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# ASSESSMENT WORK REPORT ON DETAILED MAGNETIC SURVEY & VLF-EM SURVEY OVER A PART OF MINING CLAIM K4257542 IN THE WERNER LAKE AREA, G-2654, NTS 52L07NW, NORTHWEST ONTARIO

**Field Work & Report By:**
**William C. Hood**
**Beausejour, Manitoba**

**Property Holder:**
**William C. Hood**
**P.O. Box 1722**
**Beausejour, Manitoba R0E0C0**

**Field Work Jan. 14, 19, 20, 21, 22, 25, 26, 28 & Feb. 1, 2016**
**Report Completed May 10, 2016**

***Summary of Reported Work:***

***Mining Area: G-2654, Werner L. Area, Kenora District***
***Geographic Area: Almo (Tigar) Lake, NTS 52L07NW***
***Mining Claim: K4257542***
***Target Commodity: Co-Cu***
***Flagged Grid: 2.2 line km, 10m flag spacing***
***Ground Magnetic Survey: 2.0 line km,***
***25m line spacing, 10m station spacing***
***Ground VLF-EM Survey: 1.7 line km,***
***25m line spacing, 10m station spacing***

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# SUMMARY

Mining claim K4257542 was staked by the author in 2014 to cover prospective ground immediately west from a group of patented claims covering the historic Werner Lake cobalt property. The author previously held claims in the area in the 1990s and completed detailed geologic mapping in the area in 1992. Drilling by Canmine Resources Corporation intersected modest cobalt-copper mineralization within this area in 1996, an extension of mineralization referred to as the West Zone.

The detailed magnetic and VLF electromagnetic surveys completed by the author in 2016 were intended to determine the geophysical characteristics of the mineralization within claim K4257542, and to determine whether those characteristics occurred elsewhere within the claim. Previous geologic mapping by the author had indicated that the prospective garnetiferous schist unit that hosted the mineralization, extended across the claim to the west. This report describes the results of this work program, completed during January and February, 2016.

A detailed magnetic and VLF electromagnetic survey within the northeast corner of mining claim K4257542 has delineated a magnetic anomaly and VLF-EM conductor associated with cobalt-copper mineralization intersected in previous drilling in the area. This mineralization is part of the West Zone of cobalt-copper mineralization which extends onto claim K4257542 from adjacent patented claims covering the historic Werner Lake cobalt deposit. These detailed geophysical surveys also outlined additional conductive and magnetic zones along strike to the west that may be prospective for cobalt-copper mineralization.

Additional geophysical surveys and drilling are recommended to explore prospective ground within mining claim K4257542.

William C. Hood
May 10, 2016

# INTRODUCTION

Mining claim K4257542 was staked by the author in 2014 to cover prospective ground immediately west from a group of patented claims covering the historic Werner Lake cobalt property. The author previously held claims in the area in the 1990s and completed detailed geologic mapping in the area in 1992. Drilling by Canmine Resources Corporation intersected modest cobalt-copper mineralization within this area in 1996, an extension of mineralization referred to as the West Zone.

The detailed magnetic and VLF electromagnetic surveys completed by the author in 2016 were intended to determine the geophysical characteristics of the mineralization within claim K4257542, and to determine whether those characteristics occurred elsewhere within the claim. Previous geologic mapping by the author had indicated that the prospective garnetiferous schist unit that hosted the mineralization, extended across the claim to the west. This report describes the results of this work program, completed during January and February, 2016.

# LOCATION, ACCESS & PHYSIOGRAPHY

Mining claim K4257542 is located in northwestern Ontario, 10 km from the Manitoba border. The claim is 80 km north-northwest of the city of Kenora (Fig. 1). The claim lies immediately northeast of Almo Lake (also known as Tigar Lake).

Access to the property is from Manitoba, on the Werner Lake road, which is an extension of Manitoba provincial road #315, which ends at the border. The Werner Lake road is unmaintained and generally only accessible by ATV in summer and snowmobile in winter. Recent washouts have made the road only occasionally useable by trucks and 4WD vehicles. The Werner Lake road inside Ontario is a restricted access road, requiring a travel permit from the Ministry of Natural Resources in Kenora.

The property is situated in typical Precambrian terrain with local relief generally less than 30 m. Outcrop is very abundant in this area, forming rolling hills interspersed with swamp and glacial drift. A low-lying topographic lineament,


*Almo Lake Co Project*

**LOCATION MAP**

Fig. 1 Apr/16 BH

marking the location of a major fault structure extends east-west along the south boundary of the claim. Much of the area was burned in a large forest fire in the 1990s. Thick re-growth of jack pine, poplar and spruce, combined with extensive windfalls of both old dead trees and thick re-growth make traversing locally difficult.

