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GEOPHYSICAL REPORT  
FOR  
***COLLINS, GLOSTER ET AL***  
ON THE  
***HEENAN AND MARION PROPERTIES***  
HEENAN AND MARION TOWNSHIPS  
PORCUPINE MINING DIVISION  
NORTHEASTERN, ONTARIO

Prepared by: Norm Collins,  
October 2019

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## **INTRODUCTION:**

The services of Compass Exploration were retained by the Collins-Gloster group on behalf of the claim holders, to complete a ground geophysical program across a portion of their claim holdings, in the Porcupine Mining Division. The properties are located in Heenan and Marion Township of the Porcupine Mining Division in Northeastern Ontario.

The purpose of the program was to locate and outline the historic iron rich formations that are known to cross cut the grid areas as this structure is thought to host several gold showings along its strike length.

## **PROPERTY LOCATION AND ACCESS:**

The Heenan property is located approximately 90 kilometers west of the city of Timmins, Ontario, in southeast section of Heenan Township. The Heenan claim block is centered at NAD 83 UTM co-ordinate 397025E, 5292500N, Zone 17.

Access to the Heenan property is by way of the Heenan Road, an all-weather logging road that crosses the south and east part of the property and intersects the central west side of the grid.

The Marion Property is accessed by continuing northeast to east along the Heenan road to a parking spot about 10 kilometers from the Heenan grid. At this point there is an ATV trail that runs south and then east for about 1.4 kilometers to a boat launch on the river. The southwest section of the Marion grid is reached by boat travelling north along the river for 3 kilometers. The grid area was accessed by foot traverse going east from this point. The Heenan road is accessed from the Foleyet Timber road that is approximately 95 km south of Hwy 101. The Foleyet Timber road and Highway 101 intersection is located approximately 12 km east of the Town of Foleyet

Traveling time from Timmins to the grid is about 2 hours. Figures 1 and 2, Appendix A

## **CLAIM BLOCK:**

The claim numbers that were covered by the geophysical survey on both the Heenan property and Marion property can be found on Figures 3 and 4 that was copied from the claim maps of Heenan and Marion Township. Refer to the Figures for the positioning of the grid lines and survey areas within the two claim blocks. Appendix A

**PERSONNEL:**

The field crew directly responsible for the collection of all the raw data were as follows.

Chad Gloster..... Timmins, Ontario  
Norm Collins..... Timmins, Ontario

**GROUND PROGRAM:**

The ground program consisted of detailed compass paced grids over both properties that were controlled by hand held GPS units for line accuracy. A total field magnetic survey was done in conjunction with the grid layout using the TerraPlus GSM-19WV walking mag system. Specifications for this unit can be found as Appendix A of this report.

In all, a total of 7 kilometers of grid lines were completed across the Heenan Property at 200 meter intervals and 11.6 kilometers were completed across the Marion property at 100 and 200 meter intervals. The ground work was completed between August 15<sup>th</sup> and the 22<sup>nd</sup> 2019.

The following parameters were kept constant throughout both of the surveys.

**Magnetic Survey:**

Line spacing.....	100 and 200 meters
Station spacing.....	25 meters
Reading intervals.....	25 meters
Diurnal monitor.....	base station
Base record intervals	30 seconds
Reference field.....	56,500 gammas
Datum subtracted.....	56,000 and 50,000 gammas
Unit accuracy.....	+/- 0.1 gamma

Once the survey was completed the field data was plotted directly onto a base map. The data was then contoured at 50 gamma intervals wherever possible. A copy of the color base map is included in this report.

**MAGNETIC SURVEY RESULTS:**

The magnetic survey has delineated a magnetic high region in the north portion of the grid and a circular shaped, lower magnetic area in the south portion of the grid. A much smaller magnetic high is also located at 398977E and 5295806.

**CONCLUSIONS AND RECOMMENDATIONS: Map in Appendix A**

The ground magnetic program was successful in locating and outlining the favorable geological structures of the property that is known to host gold mineralization.

