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Ontario

ASSESSMENT WORK REPORT ON MAGNETIC SURVEY, VLF-EM SURVEY & GEOLOGIC MAPPING OVER A PART OF MINING CLAIMS 168209 & 342606, IN THE BAG BAY AREA OF SHOAL LAKE, NORTHWESTERN 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. 22, 23, 25; Feb. 1, 5, 6, 7, 22, 27; May 14, 15; 2018
Report Completed Jul. 3, 2018

Summary of Reported Work:

***Geographic Area**: Kenora M.D., Shoal L., NTS 52E-10*
***Mineral Dispositions**: 168209, 342606*
***Target Commodity**: Au*
***Flagged Grid**: 6.0 line km, 50m line spacing, 12.5m flag spacing*
***Ground Magnetic Survey**: 6.0 line km, 12.5m station spacing*
***Ground VLF-EM Survey**: 6.0 line km, 12.5m station spacing*
***Geologic Mapping @ 1:1000 scale**: 6.0 line km*

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SUMMARY

A large number of gold-bearing veins occur in the Shoal Lake area of northwestern Ontario, including significant resources at the Duport deposit near Stevens Island and the Mikado/Cedar Island zones at Bag Bay. The historic Mikado mine on Bag Bay, with production between 1896 and 1931 of about 30,000 oz of gold, lies 0.5 km northeast of the Cedar Island Mainland property, the subject of this report. The Cedar Island shaft lies about 1 km northwest of the property, with the Mainland zone interpreted to extend across the northeast corner of the claims. The Olympia mine is situated about 0.5 km southeast of the Cedar Island Mainland property, while the Nankipoo prospect lies about 0.5 km to the southwest.

This report describes the results of a small exploration program conducted across the northern half of the Cedar Island Mainland property east of Bag Bay of Shoal Lake. The claims are believed to cover the southeast strike/dip extension of a gold-bearing zone referred to as the Cedar Island Mainland zone. Work undertaken during January and February, 2018, included snowmobile trail clearing, installation of a flagged grid, magnetic survey and VLF-EM survey, while geologic mapping was completed during May, 2018.

From this work it was found that the north end of the claim group is underlain mainly with basalt massive flows that are intruded by a thick gabbro sill. These rocks are cut by a younger feldspar porphyry dike that is sheared, altered and quartz veined with gold values up 2.1 g/t over 0.9m in a zone being referred to as the Mainland South zone. It was also determined that the Cedar Island Mainland gold zone outcrops just northeast of the property, but dips southwest into the claim group at a depth of about 150 m with gold grades up to 13.7 g/t over 0.8 m.

Further drilling is recommended to explore both the down-dip potential of the Cedar Island Mainland zone below 150 m, as well as the relatively unexplored Mainland South zone which appears to have very prospective geology.

William C. Hood
July 3, 2018

INTRODUCTION

The Shoal Lake area is prospective for hydrothermal gold mineralization. Numerous gold-bearing veins have been located and explored in the area since the 1890s, and minor production has been undertaken. Significant resources have been delineated in the area of the historic Duport and Mikado mines.

This report describes the results of a small exploration program conducted across the northern half of a group of claims in the Bag Bay area of Shoal Lake in northwestern Ontario. The claims are believed to cover the southeast strike/dip extension of a gold-bearing zone referred to as the Cedar Island Mainland zone.

Work undertaken during January and February, 2018, included snowmobile trail clearing, installation of a flagged grid, magnetic survey and VLF-EM survey, while geologic mapping was completed during May, 2018.

LOCATION, ACCESS & PHYSIOGRAPHY

The Cedar Island Mainland zone claims are located in northwestern Ontario, about 35 km west-southwest of the city of Kenora (Fig. 1). The property is 15 km south of the Trans-Canada highway and also 15 km east of the Manitoba border.

Access to the property is by boat in summer and snowmobile in winter from the public landing on the north shore of Clytie Bay of Shoal Lake. The property is about 5 km south from the Clytie Bay landing. Shoal Lake is a part of Lake of the Woods, with a navigable connection to the main body of Lake of the Woods at Ash Rapids, about 15 km east of the property.

Road access to the Clytie Bay landing is from the Rush Bay road, which extends south from the Trans-Canada highway at a point about 25 km west of Kenora and 15 km east of the Manitoba border. The Clearwater Bay road branches from the Rush Bay road at a point 6 km south of the Trans-Canada highway, and a narrow road to the Clytie Bay landing branches from the Clearwater Bay road at a point 18 km south of the Trans-Canada Highway. The Rush Bay and Clearwater Bay roads are paved, but narrow and winding, with the final 1 km to the Clytie Bay landing being gravel.


Hill
Pikangikum
Atikaki Provincial Park
Hodgson
Hecla
Manigotagan
Red Lake
Balmertown
Madsen
Riverton
Arnes
Long Lake
Woodland Provincial Park
Gimli
Fort Alexander
Grand Beach Provincial Park
Nopiming Provincial Park
Perrault Falls
Netley
Selkirk
Molson
Whiteshell Provincial Park
Redditt
Vermilion Bay
Rosser
Birds Hill Provincial Park
Lewis
Rennie
Kenora
Winnipeg
Keewatin
Indian Bay
Lake of The Woods Provincial Park
Steinbach
Mc Munn
Cedar Is. Mainland Au Project
Sioux Narrows
Marchand
Morris
Woodridge
Vita
South Junction
Caliper Lake
Emerson
Lake of the Woods
Lake of The Woods Provincial Park
Gameland
Lancaster
Roseau
N
0
50 km
Cedar Is. Mainland Au Project Hood Claims
LOCATION MAP
Fig. 1
Jun./18
BH

The Cedar Island Mainland property lies along the general northeast shore of Shoal Lake on a large irregular peninsula that extends south from the north shore of the lake. The claims lie about 0.5 km east of Bag Bay of Shoal Lake in typical Precambrian terrain, with low rolling outcrop hills up to 25m high interspersed with swamp and glacial drift. Vegetation consists mainly of pine on outcrop areas, with spruce and poplar on clay and glacial till covered terrain, and local beaver swamps and cedar-tamarack bogs in low lying areas. Although the area has good outcrop percentage, most outcrops are rubbly and moss-covered.

