Ontario

We are committed to providing accessible customer service.
If you need accessible formats or communications supports, please contact us.

Nous tenons à améliorer l'accessibilité des services à la clientèle.
Si vous avez besoin de formats accessibles ou d'aide à la communication, veuillez nous contacter.

Report on
CSAMT Surveys

at the
Toanga Project

Kirkland Lake, Ontario

- December 2020 -

ClearView Geophysics Inc.

Report on
CSAMT Surveys
at the
Toanga Project
Kirkland Lake, Ontario

On behalf of:

JoBina Resources Inc.
12 Twisted Oak Street
Brampton, ON
L6R1T1

telephone: 416-617-1884
mobile:
E-mail: jobina@geophysics.ca

Contact: Mr. Joe Mihelcic, President

By:

ClearView Geophysics Inc.
12 Twisted Oak Street
Brampton, Ontario
L6R 1T1

telephone: 905.458.1883
facsimile: 905.792.1884
mobile: 416.617.1884
E-mail: general@geophysics.ca

Contact: Mr. Joe Mihelcic, P.Eng., Geophysicist

ClearView Ref.: Y1230
Issued: May 20, 2021

Table of Contents

List of Figures

List of Tables

Digital Files Download:

The file is available for download until June 15, 2021 (e.g., using Filezilla https://filezilla-project.org/): go to <File>, <Site Manager>

Host = home607381407.1and1-data.host
Protocol = **SFTP – SSH File Transfer Protocol**
Logon Type = **Normal**

Username = **u83505156-JoBina**
Password = k2tNL8(^3-<>)!qs

1. Introduction

ClearView Geophysics Inc. carried out a CSAMT Survey (Controlled Source Audio-frequency Magnetotellurics) for **JoBina Resources Inc.** at the Toanga Project, Kirkland Lake, Ontario. The purpose of the work was to map subsurface anomalies to guide follow-up gold exploration. The fieldwork was completed in December 2020.

2. Location & Access

The survey line 2N is indicated in Figure 1. Access was by truck from Kirkland Lake along Airport Road to Nettie Lake Road and then to Pinetree Road which passes by stn.0 approximately 65 metres away. Line 2N pickets were established at 50-metre intervals using a Garmin 62stc. Pickets were marked with flagging tape and labeled with permanent black marker on one or both sides of the pickets.

Figure 1: Line 2N Location Map.

3. Regional and Local Geological Settings

The following Figure 2 geologic overlay is derived from item 13 in Table 1 below. It indicates Blake River Group (Calc-alkalic basalt) rocks irregularly in contact with Kinojevis Group (Quartz feldspar porphyry, Tholeiitic basalt) rocks. Kewagama Group (Meta-arkose & arkose conglomerate) generally overlay Kinojevis Group rocks.

A large percentage of the Toanga Project area (e.g., along L2N) consists of Kewagama Group rocks which are generally deemed low priority for economic value. However, the possibly underlying Kinojevis Group rocks are of interest and therefore deep-exploring methods such as CSAMT are appropriate for discovering potential economic mineralization at the Toanga Project.

