



**CANADIAN EXPLORATION SERVICES LTD**

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**SPECTROMETER  
Survey  
Over the**

**AULD PROPERTY  
Auld Township, Ontario**

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C Jason Ploeger, B.Sc, P.Geo  
March 10, 2015

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## 1. SURVEY DETAILS

### 1.1 PROJECT NAME

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

### 1.2 CLIENT

AURORA SILVER MINES LIMITED

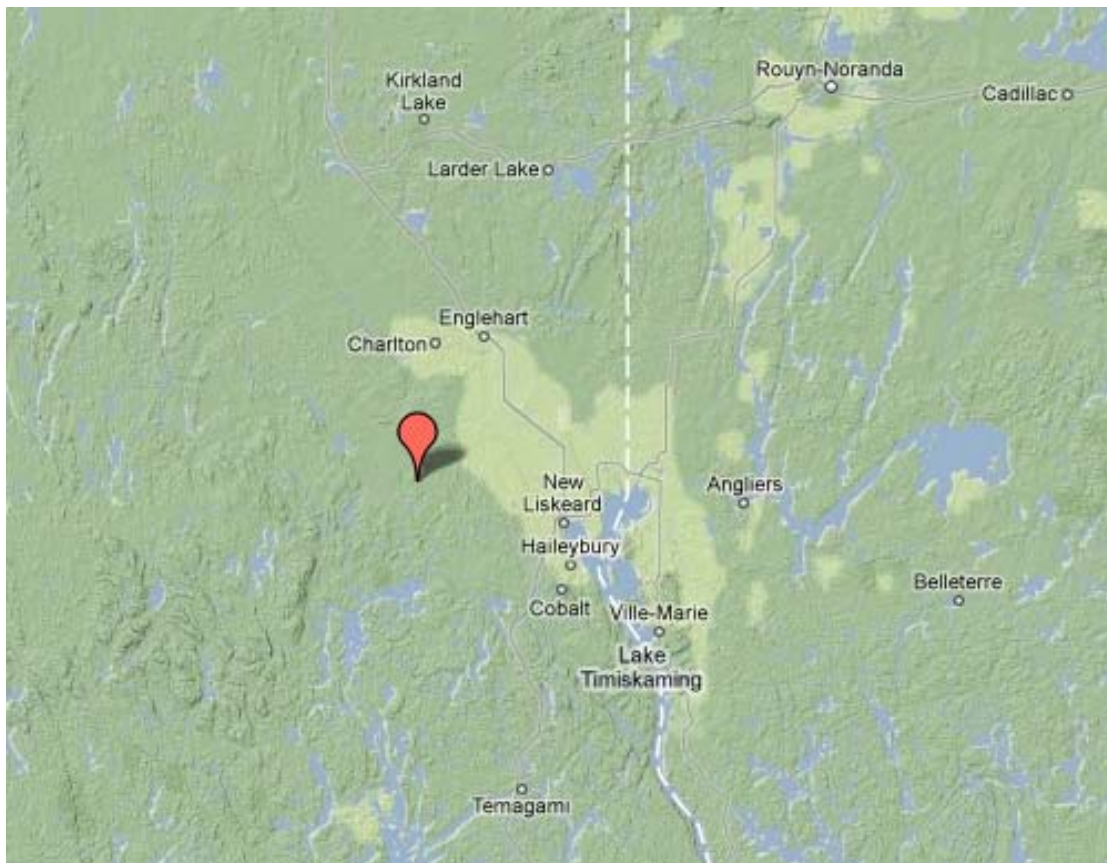
14579 Government Rd.

Larder Lake, Ontario

P0K1L0

### 1.3 LOCATION

The Auld Property is located approximately 28km southeast of Elk Lake, Ontario. The survey area is located in Auld Township and covers mining claim 4217442, within the Larder Lake Mining Division.



