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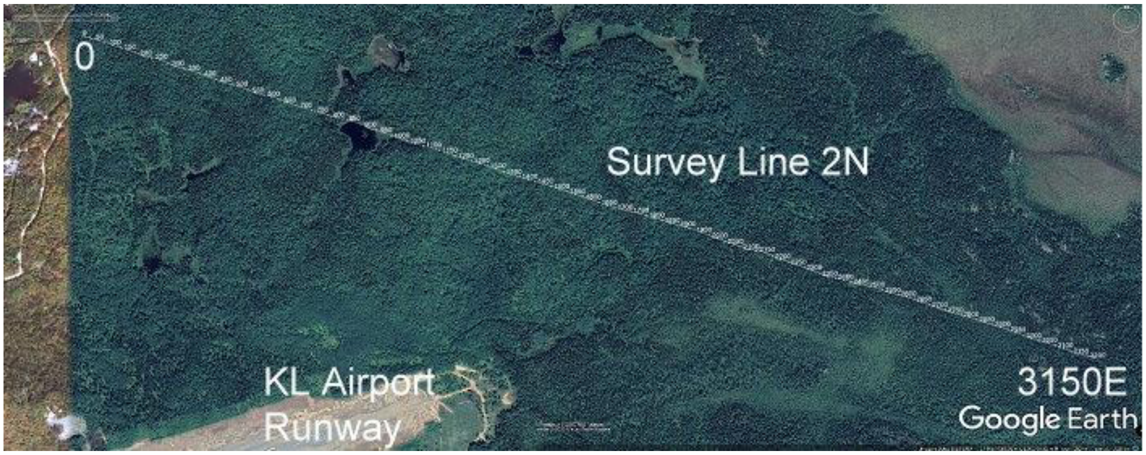
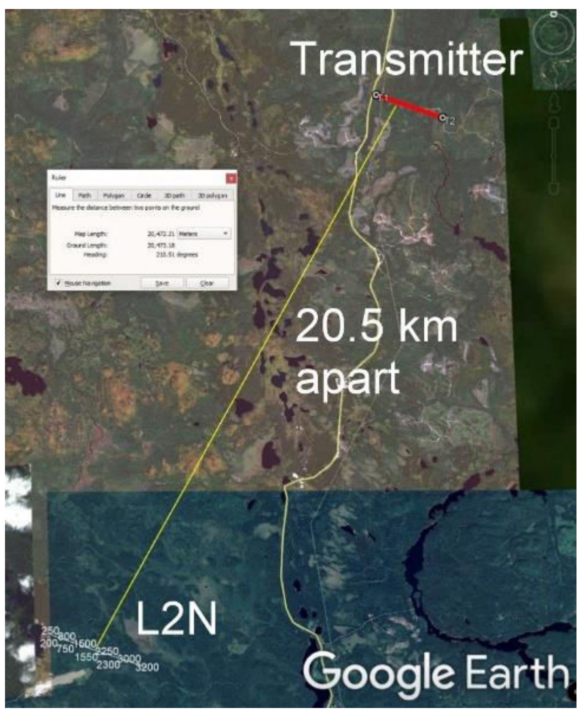
ClearView Geophysics Inc. carried out a CSAMT Survey (Controlled Source Audio-frequency Magnetotellurics) for **JoBina Resources Inc.** at their Toanga Project, Kirkland Lake, Ontario. The purpose of the work is to map subsurface anomalies to guide gold exploration.



Phoenix V8 & RXU Rx's:	• 9600 Hz to 256 Hz
Reading Configuration:	• Scalar Mode, 6 Ex 50m, 1 AMTC-30 Hy coil; (available up to 9 Ex)
Phoenix TXU-30 20 kW; Electrodes	• 2½ km separation, 20½ km to L2N
Line 2N:	0E to 3150E



The *Phoenix TXU-30* 20 kW transmitter is placed approximately half-way between the electrodes. A 3-phase 240V diesel motor-generator is used to power the 20 kW transmitter. GPS antennas for each instrument acquires UTC-time which is used to synchronize the transmitter with the receivers. The transmitter is designed to automatically turn off if a fault is detected (e.g., broken wire, controller issues, loss of synch, etc.). A *Phoenix TMU* is available to record transmitted currents and other transmitter parameters.

Transmitter electrodes are located in bogs. Several 4-ft ¾" stainless steel electrodes are used at each location. Aluminum foil is also placed over at least 4 m^2. Salt is then sprinkled over the setups and covered with wet dirt. The transmitter wire is black insulated 10-gauge copper wire.

The *Phoenix V8* receiver displays readings and allows the control of auxiliary receivers using a radio-link. Each receiver can read up to three electrical dipoles. The electrical dipoles are configured for scalar-mode and designated 'Ex'. A *Phoenix AMTC-30* magnetic sensor coil is used for the 'Hy' component. The coil is leveled using a standard construction level tool and oriented perpendicular to the Ex dipoles using a *Suunto* compass. One Hy component reading is made for each V8/RXU reading which have 6 Ex dipoles. The magnetic sensor is located several metres away from the receiver setup.