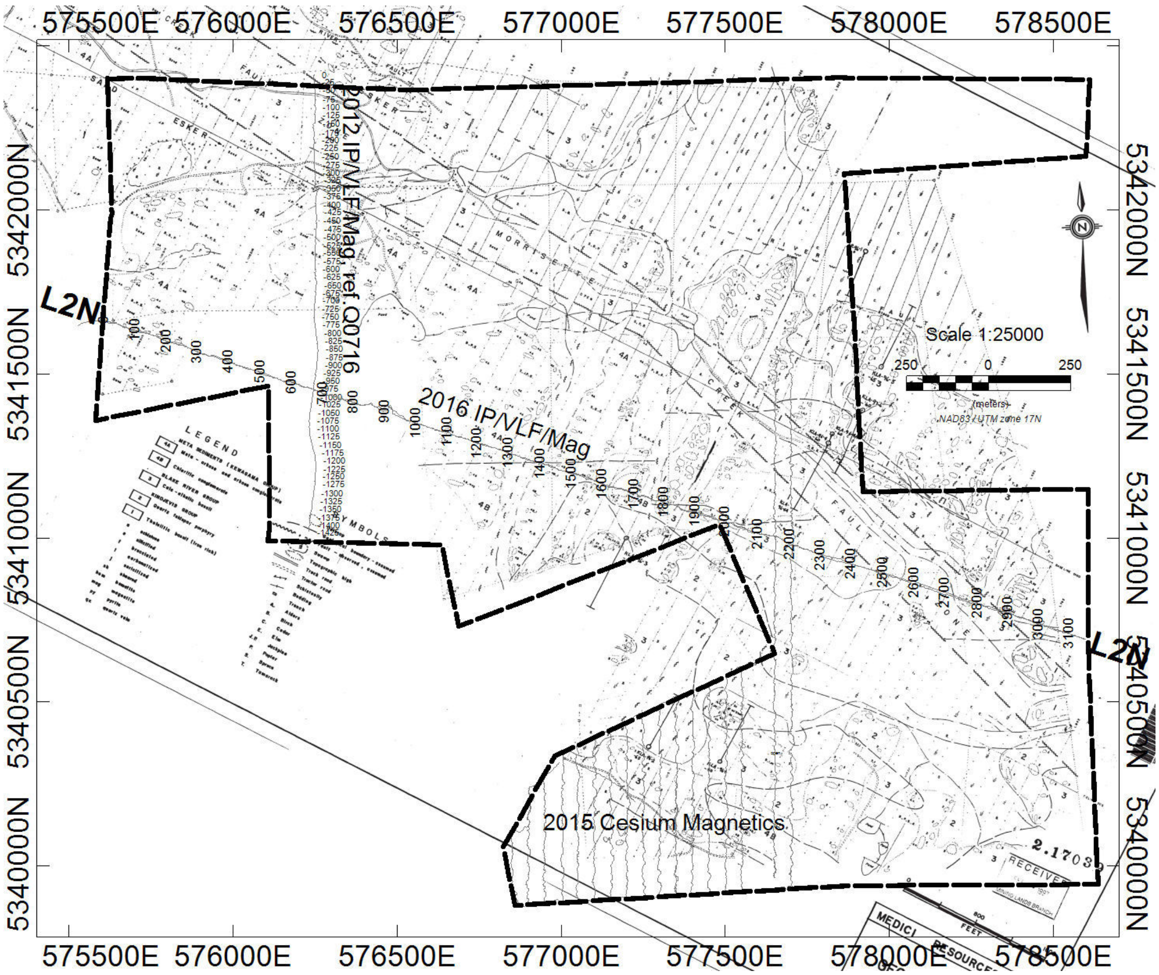


Figure 2: Regional and Local Geology Overlay, from Medici Resources Ltd.

4. Previous Work

Ontario Department of Mines Geological Report 84 (R.J. Rupert and H.L. Lovell), Geology of Bernhardt and Morrisette Townships, describes “conditions favourable for the discovery of copper, molybdenum, gold, nickel, and possibly asbestos. No mineral production has ever come from the map-area.” Most of the historic prospecting for precious metals was in the southern half of these townships. Table 1 in Report 84 lists a number of reports from previous work carried out in these townships from the early 1900’s through to the late 1960’s.

The following Table 1 summarizes pertinent work carried out within the Toanga Project Area since the 1970’s. These files were downloaded from the Ministry of Energy, Northern Development and Mines website:

item	file_name	Date	Company	Contractor	Work_Done
1	HistoricClaims_Morrisette				28 historic claim maps
2	R084_LOVELL_MAP_REPORT	1970	Ontario Dept. of Mines	Rupert & Lovell	Geology of Bernhardt and Morrisette Twp. Report 84
3	32D04NW0043	November, 1980	Rosario Resources Canada Ltd.		Geophysical and Geological Survey of Morrisette-Lebel-Arnold Twps.
4	OFR5356	1981	Ontario Geological Survey		Open File Report 5356
5	INPUT_gndMAG_32D04NW0346	December 10, 1981	John T. Ward		Total Field Magnetic Survey
6	32D04NW0344_WEST SIDE BLOCK _ VLF	December 8, 1983	John T. Ward		Geonics EM16R VLF Resistivity Survey
7	Map_DDH1983_32D04NW0345	April 23, 1984	John T. Ward		Geological Report
8	32D04NW0341_DETAIL_WEST SIDE BLOCK	January 29, 1985	John T. Ward		BioGeochemical and Rock Assays
9	humus_Au_Cu_Assays_32D04NW8984	November, 1988	Medici Resources Ltd.		Au, Cu, As Soils assays
10	32D04NW0311	December, 1988	Medici Resources Ltd.	F.J. Sharpley	Report on Geological Mapping and Geochemistry Kirkland Lake Airport Property
11	32D04NW0314_LashbrookMag	February 6, 1989	Medici Resources Ltd.	Raymond L. Lashbrook	Report on Magnetics Surveys
12	32D04NW0302	April 1, 1989	Medici Resources Ltd.	Geoprobe Limited	Report on Maxi-Probe E.M. Survey
13	MEDICI_GEO_DDH	April, 1989	Medici Resources Ltd.	F.J. Sharpley	Geological Map, detailed
14	JVX_IP done by Frank & JoeMihelcic_32D04NW0305	March, 1992	Tech Explorations Limited	JVX Ltd.	Test Spectral IP Survey
15	32D04NW9052	November 5, 1993	Gold Insight Resources Ltd.	John P. Thompson	Report on Diamond Drilling…and Review of Available Data
16	32D04NW0250	October 6, 1994	Strike Minerals Inc.	S.J. Carmichael Consultants	A Report on the Medici Resources Limited Nettie Lake Property
17	32D04NW0001_Medici_IPSurvey_RemyBelanger	February 1, 1995	Strike Minerals Inc.	Gerard Lambert Geosciences	Report on ground geophysical investigations: IP Surveys
18	32D05SW0060	December 31, 1995	John P. Thompson & Associates	JVX Ltd.	Technical Review, A Logistical and Interpretive Report on Spectral IP Surveys
19	AP-96-1_DDH_32D04NW0379	June, 1996	Medici Resources Ltd.	F.J. Sharpley	Results from Borehole AP-96-1
20	MEDICI_DDH_GEOLOGY_32D04NW0383	November, 1996	Medici Resources Ltd.	F.J. Sharpley	Results from KLA-96 boreholes
21	32D04NW2033	December, 2001	Gold Insight Resources Ltd.	Douglas Robinson	Report on Magnetic Total Field Survey & Geological Survey
22	OFR6083	2002	Ontario Geological Survey		Open File Report 6083 Report of Activities 2001
23	32D04NW2042	October, 2003	Gold Insight Resources Ltd.	Douglas Robinson	Report on Exploration Procedure, Development & Evaluation & Drill Proposal
24	20001736	September, 2005	Gold Insight Resources Ltd.	Douglas Robinson	Report on Exploration Procedure, Development & Evaluation & Drill Proposal
25	20001763	October, 2005	Gold Insight Resources Ltd.	Douglas Robinson	Report on Diamond Drilling
26	20000765	December, 2007	Gold Diamet Ltd.	Marc Boivin	Report on an Airborne Magnetic Survey
27	20005858	December 2, 2008	Gold Diamet Resources	P.A.R.Brown	Diamond Drill Report
28	Q0716 JoBina..._IP_Mag_VLF_Linecutting_Fall2012	Fall 2012	JoBina Resources Inc.	ClearView Geophysics Inc.	Report On Linecutting, Spectral IP, Magnetics, VLF, Sampling & Historic Data Review
29	Q0716_addendum	Fall 2012	JoBina Resources Inc.	ClearView Geophysics Inc.	Discussion of Results - Addendum
30	U0721 JoBina_ToangaProject_IP_Mag_VLF_Linecutting_2016	2015 & 2016	JoBina Resources Inc.	ClearView Geophysics Inc.	Report On Linecutting, Spectral IP, Magnetics, VLF & Historic Data Review

Table 1: Pertinent Previous Work, since 1970’s to present.

In summary, the historic geophysical surveys at the Toanga Project Area were limited to magnetics, electromagnetics (e.g., VLF, Maxi-Probe, EM16R) and IP/Resistivity. Despite the presence of long-wavelength magnetic features which indicate large deep sources, no deep-penetrating drillholes or sophisticated modern geophysical work has ever been completed within this area until the present CSAMT survey.

Previously established survey lines and drill/access roads are almost, if not nearly completely, grown in. Therefore, pre-GPS era geophysical and geological data are useful for review and guidance only. They generally need to be re-acquired where and if deemed necessary.

JoBina Resources Inc. reports ref.Q0716 (Fall 2012) and ref.U0721 (2015 & 2016) provide historic data reviews based on some of the sparsely pertinent local information derived from the above listed historical reports.

5. Personnel

Geophysicist/Party Chief:

Joe Mihelcic operated the instruments. He was responsible for the data quality, processed/plotted/interpreted the results and prepared this report.

Field Technicians:

Troy Lutz and Andrew Watson assisted with the field survey.

6. Survey Parameters

The following Table 2 summarizes the equipment and configuration used. Figure 3 displays the transmitter setups relative to the survey grid.