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

## 1.4 ACCESS

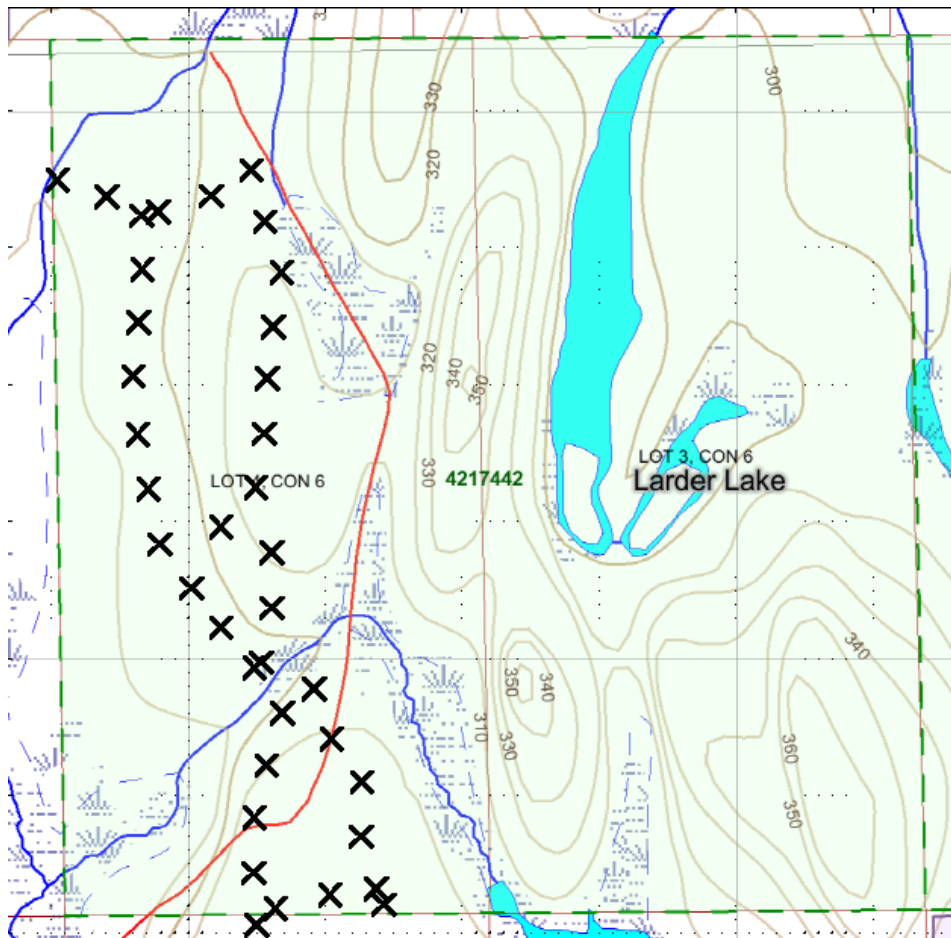
Access to the property was attained with a 4x4 truck via Indian Bay Road. Henwood Road 3 heads south from highway 65 approximately 25km east of Elk Lake. The Indian Bay Road is travelled by truck for an additional 10.3km to where a unnamed forestry road extends east. This forestry road is travelled for an additional 5 km to the Auld Property.

## 1.5 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. A random path was taken for the traverses.

## 1.6 SURVEY AREA

The survey area was for reconnaissance and therefore randomly generated in the field based on topography and vegetation.



**Figure 2: Spectrometer Sample Points on Claim Map**

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## 2. SURVEY WORK UNDERTAKEN

### 2.1 SURVEY LOG

Date	Description	Line	Min Extent	Max Extent	Total Survey (km)
October 9, 2013	Locate survey area and perform survey.				4.8

**Table 1: Survey Log**

### 2.2 PERSONNEL

Jason Ploeger of Larder Lake, Ontario operated the Spectrometer System along with the navigation using a GPS to previously established points.

### 2.3 SURVEY SPECIFICATIONS

The survey was conducted with a Radiation Solutions RS-230 – BGO SUPER-SPEC spectrometer. The operator traversed the outlined block until the unit detected a cps above background. Once this was detected, the operator backtracked 50m, a GPS waypoint was taken with a corresponding 60 second stacked Spectrometer assay for K%, U ppm and Th ppm. At this point the operator took a sample every 25m until the anomalous region was traversed. Otherwise the operator took an assay and GPS reading every 100m. All data was both electronically noted and written in a notebook.

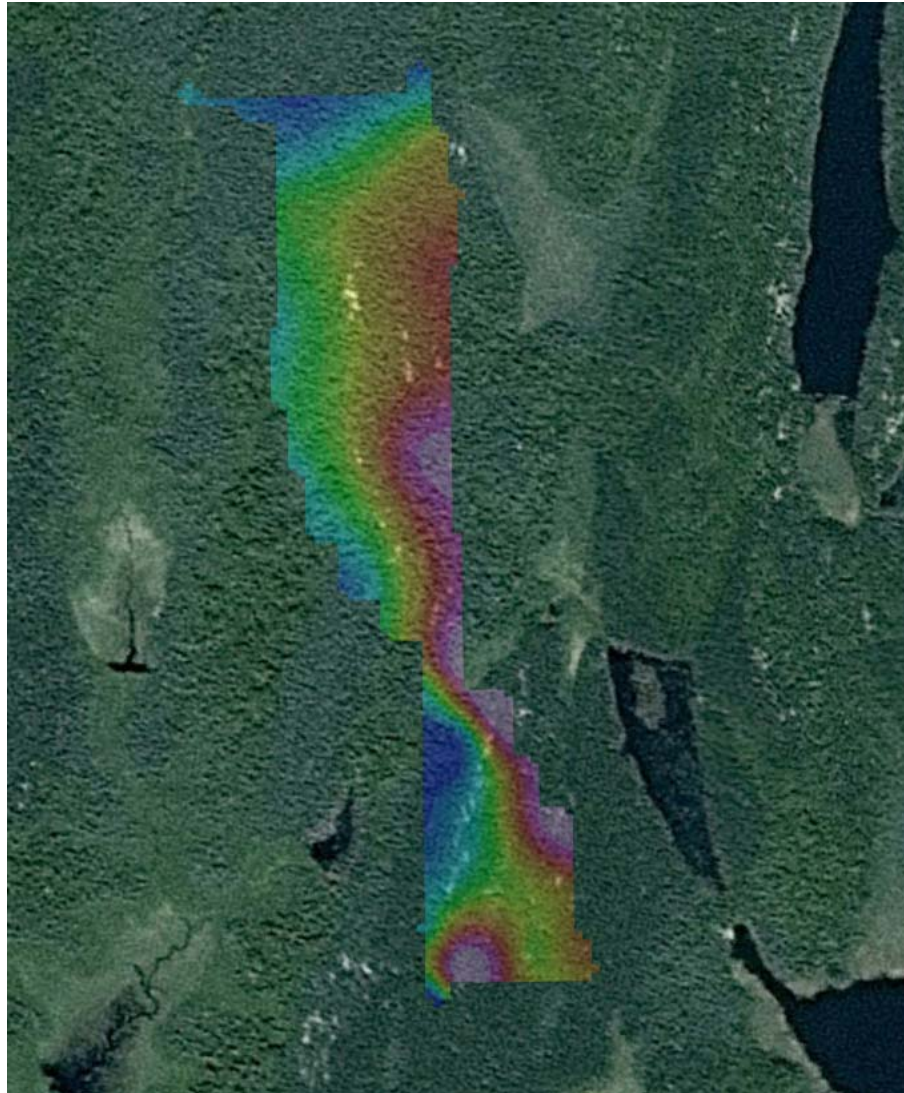
The background of the instrument was automatically set during the auto-calibration process and it was around 50 nGy/h. The device was set to emit an audible alarm if the background was exceeded by two times the level. This was considered by the operator to be anomalous and at this point the operator increased the sample density.