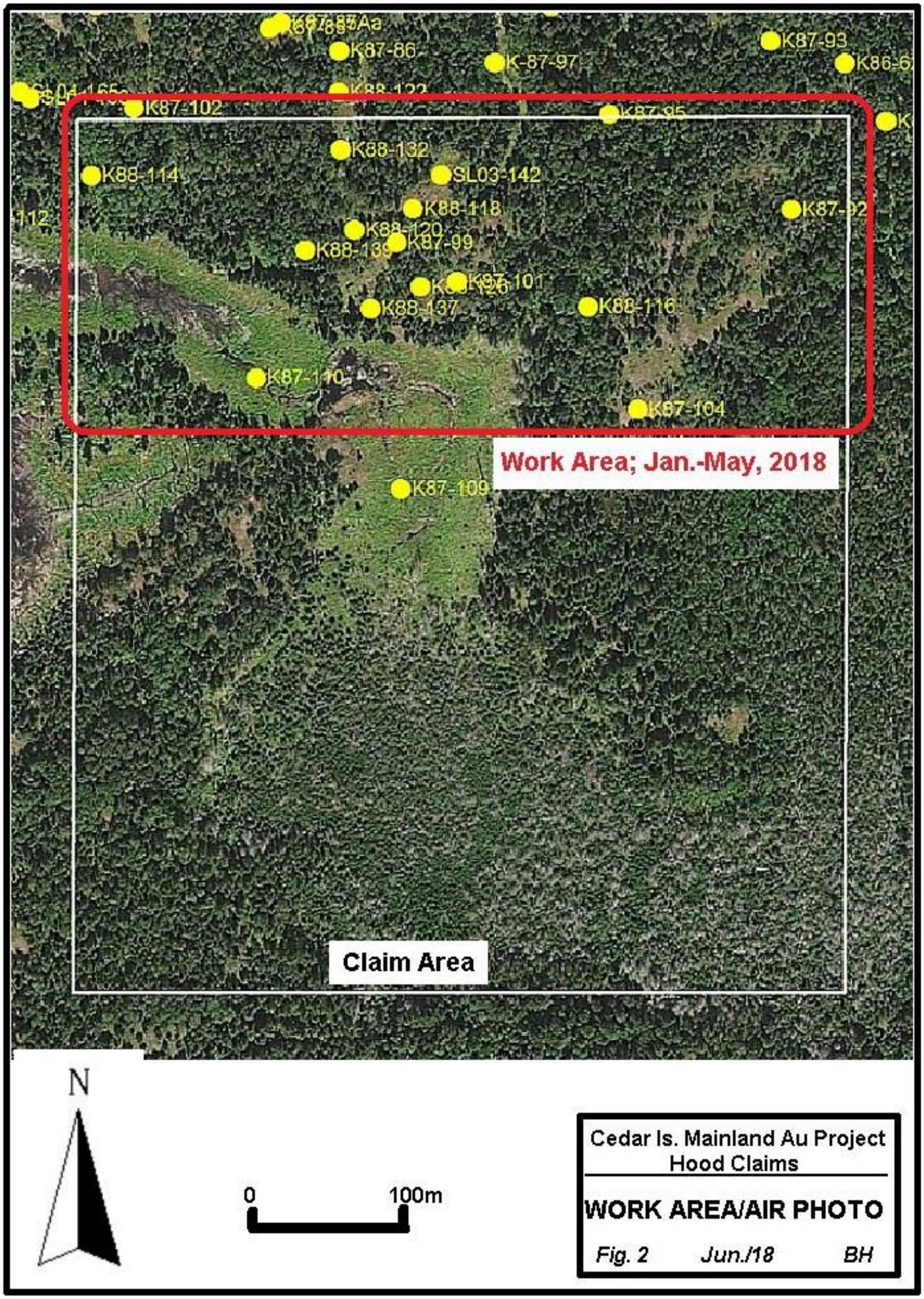
Figure 2 is an air photo of the claim group showing the physiography of the area with a series of beaver ponds and cedar-tamarack swamps extending roughly northwest-southeast across the property. Figure 2 also shows the area along the north edge of the property where work was conducted during 2018, as well as the collar locations of drill holes completed during the 1980s on the Cedar Island Mainland gold zone.

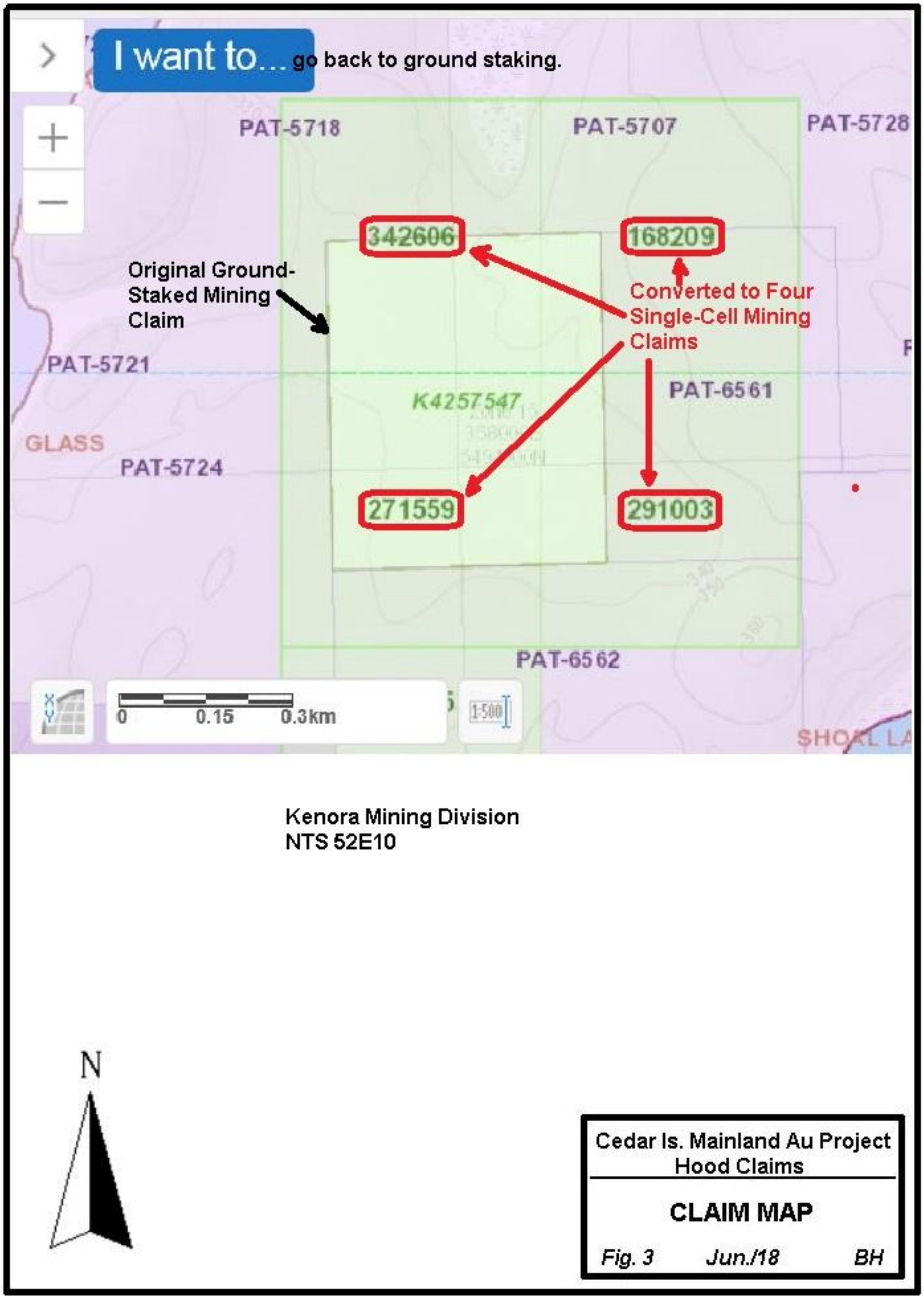
CLAIM STATUS

The Cedar Island mainland property was ground staked in 2016 as 2-unit claim 4257547 comprising 27 ha within Glass Township, G-2642, of the Kenora Mining Division (Fig. 3). The property covers the southeast strike/dip extension of a gold-bearing zone known as the Cedar Island Mainland zone. The property lies entirely within a large group of patented claims covering historical gold mines/showings, including the Mikado, Cedar Island and Olympia mines. With the conversion to "map staking" in early 2018, the original ground-staked claim was replaced by four single-cell mining claims within NTS 52E10, claims 168209, 271559, 291003 and 342606, also shown on Figure 3. The claims are held by William C. Hood of Beausejour, Manitoba, the author of this report. The claims are presently in good standing until September 12, 2019.