## CLAIM STATUS

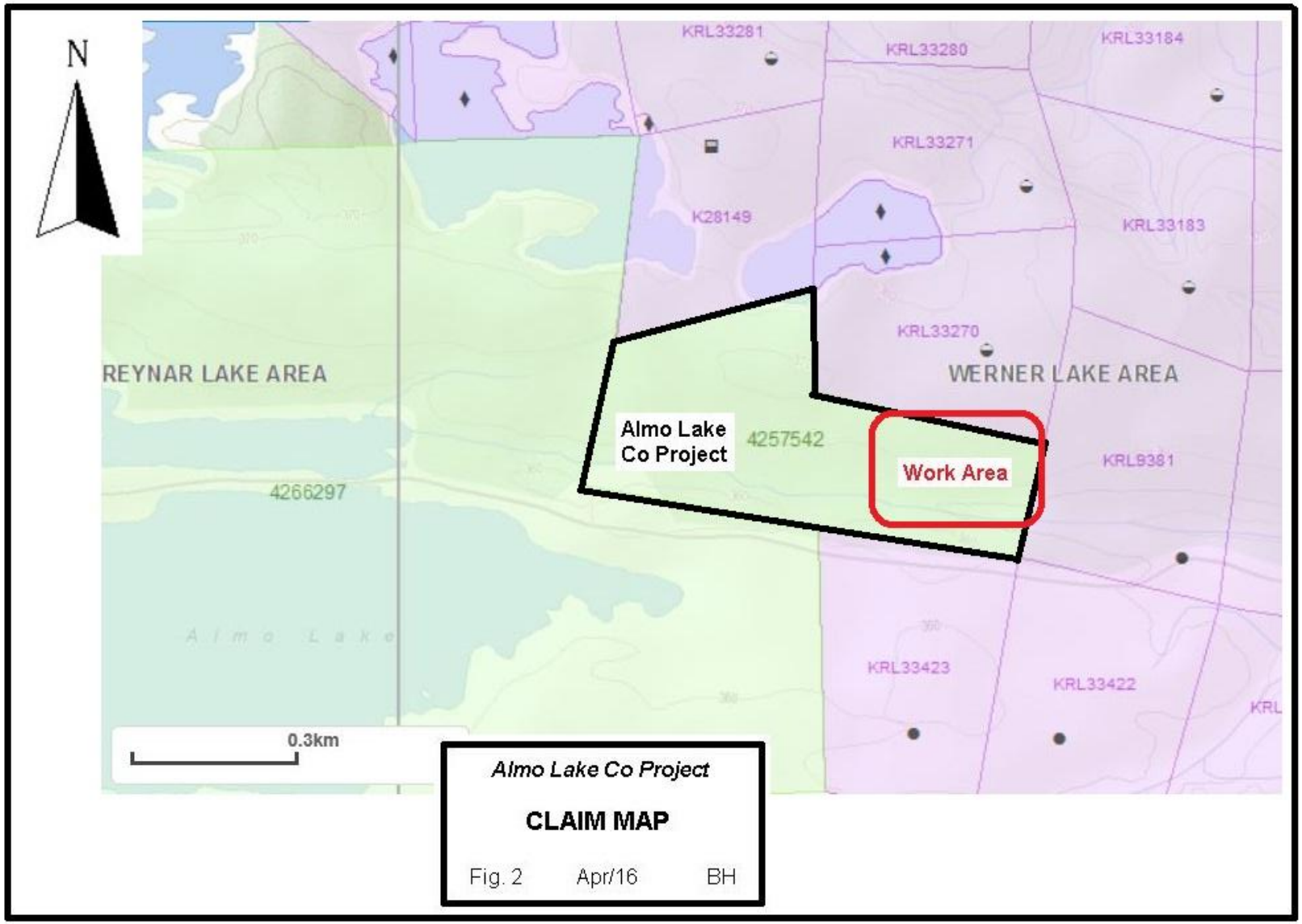
Mining claim K4257542 was staked and recorded by the author, William C. Hood of Beausejour, Manitoba, in May, 2014. The claim is shown on claim map G-2654, the Werner Lake area, and comprises about 16 ha (2 units) (Fig. 2). The claim covers the west end of a zone of cobalt-copper mineralization referred to as the West Zone, and prospective ground to the west. The area in which work was conducted in the northeast corner of this claim is also shown on Figure 2.

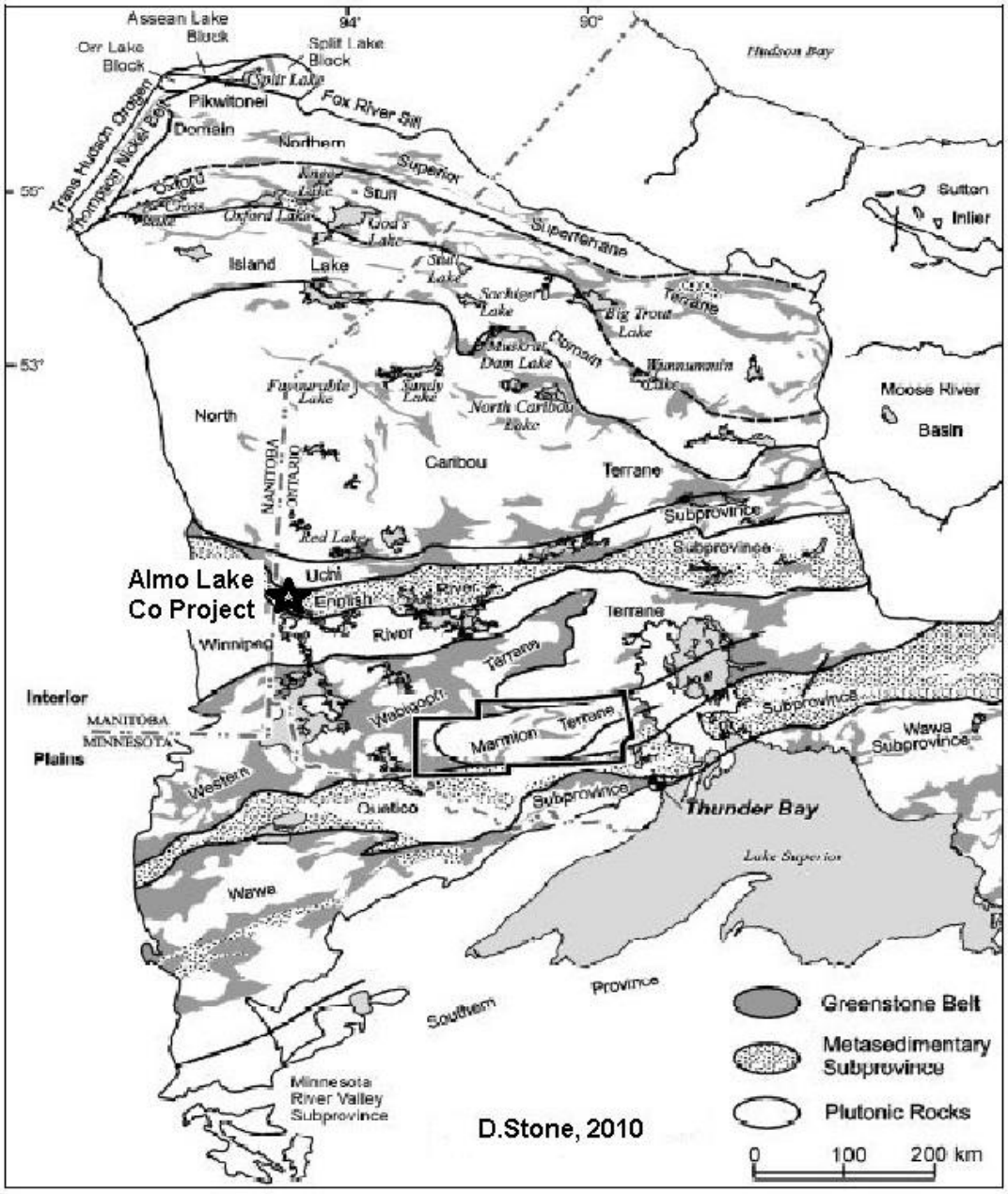
The #1 (northeast) claim post corner and #2 (southeast) post of K4257542 are tied into survey cairns and pegs marking the boundary of adjoining patented claims to the north, east and south. The true location of these posts is about 50 m northwest of their location shown on the on-line claim map system.