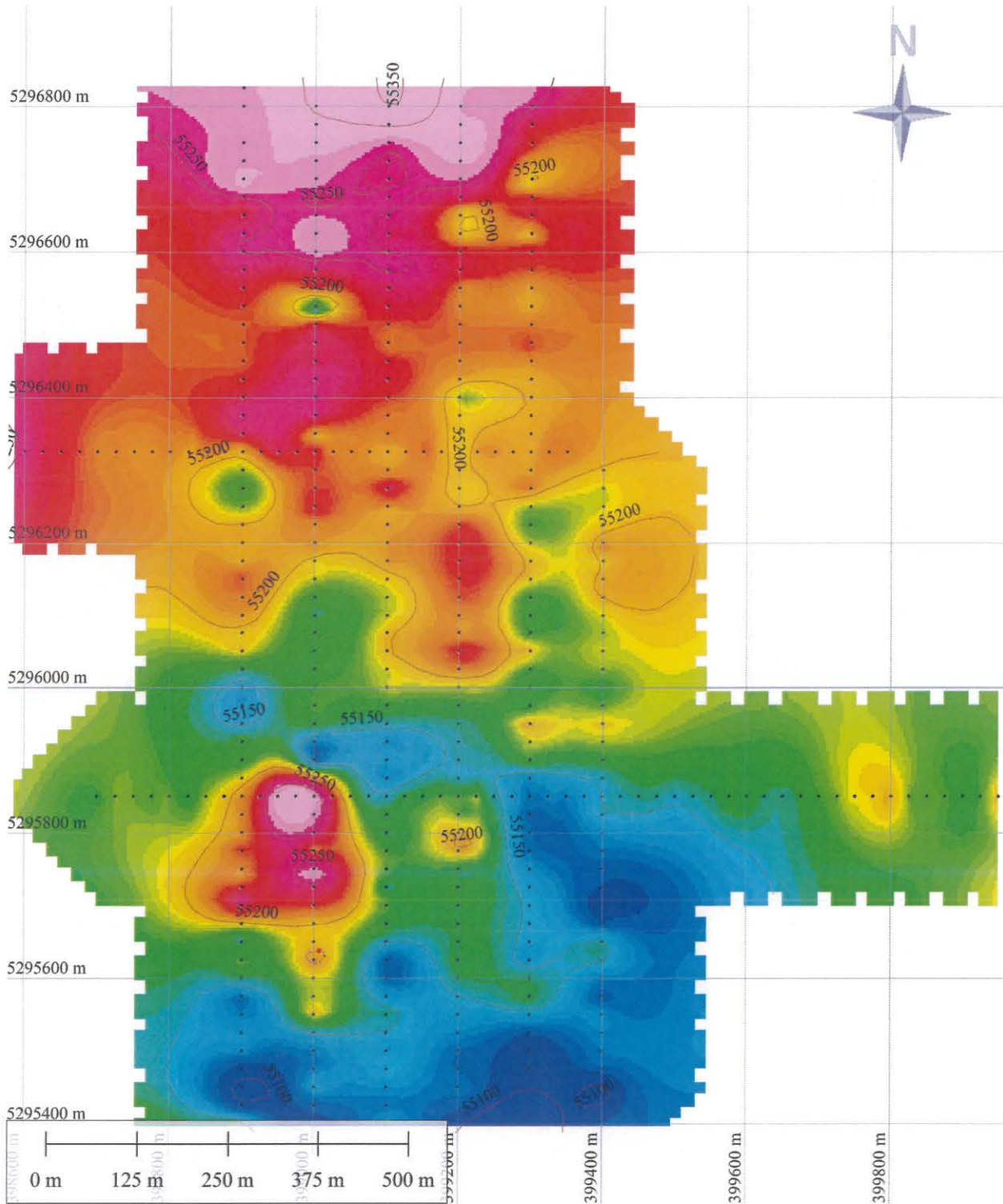
A follow up program of using either a deeper penetrating electromagnetic system or an Induced Polarization survey would be required to better define the zones at depth and along strike. A diamond drilling program may be considered as a follow up to these surveys.