REGIONAL GEOLOGY & MINERALIZATION

The Cedar Island Mainland gold property lies within the large Kenora-Keewatin greenstone belt which underlies much of the northern part of Lake of the Woods. This belt lies within the Archean-age Wabigoon Subprovince of the Canadian


K87-87Aa
K87-86
K-87-97
K87-93
K86-6
K88-122
K87-102
K87-95
K88-132
K88-114
SL03-142
K88-118
K87-92
K88-120
K88-139
K87-99
K87-101
K88-137
K88-116
K87-110
K87-104
Work Area; Jan.-May, 2018
K87-109
Claim Area
N
0
100m
Cedar Is. Mainland Au Project
Hood Claims
WORK AREA/AIR PHOTO
Fig. 2
Jun./18
BH


I want to... go back to ground staking.
PAT-5718
PAT-5707
PAT-5728
342606
168209
Original Ground-Staked Mining Claim
Converted to Four Single-Cell Mining Claims
PAT-5721
K4257547
PAT-6561
GLASS
PAT-5724
271559
291003
PAT-6562
0
0.15
0.3km
Kenora Mining Division
NTS 52E10
N
Cedar Is. Mainland Au Project
Hood Claims
CLAIM MAP
Fig. 3
Jun./18
BH

Shield (Fig. 4). The Wabigoon Subprovince comprises mainly volcanic rocks of oceanic affinity, intruded by large diapiric plutons. In the Shoal Lake area, a range of volcanic rocks from mafic to felsic composition, are intruded by a number of late stocks/batholiths, and cut by major fault/fracture zones (Fig. 5).

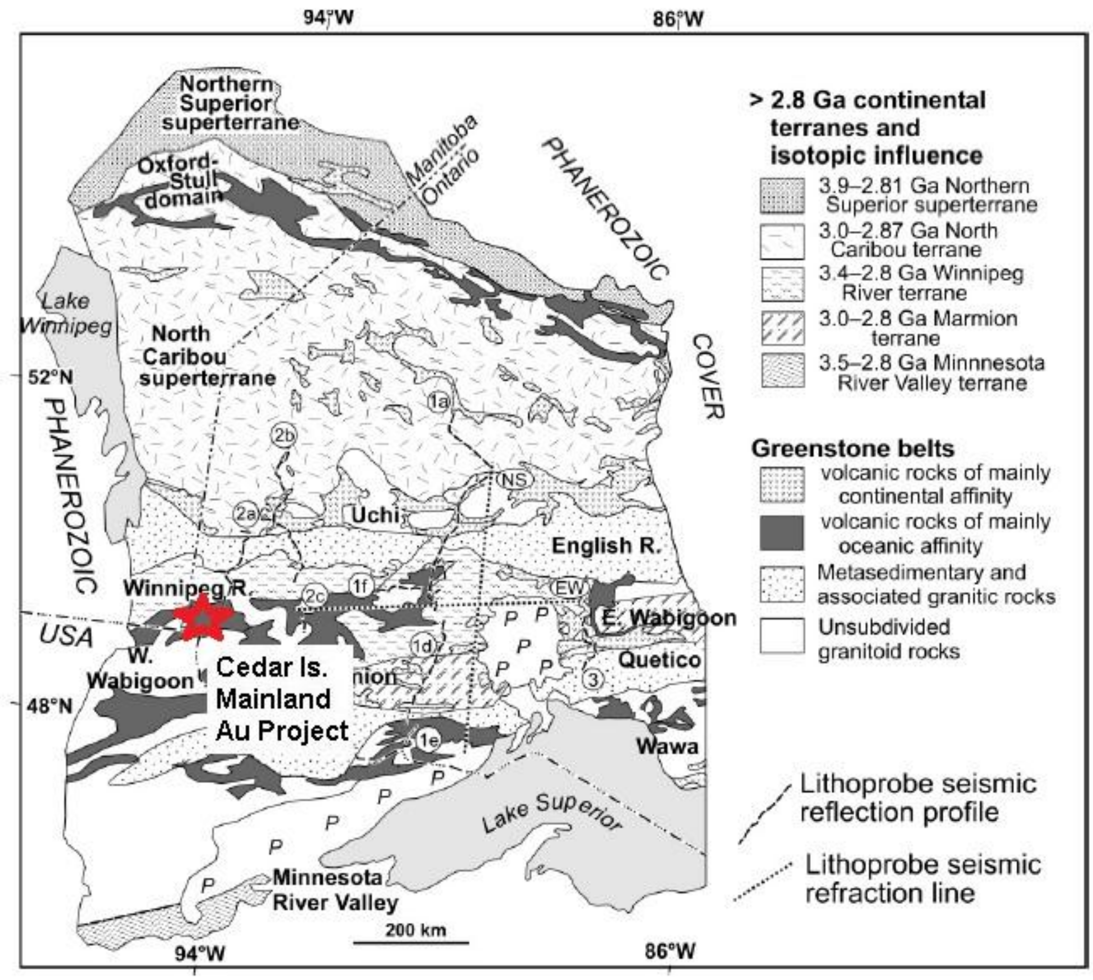
The Cedar Island Mainland property covers a section of mafic volcanic rocks and gabbro sills immediately southwest of the Canoe Lake stock (Fig. 6). The stratigraphy in the area appears to trend mainly northeast-southwest, but is abruptly truncated by the northwest-southeast trending contact of the Canoe Lake stock, and a number of other northwest-southeast trending lineaments cut across the rocks in this area.

A large number of gold-bearing veins occur in the area between the Canoe Lake stock and Snowshoe Lake batholith, including significant resources at the Duport deposit near Stevens Island and the Mikado/Cedar Island zones at Bag Bay. The historic Mikado mine on Bag Bay, with production between 1896 and 1931 of about 30,000 oz of gold, lies about 0.5 km northeast of the Cedar Island Mainland property. The Cedar Island shaft lies about 1 km northwest of the property, with the Mainland zone interpreted to extend across the northeast corner of the claims. The Olympia mine is situated about 0.5 km southeast of the Cedar Island Mainland property, while the Nankipoo prospect lies about 0.5 km to the southwest (Fig. 6).

WORK PROGRAM; JAN.-MAY, 2018

A small work program was completed over the northern portion of the claim group, as shown on Figure 2, over 11 field days during January, February and May, 2018. This work was centered on an area of extensive drilling during 1987-88, with drill collar locations also shown on Figure 2. This work included clearing of a snowmobile access trail, installation of a flagged grid, total field magnetic survey, VLF-EM survey and 1:1000 geologic mapping.

Scouting and clearing a 1 km snowmobile trail along old drill roads from the east shore of Bag Bay to the north boundary of the claim group required 1.5 field days. A flagged grid was installed by compass and hip-chain from a start point at the northeast corner of the property. This point was established as 1000E/1000N BL.

