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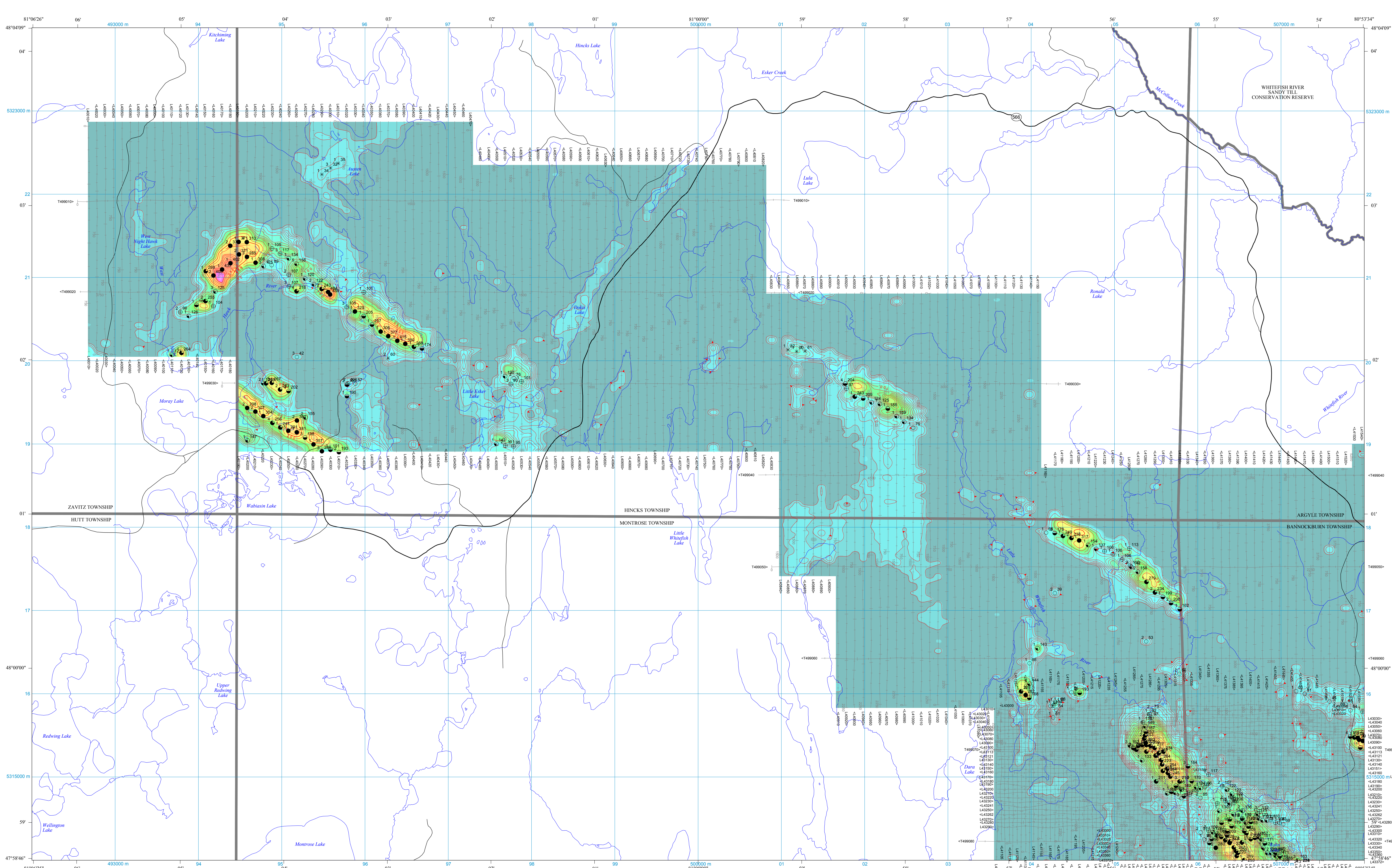
Ontario Geological Survey 2015. Airborne magnetic and electromagnetic surveys, colour-filled contours of the EM decay constant and electromagnetic anomalies, Matachewan–Timmins area—Purchased data; Ontario Geological Survey, Map 60 435, scale 1:20 000.