Respectfully submitted

Norm Collins  
October, 2019

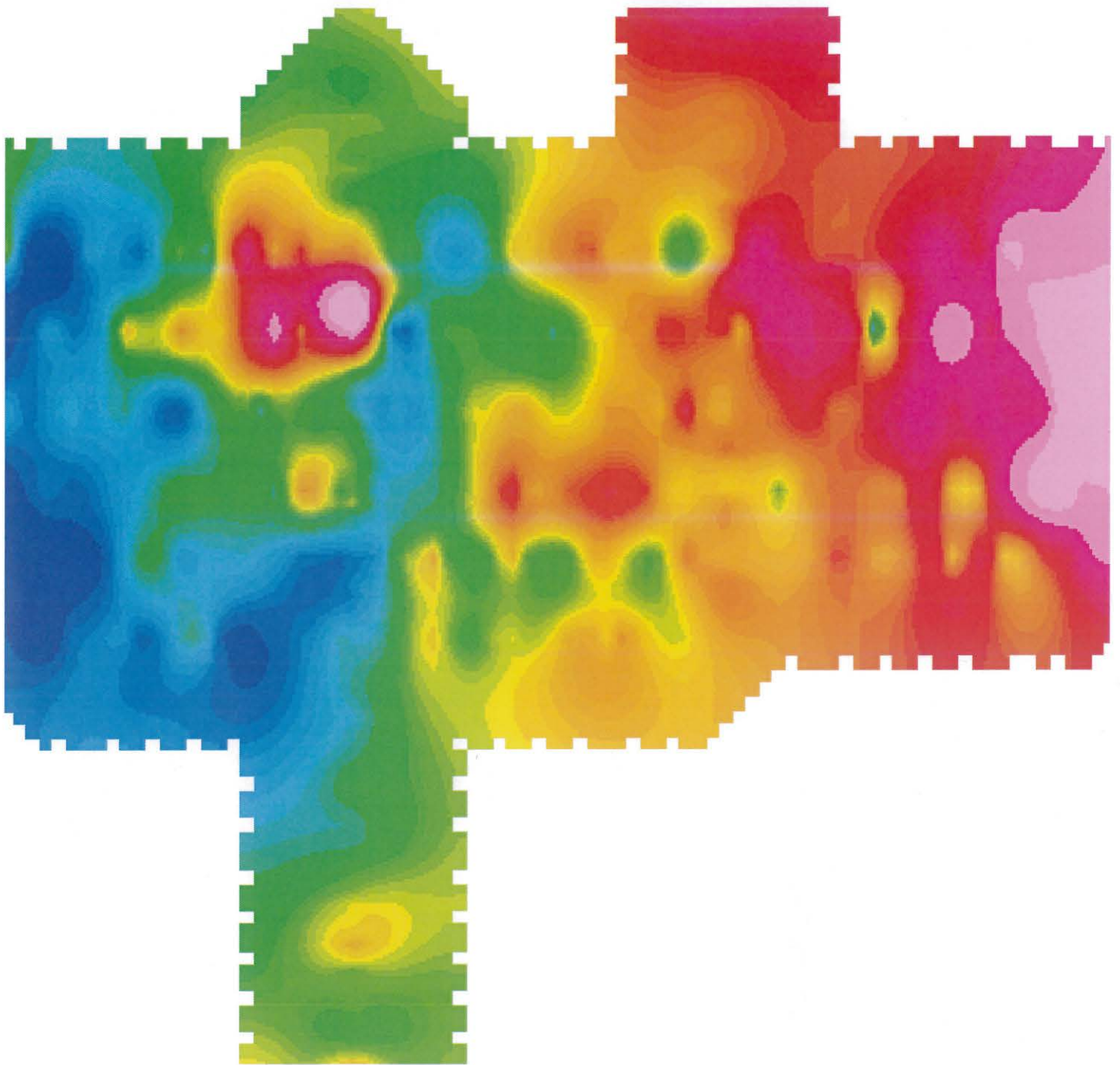


# Heenan Marion Property



Total Magnetic Field





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## GSM-19 OVERHAUSER MAGNETOMETER/GRADIOMETER SYSTEM

Version 5

[New Case Study](#)

### GSM-19 Overhauser Magnetometer

#### Features of the magnetometer

- Sensitivity = 0.02 nT
- Absolute Accuracy = 0.2 nT
- Sample Rates up to 5 Hz
- Low Power Consumption

#### General magnetometer description

"Overhauser" Once you experience it, you'll never go back to proton. Overhauser technology brings you sensitivities one to two orders of magnitude better than proton, yet in a light weight package. This is because the overhauser magnetometer consumes an order of magnitude less power than proton magnetometer, allowing a lighter weight for batteries.

What is the Overhauser technique? The Overhauser sensor contains the electrons' fluid that has been added to a hydrogen rich in the form of "free radical". The resulting mixture yields a sensor with 5000 times gain in proton polarization. Since the Overhauser polarization effect does not require static magnetic fields, but uses radio frequency fields transparent to protons, measurement can be done concurrently with polarization. The result is a sensor with much greater sensitivity, that can be sampled much more rapidly than the standard proton sensor.