Stainless steel electrodes are connected to wires that extend to each receiver. The electrodes are placed at each picket or off-line perpendicular to the survey line orientation. Instrument ground and electrode positions are at least 1 metre apart. Shared receiver stations also have electrodes at least 1 metre apart. Tap-water is used to wet electrodes where necessary.

A GPS sensor is connected to each receiver. The V8 receiver display is used to monitor each receiver's status to ensure they are radio-linked and synchronized to GPS time. The V8 receiver and RXU receiver is typically placed at the same station. The receivers are raised above ground level when the RXU is at a remote location to ensure radio-link between the receivers.

The CSAMT data are presented as a depth section appended to IP/Resistivity, VLF-EM and total field magnetics data acquired and reported previously (refer to ClearView ref.U0721 2015/2016).

The CSAMT results are recorded at each receiver. The V8 receiver also records the results from the radio-linked receivers. The data are processed with *Phoenix CMTPro* which allows for omitting near-field data. Where necessary due to poor radio link, auxiliary receiver data can be viewed and edited with this software. GPS positioning of each receiver is verified to ensure plotted positions for each reading are correct.

The results are then output to a USF 'universal sounding format' which is then imported to *ZondMT1d* inversion modeling software. ZondMT1d software is designed for one-dimensional interpretation of magnetotelluric (MT) data in MT, AudioMT and RadioMT frequency ranges and for CSAMT soundings. Inversion model results are then output to *Geosoft* format. The data are subsequently gridded as a depth section.

Discussion of Results:

Ten (10) model resistivity high zones **R1** through **R10** are indicated on the CSAMT depth section plate appended to this document.

The top of **R1**'s source is approximately 300 metres deep centred at 175E with a steep dip towards the east. There is no corresponding magnetics or VLF anomaly. A chargeability anomaly was also modeled with a steep dip towards the east at or immediately adjacent to **R1.**

R2 is a relatively narrow resistivity high zone at 350E that extends from approximately 50 metres deep to a peak at approximately 275 metres deep. The corresponding magnetics and VLF are flat. The steep dipping chargeability anomaly indicated with **R1** appears to extend into **R2**.

R3 at 575E extends from approximately 50 metres deep to a peak high at 325 metres deep where it broadens beyond that depth. A sharp discontinuous resistivity low extends between **R2** and **R3.** This could indicate a geologic contact, although there is no corresponding magnetics or VLF anomaly. A steeply west-dipping chargeability anomaly is indicated at 600E corresponding to a historic 'trench'.

R4 is a narrow moderately strong resistivity high anomaly extends vertically at 820E to approximately 450 metres where it appears to continue deeper, broader and stronger towards the east at 875E/550 metres deep. The adjacent resistivity low on the west side of **R4** is steeply dipping towards the east. The adjacent resistivity low on the east side of **R4** is near vertical up to approximately 450 metres deep where it also extends towards the east and then vertically below 650 metres depth. These complex resistivity variations indicate relatively deep structural/stratigraphic changes that could be significant for gold exploration.

R5 is a narrow moderately strong resistivity high anomaly at 975E that extends from approximately 90 metres deep to the resistivity low discussed previously at approximately 450 metres deep. These features correspond with VLF anomaly **V2** indicated in the top panel of the plate (Appendix B). The corresponding IP/Resistivity anomaly **G** indicates possible corresponding sulphides.

The inversion model depth section indicates results up to approximately 2 km deep in the broad resistive sections of the survey line, under **R6** through **R10**.

R6 and R7 are relatively broad resistivity high zones extend from near surface at 1200E for **R6** and at 1400E for **R7.** They both appear to steeply dip towards the west. The peak amplitude for **R7** is indicated at approximately 1 km depth under 1225E. Whether **R6** and **R7** are linked by a relatively deep fault or fold is uncertain; however, the corresponding chargeability inversion appears to show near-surface anomalies converging at depth.

R8 is a relatively broad resistivity high zone that extends from immediately east of magnetics high zone **M4** (refer to top panel, Plate). The zone extends from 1800E to 2050E from ~75 metres deep to approximately 400 metres deep where it broadens to 2225E. The magnetics data are highly variable between 1800E and 1900E indicating possible near surface sulphides. However, there is no significant corresponding chargeability response. The corresponding IP/resistivity survey indicates lower resistivity values intermittently from 1800E towards the east, becoming more pronounced east of ~2200E.

R9 is a moderately high resistivity zone that extends from near surface at 2375E to a peak at ~300 metres deep centred between 2425E and 2525E. VLF anomaly **V3** is indicated at this location and it likely results from the broad east-dipping resistivity low extending from 2100E near-surface to 2375E at ~1km depth and possibly deeper. **R9** could result from an upward faulted portion of the **R8** source.

R10 is a relatively strong resistivity high zone is located immediately east of a resistivity low anomaly centred on 2875E that could result from the Morrisette Fault. VLF anomaly **V4** likely results from this fault. **R10** results from more resistive rocks on the eastern side of this fault. A chargeability anomaly at 2700E and 3000E indicated with **M** and **N** respectively likely originate from the fault and more resistive eastern host rock respectively.