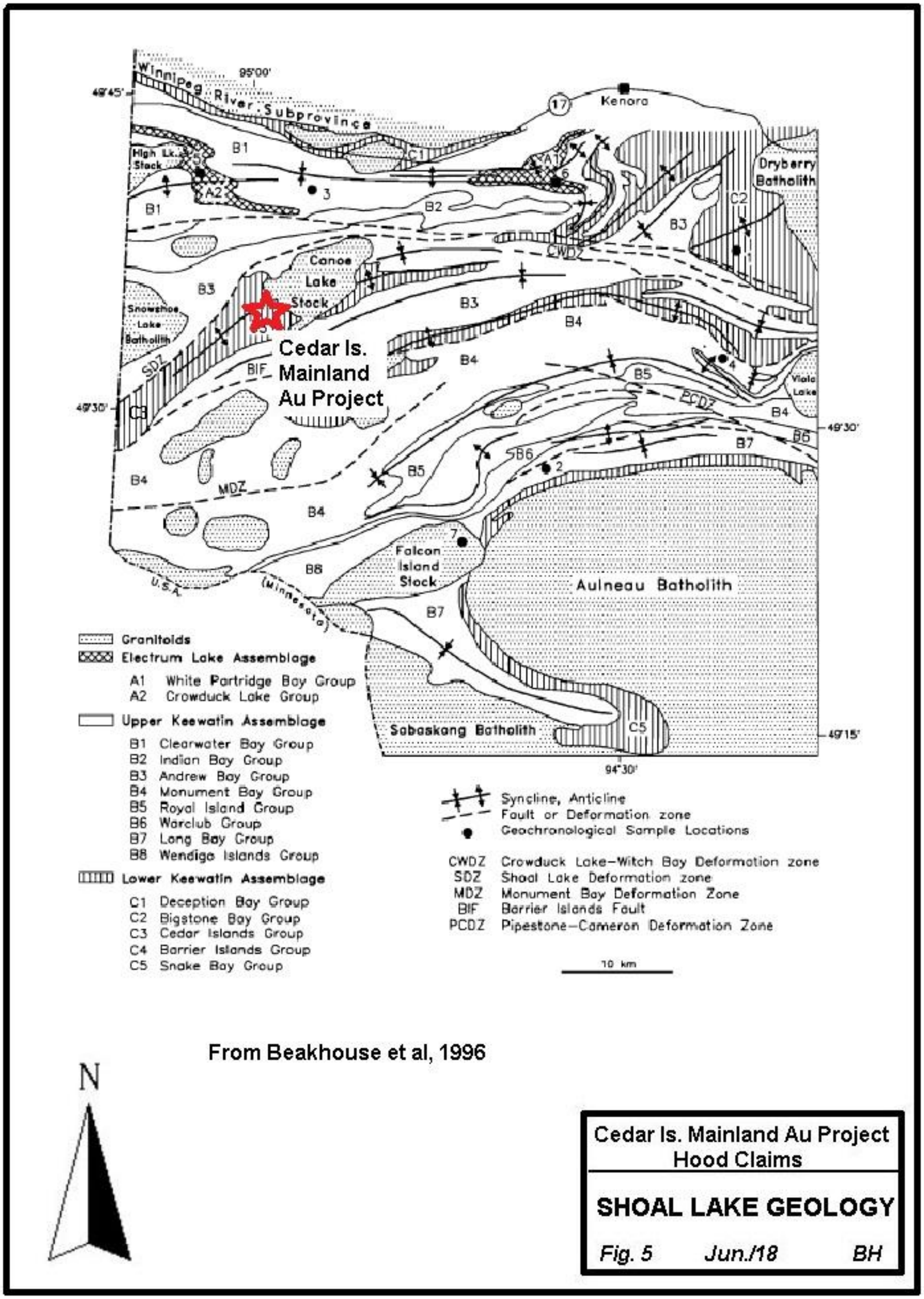


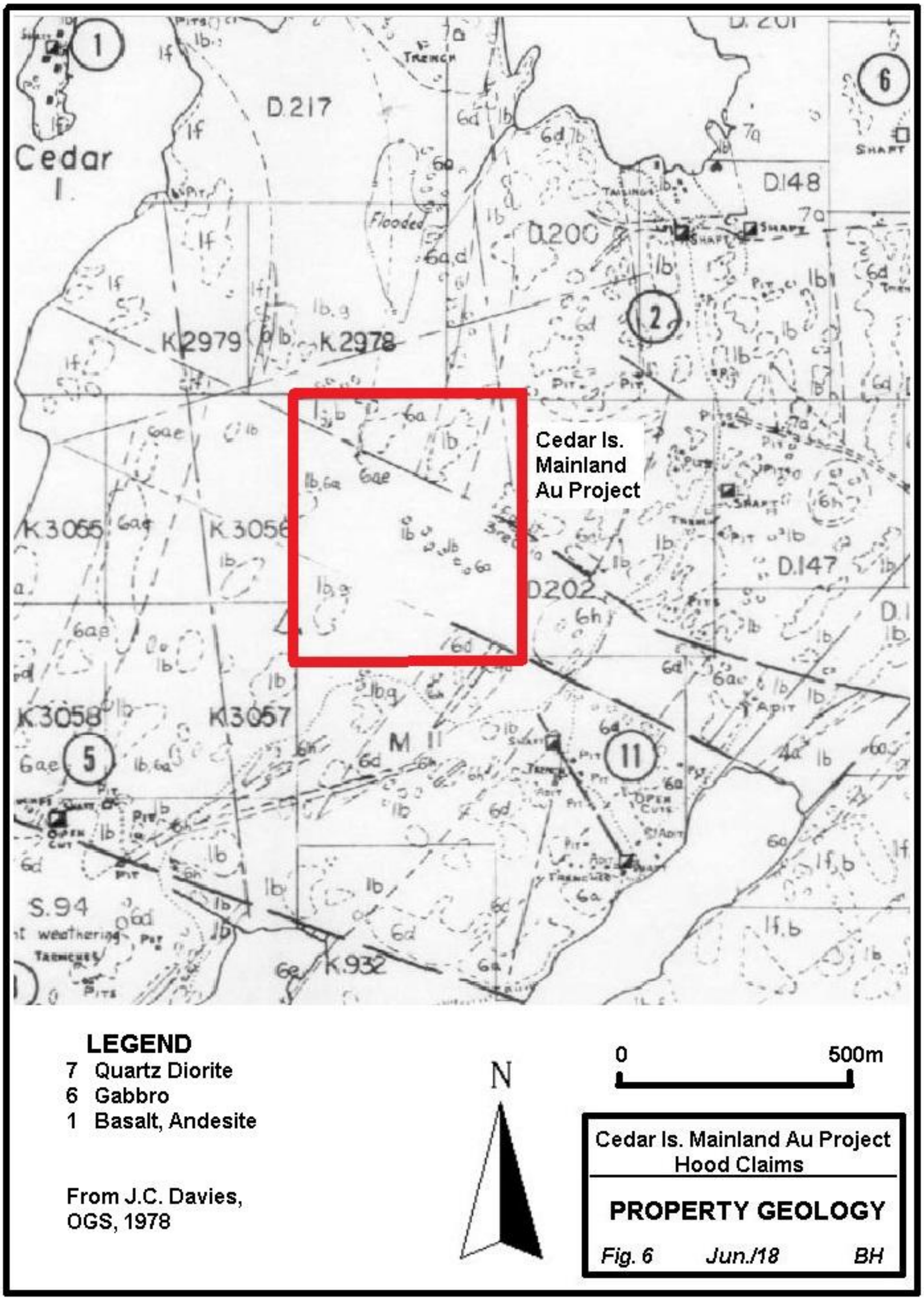
From Percival et al, 2006

Cedar Is. Mainland Au Project
Hood Claims

NW ONTARIO GEOLOGY

Fig. 4 *Jun./18* *BH*


Winnipeg River Subprovince
Kenora
Dryberry Batholith
High Lk. Stock
Canoe Lake Stock
Snowshoe Lake Batholith
Cedar Is. Mainland Au Project
Viola Lake
Falcon Island Stock
Aulneau Batholith
Sabaskong Batholith
U.S.A. (Minnesota)
Granitoids
Electrum Lake Assemblage
A1 White Partridge Bay Group
A2 Crowduck Lake Group
Upper Keewatin Assemblage
B1 Clearwater Bay Group
B2 Indian Bay Group
B3 Andrew Bay Group
B4 Monument Bay Group
B5 Royal Island Group
B6 Warclub Group
B7 Long Bay Group
B8 Wendigo Islands Group
Lower Keewatin Assemblage
C1 Deception Bay Group
C2 Bigstone Bay Group
C3 Cedar Islands Group
C4 Barrier Islands Group
C5 Snake Bay Group
Syncline, Anticline
Fault or Deformation zone
Geochronological Sample Locations
CWDZ Crowduck Lake–Witch Bay Deformation zone
SDZ Shoal Lake Deformation zone
MDZ Monument Bay Deformation Zone
BIF Barrier Islands Fault
PCDZ Pipestone–Cameron Deformation Zone
10 km
From Beakhouse et al, 1996
N
Cedar Is. Mainland Au Project
Hood Claims
SHOAL LAKE GEOLOGY
Fig. 5 Jun./18 BH