## GEOLOGY & MINERALIZATION

Mining claim K4257542 lies along the Werner Lake fault structure which extends easterly from the pinch-out of the Bird River greenstone belt near the Manitoba-Ontario border. These rocks are Archean in age and lie within the English River Subprovince of the Superior Province of the Precambrian Shield (Fig. 3).

The Werner Lake fault structure extends east-west along the south boundary of claim K4257542. This fault is a major structure which is marked by a strong topographic lineament and has been a locus for ultramafic intrusions in a large number of locations along its length. It is believed that these ultramafic rocks represent the remnants of a feeder system to overlying intrusions related to the Bird River Sill to the west. Copper, nickel, cobalt and platinum mineralization are closely associated with peridotite sills and plugs along the Werner Lake fault structure.


N
KRL33281
KRL33280
KRL33184
KRL33271
K28149
KRL33183
KRL33270
REYNAR LAKE AREA
WERNER LAKE AREA
Almo Lake
Co Project
4257542
Work Area
KRL9381
4266297
Almo Lake
KRL33423
KRL33422
KRL
0.3km
Almo Lake Co Project
CLAIM MAP
Fig. 2 Apr/16 BH




*Almo Lake Co Project*

**REGIONAL GEOLOGY**

Fig. 3 Apr/16 BH

Most of claim K4257542 is underlain by sedimentary gneisses and migmatite which consist mainly of layered biotite-amphibole schist interspersed with bands of white granite and granodiorite. These lithologies have been frequently intruded by pink granite which is locally megacrystic or pegmatitic. South of the Werner Lake fault in this area, the rocks consist mainly of tonalite, granodiorite and granite of the Marijane Batholith (Fig. 4).

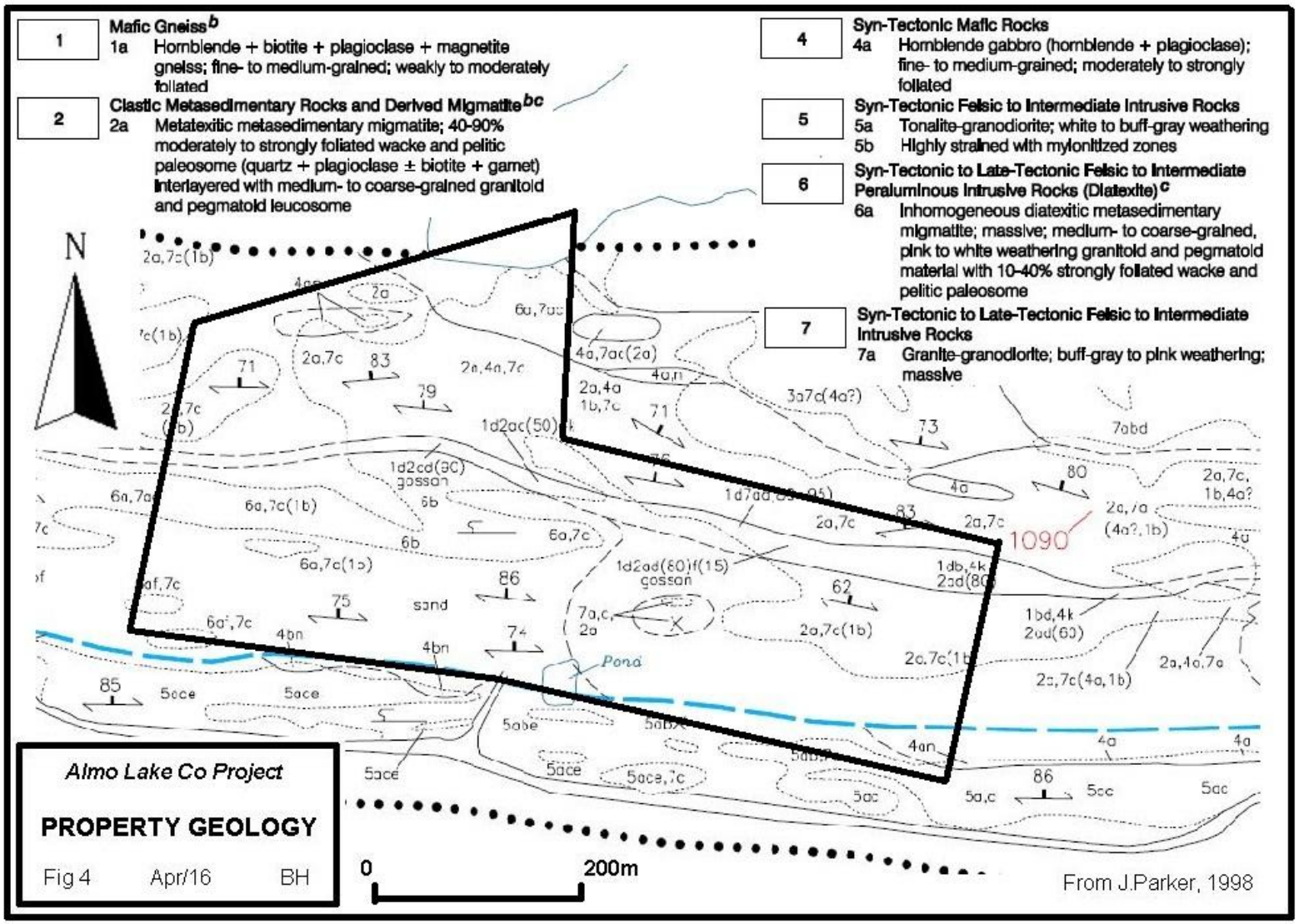
Cobalt-copper mineralization in this area lies along a distinctive garnetiferous gneiss horizon that lies about 150 m north of the main Werner Lake fault. Recent work has suggested that this mineralization is a skarnoid remobilization. Drilling by Canmine Resources Corporation in 1996 intersected modest cobalt-copper values within claim K4257542 (Fig. 5). Drill holes TIG-5 through -11 were drilled along the prospective cobalt-copper zone within the northeast corner of claim K4257542 (holes TIG-1 to -4 were drilled on a separate target immediately west of claim K4257542). Drill hole TIG-5 intersected 0.11 % Co and 0.99 % Cu across 1.2 m, while hole TIG-7 cut 0.29 % Co and 0.81% Cu over 2.0 m. The other drill holes returned negligible values and terminate this zone of mineralization down-dip and to the west.