Conclusions and Recommendations:

R1 through **R10** likely result from more resistive host rocks with possible quartz veins. Strong resistivity low zones located between these features could result from faults, contact zones and/or alteration zones. They all appear associated with IP chargeability anomalies at their corresponding inversion model depths, with the possible exception of **R8** and **R9** as previously discussed. Priority for follow-up testing should be those with the strongest chargeability response such as at **R5/G.**

For more information about this or other geophysical methods, please contact:

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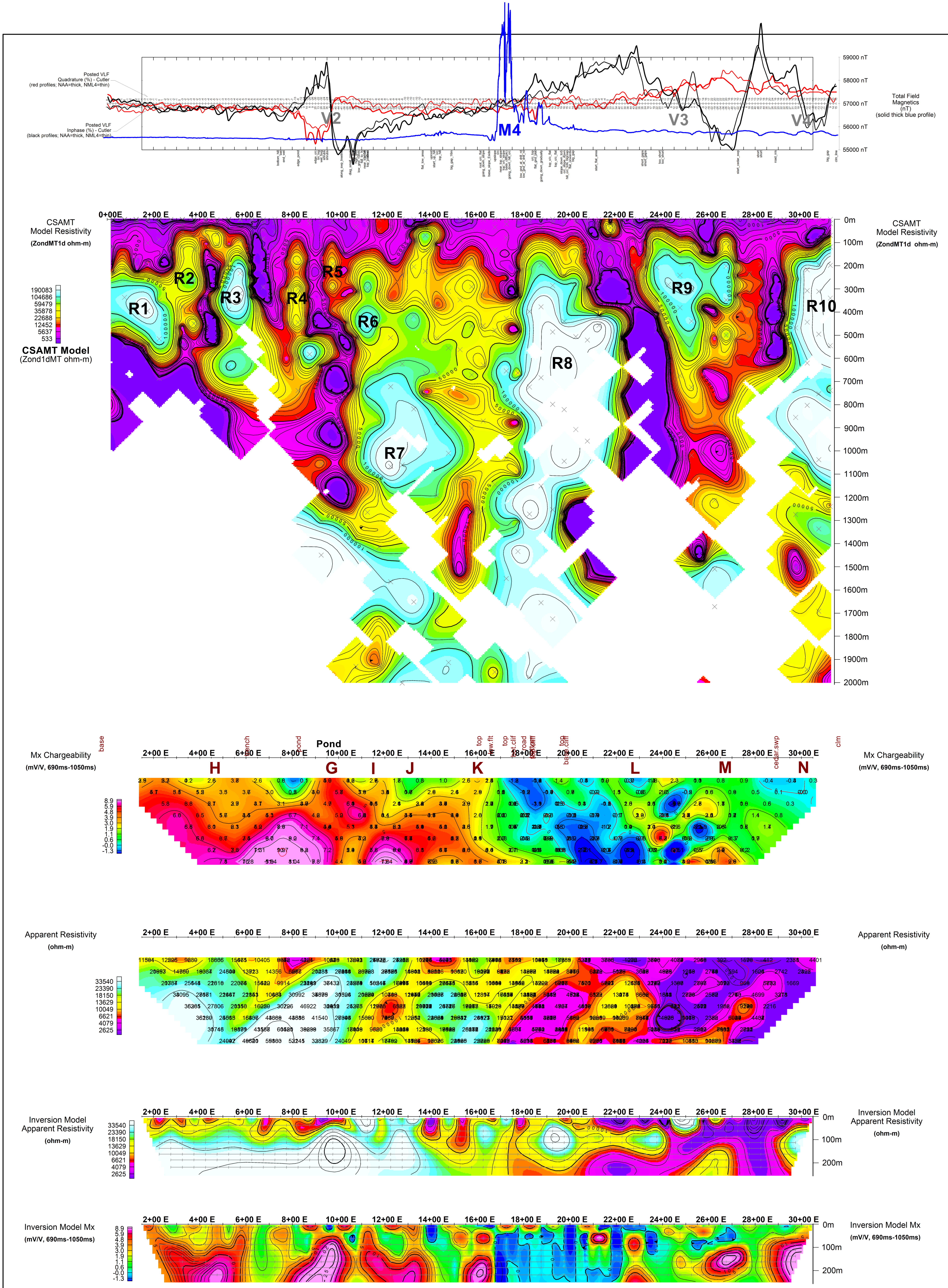
…also, more online information at: CSAMT



Anomalies:

- **A** IP Chargeability
- **M1** Magnetics
- **V1** VLF-EM
- **R1** CSAMT Resistivity High Zone

Scale 1:10000

100 0 100 200 300 400 500 600 (meters)

Plate

2N - CSAMT Model Resistivity Depth Section

Toanga Project
JoBina Resources Inc.
CSAMT Survey
Morrisette Twp., Kirkland Lake

ZondMT1d Inversion Model
Phoenix V8/RXU receivers; TXU-30 transmitter
--- To be read with accompanying report ---

ClearView Geophysics Inc. (ref. Y1230)