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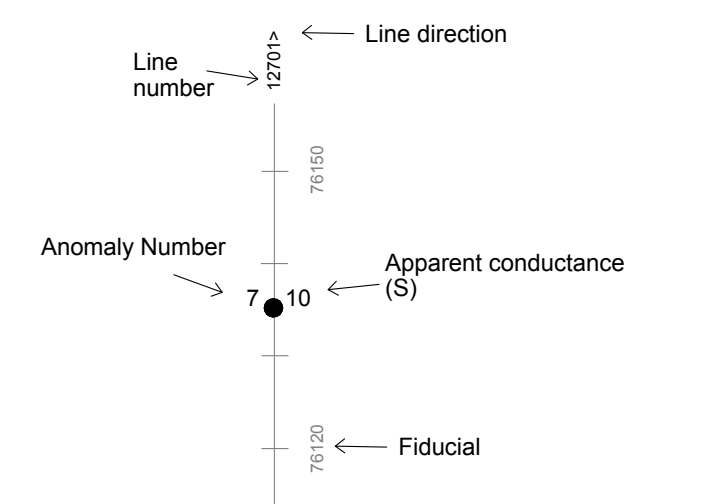


## LEGEND

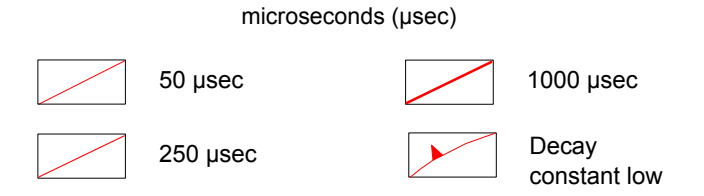
### ELECTROMAGNETIC ANOMALY SYMBOLS

Anomaly	Decay Constant Classification
●	>280 microseconds
●	210-280 microseconds
●	160-210 microseconds
●	120-160 microseconds
●	90-120 microseconds
●	0-90 microseconds
●	surficial conductor
●	cultural response

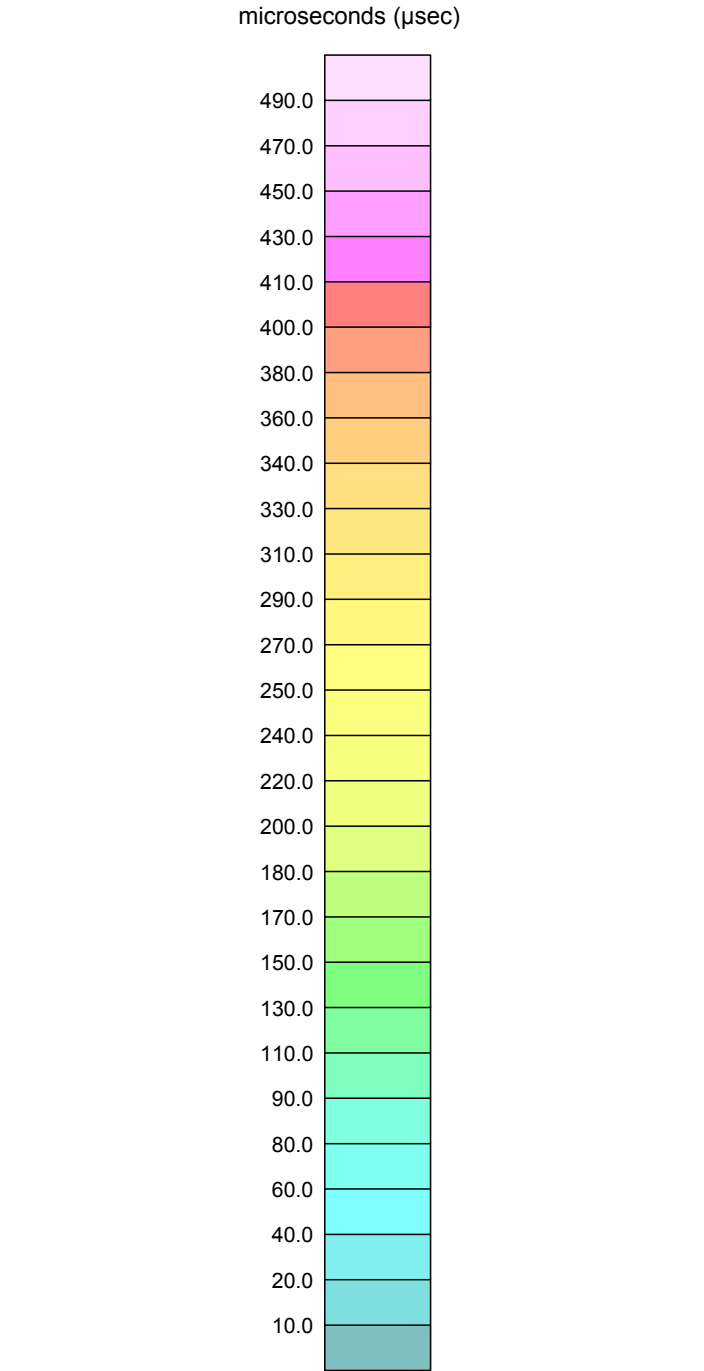
### FLIGHT LINE INFORMATION



### DECAY CONSTANT (TAU)



### EM DECAY CONSTANT



## DESCRIPTIVE NOTES

### Introduction

This survey was flown using the Aeroquest AeroTEM™ helicopter-borne magnetic and electromagnetic system. The aircraft was also equipped with a GPS navigation system and a digital data acquisition system.