Cedar I.
D.217
D.200
D.148
D.147
D.201
D202
K2979
K.2978
K.3055
K.3056
K3058
K3057
K.932
S.94
M II
Flooded
Cedar Is.
Mainland
Au Project
LEGEND
7 Quartz Diorite
6 Gabbro
1 Basalt, Andesite
From J.C. Davies,
OGS, 1978
N
0
500m
Cedar Is. Mainland Au Project
Hood Claims
PROPERTY GEOLOGY
Fig. 6 Jun./18 BH

The 1000N BL was run west along the claim line to 530E at the northwest corner of the claims. Lines were established at 550E, 600E, 650E, 700E, 750E, 800E, 850E, 900E, 950E and 1000E. Lines were run south to 800N, except for lines 550E, 600E and 650E, which were stopped short at the creek/beaver pond. Alternating pink and blue flags were used at 12.5m spacing with coordinates marked on the flag every 50 m. A total of 6.0 km of line, plus 0.5 km of baseline, was installed over 3 field days.

A total field magnetic survey over the flagged grid was completed by the author over 2.5 field days using a Geometrics G-856 proton precession magnetometer. Details and specifications on this instrument are included in Appendix I. The magnetic survey totalled 6.0 line km, on 50 meter spaced lines, with 12.5 meter station spacing. All field readings were looped from a consistent base location at L800E/1000N BL, which was at the end of the snowmobile trail along the north boundary of the property (see photo #1, Appendix II). All data was leveled relative to this point in direct proportion to elapsed time. Only minor solar activity and variations in the geomagnetic field were reported at the time. The maximum drift within a loop was 5 nT. 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 Map 1, Appendix III (back pocket). The corrected readings fell within a range from 51,946 to 63,145 nT, and are contoured at 1000 nT intervals from 56,000 to 59,000 nT in order to illustrate gross lithology. Background readings were typically around 57,000 nT, but quite variable from station to station within a range from 56,500 to 57,500 nT. A very strong high-magnetic anomaly was noted angling across lines 850E and 900E, corresponding with a low swampy area of black ash vegetation adjacent to a sharp cliff along the northwest side of a large outcrop. This anomaly is believed to be caused by an unexposed, strongly magnetic lithology. A very low magnetic reading in the extreme southeast corner of the grid area suggests that another high magnetic anomaly is present farther to the southeast.

A VLF electromagnetic survey was completed over 2 field days on the flagged grid by the author using a Geonics EM-16 instrument tuned to NAA Cutler, Maine, on 24.0 kHz. The VLF survey totaled 6.0 line km with 50 m line spacing and 12.5 m station intervals. All VLF readings were taken facing north, with plus-to-minus in-phase crossovers marking conductive horizons. All field readings with interpreted conductors are shown plotted in profiles on Map 2, Appendix III (back pocket). Photo #2, Appendix II, was taken from grid point L750E/800N looking west along the beaver swamps and creek at the south margin of the map area.

Four electromagnetic conductors, marked A through D, are shown on Map 2, Appendix III. Conductors A and B are very strong electromagnetic conductors that are believed to reflect bedrock features, though conductor B occurs along the north side of a swampy creek and topographic lineament. Conductors C and D both occur along north-northeast to south-southwest trending topographic lineaments, for which this grid was not at an optimum orientation. Both conductors C and D have shallow amplitudes and occur along swampy ground, with conductivity likely more related to conductive overburden than bedrock. Quadrature responses were very flat across the entire grid area.

Geologic mapping was completed by the author over two field days during May, 2018, across the grid area at a scale of 1:1000. This work is plotted, with additional compiled data, on Map 3, Appendix III. Although outcrop percentage was very good in the map area, most outcrop was rubbly and moss covered. Two lithologies were noted in the grid area during mapping, Unit 2, Basalt, and Unit 3, Gabbro. The basalt volcanics in this area were mainly fine- to medium-grained massive flows, while the gabbro intrusive sill was consistently a fine- to medium-grained texture that was very difficult to distinguish from the massive flow basalt. As a result, contacts between these units are interpreted and approximate. It may be noted that no primary bedding/layering or schistosity orientations are plotted on the map, this being because the rocks in this area are very massive in texture, and while variations in grain size and chlorite content were noted in the basalt volcanics, primary flow orientations could not be easily traced due to the rubbly and mossy nature of the outcrop. No glacial striations were noted in the map area, but bedrock striations on the east shore of Bag Bay, about 0.5 km west of the map area were 050°x230° azimuth.

During the course of this work, a total of 8 drill hole locations with casing were found within the claim area or within several meters of the boundary. Using a plot of 1987, 1988 and 2003 drill collar locations, it was possible to identify and plot all drill collar locations on Map 3 in order to improve the geologic interpretation.

Unit 1, Ultramafic Volcanics, and Unit 4, Felsite/Porphyry, were interpreted from this drill data. The interpretation of geologic units and contacts on Map 3 was also facilitated by both the total field magnetic data and VLF-EM results.

About half the map area, in the southeast and northwest corners of the grid, was found to be underlain by Unit 2, Basalt. These rocks are grey to greenish-grey weathering and dark greenish-grey to green-black on fresh surface. This lithology formed rubbly, moss-covered outcrops, but was often recognizable by the angular nature of the rubble fragments on surface. This basalt appeared to be entirely massive flows, which varied from fine-grained and chloritic (Unit 2a) to massive medium-grained (Unit 2b). It was not possible to determine whether these variations reflected separate flows or variations with one large flow. No pillowed flows or fragmental variants of this lithology were noted in the map area. Photo #3 in Appendix II, looking northwest, shows drill collar 87-104 at grid position 870E/820N within Unit 2, Basalt.

The other half of the map area was found to be underlain by Unit 3, Gabbro, mapped across lines 600E through 800E in the central part of the grid area. These rocks tended to be grey on weathered surface and dark grey to fine-speckled on fresh surface. The surface rubble fragments of the gabbro were somewhat less angular that the basalt of Unit 2. This intrusive gabbro (probable) sill (Unit 3) was difficult to distinguish from its host massive flow basalt (Unit 2), so the contacts between them are interpreted and approximate. Photo #4 in Appendix II shows the Unit 2, Gabbro, lithology in the area of 685E/890N, clearly a diorite to gabbro intrusive rock with about 55% altered light grey plagioclase and 45% altered pyroxene/amphibole. It can be noted that the area of this photo is near the center of the mapped sill and would be expected to be a more distinctive intrusive texture, as opposed to the marginal, fine-grained areas. Numerous drill holes were collared in this area and all were logged as “basalt massive flows”, though “gabbro textures” were often noted in the lithology descriptions of drill holes near the central part of the mapped gabbro sill area.

Two lithologic units, Unit 1, Ultramafic Volcanics, and Unit 4, Felsite/Porphyry, were interpreted solely from drill data and were not observed in outcrop mapping. Unit 1, Ultramafic Volcanics, was interpreted from drill hole 88-116, which intersected “soapy-feeling, talcose chlorite schists” that were “moderately to strongly magnetic”, from the base of casing at 8.5m down to 32.5m. This ultramafic lithology has been interpreted along the trend of a strong magnetic anomaly which crosses lines 850E and 900E at an orientation of roughly 035°x215° azimuth (Map 1). Unit 1 and its associated magnetic anomaly occurs at the base of a sharp cliff along the northwest side of a large outcrop, suggesting a recessive weathering rock type, and along an unusual swampy area with black ash vegetation which does not occur in other areas.

