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PAT CULHANE

Abstract

CXS was contracted to perform a magnetometer survey over a portion of the Melba Property. The crew accessed the site on April 26, 2022.

A total length of 6.05 kilometres was covered with 256 magnetometer samples taken at a 25 meter interval. A magnetically elevated dike crosses the survey area and may represent favorable geology for further exploration programs.

PAT CULHANE

Q3010 – Melba Property
Magnetometer Survey

C Jason Ploeger, P.Geo. – May 2, 2022

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LIST OF TABLES AND FIGURES

1. SURVEY DETAILS

1.1 PROJECT NAME

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

1.2 CLIENT

Pat Culhane

255 Kenogami Lane
Grenfell Township, Ontario
P0K 1T0

1.3 OVERVIEW

CXS was contracted to perform a magnetometer survey over a portion of the Melba Property. The crew accessed the site on April 26, 2022.

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1.4 OBJECTIVE

The objective of the magnetometer survey was to explore the area for magnetic signatures.

1.5 SURVEY & PHYSICAL ACTIVITIES UNDERTAKEN

Survey/Physical Activity	Dates	Total Days in Field	Total Line Kilometers
Magnetometer	April 26, 2022	1	6.05

Table 1: Survey and Physical Activity Details

1.6 SUMMARY OF RESULTS, CONCLUSIONS & RECOMMENDATIONS

CXS was contracted to perform a magnetometer survey over a portion of the Melba Property. The crew accessed the site on April 26, 2022.

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1.7 CO-ORDINATE SYSTEM

Projection: UTM zone 17N
Datum: NAD83
UTM Coordinates near center of grid: 563050 Easting and 5355251 Northing

2. SURVEY LOCATION DETAILS

2.1 LOCATION

The Melba Property is located approximately 23.0 kilometers north-northeast of Kirkland Lake, Ontario. The survey on the property covers a portion of mining claims 682541, 682542 and 550476 located in Benoit Township within the Larder Lake Mining Division.