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### 3. OVERVIEW OF SURVEY RESULTS

#### 3.1 SUMMARY



***Figure 3: Colored Contour of Th Values***

No strong spectrometer signatures were recorded over this portion of the Auld Property. A slight increase in Th and K counts were noted along the east boundary area; however these were only anomalous in relation to the average recorded values of this survey.

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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 **Aurora Silver Mines Limited**.
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  
March 10<sup>th</sup>, 2015

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## APPENDIX B

### THEORETICAL BASIS AND SURVEY PROCEDURES

**Gamma-Ray Spectrometry (GRS)** provides a direct measurement of the surface of the earth, with no significant depth of penetration. This at-surface characteristic allows us to reliably relate the measured radioelement contrasts to mapped bedrock and surficial geology, and alteration associated with mineral deposits. All rocks, and materials derived from them are radioactive, containing detectable amounts of a variety of radioactive elements. A gamma-ray spectrometer is designed to detect the gamma rays associated with these radioactive elements and to accurately sort the detected gamma rays by their respective energies. It is this sorting ability that distinguishes the spectrometer from instruments that measure only total radioactivity.

#### Why do we need to know about K, U, and Th?

Potassium (K), uranium (U) and thorium (Th) are the three most abundant, naturally occurring radioactive elements. K is a major constituent of most rocks and is the predominant alteration element in most mineral deposits. Uranium and thorium are present in trace amounts, as mobile and immobile elements, respectively. As the concentration of these different radio elements varies between different rock types, we can use the information provided by a gamma-ray spectrometer to map the rocks. Where the 'normal' radioelement signature of the rocks is disrupted by a mineralizing system, corresponding radioelement anomalies provide direct exploration guidance.

Ground surveys do not require a corresponding airborne survey. They are easily conducted by one person as a reconnaissance survey or more formally using a series of grid lines. The resulting geochemical information provides an important additional layer of information significantly improving bedrock and surficial mapping and ore vectoring.

#### The Gamma-ray Energy Spectrum

The primary acquisition data set is a multichannel gamma-ray energy spectrum. The area from 0 to 0.4 MeV is not used and consists of counts created by Compton scattering. For geological mapping, the  $K^{40}$  (potassium),  $Bi^{214}$  (uranium) &  $Tl^{208}$  (thorium) peaks are of interest. During the aerial survey, the full spectrum of counts is recorded once per second, using a 256-channel histogram. During post-flight data processing, the counts for the radio elements of interest ( $K^{40}$ ,  $Bi^{214}$ ,  $Tl^{208}$ ) are accumulated. The summation includes the counts for a range of energies (a 'window' or 'region of interest') centred on each peak.



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The accumulated count rates are then converted to **equivalent** ground concentrations of **potassium, uranium & thorium** using a set of calibration constants that are a characteristic of each spectrometer system.

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## APPENDIX C

### RS-230 BGO Super Spec Gamma Spectrometer Handheld Gamma-Ray Spectrometer



#### Specifications

##### Memory:

- Internal Data Storage memory
- Assay + 1024 channel Spectra: 128 samples

##### Data Input / Output:

- (Using supplied RS-Analyst software)
- USB
  - Bluetooth
  - GPS link via Bluetooth

##### Temperature Range:

- 20 to +50 degrees Celsius

##### Control:

- Single one button, Thumb activated

##### Alarm:

- Audio via miniature speaker
- Variable audio threshold set point
- Audio proportional to count rate

##### Weight:

- 4.5 lb (2.04 kg) including batteries

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### **RS-230 Size & Package Style**

- 10.2" x 3.2" x 3.8" (259 mm x 81. mm x 96 mm)
- 1 mm aluminum outer case
- In a flashlight configuration with side support strap and handle

### **Display:**

- 128 x 64 pixels, 1 1/8 x 2 3/8"
- Graphic LCD display with white backlight and automatic dimming

### **Readout:**

- Search Mode: Counts in CPS from 0 to 65,535 and Histogram chart
- Assay Mode: Display in %K, ppm of U & Th

### **Energy Response:**

30 keV – 3000 keV

### **Internal Sampling:**

20 readings per second

### **Batteries:**

- Internal battery pack module (4xAA) easily replaceable
- Rechargeable or Alkaline (optional)
- Life: 8 + hours at 20 degrees C

The performance of the 6.3 in<sup>3</sup> (103 cm<sup>3</sup>) higher density Bismuth Germanate (BGO) detector is an equivalent of a 21 in<sup>3</sup> (390 cm<sup>3</sup>) Sodium Iodide (NaI) commonly used with larger portable units and approximately more than 3 times the same size NaI crystal.