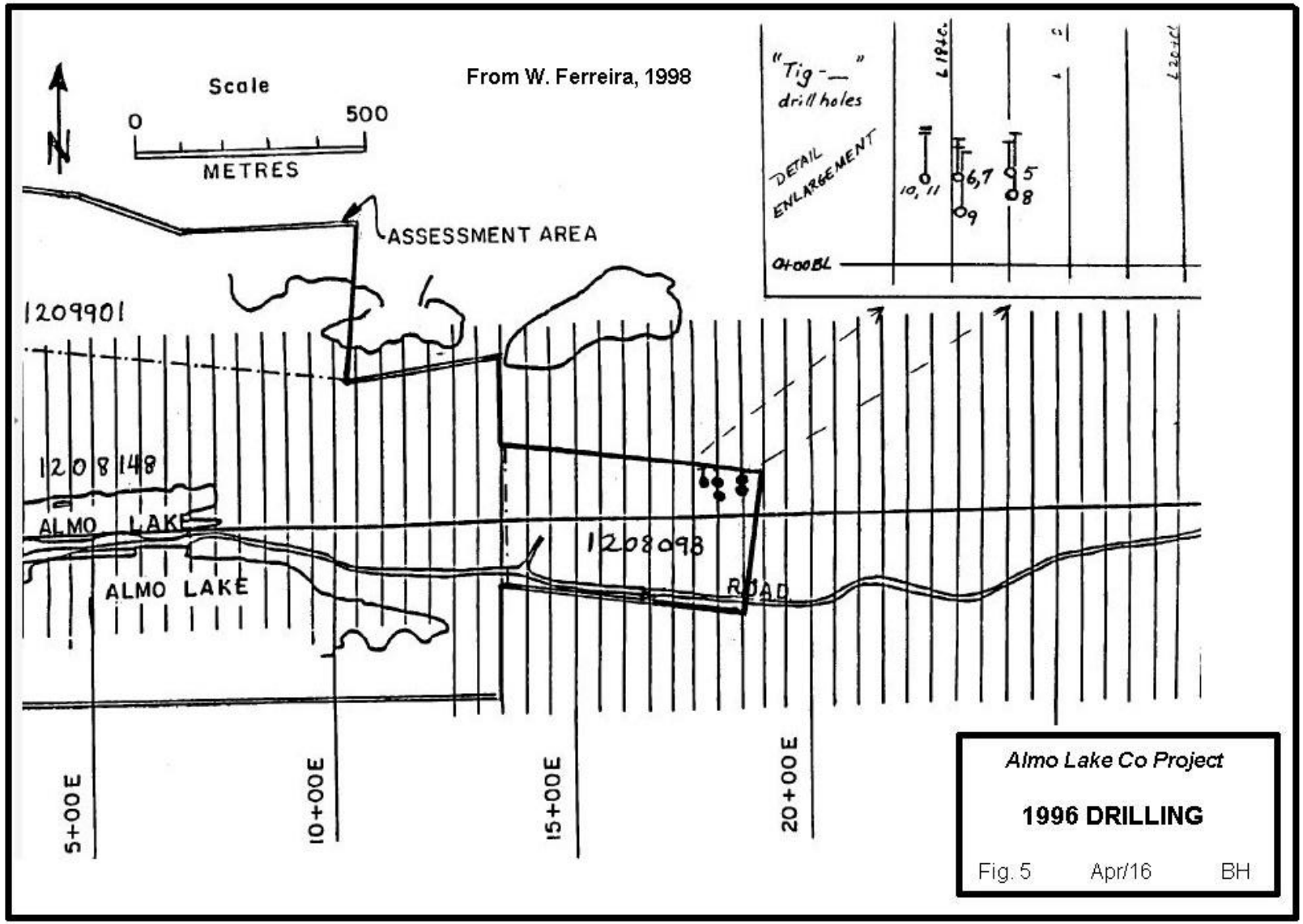
## WORK PROGRAM; WINTER, 2016

A small work program was completed over the northeast corner of mining claim K4257542 during January and February, 2016. Since the property is within reasonable commuting distance from the author's residence, work was conducted on days when weather and travel conditions were favourable. Field work was conducted on Jan. 14, 19, 20, 21, 22, 25, 26, 28 & Feb. 1, 2016.