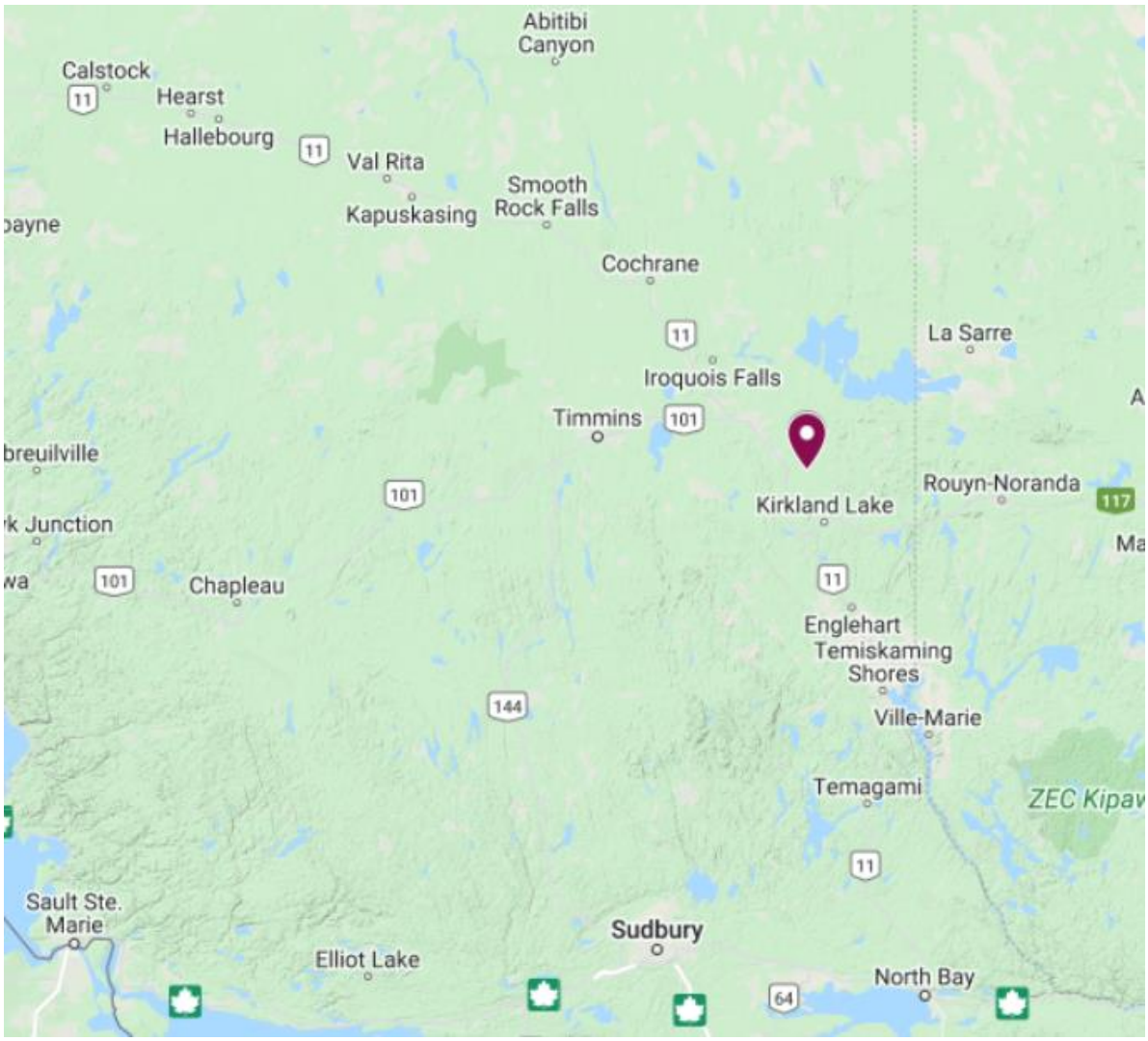


Figure 1: Location of the Melba Property

2.2 ACCESS

Access to the Melba Property was attained with a 4x4 truck via the Saley Road. From Ramore, Ontario highway 11 is travelled 9.5 kilometers south to the Wavell Road. Wavell Road is travelled for 1 kilometer to the Saley Road. The Saley Road is then travelled 7.5 kilometers to where the survey area is located.

2.3 MINING CLAIMS

The survey on the property covers a portion of mining claims 682541, 682542 and 550476 located in Benoit Township within the Larder Lake Mining Division.

Cell Number	Provincial Grid Cell ID	Ownership of Land	Township
682541	42A08G336	Patrick Culhane	Benoit
682542	42A08G337	Patrick Culhane	Benoit / Melba
550476	42A08G357	Patrick Culhane	Benoit / Melba