Unit 4, Felsite/Porphyry, was interpreted from drill hole 87-110, which intersected felsic intrusive rocks from the base of casing at 16.0m to 40.5m. These rocks were variously logged as granitic, rhyodacite, cherty, quartz-feldspar porphyry and altered volcanics with biotite phenocrysts. It is also noted in the drill log for this hole that these rocks were heavily sheared, altered and locally quartz-veined/mineralized, especially toward the bottom of the section. Based on the drill log descriptions, this lithology is believed to be a heavily sheared and altered porphyry dike with possible altered volcanic inclusions. This Unit 4 intrusive rock corresponds with a topographic lineament along a creek and line of beaver swamps at the south edge of the map area. A strong VLF conductor was detected on lines 700E and 750E at the north edge of the lineament, which would correspond with the faulted contact of the porphyry dike, noted in drill logs, with the Unit 3, Gabbro, lithology to the north. It is interesting to note that small feldspar porphyry dikes were noted in logs for several drill holes at depths that would plot within the map area, but no porphyry dikes were found in outcrop or float in the course of this mapping.

No significant quartz veining or mineralization was found within the map area during the course of this work. However, a rusty quartz vein float boulder and light brown coloured altered rocks were noted just outside the map area at a point about 25m north of the #1 post (northeast corner) of the claim group. This is believed to be the outcrop/sub-crop of the Cedar Island Mainland gold zone, which trends at an azimuth of about 310°x130° azimuth, dipping steep southwest. Drill holes 87-104 and 88-116 both intersected significant gold values, believed to be the down-dip extension of the Cedar Island Mainland zone, in mineralized quartz veins associated with feldspar porphyry dikes, at down-hole depths which plot within or near the northeast corner of the claim area, including 13.7g/t/0.8m at 296m in 87-104 and 13.0g/t/0.5m at 250m in 88-116. Several other gold intersections in the 1 to 4 g/t range over narrow widths were noted in drill holes in other parts of the map area which would not be part of the Cedar Island Mainland zone.

The only location where minor quartz veining was noted in outcrop was at grid position 685E/790N on the south side of the creek/beaver swamps along the south edge of the map area. Several narrow steep-dipping veins up to 1 cm thick were noted on this outcrop, oriented about 325°x145° azimuth. This lies immediately adjacent to interpreted Unit 4, Felsite/Porphyry, intersected in the top of drill hole 87-110. The porphyry intrusion in this drill hole was described in drill logs as heavily sheared, altered and quartz-veined, with a gold intersection of 2.1g/t/0.9m at 38.9-39.8m along the north edge of the dike. The trend of this porphyry intrusion, angling across the south margin of the map area, may be prospective for a gold-bearing zone running parallel to the Cedar Island Mainland zone, but situated about 300 m to the south-southwest.

CONCLUSIONS & RECOMMENDATIONS

From work completed in early 2018, it has been determined that the north end of the claim group is underlain mainly by basalt massive flows that are intruded by a thick gabbro sill. These rocks are cut by a younger feldspar porphyry dike that is sheared, altered and quartz veined with gold values up 2.1 g/t over 0.9m in a zone being referred to as the Mainland South zone. It was also determined that the Cedar Island Mainland gold zone outcrops just northeast of the property, but dips southwest into the claim group at a depth of about 150 m with gold grades up to 13.7 g/t over 0.8 m.

Further drilling is recommended to explore both the down-dip potential of the Cedar Island Mainland zone below 150 m, as well as the relatively unexplored Mainland South zone which appears to have very prospective geology.

William C. Hood
July 3, 2018

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
July 3, 2018

APPENDIX I

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

GEOMETRICS

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) Sensor: 3 1/2 x 5 inches (9 x 13 cm) 4 LB (1.8 kg) 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
- Staff
- Backpack
- Two sets of batteries
- Carrying case
- Applications Manual for Portable Magnetometers
- RS-232 Cable

Optional:

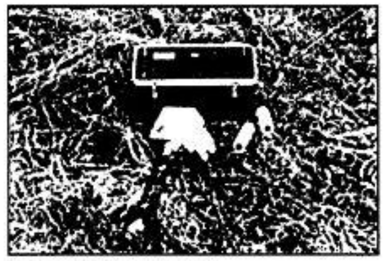
- Cold weather battery belt
- Rechargeable Battery option
- 50' External power / Sensor cable
- Spares Kit

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 – PHOTOGRAPHS

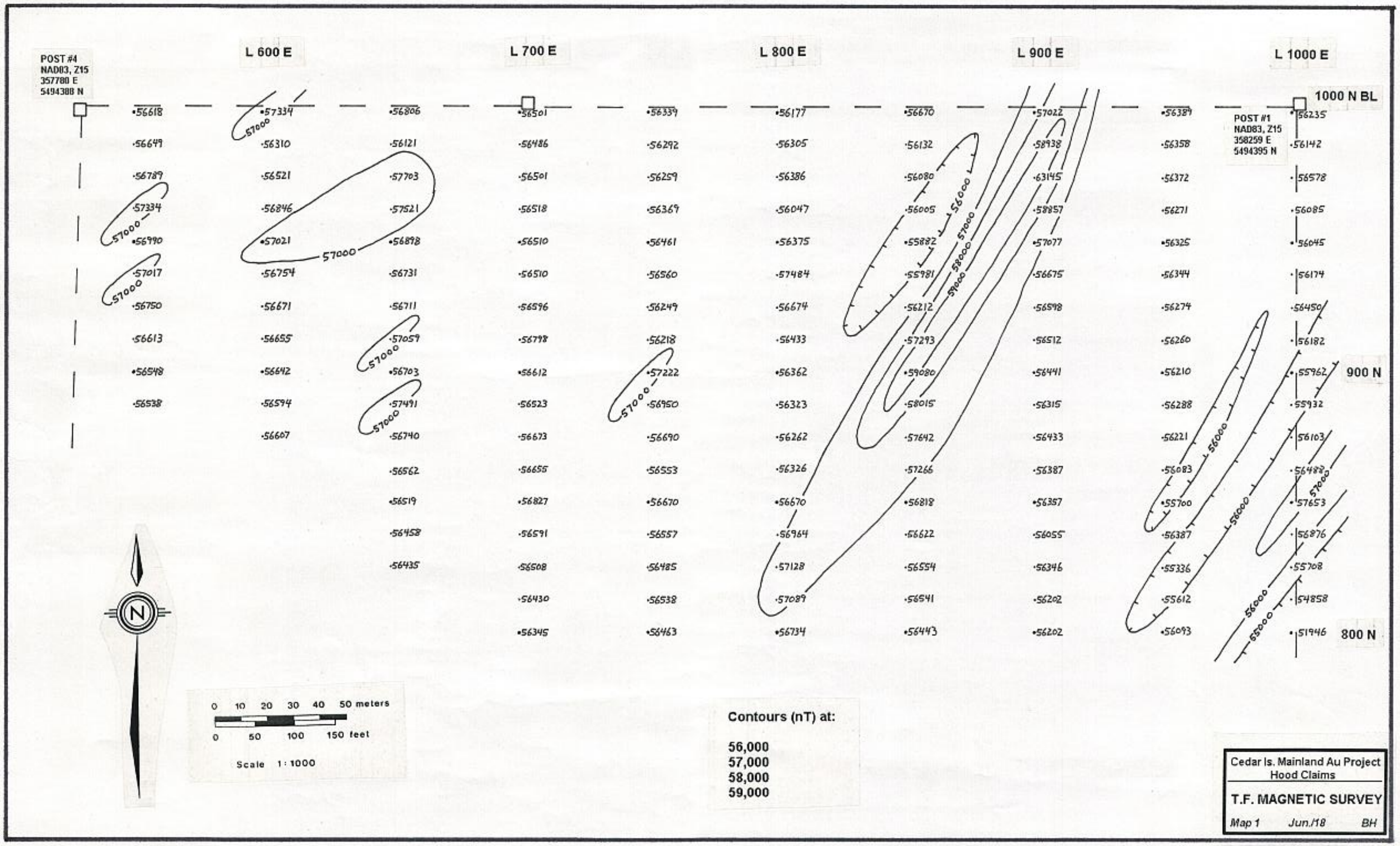
Photo #1: Looking northwest at base station location for magnetic survey at end of skidoo trail along north claim boundary at L800E/1000N BL (February, 2018).