The detailed magnetic and VLF electromagnetic surveys completed by the author were intended to determine the geophysical characteristics of the mineralization within claim K4257542, and to determine whether those characteristics occurred elsewhere within the claim. Previous geologic mapping by the author had indicated that the prospective garnetiferous schist unit that hosted the mineralization, extended across the claim to the west.

A flagged grid was installed by compass and hip-chain from a baseline run west from L1000E/BL 500N at the #1 (northeast) corner post of claim K4257542. Lines


1
Mafic Gneiss[b]
1a Hornblende + biotite + plagioclase + magnetite gneiss; fine- to medium-grained; weakly to moderately foliated
2
Clastic Metasedimentary Rocks and Derived Migmatite[bc]
2a Metatexitic metasedimentary migmatite; 40-90% moderately to strongly foliated wacke and pelitic paleosome (quartz + plagioclase ± biotite + garnet) interlayered with medium- to coarse-grained granitoid and pegmatoid leucosome
4
Syn-Tectonic Mafic Rocks
4a Hornblende gabbro (hornblende + plagioclase); fine- to medium-grained; moderately to strongly foliated
5
Syn-Tectonic Felsic to Intermediate Intrusive Rocks
5a Tonalite-granodiorite; white to buff-gray weathering
5b Highly strained with mylonitized zones
6
Syn-Tectonic to Late-Tectonic Felsic to Intermediate Peraluminous Intrusive Rocks (Diatexite)[c]
6a Inhomogeneous diatexitic metasedimentary migmatite; massive; medium- to coarse-grained, pink to white weathering granitoid and pegmatoid material with 10-40% strongly foliated wacke and pelitic paleosome
7
Syn-Tectonic to Late-Tectonic Felsic to Intermediate Intrusive Rocks
7a Granite-granodiorite; buff-gray to pink weathering; massive
N
Pond
sand
gossan
1090
Almo Lake Co Project
PROPERTY GEOLOGY
Fig 4 Apr/16 BH
0
200m
From J.Parker, 1998