[New! version 6](#)

Walking Gradiometer systems, sampling at rates of once per second or better are possible; Even in cold temperatures of minus 40 zero degrees Celsius and greater, the internal rechargeable battery can still be relied on for a 10 hour day, or longer.

The GSM-19 Overhauser magnetometer is thus truly a State-of-the-Art Magnetometer / VLF system. The GSM-19 offers the data quality, reliability, and extensive list of capabilities, and options, that allow it to meet a very wide spectrum of applications.

## Standard Features of the Magnetometer

The GSM-19 magnetometer console features a real time graphic display of the current profile. In addition digital display of the current reading, current position, and warning messages are provided. The console design, with internal rechargeable battery pack, allows the unit to be completely sealed against the elements. With the built in heater for the display the GSM-19 magnetometer is ready to go wherever your surveys may take you.

Tuning is automatic worldwide, with provision for manual override. In high gradient conditions the GSM-19 magnetometer monitors the signal decay rate and displays a warning message when the gradient becomes too great. Filters for rejection of 50 or 60 Hz noise are provided.

Diurnal corrections may be done in traditional fashion with one magnetometer unit as a base station and a second unit used as the mobile field unit. At the end of the survey the two units are connected and the field unit creates a corrected data file (which still includes the raw data file) based on the temporal drift recorded by the base station.

As a standard feature GSM-19 magnetometer also offer the capability of making tie point measurements for automatic diurnal corrections. To use this feature the operator records a base value and then loops back to this point periodically during the survey to record another measurement, and thus build a file of the drift. In this way a single instrument may be used to make diurnal corrections.

The RS-232 port on the GSM-19 magnetometer will output data as it is collected. This allows interface to GPS loggers that will accept RS232 data. The standard GSM-19 magnetometer may be operated in a remote mode via computer. Memory storage is 512 K in the standard unit, and may be upgraded to 2 MB.

Grid coordinates are stored with either numeric or compass designations. A seven digit number may be used to

position spacing. If the previous line had been adding positions as the operator moved, then on the next line, positions will be subtracted as the operator moves. The operator may also easily manually enter his grid position for cases where gaps in the line are necessary.

#### **Equatorial Sensor for magnetometer**

In equatorial regions, generally 30 degrees north or south of the equator, magnetic fields reach a nearly horizontal angle with the earth's surface. This requires a conventional proton sensor to be used in an inverted position, and requires the operator to collect data only on east/west lines to maximize the magnetic signal. This is a problem that is a magnitude worse for cesium magnetometers.

The Overhauser technique allows design of an optional sensor completely free of this problem, a sensor that requires no orientation no matter what the latitude of your exploration. This can be a major advantage when working in diverse areas around the world, and when needing to train local operators whose first language may not be your own.

#### **"Walking Mag Option"**

The GSM-19 magnetometer is the first to offer the "Walking Mag" concept. The reason for this is the outstanding advantage the Overhauser sensor has in this application. With the "Walking Mag" option the operator may select a sample rate of up to two samples per second. At this rate Overhauser technology can still deliver a noise level that is quite acceptable, about 0.1 nT, and the lower power consumption means that a full day of surveying can still be done with just the internal rechargeable battery.

As shown in Figure 1 the near continuous data from the "Walking Mag" technique provides increased definition for any type of survey. For surveys with densely spaced grids, such as archaeological or environmental surveys, field productivity is markedly improved, typically by a factor of five.

When in the Walking Mag mode the operator still presets his line and station spacing. When a known station is passed a grid update key is pressed and the current reading is tagged with this station. Readings taken between these marked positions are then linearly interpolated for their grid position when data is transferred to a computer.

A further refinement of the Walking Mag concept is the Hip Chain Option. This option uses a hip chain to trigger the magnetometer to take a reading at discrete intervals. A Hip Chain consists of an optical encoder that records revolutions of a wheel wound with disposable cotton string. The string is tied off at the beginning of a line, and as the operator walks the string is pulled out, and the magnetometer is automatically triggered. With the Hip Chain option sample rates up to five samples per second are supported.

HEENAN & MARION GRIDS.