The spectrometer is auto-stabilizing on the naturally occurring (K, U, & Th) radioactivity and does not require any test sources.

## APPENDIX C

### GARMIN GPS MAP 62S



<b>Physical &amp; Performance:</b>	
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 re-	yes

ceiver:	
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



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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)

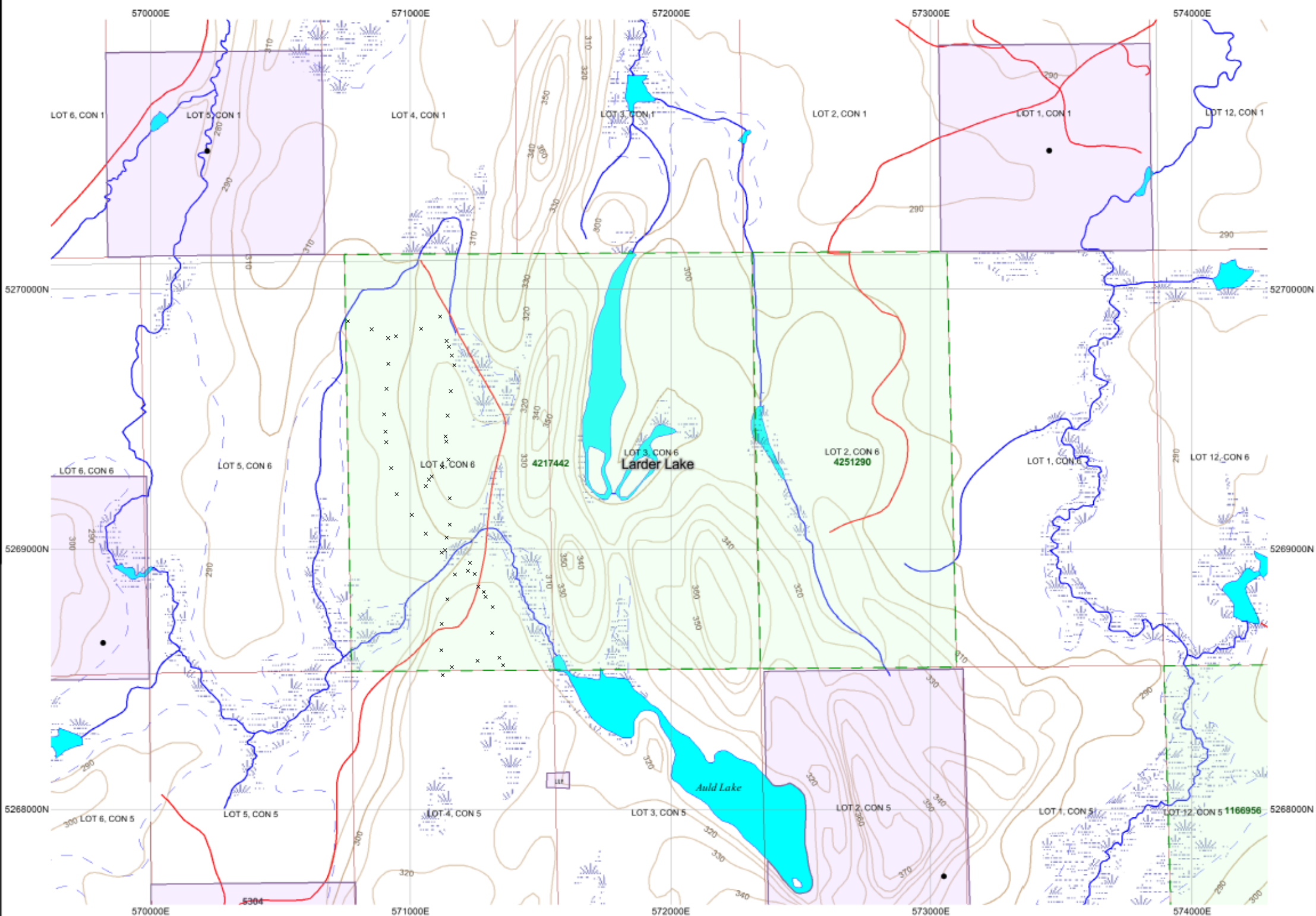
#### Posted Colour Contour Maps (1:5000)