### EM Decay Constant

EM decay constant values were calculated for each time channel of the Z-coil response, based on the response amplitude at the particular channel and the amplitude of a later channel, either immediately successive or further down the decay curve to ensure the signal levels and signal difference are suitably above signal noise threshold. The longest time constant value in the array was favoured. For each sample, only those channels with sufficient amplitude above the noise level were used in the calculation. In semi-log space, the slope of this function will reflect the decay rate of the transient and therefore the strength of the conductivity. A slow rate of decay, reflecting a high conductivity, will be represented by a high decay constant value.

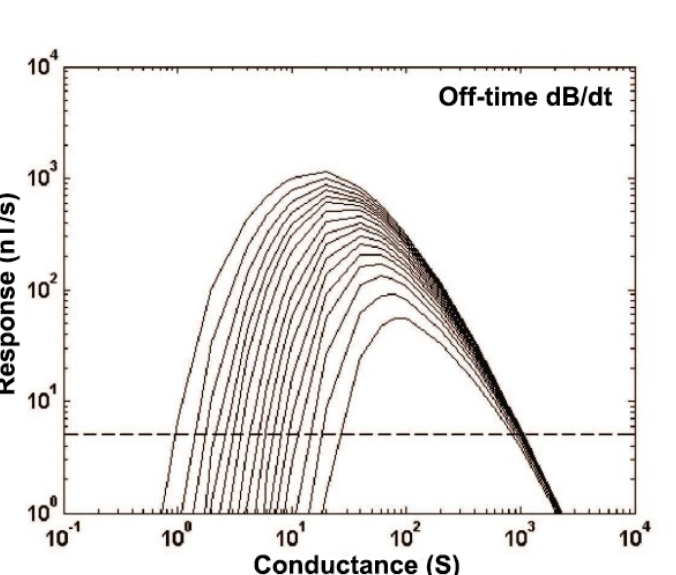
The computed decay constant values were filtered using a 21 point Hanning filter and interpolated onto a 20 m regular grid, using the bi-cubic spline algorithm. The grid was subsequently smoothed, by applying 2 passes of a 3 x 3 point Hanning filter.

### EM Anomalies

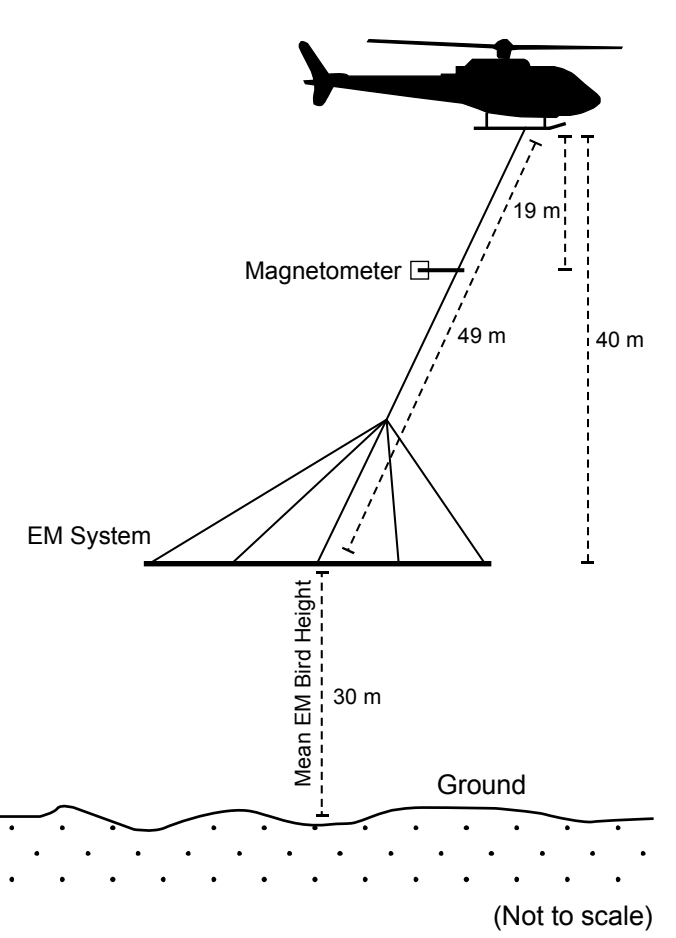
The AeroTEM™ system will respond to conductive overburden, near-surface horizontal conducting layers, man-made sources and bedrock conductors. Identification of natural conductors is based on the rate of transient decay, magnetic correlation and response shape, together with the response pattern and topography. Man-made responses are identifiable by examining the power line monitor.