Phoenix V8 & RXU Rx's	• 9600 Hz to 256 Hz
Reading Configuration:	• Scalar Mode, 6 Ex 50m dipoles, 1 AMTC-30 Hy coil
Phoenix TXU-30 Tx Electrode Locations: - Refer to Figure 2	• 586,555 mE / 5,359,451 mN, 588,750 mE / 5,358,710 mN • 2.3 km separation, 20.5 km to Line 2N.
Total Coverage:	• 3,150 m

Table 2: Equipment, Configuration & Coverage

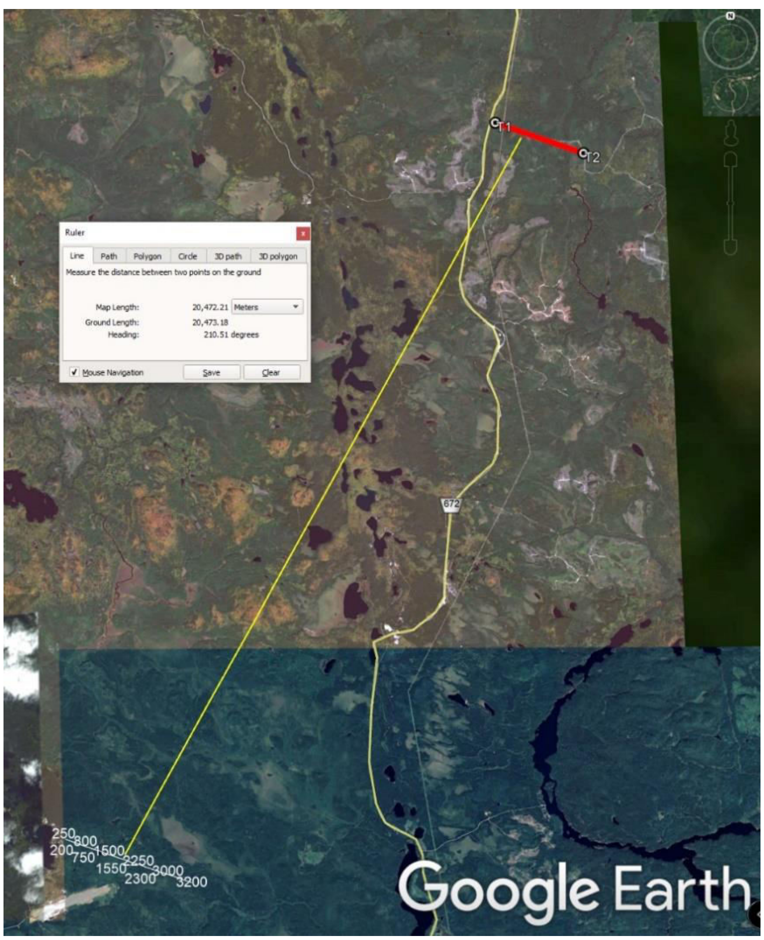


Figure 3: Transmitter Location (red line) Relative to Survey Line 2N.

Table 3 and Table 4 summarize coverage and daily activities respectively. Figure 4 indicates the legacy and modern claims traversed by Line 2N:

Line	West End	East End	Distance
L2N	0E	3150E	3150 m

Table 3: Survey Grid Coverage.

Date	Task	Temp.	Comment
Dec.14	Mob Timmins to KL, Setup Tx	-7C	Setup Tx wires and electrodes.
Dec.15	Grid, Setup Tx cont'd	-22C	Re-establish grid to end by breaking trail and flagging half line, setup/test MG and Tx.
Dec.16	Survey/Grid	-22C	Add salt/hot water C1, Program Rx's and Tx, continue re-establish flags/label, survey.
Dec.17	Survey/Grid	-28C	Problems starting MG, lost ~45 minutes, -28C, Tx off so Troy/Joe back lost 2 hrs. Joe/Troy back to Tx Error-15 due to high MG voltage over 240V, lowered to 232V
Dec.18	Survey/Grid	-27C	Wait full cycle at Tx before to grid, Error-31 at initial start; finished survey, returned MG and reeled up wires; dropped off Troy in Matheson around 8pm, Joe organized gear at sea-cans.
Dec.19	Demob	-1C	Drive to Brampton unload at office and storage.

Table 4: Daily Activities.