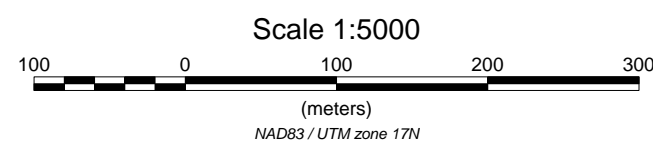
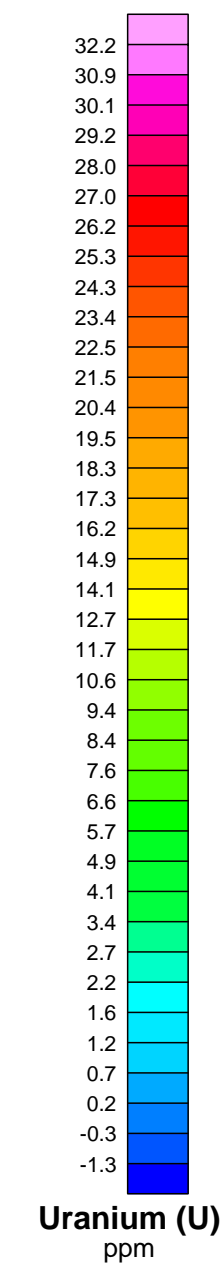
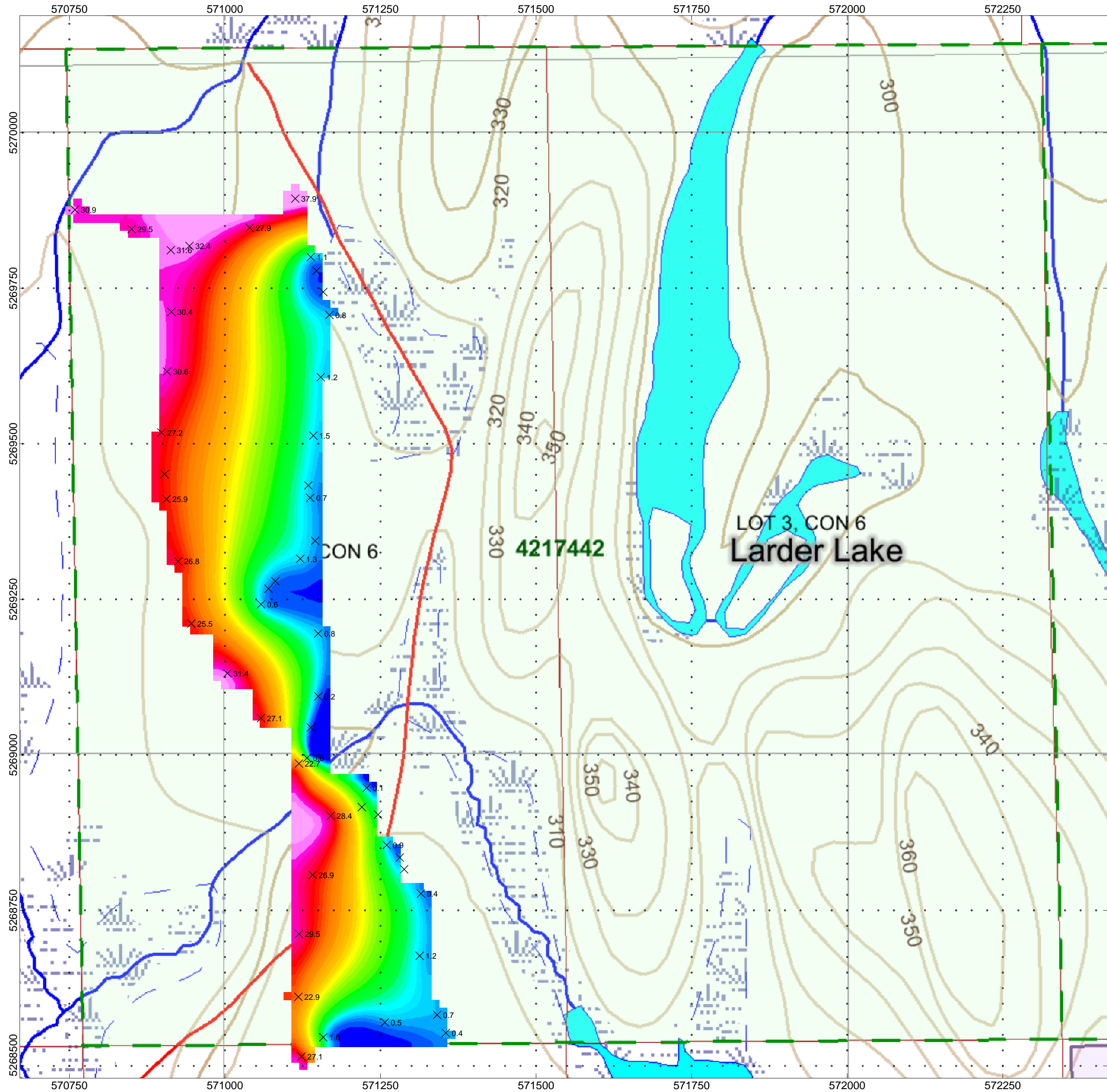
- 1) AURORA-AULD-SPECTROMETER-U
- 2) AURORA-AULD-SPECTROMETER-Th
- 3) AURORA-AULD-SPECTROMETER-K
- 4) AURORA-AULD-SPECTROMETER-OUTCROP