Table 2: Mining Lands and Cells Information

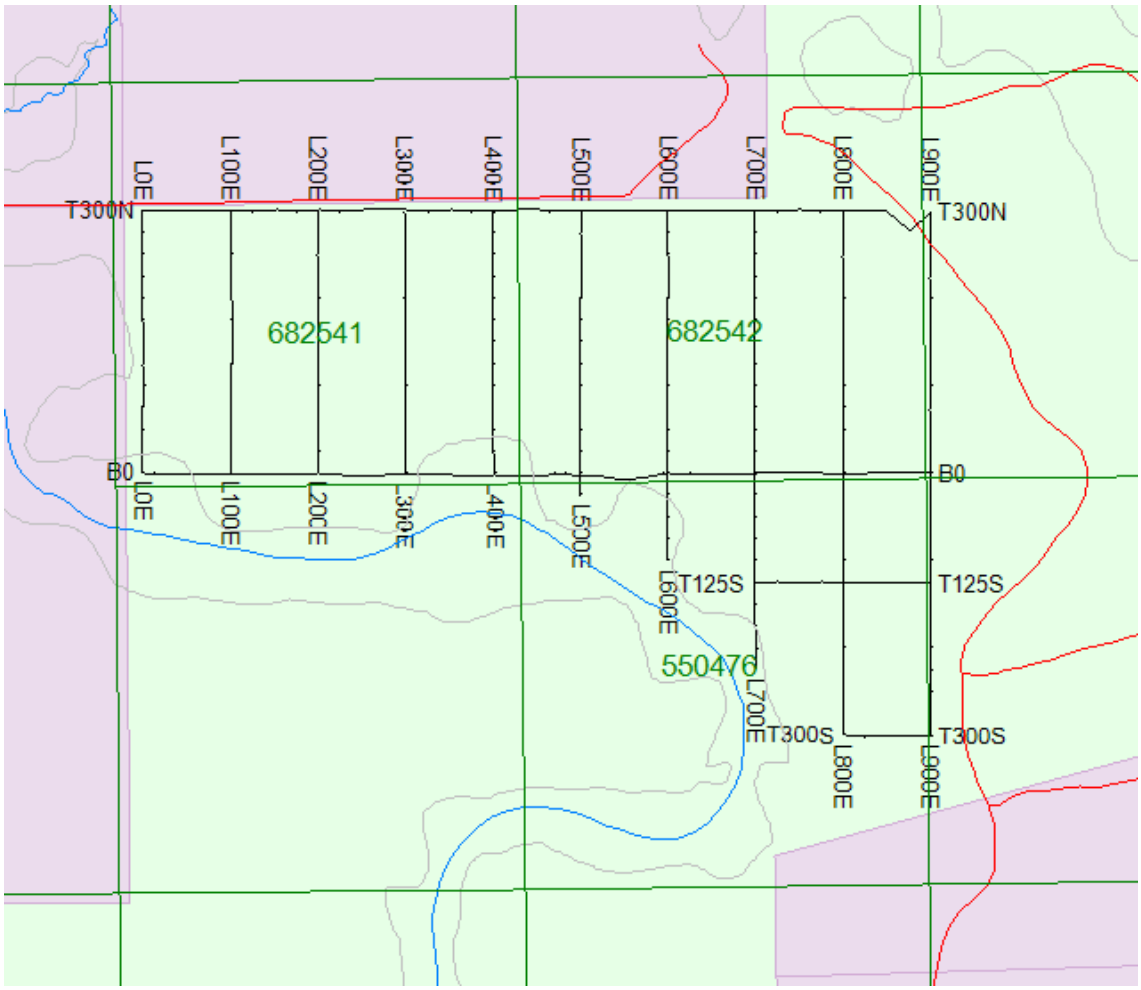


Figure 2: Claim Map with the Melba Property Traverse

2.4 PROPERTY HISTORY

There have been many historical exploration projects carried out over the years all over the survey area. The following list describes details of the previous geoscience work which was collected by the Mines and Minerals division and provided by OGSEarth (MNDM & OGSEarth, 2022).

- **1972: Noranda Exploration Company (File 42A08SE0112)**
  Ground Geophysical
  In 1972 Noranda performed a magnetometer and EM survey.

- **1981: Silver Pack Resources Ltd. (File 42A08SE0034)**
  Other
  In 1981 Silver Pack wrote a prospectus on the area.

- **1988: 731530 Ontario Ltd, Melba Gold Ltd, Nordex Explosives Ltd (Files 42A08SE0019)**
  Airborne Geophysics
  In 1988 the group of companies flew airborne magnetometer and EM over the area.

- **1988: Canreos Minerals Ltd. (File 42A08SE0020)**
  Airborne Geophysics
  In 1988 Canreos flew airborne magnetometer and EM over the area.

2.5 GENERAL REGIONAL/LOCAL GEOLOGICAL SETTINGS

General Geology:

The regional geology is described by H.L Lovell in Geological report 92 (1971: Ontario Department of Mines and Northern Affairs) as follows " The oldest rocks in the area are Keewatin-type mafic and felsic volcanic flows and pyroclastic rocks, with thin interbedded and (or) overlying beds of sedimentary rocks. Both are cut by Haileyburian-type mafic to ultramafic stocks and sills and by Algoman type felsic stocks, cupolas, and a few sills or flows. The intrusive rocks, in turn are cut by Matachewan-type mafic dikes. Gently dipping Cobalt sedimentary rocks overlie all of the above rocks."

2.6 TARGET OF INTEREST

The target of the survey was to determine if any magnetic variations may occur in the geologic unit. This would indicate the precense of alteration or intrusions.

3. SURVEY WORK UNDERTAKEN

3.1 SUMMARY

CXS was contracted to perform a magnetometer survey over a portion of the Melba Property. The crew accessed the site on April 26, 2022.