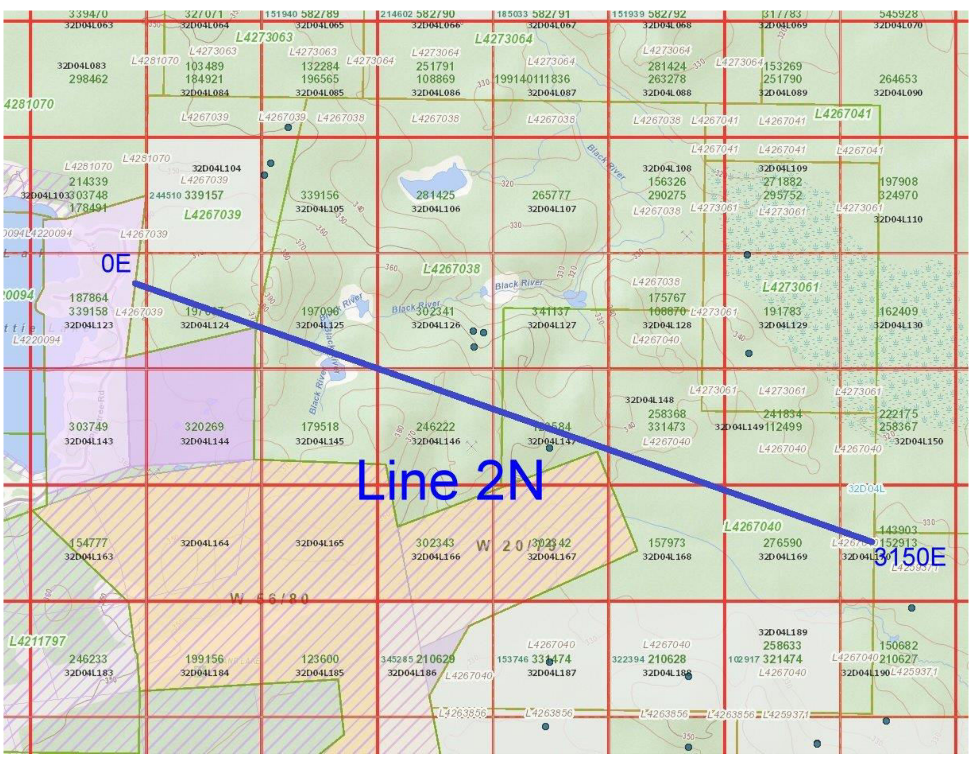


Figure 4: Claims Crossed by Line 2N.

7. Survey Method

The CSAMT survey consists of a transmitter setup and a receiver setup. Electrodes for the transmitter setup are located in bogs or wet areas. Several 4-foot long ¾” stainless steel electrodes are placed at each electrode location. Aluminum foil is also placed as a mat over an area of at least 4 m^2. Salt is then sprinkled over the setups and immediate surrounding ground as the mat is covered with dirt. The electrodes are connected to the transmitter using insulated 10-gauge copper wire.

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.).

The receiver setup consists of a *Phoenix V8* receiver that also displays readings and allows the control of *Phoenix RXU* 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 to eliminate potential interference.

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.

Specifications for the instruments used are provided in Appendix A.

8. Data Processing

This report and related products are presented digitally. The entire data set with Appendix B is available from an SFTP site. Access instructions for this data set are provided on the Index page located at the start of this report. 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 were recorded at each receiver. The V8 receiver also records the results from the radio-linked receivers. The data were 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 were subsequently gridded as a depth section as presented in Appendix B.

9. Problems & Logistical Issues

The work was carried out during the intermediate stages of the COVID-19 pandemic and required a high state of wariness. The transmitter automatically turned off unexpectedly twice during the work: once when the motor-generator output voltage was set too high and a second time when the transmitter was not adequately warmed up through one complete frequency cycle.

10. Discussion of Results

Ten (10) model resistivity high zones **R1** through **R10** are indicated on the CSAMT depth section plate presented for line 2N in Appendix B. A brief discussion of each follows:

R1:

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:

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:

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:

This 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:

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:

These 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:

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:

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:

This 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.

11. 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.**

If there are any questions about the surveys or the interpretation, please do not hesitate to contact the undersigned.

Sincerely,

ClearView Geophysics Inc.

Per:

LICENSED PROFESSIONAL ENGINEER
J. F. MIHELCIC
May 20/21
PROVINCE OF ONTARIO

Joe Mihelcic, P.Eng., M.B.A.
Geophysicist/President

12. Statement of Qualifications, Joe Mihelcic

I, Joe Mihelcic, hereby certify that:

1) I am a geophysicist with business office at 12 Twisted Oak Street, Brampton, Ontario L6R 1T1.

2) I am the owner of ClearView Geophysics Inc., a company performing geophysical surveys and related services.

3) I am a graduate of Queen's University in Applied Science, Geological Engineering (B.Sc. 1988) and of Ivey Business School (M.B.A. 1995).

4) I am a Professional Engineer member in Ontario, New Brunswick and Newfoundland-Labrador. I am also a Professional Geoscientist in Nova Scotia, Nunavut/NWT and Newfoundland-Labrador with Special Authorization Temporary Permits issued in Quebec.

5) I and my wife Sabina Mihelcic are full owners of JoBina Resources Inc., a private Ontario corporation.

6) I have practiced my profession since 1986.