#### Grid Sketch on Claim Map (1:20000)

- 5) AURORA-AULD-TRAVERSES

**TOTAL MAPS = 5**





**AULD PROPERTY**  
Auld Township, Ontario

URANIUM CONTOURED PLAN MAP  
Readings Taken On Ground

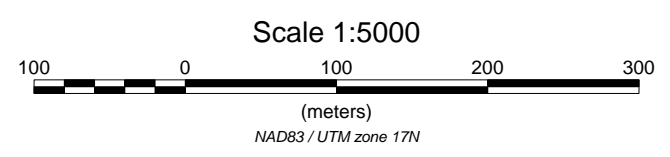
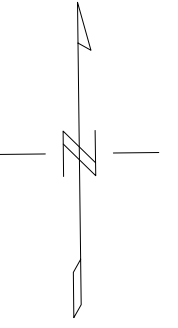
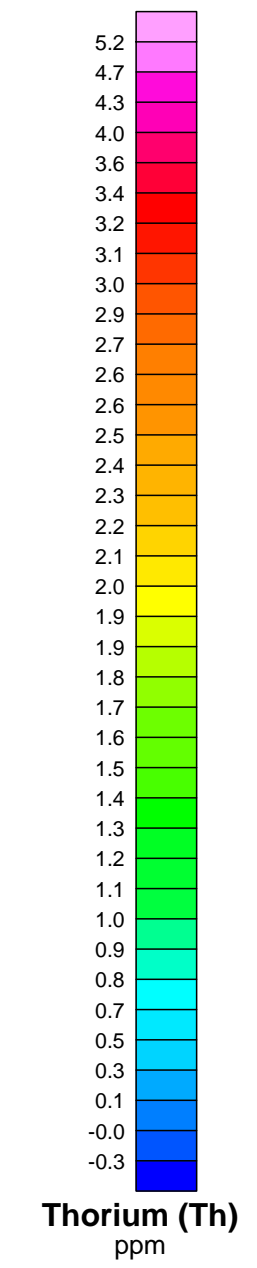
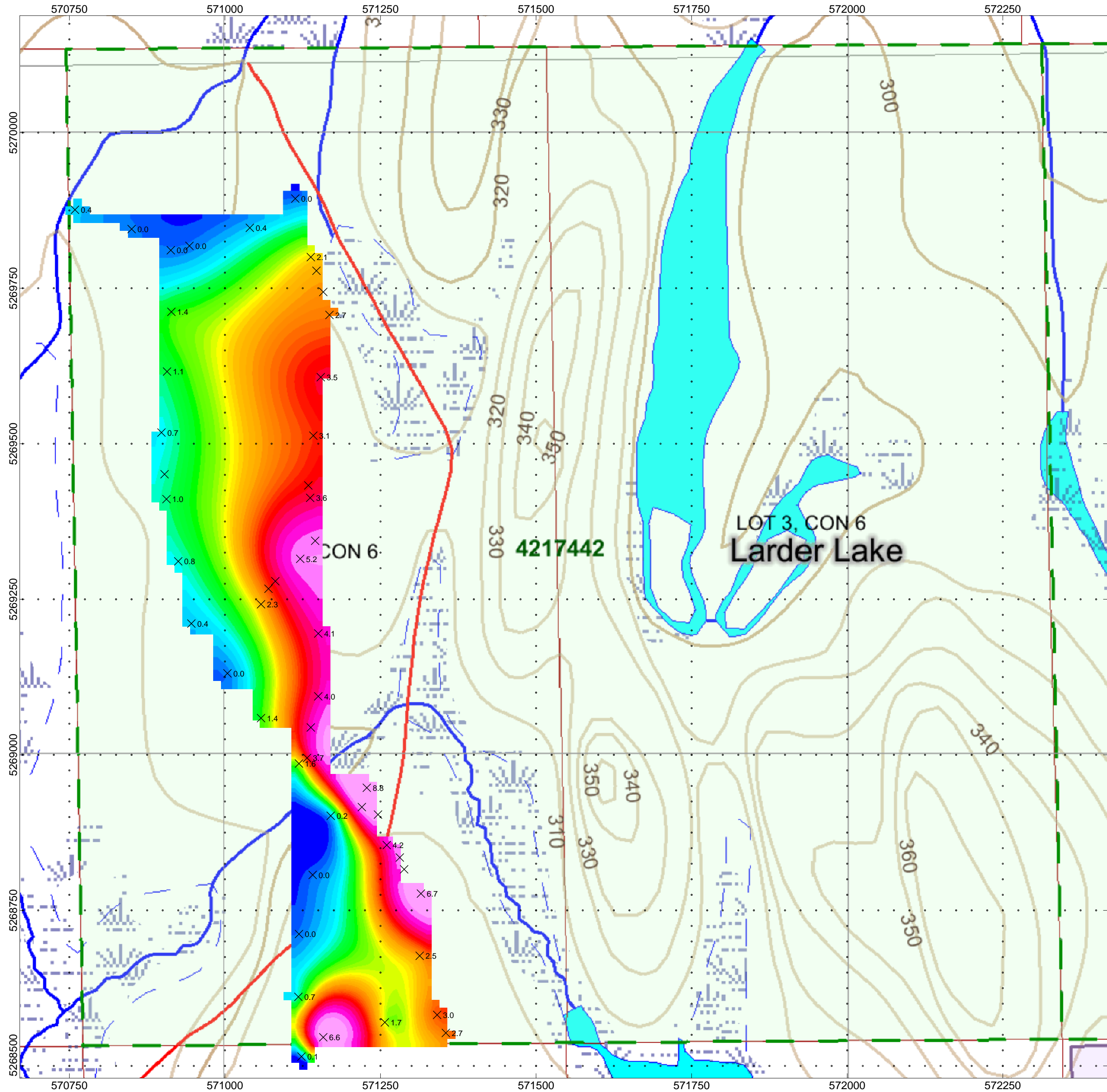
Posting Level: 0 PPM  
Station Separation: varies during GPS traverse  
U Contours: 0 PPM


RS-230 BGO SUPER SPECTROMETER

Operated By: C Jason Ploeger, B.Sc.  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: C Jason Ploeger, B.Sc.  
March 2015










**AULD PROPERTY**  
Auld Township, Ontario

THORIUM CONTOURED PLAN MAP  
Readings Taken On Ground

Posting Level: 0 PPM  
Station Separation: varies during GPS traverse  
Th Contours: 0 PPM