Conductors having direct association with magnetic anomalies, as well as conductors interpreted to be steeply or moderately dipping were classified as being bedrock in origin. Interpreted broad conductors, with no correlation to the magnetic data were classified as surficial in origin. For each picked EM anomaly, the associated decay constant value was assigned and posted on the map.

### VERTICAL PLATE NOMOGRAM



### SYSTEM CONFIGURATION



## SURVEY PARAMETERS

### AIRCRAFT

Type: Aerospaciale AS350B2  
Registration: C-FAVI

### MAGNETOMETER

Type: Geometrics® G823A cesium-vapour  
Sensitivity: 0.001 nT  
Sample interval: 10 readings per second  
Sensor location: 19 m below aircraft

### ELECTROMAGNETIC SYSTEM

Type: AeroTEM™  
Base frequency: 150 Hz  
Current waveform: bipolar triangular  
Peak dipole moment (N/A): 38 800 Am²  
Pulse width: 1150 µsec  
Off-time: 2183 µsec  
Parameters: X- and Z-components of dB/dt  
Sample interval: 10 readings per second  
Bird Location: 40 m below aircraft

### NAVIGATION SYSTEM

GPS receiver: Trimble® AgGPS®132  
GPS sample interval: 5 readings per second  
Radar altimeter: Terra 3500/TRI-30  
Video flight path recorder: 8 mm high resolution colour video  
Guidance system: Ag-Nav Inc. AG-NAV2  
Digital acquisition system: AeroDAS, RMS Instruments  
DGR33A

### BASE STATION

Magnetometer: Scintrex® CS-2 cesium  
GPS receiver: Leica® MX9212  
Sample interval: 1 reading per second

### SURVEY SPECIFICATIONS

Survey date: April 24 to May 12, 2004  
Nominal aircraft terrain clearance: 70 m  
Traverse line spacing: 50 and 100 m  
Control line spacing: 200 m  
Traverse line direction: North-South and East-West  
Control line direction: East-West

### CO-ORDINATE SYSTEM

Projection: Universal Transverse Mercator  
Datum: NAD83  
Central meridian: 93°00'W (UTM zone 17)  
Central scale factor: 0.9996  
False easting: 500 000 m  
False northing: 0 m

## SOURCES OF INFORMATION

Base map information derived from the Land Information Ontario Data Warehouse, Land Information Ontario, Ministry of Natural Resources and Forestry, scale 1:50 000.

Magnetic declination for the centre of the map area was approximately 10°41'W in 2015.

Fiset, N. 2004. Report on a helicopter-borne magnetic and electromagnetic survey, featuring the Aeroquest AeroTEM™ system, Redstone Property, Adams Township, Timmins area, Ontario; unpublished report for Mustang Minerals Corp., Sudbury Resident Geologist's office, assessment file AFRO# 2.28766, AFR# 412405SE2024, 45p.

Fiset, N. 2004. Report on a helicopter-borne magnetic and electromagnetic survey, featuring the Aeroquest AeroTEM™ system, Bannockburn Property, Bannockburn Township, Matchewan area, Ontario; unpublished report for Mustang Minerals Corp., Sudbury Resident Geologist's office, assessment file AFRO# 2.29671, AFR# 41P151NW2014, 42p.

Fiset, N. 2004. Report on a helicopter-borne magnetic and electromagnetic survey, featuring the Aeroquest AeroTEM™ system, McArthur Property, McArthur Township, Timmins area, Ontario; unpublished report for Mustang Minerals Corp., Sudbury Resident Geologist's office, assessment file AFRO# 2.29089, AFR# 422403NE2010, 41p.

Fiset, N. 2004. Report on a helicopter-borne magnetic and electromagnetic survey, featuring the Aeroquest AeroTEM™ system, Midlothian Property, Midlothian Township, Matchewan area, Ontario; unpublished report for Mustang Minerals Corp., Sudbury Resident Geologist's office, assessment file AFRO# 2.29935, AFR# 20000000463, 41p.