Signed__________________

Joe Mihelcic, P.Eng., M.B.A.
Brampton, Ontario
May 20, 2021

Appendix A – Instrument Specifications

V8 Networked Multifunction Receiver for Geophysical Techniques

- Flexible, adaptable configurations
- Lightweight, highly portable
- Operates –20°C to +50°C
- No cable links required between network units or transmitter
- Cable or wireless link to local network of auxiliary units
- GPS-synchronized to transmitter and local network

MT, AMT	Magnetotellurics with remote reference
CSAMT	Controlled Source Audio MT
IP	Induced Polarization: Frequency and Time Domain, Phase and Spectral IP
TDEM, FDEM	All common Time and Frequency Domain Electromagnetics functions
Resistivity	All common Resistivity functions (Dipole, Schlumberger, or Wenner soundings)
Other	Record or monitor time series data from any suitable sensor, including geophones

Wireless networking with RXU-3ER receivers and RXU-TMR transmitter controller

V8 Multifunction Receiver

The V8 is the eighth generation of receiver technology developed by Phoenix since 1975.

The V8 builds upon many of the most attractive features of the highly successful Phoenix *V5*, *V6A*, and *System 2000*, including permanent GPS synchronization and light weight. The full-size ASCII keyboard and full-size, full-colour, sunlight-readable display give the operator hands-on control of the entire data acquisition process for all the most common geophysical techniques—both controlled source techniques and natural source techniques (AMT, MT).

The V8 has 3 magnetic channels and 3 electric channels. The magnetic channels can be assigned either to standard magnetic sensors or to TDEM sensors. The V8 can operate in stand-alone mode (usually for AMT and MT). In addition, it can serve as the hub of a local network of auxiliary 3-channel (3E) data acquisition units, which communicate with the V8 by wireless or optional cable.

All recording units are permanently synchronized to GPS time and are optimized to operate with transmitters similarly synchronized and controlled by the RXU-TMR auxiliary unit. No cable links are required between the networked recording units, or between receivers and the RXU-TMR/ transmitter pair.

Applications

Exploration—surface to 50 km or more...

- Oil and gas
- Metals and minerals
- Groundwater
- Kimberlites (diamonds)
- Geothermal reservoirs
- Monitoring
- Earthquake research
- Engineering and environmental

Summary Specifications

Channels	3 Magnetic 3 Electric Unlimited number of optional 3-channel auxiliary units (RXU-3)
Frequency Range	10 000 Hz to 0.00005 Hz (20 000 s)
Data Storage	On-board removable flash memory, 512 MB (upgradeable)
ADC	One per channel 24 bits, 96 000 samples/s (main channels)
Weight	7 kg
Keyboard	Full ASCII
Display	640 x 480 full-colour sunlight-readable TFT-LCD with backlight, power-save indicator
Connectors	Multi-pin, military-style connectors for sensor input, GPS, battery and ground connectors Four panel-mounted binding posts for electric field inputs (AMT, MT)
Input power	12V DC
Power consumption	15 watts approx.
Processor	DM&P Vortex86SX and auxiliary processors
Environmental	Operating: –20°C to +50°C

PHOENIX Geophysics Limited
PHOENIX GEOPHYSICS
3781 Victoria Park Avenue, Unit 3
Toronto, ON, M1W 3K5 CANADA
www.phoenix-geophysics.com
☎: +1 (416) 491-7340
Fax: +1 (416) 491-7378
✉: mail@phoenix-geophysics.com

TXU-30 Multi-function Geophysical Current Source

- Compact, portable
- Uses 200–240 V, 50 Hz, 60 Hz, or 400 Hz, 3-phase motor generator
- Permanently synchronized to GPS time ±0.5 µs
- Linear ramp better than 5 µs/ampere (turnoff characteristic for TEM)
- For all common EM geophysical techniques

IP	Induced Polarization: Frequency and Time Domain, Phase and Spectral IP
CSAMT	Controlled Source Audio Magneto-Tellurics in scalar, vector, and tensor modes
TDEM, FDEM	All common Time and Frequency Domain Electromagnetics functions

TXU-30 Multi-function Current Source

The most advanced controlled current source available for electrical methods geophysical exploration, the TXU-30 is compact and portable. It combines substantial output power (20kW) with advanced electronics and GPS technology.

Simplified MG Requirements

The new design eliminates dependence on specialized motor generators. Now, you can buy or rent a suitable MG from any convenient local supplier, and that means—

- no more service and spare parts supply headaches.
- possible capital cost savings.
- reduced shipping costs. (Over the life of the product, this can add up to considerable savings!)

Advanced Controls—Easy to Use

Advanced microprocessor control provides superior performance across the board. Large, bright LEDs display instrument status and critical values. Simple, straightforward controls make it easy to adjust all operating parameters within allowable limits.