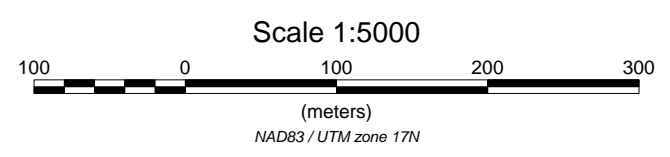
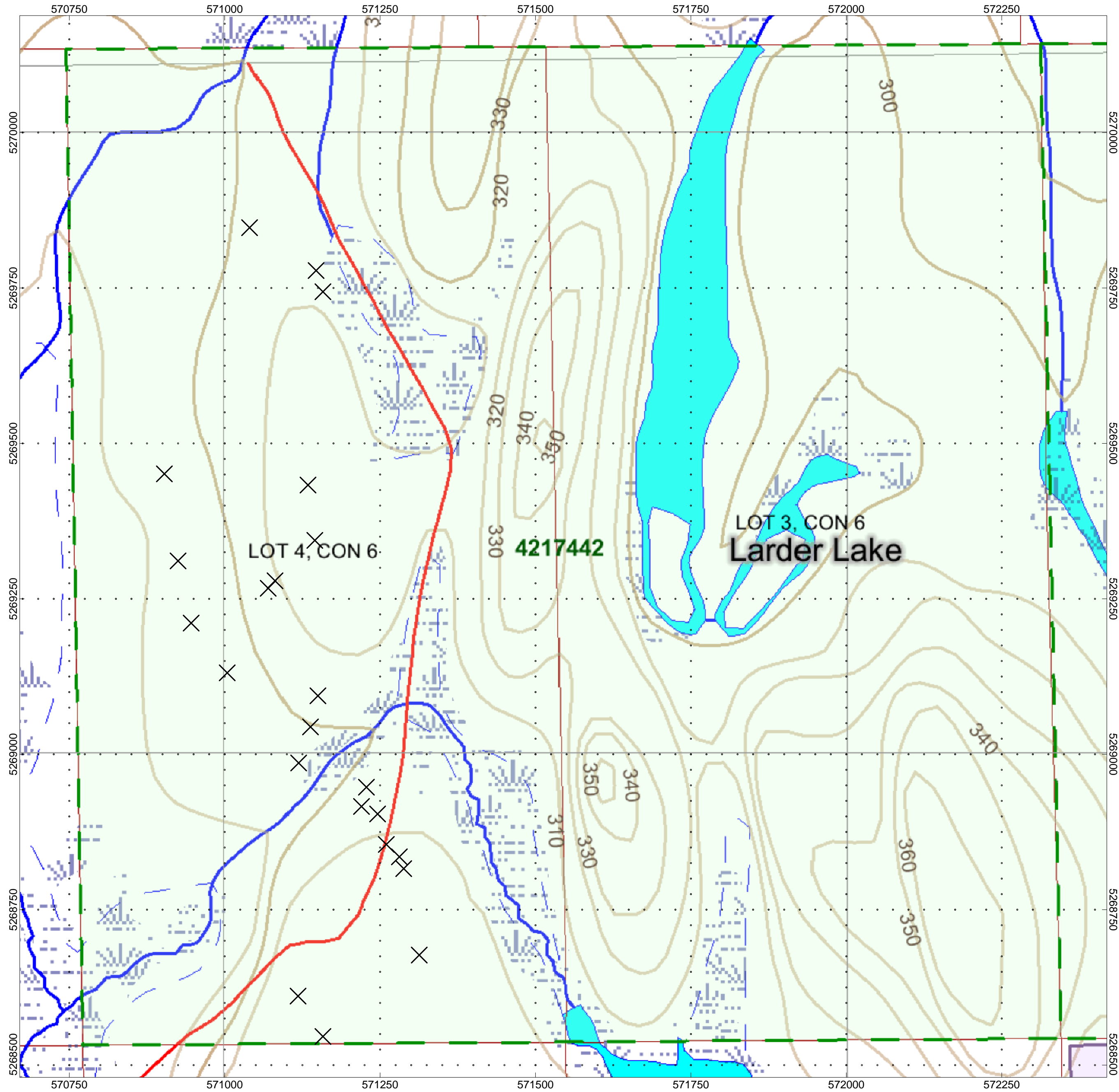
RS-230 BGO SUPER SPECTROMETER


Operated By: C Jason Ploeger, B.Sc.  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: C Jason Ploeger, B.Sc.  
March 2015