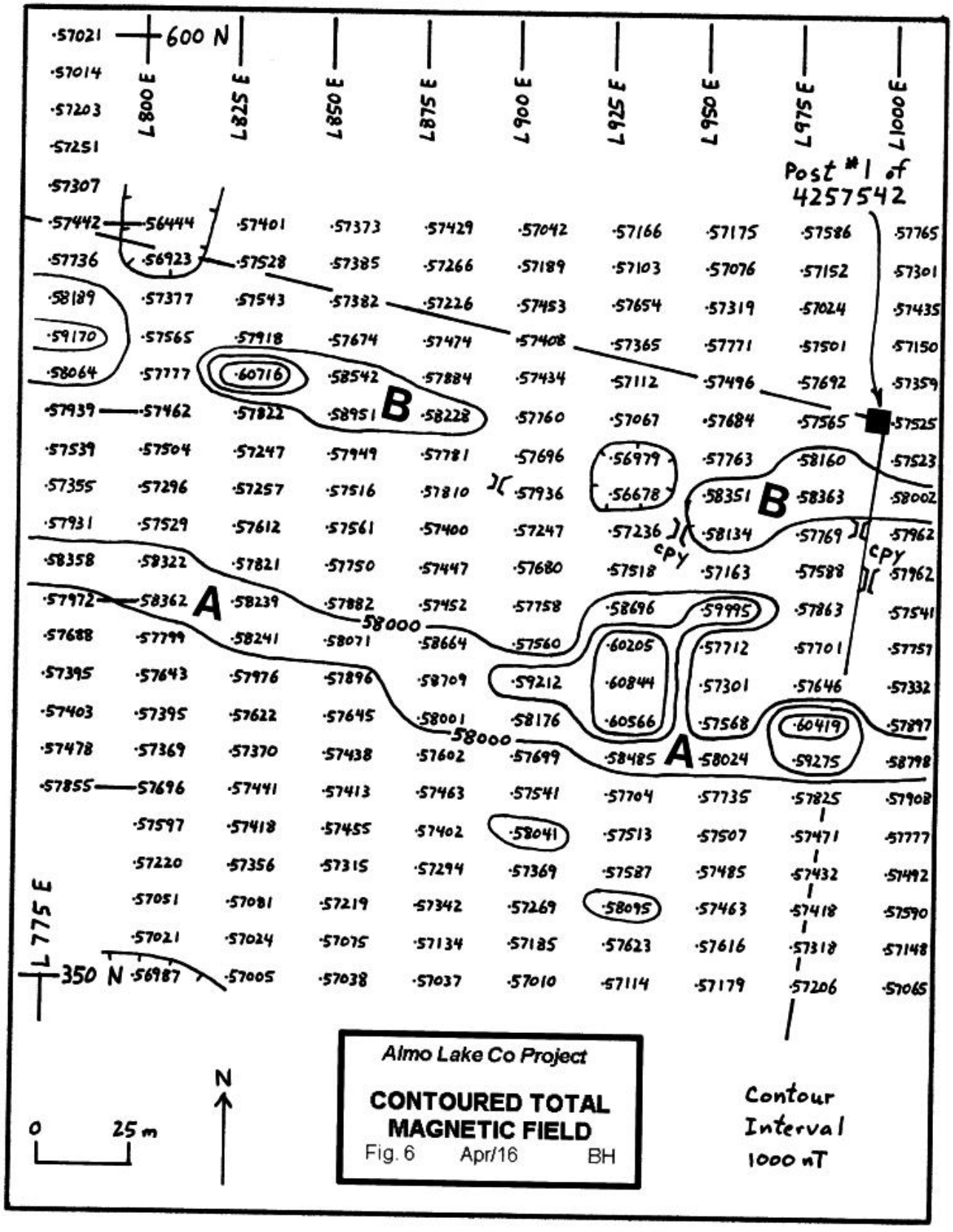

From W. Ferreira, 1998
Scale
0
500
METRES
N
ASSESSMENT AREA
1209901
1208148
ALMO LAKE
ALMO LAKE
1208098
ROAD
5+00E
10+00E
15+00E
20+00E
"Tig -__ " drill holes
DETAIL ENLARGEMENT
10, 11
6,7
9
5
8
0+00BL
Almo Lake Co Project
1996 DRILLING
Fig. 5
Apr/16
BH

were established at 25 m spacing to the west up to L775E. Line 775E was flagged from 400N to 600N. Lines 800E through 1000E were flagged from 350N to 550N. Alternating pink and blue flags were used with coordinates marked on the flag every 50 m. A total of 2.2 line km of grid was installed, including baseline.

The total field magnetic survey within the northeast corner of claim K4257542 was completed by the author using a Geometrics G-856 proton precession magnetometer. Details and specifications on this instrument are included in Appendix I. The magnetic survey totalled 2.0 line km, on 25 meter spaced lines, with 10 meter station spacing. All field readings were looped from a consistent base location at L900E/500N BL. All data was leveled relative to this point in direct proportion to elapsed time. Moderate solar activity and variations in the geomagnetic field were reported at the time, but the maximum drift within a loop was 12 nT. One loop of data was discarded and re-surveyed when excessive drift was noted. Data error is expected to fall well within a plus/minus 5 nT bracket, which is adequate for this survey, considering the magnitude of the anomalies.

The total magnetic field results from this survey are plotted and contoured on Figure 6. The corrected readings fell within a range from 56,444 nT to 60,844 nT, and are contoured at 1000 nT intervals in order to outline gross stratigraphic units rather than fine detail. Two anomaly trends, marked A and B, are evident in this data. Both anomaly trends strike about 280-100° azimuth, corresponding with the trend of stratigraphy as mapped previously by the author in 1992. Anomaly A, extending from 460N on line 775E to 410N on line 1000E, corresponds with a unit of “layered biotite-amphibole schist” noted in that work. There is no obvious explanation for the unusual extension of anomaly A to the north on lines 925 and 950E.

Anomaly B is discontinuous along a trend from 520N on line 775E to 480N on line 1000E. Anomaly B corresponds with a stratigraphic unit mapped by the author in 1992 as “garnetiferous sedimentary gneiss” and corresponds with the unit that hosts significant cobalt-copper mineralization to the east. Old trenching is noted along this trend from line 900E to L1000E. Chalcopyrite is noted along this zone, which is believed to be part of the West Zone of cobalt mineralization explored by Canmine Resources Corporation in the 1990s. The B magnetic anomaly may be due to pyrrhotite which is associated with the mineralization. It can be noted that magnetic anomaly B is displaced slightly to the north of the line of trenches, likely


600 N
350 N
L 775 E
E 0087
E 0237
E 0387
E 0537
E 0687
E 0837
E 0987
E 1137
E 1287
E 1437
Post #1 of 4257542
B
A
B
A
58000
58000
CPY
CPY
0
25 m
N
Almo Lake Co Project
CONTOURED TOTAL MAGNETIC FIELD
Fig. 6 Apr/16 BH
Contour Interval 1000 nT

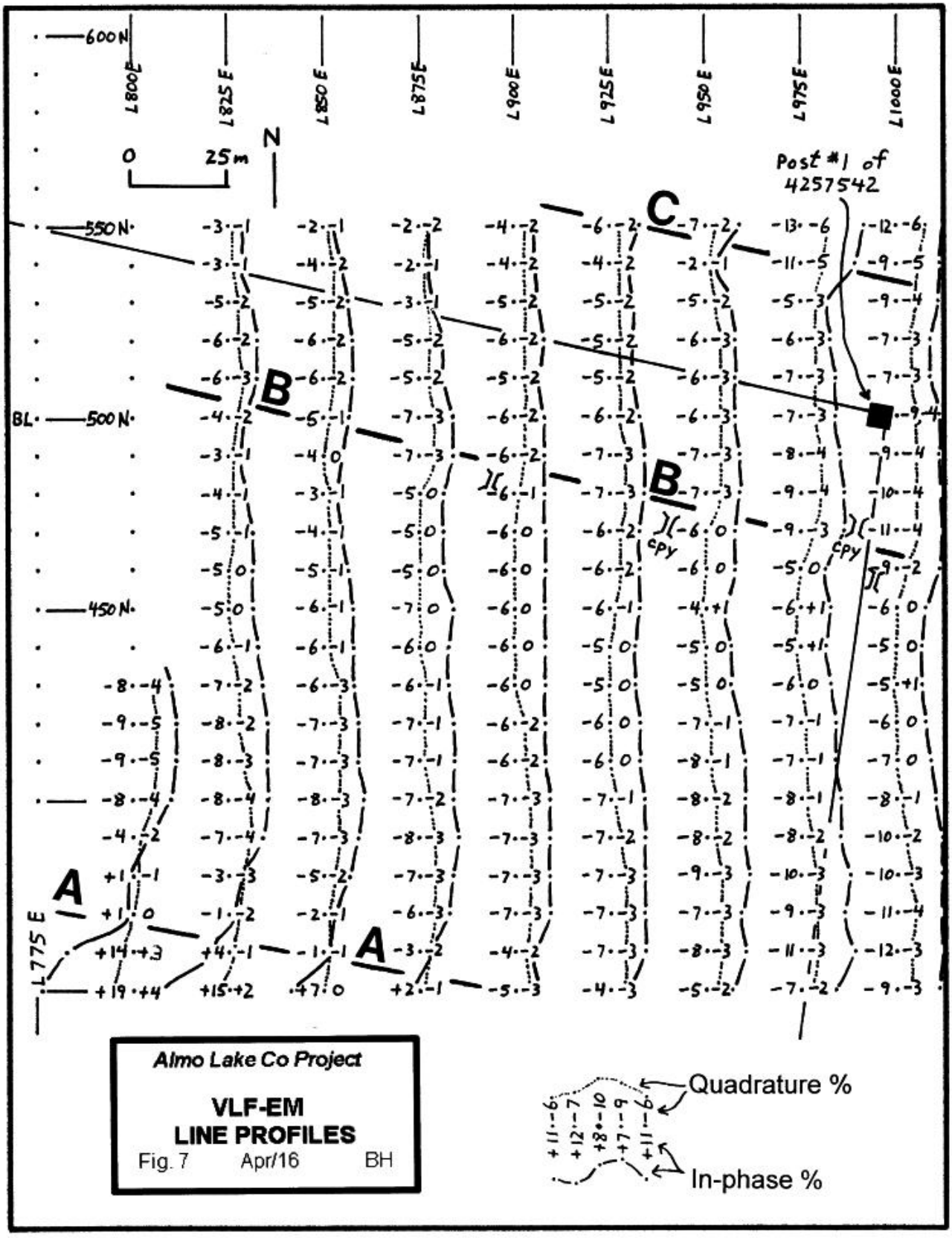
due to the steep north dip of the rocks in this area. It is interesting to note that magnetic anomaly B is discontinuous along its length, with gaps at lines 900-925E and at line 800E.