A total length of 6.05 kilometres was covered with 256 magnetometer samples taken at a 25 meter interval. A magnetically elevated dike crosses the survey area and may represent favorable geology for further exploration programs.

3.2 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 25m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 25m along these controlled traverses. The GPS used was a Garmin GPSMAP 62s with an external antenna for added accuracy.

3.3 SURVEY LOG

Date	Description	Line	Min Extent	Max Extent	Total Survey (m)
April 26, 2022	Mobilize, locate survey area and perform magnetometer survey.	0E	0	300N	300
		100E	0	300N	300
		200E	0	300N	300
		300E	0	300N	300
		400E	0	300N	300
		500E	25S	300N	325
		600E	100S	300N	400
		700E	225S	300N	525
		800E	300S	300N	600
		900E	300S	300N	600
		300N	0E	900E	900
		0N	0E	900E	900
		125S	700E	900E	200
		300S	800E	900E	100

Table 3: Survey Log

3.4 PERSONNEL

Claudia Moraga of Dobie, Ontario along with Giancarlo Smith of Virginiatown, Ontario conducted all the magnetic data collection with Bruce Lavalley of Dobie, Ontario and Cameron Hansen of Larder Lake, Ontario being responsible for GPS control and waypoint collection.

3.5 SAFETY

Canadian Exploration Services prides itself in creating and maintaining a safe work environment for its employees. Each crew member is briefed on the jobsite location, equipment safety, standard operating procedures along with our health and safety manual. An emergency response plan is generated relating to the specific job and with the jobsite predominantly in the field, which is unpredictable, morning safety briefings are essential. Topics are generally chosen based off jobsite characteristics of the area, time of year and crew experience.

2.2 SURVEY SPECIFICATIONS

The survey was conducted with a GSM-19 v7 Overhauser magnetometer with a second GSM-19 magnetometer for a base station mode for diurnal correction.

A total length of 6.05 kilometres was covered with 256 magnetometer samples taken at a 25-meter interval.