Fiset, N. 2004. Report on a helicopter-borne magnetic and electromagnetic survey, featuring the Aeroquest AeroTEM™ system, Montrose Property, Montrose Township, Matchewan area, Ontario; unpublished report for Mustang Minerals Corp., Sudbury Resident Geologist's office, assessment file AFRO# 2.29867, AFR# 20000000456, 39p.

Fiset, N. 2004. Report on a Helicopter-borne magnetic and electromagnetic survey, featuring the Aeroquest AeroTEM™ system, Powell Property, Powell Township, Matchewan area, Ontario; unpublished report for Mustang Minerals Corp., Sudbury Resident Geologist's office, assessment file AFRO# 2.29869, AFR# 20000000457, 41p.

Fiset, N. 2004. Report on a helicopter-borne magnetic and electromagnetic survey, featuring the Aeroquest AeroTEM™ system, Serpentine Property, Semple and Sothman townships, Matchewan area, Ontario; unpublished report for Mustang Minerals Corp., Sudbury Resident Geologist's office, assessment file AFRO# 2.28603, AFR# 41P14NE2014, 52p.

Ontario Geological Survey 1999. Single master gravity and aeromagnetic data for Ontario, Geophysical Data Set 1036.



Ontario Geological Survey

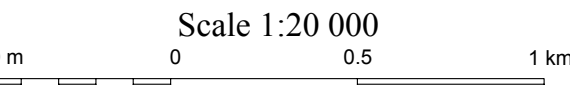
MAP 60 435

AIRBORNE MAGNETIC AND  
ELECTROMAGNETIC SURVEYS

Colour-filled contours of the  
EM decay constant and  
electromagnetic anomalies

MATACHEWAN-TIMMINS  
AREA

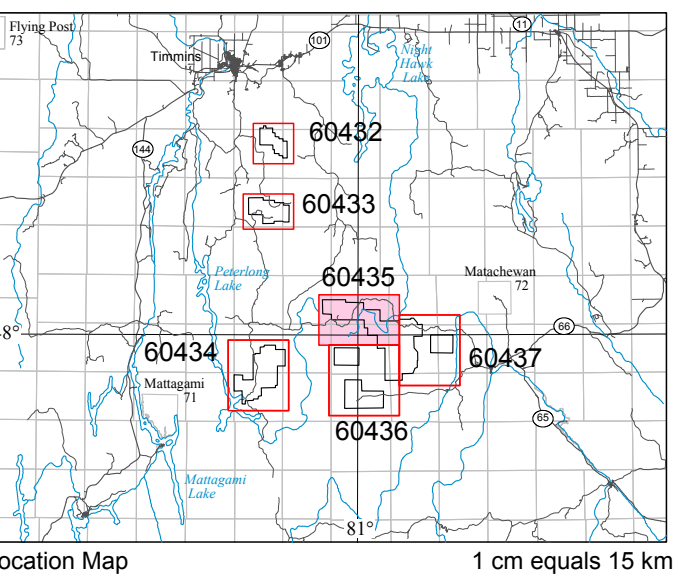
Purchased Data



NTS References: 41°P14, 15, 42 A/2, 3

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## CREDITS

Data acquisition, data compilation by Aeroquest International, Mississauga, Ontario for Mustang Minerals Corp., Toronto, Ontario.

Data reprocessing and map production by Scott Hogg and Associates, Toronto, Ontario.

Contract management, base maps and map surrounds by the Ministry of Northern Development and Mines, Sudbury, Ontario. Every possible effort has been made to ensure the accuracy of the information presented on this map, however, the Ministry of Northern Development and Mines does not assume liability for any errors that may occur. Users should verify critical information.

The geophysical data on this map were purchased from the private sector. The original data acquisition was neither supervised by the Ontario Geological Survey (OGS) nor carried out to OGS technical specifications. However, the purchased data do meet pre-defined valuation criteria set out by the OGS. Some quality assurance and quality control checks have been carried out on the digital data.

Corresponding digital data for this survey are available from the following Ontario Geological Survey publication:

Ontario Geological Survey 2015. Ontario airborne geophysical surveys, magnetic and electromagnetic data, grid and profile data (ASCII and GeoTIFF formats) and vector data. Matchewan-Timmins area—Purchased data, Ontario Geological Survey, Geophysical Data Set 1243.

Issued 2015.

Information from this publication may be quoted if credit is given. It is recommended that reference be made in the following form:

Ontario Geological Survey 2015. Airborne magnetic and electromagnetic surveys, colour-filled contours of the EM decay constant and electromagnetic anomalies, Matchewan-Timmins area—Purchased data, Ontario Geological Survey, Map 60 435, scale 1:20 000.

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