A VLF electromagnetic survey within the northeast corner of claim K4257542 was completed by the author using a Geonics EM-16 instrument tuned to NAA Cutler, Maine, on 24.0khz. The VLF survey totaled 1.7 line km with 25 m line spacing and 10 m station intervals. Line 775E and part of line 800E which were covered in the magnetic survey were not completed in the VLF-EM survey due to time constraints. All VLF readings were taken facing north, with plus-to-minus in-phase cross-overs marking conductive horizons. A photograph from this work is included in Appendix II. All field readings with interpreted conductors are shown plotted in profiles on Figure 7.

Three VLF electromagnetic anomalies, marked A, B and C, are noted in the data. Anomaly A clearly corresponds with the Werner Lake fault, a major structure and topographic lineament that extends across the area. Anomaly C crosses three lines in the extreme northeast corner of the survey, just outside claim K4257542. The cause of anomaly C is unknown.

Anomaly B is weak and discontinuous, and corresponds closely with the trend of the prospective cobalt-mineralized horizon and magnetic anomaly B. It is uncertain whether anomaly B reflects actual conductivity within bedrock mineralization, or conductivity within overburden along the trend of the more recessive weathering garnetiferous schist horizon. However, it is interesting to note that on lines 900 and 925E, where the magnetic anomaly is not present, the VLF-EM anomaly also diminishes, suggesting a bedrock relationship.

In the context of these geophysical results, it is useful to review the 1996 drilling conducted by Canmine Resources Corporation in this area, as shown on Figure 5. Evidence of drilling was noted by the author in the northeast corner of claim K4257542 and, as near as can be estimated, drill holes TIG-10 and -11 were on about line 875E, holes TIG-6, -7 and -9 on line 900E, and holes TIG-5 and -8 on line 950E. Drill holes TIG-5 and -7 intersected modest cobalt-copper mineralization extending for about 100 m into claim K4257542 at the west end of the adjacent West Zone of mineralization. Drill holes TIG-8, -9, -10 and -11 effectively terminate this mineralization both down-dip and along-strike to the west. These


600N
550N
500N
450N
BL
L800E
L825E
L850E
L875E
L900E
L925E
L950E
L975E
L1000E
L775E
0
25m
N
Post #1 of
4257542
A
B
C
cpy
Almo Lake Co Project
VLF-EM
LINE PROFILES
Fig. 7 Apr/16 BH
Quadrature %
In-phase %

results coincide almost perfectly with the observed magnetic and VLF electromagnetic results, which indicated modest anomalies in association with this mineralization, but these anomalies dropped off to the west almost precisely where drilling no longer returned mineralization. From these results, the magnetic and VLF-EM anomalies on lines 825 and 850E, as well as on line 775E and to the west, may be prospective for further discovery of cobalt-copper mineralization.

## CONCLUSIONS & RECOMMENDATIONS

A detailed magnetic and VLF electromagnetic survey within the northeast corner of mining claim K4257542 has delineated a magnetic anomaly and VLF-EM conductor associated with cobalt-copper mineralization intersected in previous drilling in the area. This mineralization is part of the West Zone of cobalt-copper mineralization which extends onto claim K4257542 from adjacent patented claims covering the historic Werner Lake cobalt deposit. These detailed geophysical surveys also outlined additional conductive and magnetic zones along strike to the west that may be prospective for cobalt-copper mineralization.

Additional geophysical surveys and drilling are recommended to explore prospective ground within mining claim K4257542.

William C. Hood
May 10, 2016

# CERTIFICATE

**For: William C. Hood**
P.O. Box 1722; 508 Elm Ave.
Beausejour, Manitoba
Canada R0E0C0
(204)268-3455
bhood @ mts.net

1) I am a graduate of the University of Manitoba (1979) with a B.Sc. (Honours) Degree in Science (Geology) and I have practiced my profession since that time.

2) I am a Registered Professional Geoscientist with the Association of Professional Engineers and Geoscientists of Manitoba since 1982.