3 OVERVIEW OF SURVEY RESULTS

3.1 SUMMARY

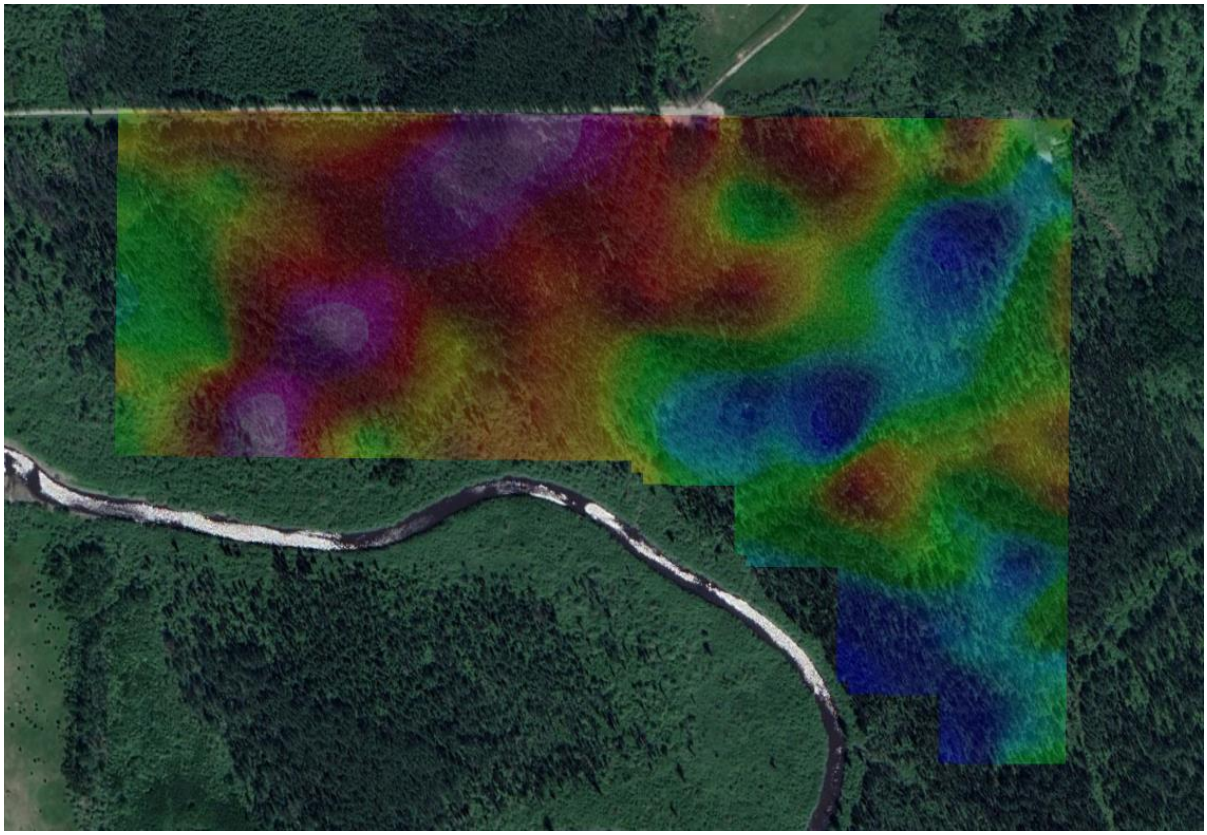


Figure 3: Magnetometer Plan Map on Google Earth

The only culture noted within the survey area is the road corridor that extends east-west along the northern survey boundary.

The survey indicates the presence of two magnetic units. The primary unit appears to represent the background volcanic package. This has been intruded at approximately 45 degrees by a secondary magnetic signature.

Matachewan Diabase dikes are numerous in the area but these generally strike north-south and not at 45 degrees. This indicates that the 45 degree signature may represent a porphyry dike. This may indicate the presence of similar geology to the Melba Mine.

It is recommended that a compilation be done of the historic work on the property. The dataset from this survey should be incorporated into it to help determine the source of the anomaly.

Prospecting should also be performed along the strike of the dike to determine the source of the magnetic signature.

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 Practicing 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 of **Patrick Culhane.**

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.

May 2, 2022

APPENDIX B

THEORETICAL BASIS AND SURVEY PROCEDURES

TOTAL FIELD MAGNETIC SURVEY

Base station corrected Total Field Magnetic surveying is conducted using at least two synchronized magnetometers of identical type. One magnetometer unit is set in a fixed position in a region of stable geomagnetic gradient, and away from possible cultural effects (i.e. moving vehicles) to monitor and correct for daily diurnal drift. This magnetometer, given the term 'base station', stores the time, date and total field measurement at fixed time intervals over the survey day. The second, remote mobile unit stores the coordinates, time, date, and the total field measurements simultaneously. The procedure consists of taking total magnetic measurements of the Earth's field at stations, along individual profiles, including Tie and Base lines. A 2 meter staff is used to mount the sensor, in order to optimally minimize localized near-surface geologic noise. At the end of a survey day, the mobile and base-station units are linked, via RS-232 ports, for diurnal drift and other magnetic activity (ionospheric and sferic) corrections using internal software.

For the gradiometer application, two identical sensors are mounted vertically at the ends of a rigid fiberglass tube. The centers of the coils are spaced a fixed distance apart (0.5 to 1.0m). The two coils are then read simultaneously, which alleviates the need to correct the gradient readings for diurnal variations, to measure the gradient of the total magnetic field.

APPENDIX C

GSM 19

Specifications

Overhauser Performance

Resolution: 0.01 nT
Relative Sensitivity: 0.02 nT
Absolute Accuracy: 0.2nT
Range: 20,000 to 120,000 nT
Gradient Tolerance: Over 10,000nT/m
Operating Temperature: -40°C to +60°C

Operation Modes

Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.
Base Station: Time, date and reading stored at 3 to 60 second intervals.
Walking Mag: Time, date and reading stored at coordinates of fiducial.
Remote Control: Optional remote control using RS-232 interface.
Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

Operating Parameters

Power Consumption: Only 2Ws per reading. Operates continuously for 45 hours on standby.
Power Source: 12V 2.6Ah sealed lead acid battery standard, other batteries available
Operating Temperature: -50°C to +60°C

Storage Capacity

Manual Operation: 29,000 readings standard, with up to 116,000 optional. With 3 VLF stations: 12,000 standard and up to 48,000 optional.

