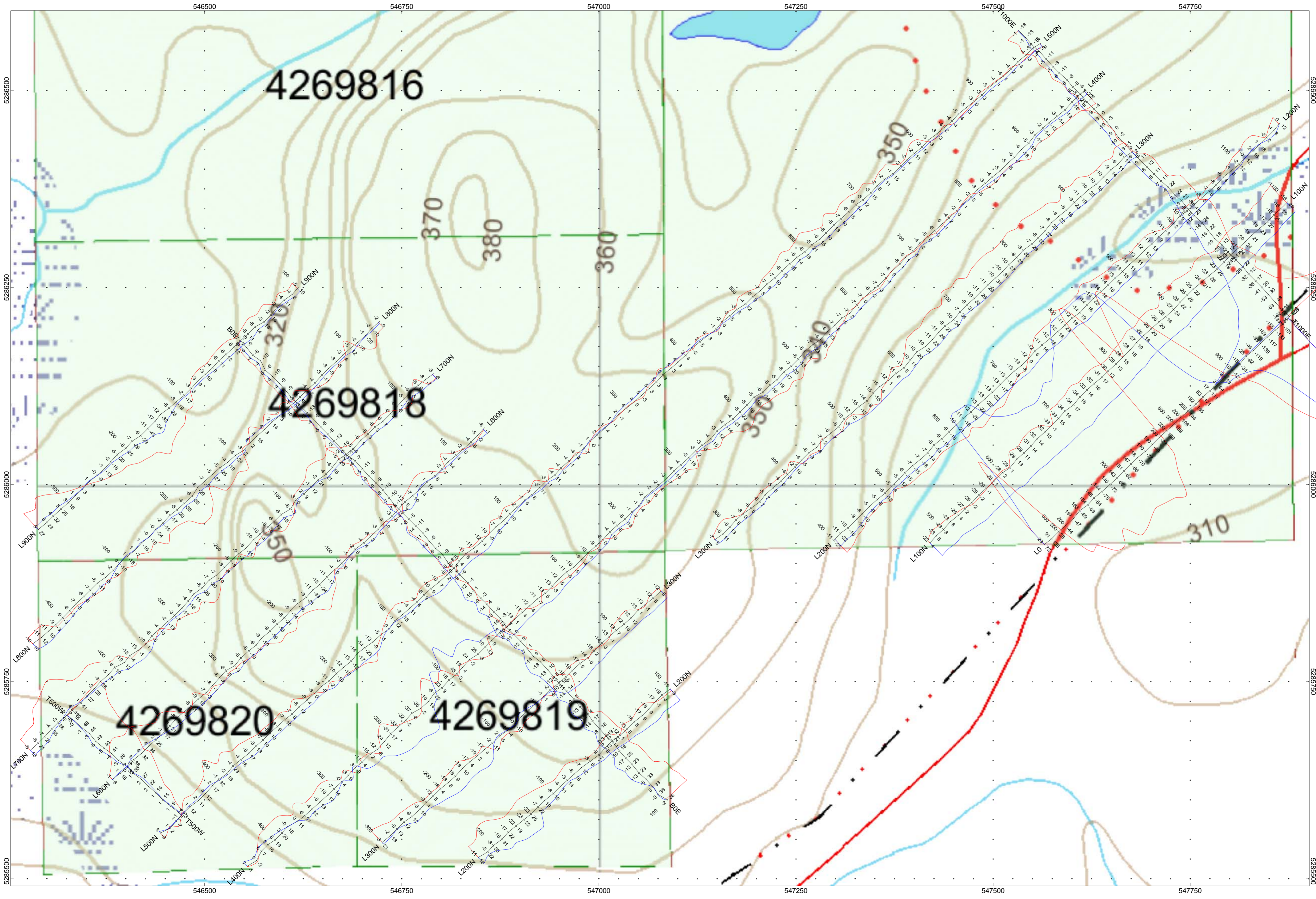
APPENDIX D

LIST OF MAPS (IN MAP POCKET)

Posted profiled VLF EM plan map (1:2500)

- 1) ELK LAKE-ELK LAKE- VLF-NAA

TOTAL MAPS = 1



ELK LAKE MINING COMPANY LIMITED	
ELK LAKE PROPERTY James Township, Ontario	
VLF IN PHASE/OUT PHASE PROFILE VLF FRASER FILTERED CONTOURED PLAN MAP 24.0kHz NAA - CUTLER USA	
In Phase: Posted Right/Bottom (Red) Out Phase: Posted Left/Top (Blue)	
Vertical Profile Scales: 2.5 %/mm Contour Interval: 0, 5, 10, 15, 20, 25, 50, 100	
Station Separation: 12.5 meters Posting Level: 0	
GSM-19 OVERHAUSER MAGNETOMETER/VLF v7	
Receiver Operated By: Bruce Lavalley GPS Operated By: Claudia Moraga Processed by: Jason Ploeger Map Drawn By: C Jason Ploeger, P.Geo January 2015	 CXS CANADIAN EXPLORATION SERVICES LTD.
Drawing : ELK LAKE-ELK LAKE-VLF-NAA	