*Drawing: AURORA-AULD-SPECTROMETER-Th*








**AURORA**  
SILVER MINES LIMITED

**AULD PROPERTY**  
Auld Township, Ontario

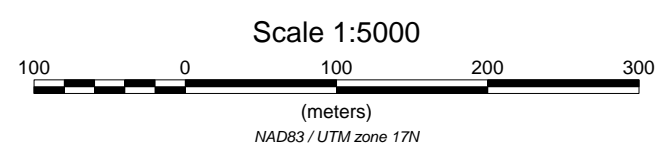
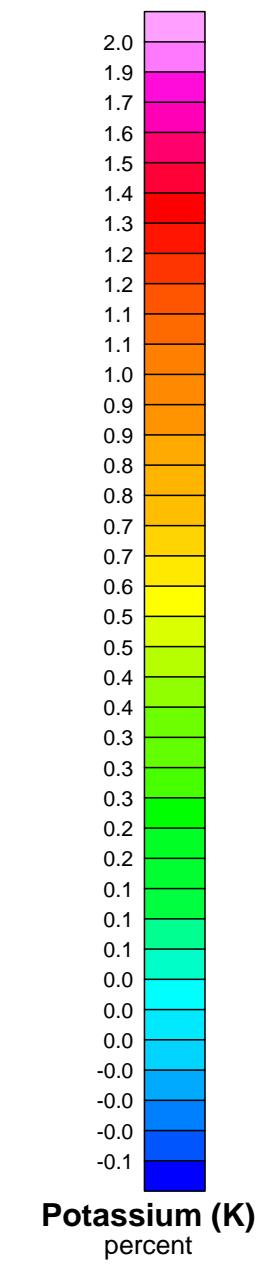
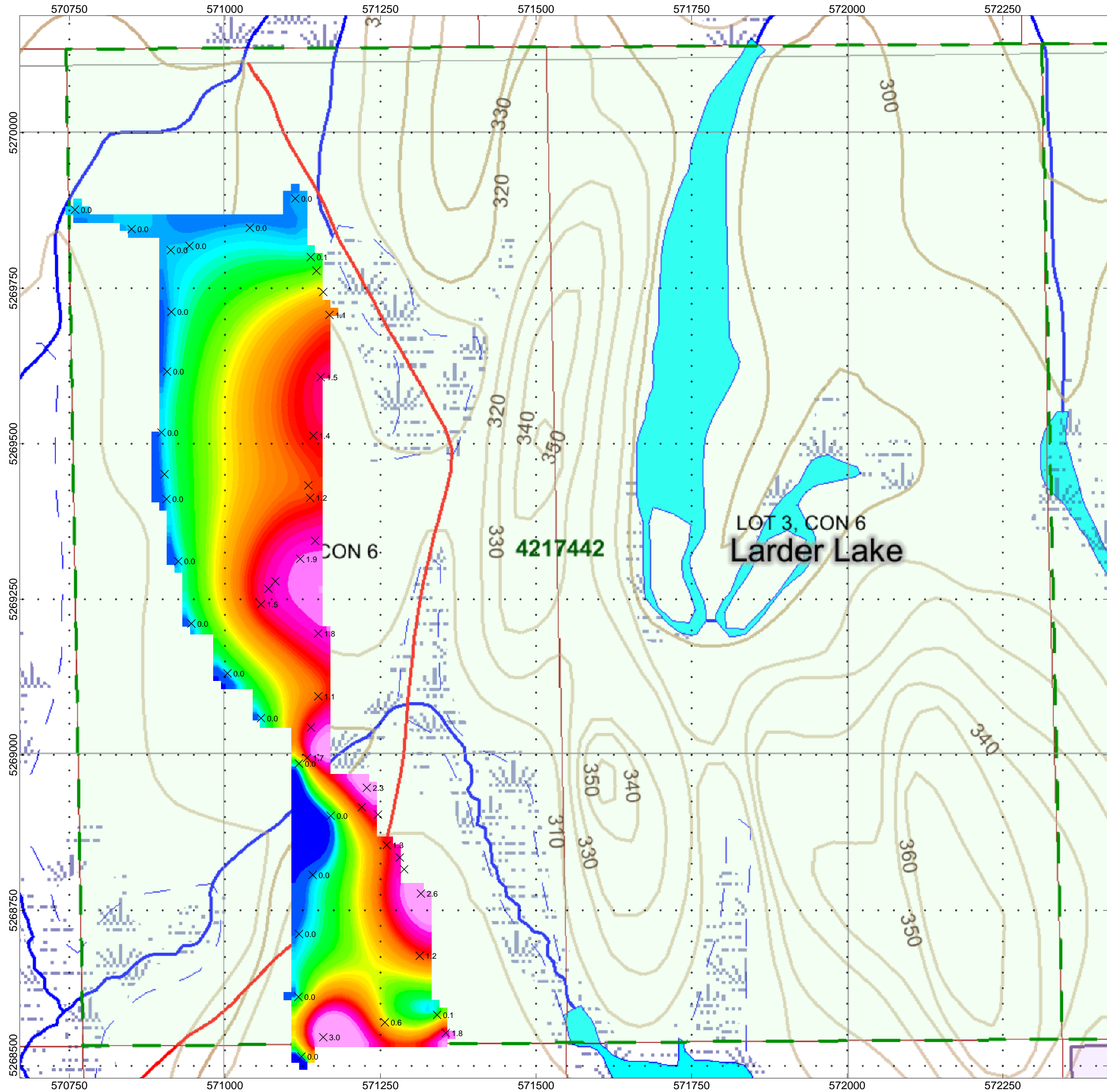
OUTCROP LOCATION PLAN MAP


X - Outcropping

RS-230 BGO SUPER SPECTROMETER

Operated By: C Jason Ploeger, B.Sc. Processed by: C Jason Ploeger, B.Sc. Map Drawn By: C Jason Ploeger, B.Sc. March 2015	
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Drawing: AURORA-AULD-SPECTROMETER-OUTCROP





**AURORA**  
SILVER MINES LIMITED


**AULD PROPERTY**  
Auld Township, Ontario

POTASSIUM CONTOURED PLAN MAP  
Readings Taken On Ground

Posting Level: 0 %  
Station Separation: varies during GPS traverse  
K Contours: 0 %

RS-230 BGO SUPER SPECTROMETER

Operated By: C Jason Ploeger, B.Sc.  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: C Jason Ploeger, B.Sc.  
March 2015



Drawing: AURORA-AULD-SPECTROMETER-K