Base Station: 105,000 readings standard, with up to 419,000 optional (88 hours or 14 days uninterrupted operation with 3 sec. intervals)

Gradiometer: 25,000 readings standard, with up to 100,000 optional. With 3 VLF stations: 12,000, with up to 45,000 optional.

Omnidirectional VLF

Performance Parameters: Resolution 0.5% and range to ±200% of total field. Frequency 15 to 30 kHz.

Measured Parameters: Vertical in-phase & out-of-phase, 2 horizontal components, total field coordinates, date, and time.

Features: Up to 3 stations measured automatically, in-field data review, displays station field strength continuously, and tilt correction for up to ±10° tilts.

Dimensions and Weights: 93 x 143 x 150mm and weighs only 1.0kg.

Dimensions and Weights

Dimensions:
Console: 223 x 69 x 240mm
Sensor: 170 x 71mm diameter cylinder
Weight:
Console: 2.1kg
Sensor and Staff Assembly: 2.0kg

Standard Components

GSM-19 magnetometer console, harness, battery charger, shipping case, sensor with cable, staff, instruction manual, data transfer cable and software.

Taking Advantage of a "Quirk" of Physics

Overhauser effect magnetometers are essentially proton precession devices except that they produce an order-of magnitude greater sensitivity. These "supercharged" quantum magnetometers also deliver high absolute accuracy, rapid cycling (up to 5 readings / second), and exceptionally low power consumption.

The Overhauser effect occurs when a special liquid (with unpaired electrons) is combined with hydrogen atoms and then exposed to secondary polarization from a radio frequency (RF) magnetic field. The unpaired electrons transfer their stronger polarization to hydrogen atoms, thereby generating a strong precession signal-- that is ideal for very high-sensitivity total field measurement. In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and reduces noise (i.e. generating RF frequencies are well out of the bandwidth of the precession signal).

In addition, polarization and signal measurement can occur simultaneously - which enables faster, sequential measurements. This, in turn, facilitates advanced statistical averaging over the sampling period and/or increased cycling rates (i.e. sampling speeds).

- The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities

APPENDIX C

GARMIN GPS MAP 64

Physical & Performance:	
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:	8.1 oz (230 g) with batteries
Battery:	2 AA batteries (not included); NiMH or Lithium recommended
Battery life:	16 hours
Waterproof:	yes (IPX7)
Floats:	no

High-sensitivity re-ceiver:	yes
Interface:	high-speed USB and NMEA 0183 compatible
Maps & Memory:	
Basemap:	yes
Ability to add maps:	yes
Built-in memory:	4 GB
Accepts data cards:	microSD™ card (not included)
Custom POIs (ability to add additional points of interest)	yes
Waypoints/favorites/locations:	5000
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)
Geocaching-friendly:	yes (paperless)
Custom maps compatible:	yes
Hunt/fish calendar:	yes
Sun and moon information:	yes
Tide tables:	yes
Area calculation:	yes
Picture Viewer	yes