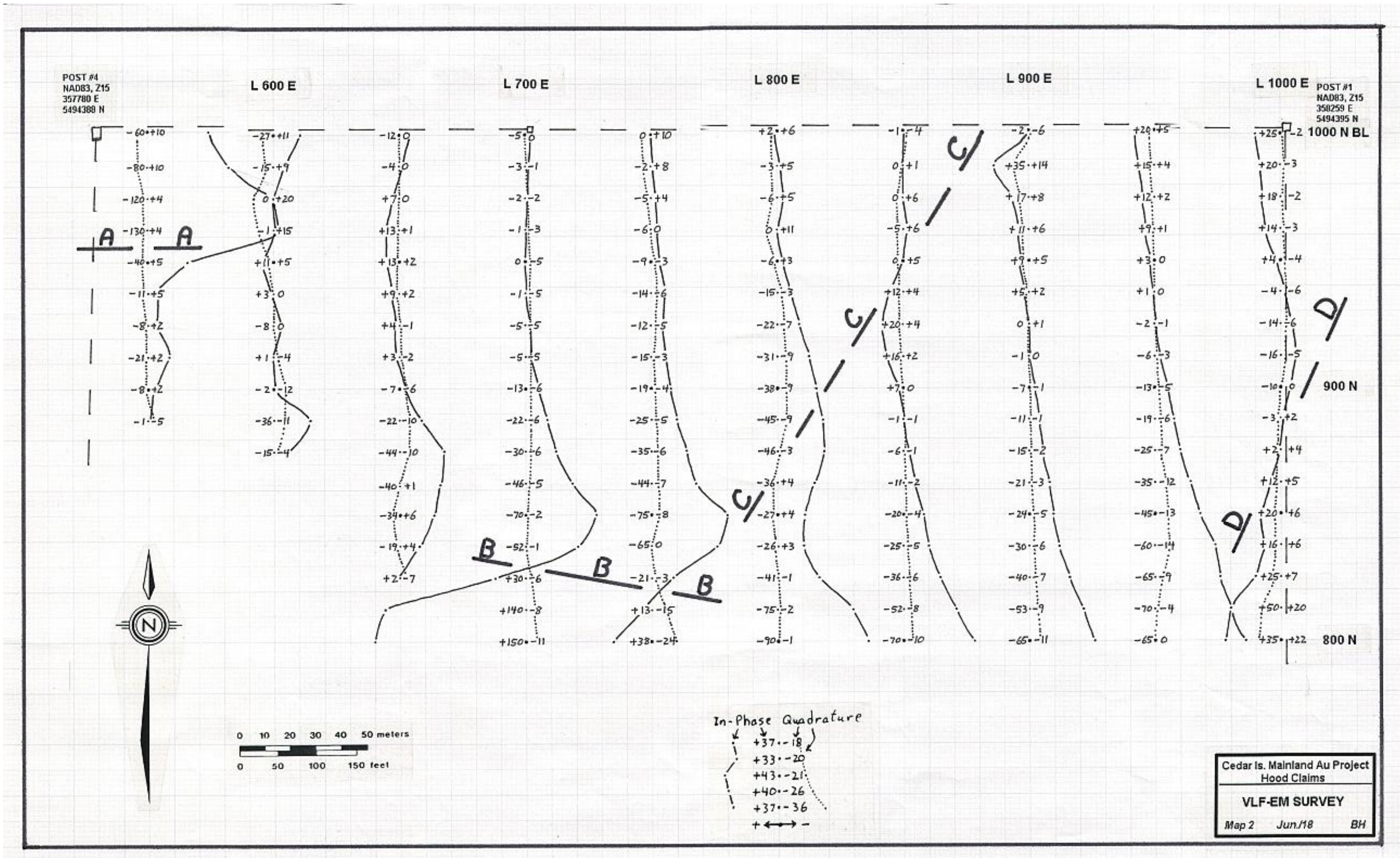
Photo #2: Author “selfie” during VLF-EM survey looking west from L750E/800N along creek and beaver swamps at south margin of work area (February, 2018).

Photo #3: Looking northwest at drill casing 87-104 on basalt outcrop at about 870E/820N.

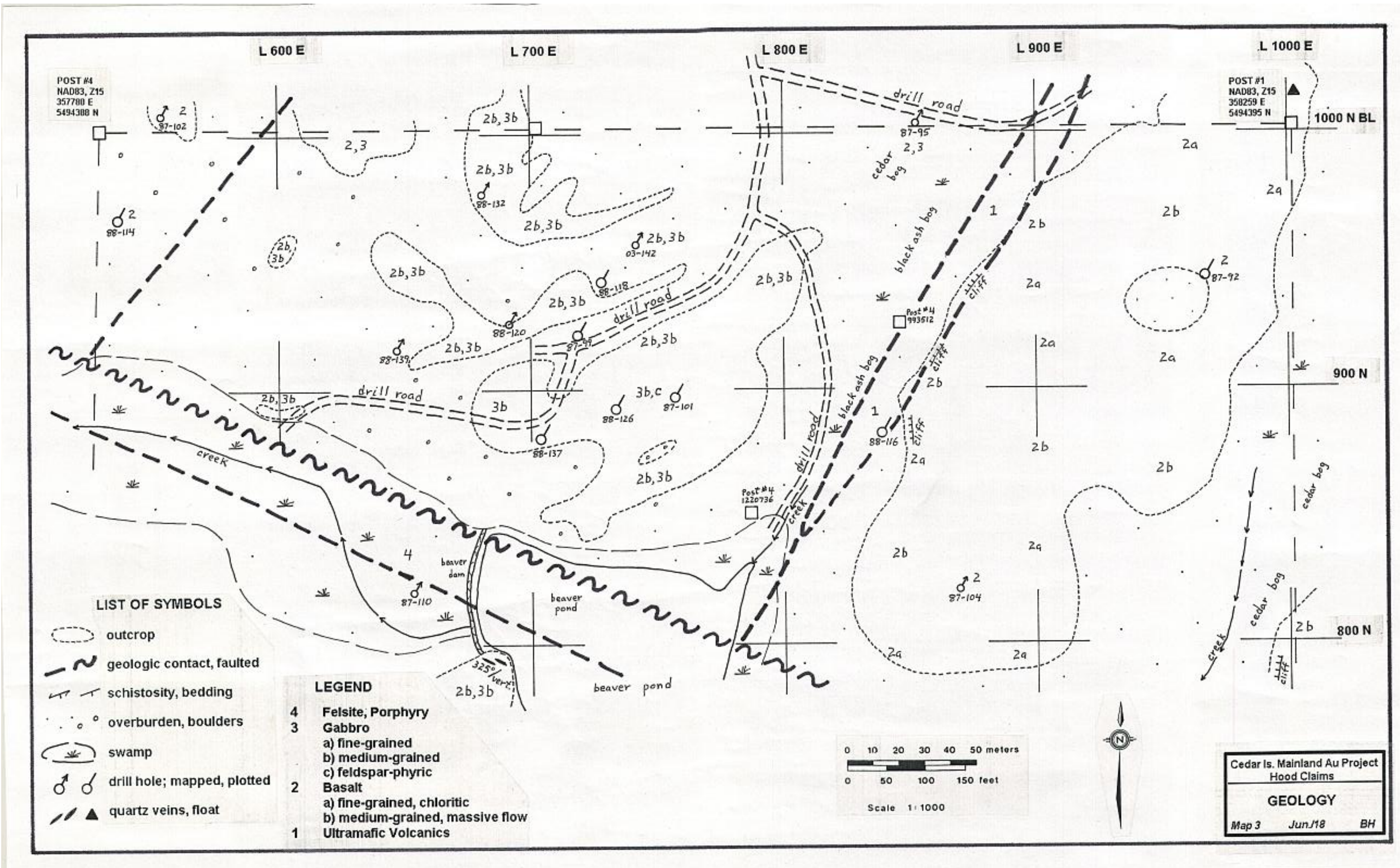
Photo #4: Outcrop of medium-grained diorite-gabbro at about 685E/890N.