Climate-Controlled Exploration!

Use the cable-linked remote control panel to operate the TXU-30 from up to 30m away. Manage your EM transmissions in the comfort of a heated or air-conditioned field truck cab! You'll also appreciate being able to talk with the rest of the crew by mobile phone or radio without having to fight the noise of the MG.

High S/N Ratios—Precision Synchronization

In highly resistive areas in the past, users have relied on dangerously high voltages in an attempt to achieve an adequate signal-to-noise ratio at the receiver. The TXU-30's built-in GPS (Global Positioning System) satellite-synchronized timing control, coupled with companion GPS-synchronized receivers, solves this problem.

Because the entire system is synchronized, receivers can maintain proper registration while stacking even extremely weak signals. The signals can be stacked as long as necessary until the S/N ratio is acceptable.

Wired or Wireless Data Links

The TXU-30 continuously saves time series records of its output current and voltage on a removable 512MB flash memory card. This information, required for deconvolution calculations in Spectral IP, can be transmitted to a companion receiver system over either a wireless or an optional cable link.

Alternatively, the data on the flash memory card can be uploaded to the post-processing computer via a high-speed, low-cost interface.

Summary Specifications

Dimensions & Weight, transmitter	52cm W x 44.5 cm H x 60 cm D 52.5kg	**Input Voltage**	200–240V at 50/60/400Hz
Dimensions & Weight, controller	47cm W x 15cm H x 36.5cm D 6.5kg	**Frequency Range**	256s to 9600Hz (Frequency Domain) 128s to 30Hz (Time Domain)
Environmental	Operating: –20°C to 45°C Storage: –35°C TO 50°C	**Timing Control**	GPS synchronized ±0.5µs
Maximum Power Output	20kW at 25°C, sea level	**User Interface**	Cable-connected control panel
Duty Cycle	100%, 50%, 33%, 25%	**Fault Protection**	Input voltage out of range Output voltage out of range Output current out of range Power stack temperature high
Efficiency	90% at full power		
Current Range	1–40A, 0.5–20A		
Voltage Range	25–1000V		