- *Specifications obtained from www.garmin.com*

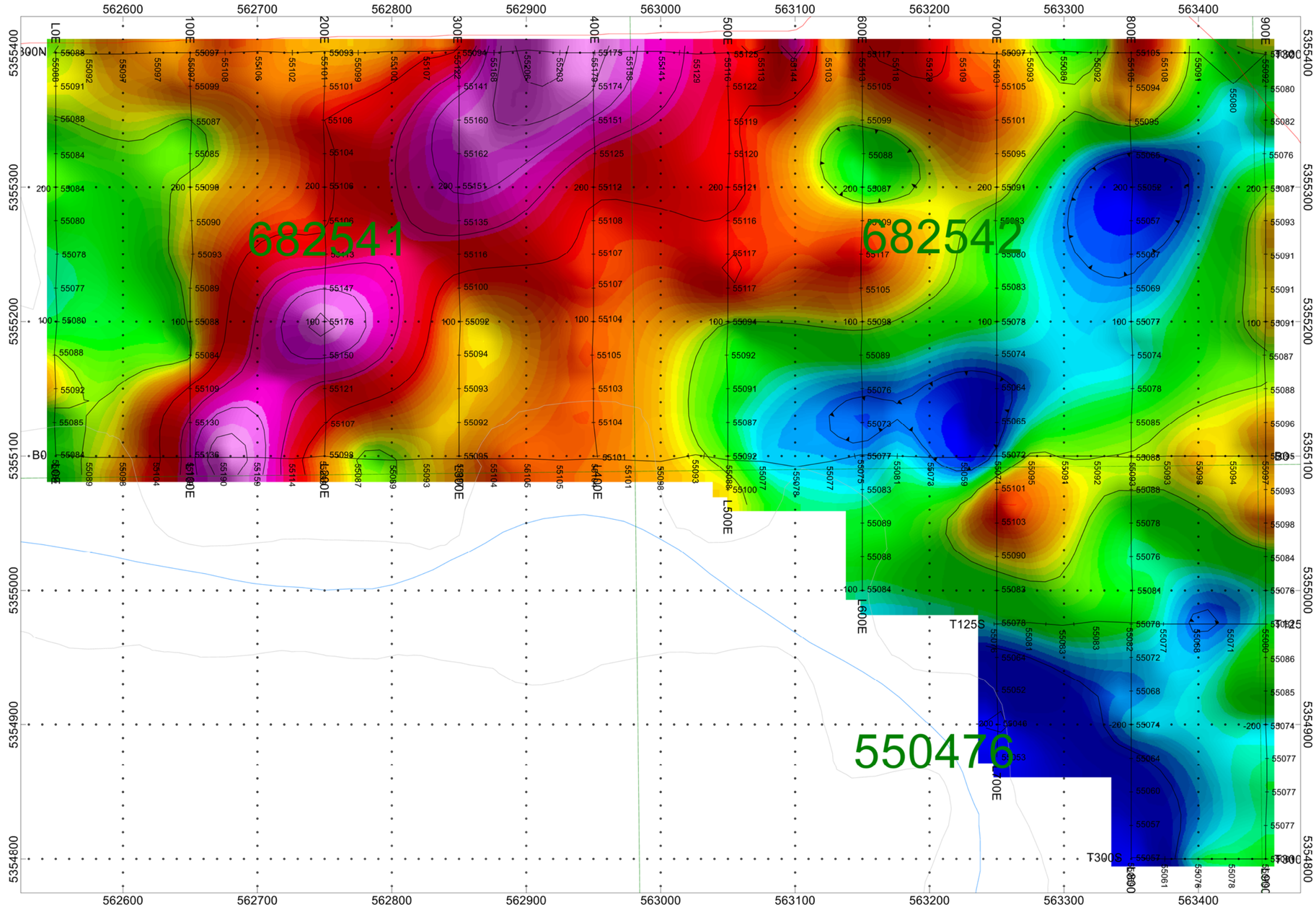
APPENDIX D

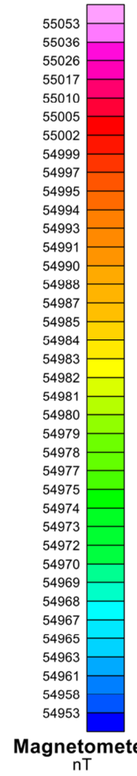
LIST OF MAPS (IN MAP POCKET)

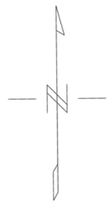
Magnetometer Plan Map (1:2500)

1) Q3010-Culhane-Melba-Mag-Cont

TOTAL MAPS = 1







Scale 1:2500

50 0 50 100 150

(meters)

NAD83 / UTM zone 17N

PAT CULHANE

MELBA PROPERTY
Melba and Benoit Townships, Ontario

TOTAL FIELD MAGNETIC CONTOURED PLAN MAP
Base Station Corrected

Posting Level: 0nT
Field Inclination/Declination: 72.5degN/10.9degW
Station Seperation: 12.5 meters
Total Field Magnetic Contours: 100nT

GSM-19 OVERHAUSER MAGNETOMETER v7

Receiver Operated By: Claudia Moraga and Giancarlo Smith
GPS Operated By: Bruce Lavalley and Cameron Hansen
Processed by: C Jason Ploeger, P.Geo.
Map Drawn By: C Jason Ploeger, P.Geo
May2022

CANADIAN EXPLORATION SERVICES LTD

Drawing: Q3010-Culhane-Melba-Mag-Cont