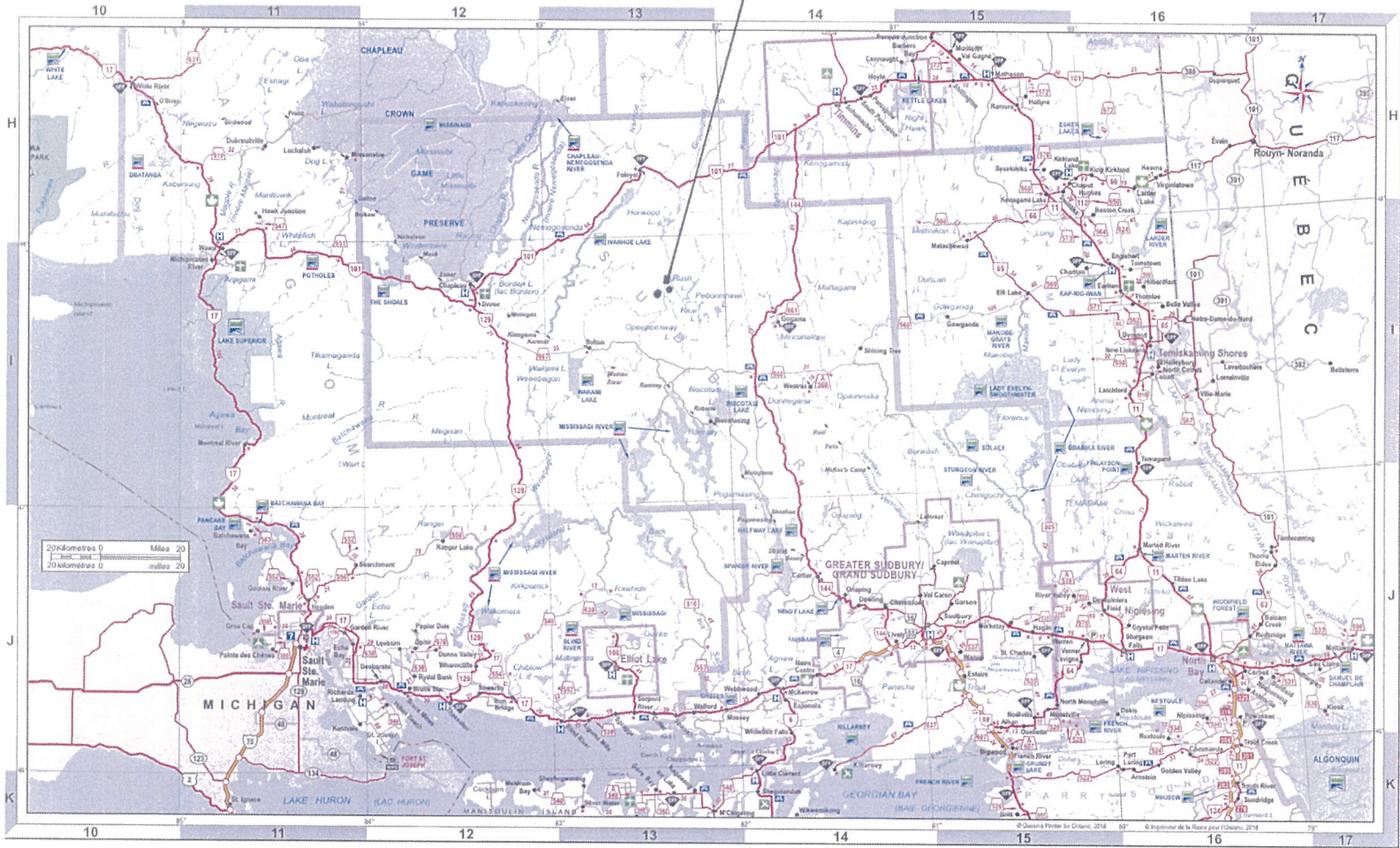
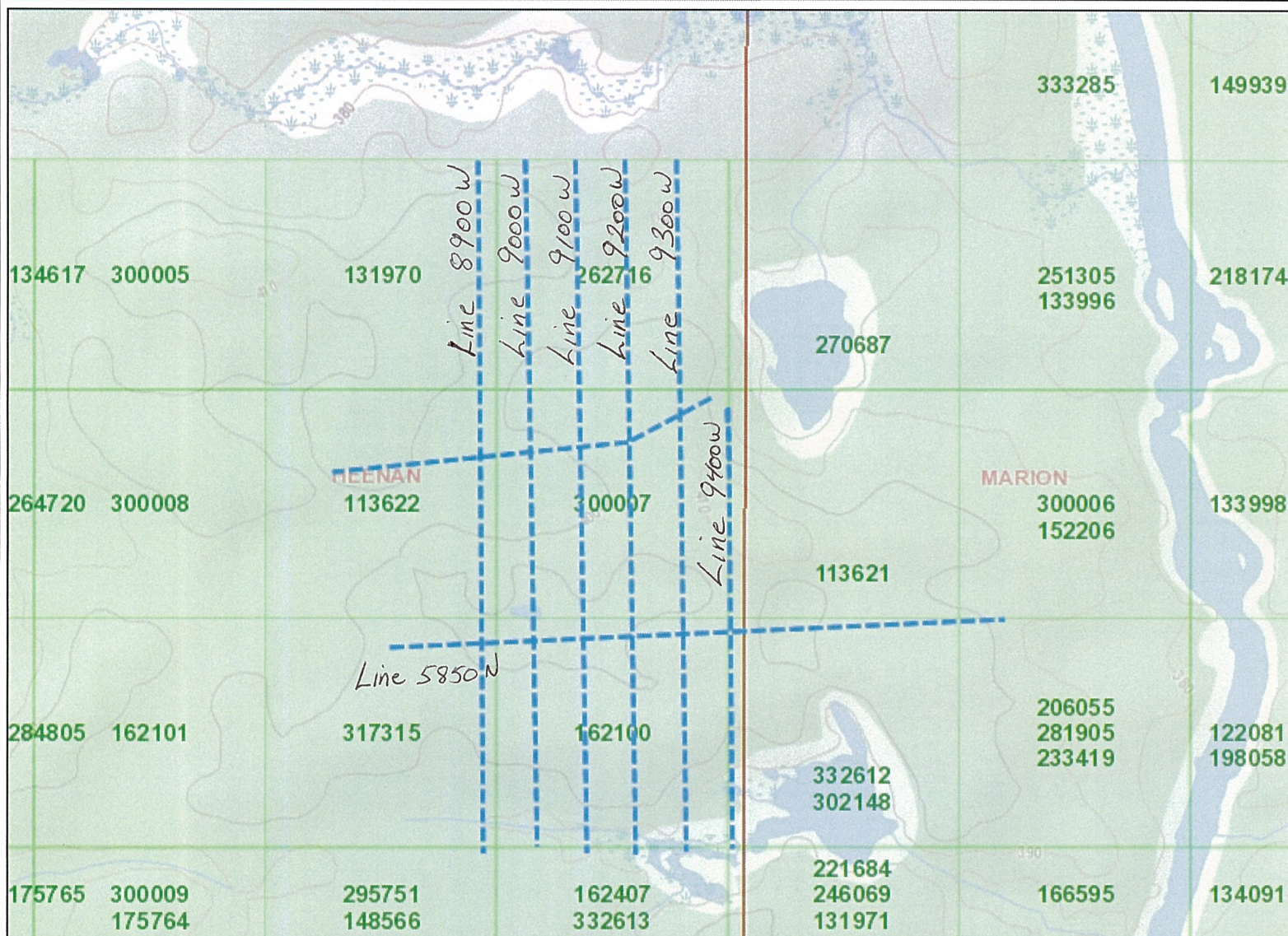


FIGURE 1  
GRID AREAS.



FIGURE 2 ACCESS ROUTE TO GRIDS



### Legend

- Provincial Grid Cell**
  - Available
  - Pending
  - Unavailable
- Mining Claim**
  - Mining Claim
  - Boundary Claim
- Alienation**
  - Withdrawal
  - Notice
- ENDM Administrative Boundaries**
  - ENDM Townships and Areas
  - Geographic Lot Fabric
  - UTM Grid 1K
  - UTM Grid 10K
  - Mining Division
  - Mineral Exploration and Development Region
  - CLUPA Protected Area - Far North
  - Resident Geologist District
  - Federal Land Other
  - Native Reserves
  - AMIS Sites
  - AMIS Features
  - Drill Hole
  - Mineral Occurrences
- MLAS Mining History**
  - Withdrawal - History
  - Notice - History
  - Mining Claim - History
  - Mining Land Tenure - History
  - Legacy Claim
- Provincial Grid**
  - Provincial Grid 250K
  - Provincial Grid 50K
  - Provincial Grid Group
- Land Tenure**
  - Surface Rights
  - Mining Rights
  - Mining and Surface Rights
  - Order-in-Council



Projection: Web Mercator



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