PHOENIX Geophysics Limited

PHOENIX GEOPHYSICS

3781 Victoria Park Avenue, Unit 3

Toronto, ON, Canada M1W 3K5

www.phoenix-geophysics.com

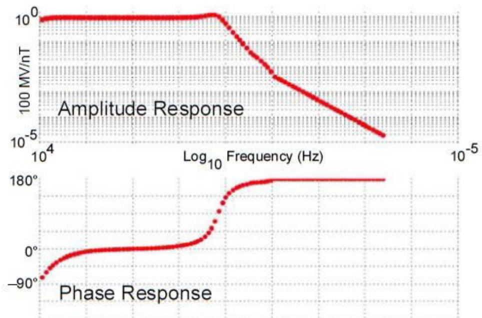
☎: +1 (416) 491-7340

Fax: +1 (416) 491-7378

✉: mail@phoenix-geophysics.com

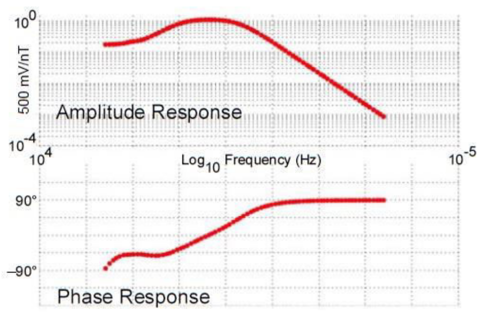
Magnetic Induction Coils

With Built-in Pre-amplifers



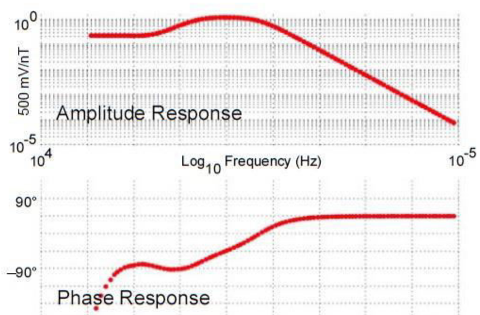
AMTC-30 *for* AMT, CSAMT, FDEM

- 82 cm x 6 cm dia., 3 kg
- Frequency range:
  10 000 Hz to 0.1 Hz



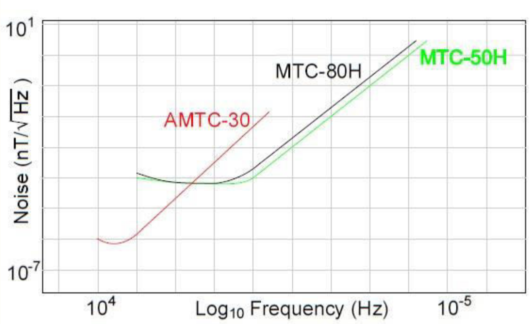
MTC-80H *for* MT

- 97 cm x 6 cm dia., 5 kg
- Frequency range:
  400 Hz to 10 000 seconds



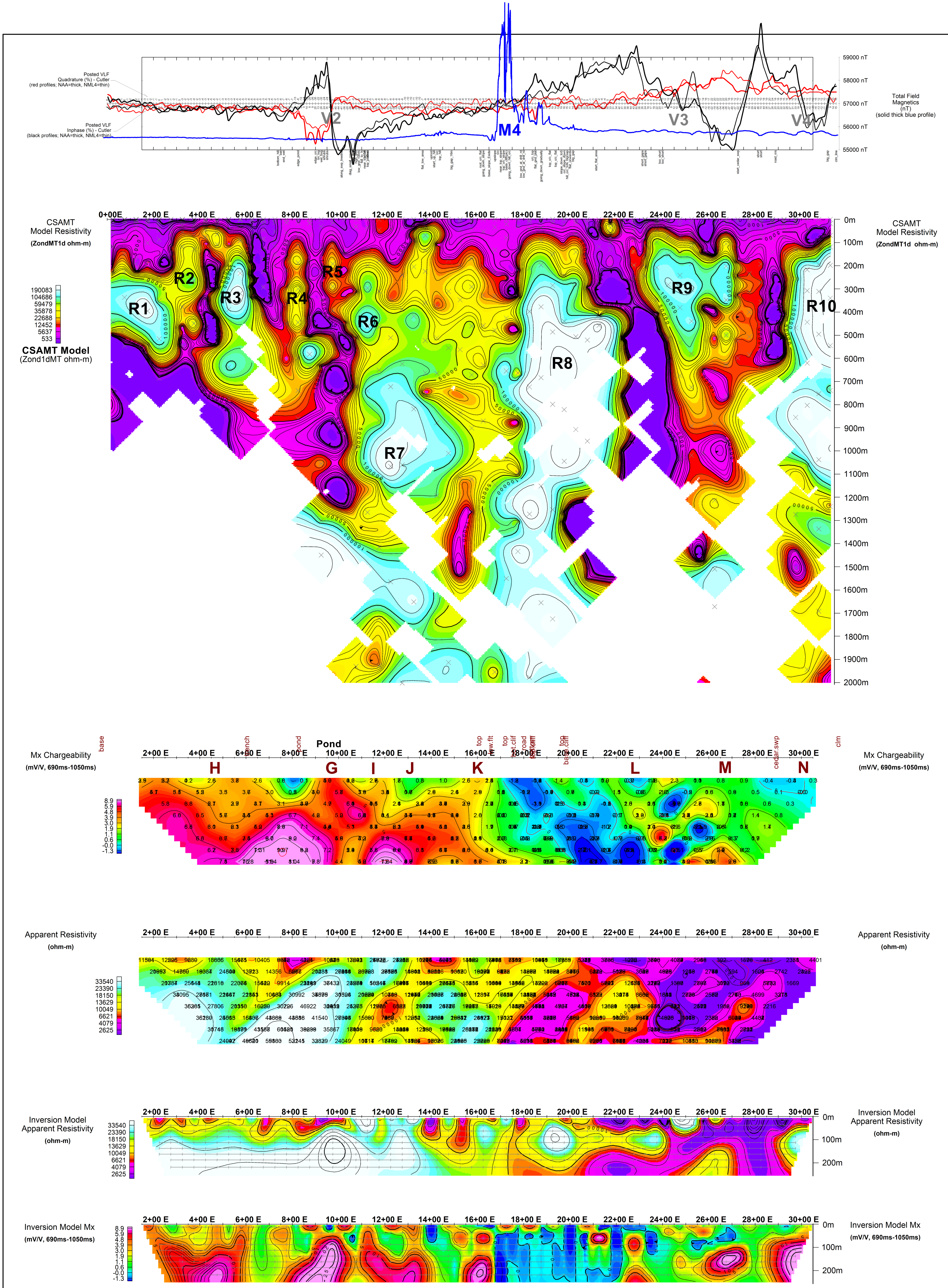
MTC-50H *for* MT

- 144 cm x 6 cm dia., 8.2 kg
- Frequency range:
  400 Hz to 50 000 seconds



Typical Spectral Plot of Sensor Noise

Appendix B – Plates



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)