APPENDIX III – MAPS


POST #4
NAD83, Z15
357780 E
5494388 N
L 600 E
L 700 E
L 800 E
L 900 E
L 1000 E
1000 N BL
POST #1
NAD83, Z15
358259 E
5494395 N
900 N
800 N
0 10 20 30 40 50 meters
0 50 100 150 feet
Scale 1 : 1000
Contours (nT) at:
56,000
57,000
58,000
59,000
Cedar Is. Mainland Au Project
Hood Claims
T.F. MAGNETIC SURVEY
Map 1 Jun./18 BH



POST #4
NAD83, Z15
357780 E
5494388 N
L 600 E
L 700 E
L 800 E
L 900 E
L 1000 E
POST #1
NAD83, Z15
358259 E
5494395 N
1000 N BL
900 N
800 N
A
B
C
D
N
0 10 20 30 40 50 meters
0 50 100 150 feet
In-Phase Quadrature
+37•-18
+33•-20
+43•-21
+40•-26
+37•-36
Cedar Is. Mainland Au Project
Hood Claims
VLF-EM SURVEY
Map 2 Jun./18 BH


L 600 E
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L 1000 E
POST #4
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357780 E
5494388 N
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NAD83, Z15
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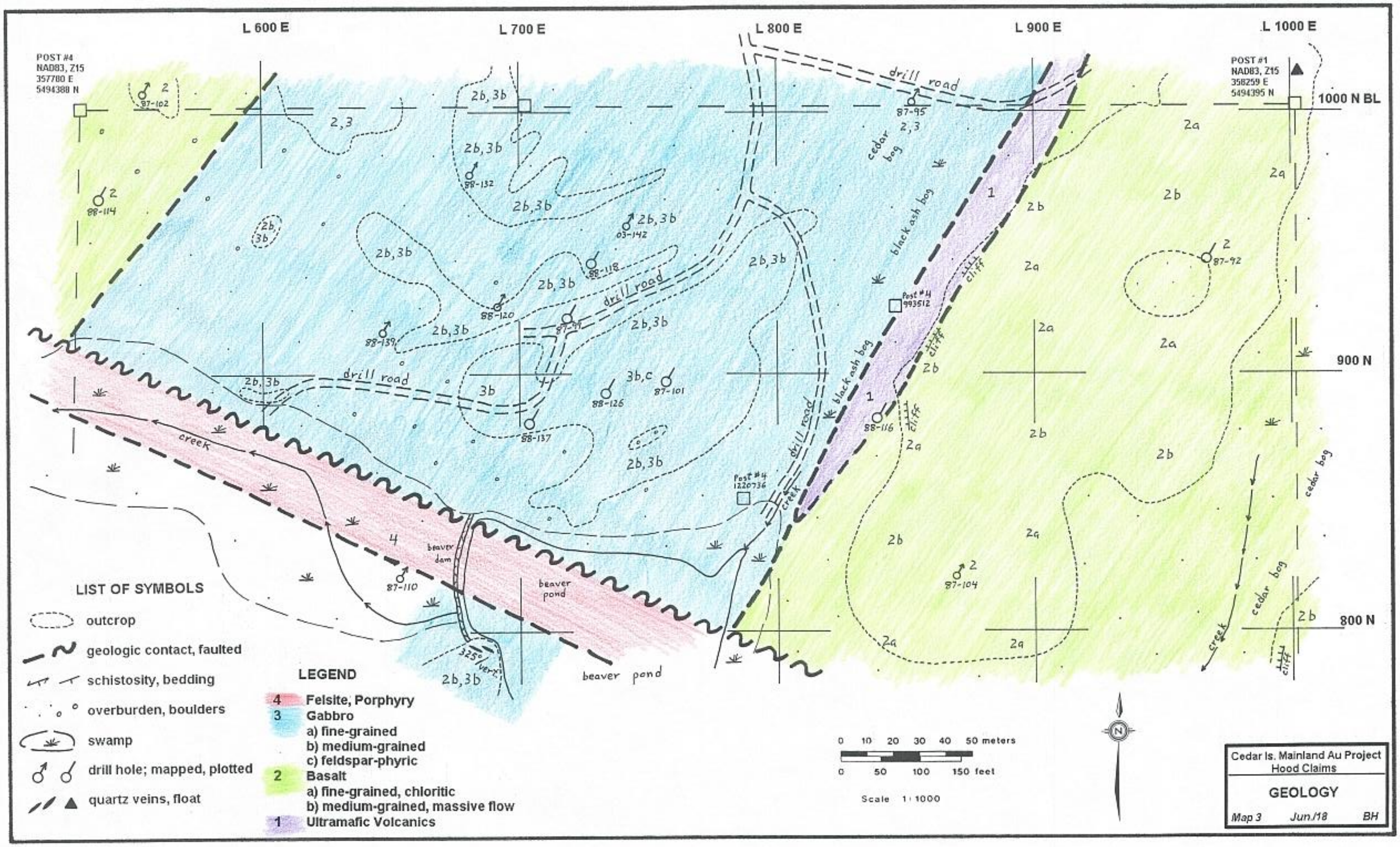
1000 N BL
900 N
800 N
drill road
cedar bog
black ash bog
cliff
creek
beaver dam
beaver pond
Post #4
1220736
Post #4
993512
87-102
88-114
88-132
03-142
88-118
88-120
87-99
88-139
88-126
87-101
88-137
87-95
87-92
88-116
87-110
87-104
LIST OF SYMBOLS
outcrop
geologic contact, faulted
schistosity, bedding
overburden, boulders
swamp
drill hole; mapped, plotted
quartz veins, float
LEGEND
4 Felsite, Porphyry
3 Gabbro
a) fine-grained
b) medium-grained
c) feldspar-phyric
2 Basalt
a) fine-grained, chloritic
b) medium-grained, massive flow
1 Ultramafic Volcanics
0 10 20 30 40 50 meters
0 50 100 150 feet
Scale 1:1000
N
Cedar Is. Mainland Au Project
Hood Claims
GEOLOGY
Map 3
Jun./18
BH



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Hood Claims
GEOLOGY
Map 3 Jun./18 BH

ASSESSMENT WORK; MAG.,VLF, GEOL.; 168209,342606

List of Expenditures for Assessment Work

Field Work: W.C.Hood, Jan., Feb., May, 2018; 11 days @ $450	$4,950.00
Report/Map Prep.: W.C.Hood; Jun., 2018; 5 days @ $400	2,000.00
Scan/Print Maps, Laufman Graphics	42.00
Geonics EM-16 VLF Receiver; 2 days @ $50	100.00
Geometrics G-856 magnetometer; 3 days @ $50	150.00
Snowmobile; 9 days @ $50	450.00
Boat & Motor; 2 days @ $50	100.00
Mileage in ON: 329 km @ $0.40	132.00
Total:	$7,924.00