3) I have been employed by Tantalum Mining Corporation (1979-1983), Province of Manitoba Departments of Labour (1992 – 1995) & Energy and Mines (1995 - 1997), and ProAm Exploration Corporation (1997 – 2000), as well as operating my own business as W.C. Hood, Consulting Geologist (1983 – 1992 & 2000 – present).

4) I have researched, conducted and supervised a wide range of exploration programs for hydrothermal gold, volcanogenic copper-zinc, magmatic nickel-copper-PGE, pegmatitic tantalum-lithium-cesium, kimberlitic diamonds and various industrial mineral commodities.

William C. Hood
May 10, 2016

# APPENDIX I

## Specifications For
## Geometrics G-856 Magnetometer &
## Geonics EM-16 VLF Receiver


# G-856 Memory-MagTM

## Proton Precession Magnetometer

MODEL G-856A & AX OP MAN
EDITION 2/2002
REV 02

M. SPECIFICATIONS

| | |
|---|---|
| Displays | Six digit display of magnetic field to resolution of 0.1 gamma or time to nearest second. Additional three digit display of station, day of year, and line number. |
| Resolution | Typically 0.1 gamma in average conditions. May degrade to lower resolution in weak fields, noisy conditions or high gradients. |
| Absolute Accuracy | One gamma, limited by remnant magnetism in sensor and crystal oscillator accuracy. |
| Clock | Julian clock with stability of 5 seconds per month at room temperature and 5 seconds per day over the temperature range of -20 to +50 degrees Celsius. |
| Tuning | Push button tuning from keyboard with current value displayed on request. Tuning range 20 to 90 kilogammas. |
| Gradient Tolerance | Tolerates gradients to 1800 gammas/meter. When high gradients truncate count interval, maintains partial reading to an accuracy consistent with data. |
| Cycle Time | Complete field measurement in three seconds in normal operation. Internal switch selection for faster cycle (1.5 seconds) at reduced resolution or longer cycles for increased resolution. |

| | |
|---|---|
| Manual Read | Takes reading on command. Will store data in memory on command. |
| Memory | Stores more than 5000 readings in survey mode, keeping track of time, station number, line number day and magnetic field reading. In base station operation, computes for retrieval but does not store time of recording designated by sample interval, allowing storage of up to 12,000 readings. |
| Output | Plays data out in standard RS-232 format at selectable baud rates. Also outputs data in real time byte parallel, character serial BCD for use with digital recorders. |
| Inputs | Will accept an external sample command. |
| Special Functions | An internal switch allows: 1) adjustment of polarization time and count time to improve performance in marginal areas or to improve resolution or speed operation, 2) three count averaging, 3) choice of lighted displays in auto mode. |
| Physical | Instrument console: 7 x 10 ½ x 3 ½ inches (18 x 27 x 9 cm) 6 LB (2.7 kg)<br>Sensor: 3 1/2 x 5 inches (9 x 13 cm) 4 LB (1.8 kg)<br>Staff: 1 inch x 8 feet (3cm x 2.5m) 2 LB (1kg) |
| Environmental | Meets specifications from 1 to 40°C. Operates satisfactorily from -20 to 50°C. |
| Power | Operates from 9 D-cell flashlight batteries (or 13.5 volts external power). May be operated at 18 volts external power to improve resolution. Power failure or replacement of batteries will not cause loss of data stored in memory. |

ACCESSORIES

| | |
|---|---|
| Standard: | Sensor<br>Staff<br>Backpack<br>Two sets of batteries<br>Carrying case<br>Applications Manual for Portable Magnetometers<br>RS-232 Cable |
| Optional: | Cold weather battery belt<br>Rechargeable Battery option<br>50' External power / Sensor cable<br>Spares Kit |

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- Metal Detectors
- Time Domain Systems
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- Data Acquisition
- Software
- Third Party Software

**Downloads**
Catalogue

## EM16 | EM16R | TX27

The EM16 VLF Receiver is the most widely used electromagnetic geophysical instrument of all time. Local tilt and ellipticity of VLF broadcasts are measured and resolved into inphase and quadrature components of VLF response. The EM16 has discovered several base and precious-metal ore bodies and many water-bearing fractures and faults.

The EM16R Resistivity Attachment uses a pair of electrodes to measure the apparent resistivity of the earth. The combined EM16/16R instrument can detect a second earth layer if the layer occurs within the VLF skin-depth. In addition, the EM16/16R can map resistive alteration for gold exploration.

The TX27 is a portable VLF transmitter supplying a VLF field for surveying with either the EM16 or EM16/16R if remote broadcasts are weak, intermittent or poorly coupled with the target. For EM16 surveys, the TX27 antenna consists of a long (typically 1 km) grounded wire.

## Specifications

MEASURED QUANTITIES

EM16: inphase and quadrature components of the secondary VLF field, as percentages of the primary field

EM16R: apparent resistivity in ohm-metres, and phase angle between Ex and Hy

PRIMARY FIELD SOURCE

EM16: ferrite-core coil

EM16R: Stainless-steel electrodes, separated by 10 m: impedence of sensor is 100 MΩ in parallel with 0.5 pf

SENSOR

9.8 kHz

OPERATING FREQUENCY

15 to 25 kHz (optionally to 30kHz) depending on VLF broadcasting station

MEASURING RANGES

EM16: inphase: ±150%
quadrature: ±40%

EM16R: 300,3K,30KΩ-m
phase: 0 - 90°

POWER SUPPLY

EM16/EM16R: 6 alkaline "AA" cells

DIMENSIONS

EM16/EM16R: 53x30x22 cm

WEIGHTS

EM16:1.8 kg;shipping:6.2 kg

EM16R:1.5 kg;shipping:6 kg

# APPENDIX II – PHOTOGRAPH

Author “selfie” on frosty day in January during VLF-EM survey.