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REPORT ON GEOPHYSICAL WORK

FENTON 2
FENTON TOWNSHIP

NTS: 42-G/1

PROJ # 8291

FOR FALCONBRIDGE LIMITED

**OCTOBER 1998** 

D. LONDRY TIMMINS GEOPHYSICS LTD

## **SUMMARY AND RECOMMENDATIONS**

HLEM and magnetic surveys were carried out over the Fenton 2 property for Falconbridge Limited in July, 1998.

The HLEM survey detected three conductors. High positive shoulders to the east of the conductors suggest an east dip and possibly, in some cases, that the conductors swing to the northeast, parallel to the lines. It is recommended that Lines 0 East and 60 East are surveyed.



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#### INTRODUCTION

Magnetic and horizontal loop electromagnetic (HLEM) surveys were carried out on the Fenton 2 property for Falconbridge Limited. This property is one of six which were surveyed during July of 1998 in the townships of Fenton, Staples, Casselman and Nansen.

The property is located approximately 32 kilometres south of the town of Kapuskasing (Figure 1(a)) in the northeast corner of Casselman Township, Porcupine Mining Division. The area can be accessed by two dirt roads, the Swanson road which runs south from Highway 11 at Kapuskasing and the Chain of Lakes Road which runs southwest from Highway 11 at Moonbeam; the two roads join in southern Casselman Township.

The surveys covered part of one mining claim (Figure 1(b)), numbered 1226739, which consists of sixteen, 40 acre claim units (Table 1).

The HLEM survey was carried out by B. Pigeon and J. derWeduwen and the magnetic survey was run by the author of this report.

CLAIM#	# of UNITS	DESCRIPTION	TOWNSHIP
1226739	16		Fenton

Table 1: Property Description

### **GENERAL GEOLOGY**

The Fenton 2 property is located within the Saganash greenstone belt which consists of Archean volcanics and sediments which have been metamorphosed to an amphibolite grade. The belt extends for approximately 55 kilometres from the southern part of Seaton Township, in the southwest, to the southern part of Nansen Township, in the northeast; the width of the belt is approximately 8 kilometres.

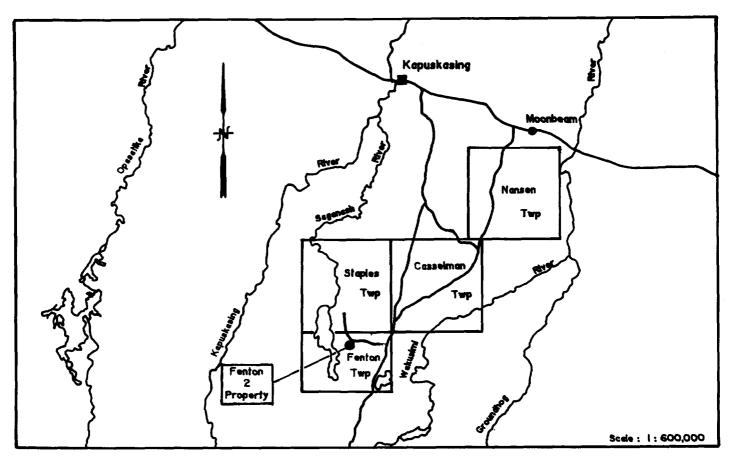


Figure I (a): Location Map

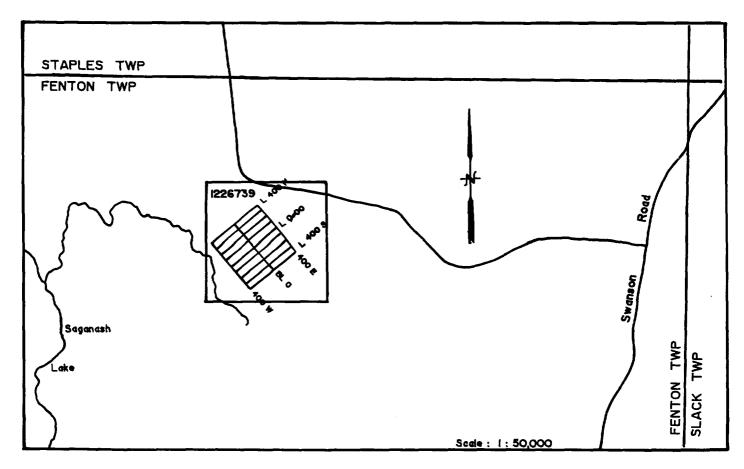


Figure I (b) : Claim Map

In 1947, a limited geological survey was carried out by the government (Hogg, 1948) in Fenton Township, following the discovery of iron formations by employees of the Spruce Falls Power and Paper Company. In 1958, seven townships in the belt, including Fenton Township, were mapped by the Ontario Department of Mines (Mcmurchy, 1960). The geology of Fenton Township is also presented on the Ontario geological compilation series map 2221 at a scale of 1 inch to 4 miles.

#### **PREVIOUS WORK**

The first known exploration work in the Saganash belt was conducted in 1946 and 1947 by the Bonnie Prince Syndicate, to investigate outcrops of iron formation in Fenton Township.

In 1958, a government airborne survey was flown over the area along north-south lines spaced every 800 metres. This survey was run concurrently with the geological mapping by McMurchy (McMurchy, 1960).

The only extensive exploration program for base metals in the area was carried out by Mattagami Lake Mines in the 1970's. In 1976 a Questor Input EM survey was flown for Mattagami along northwest-southeast lines spaced approximately every 200 metres. This survey was followed by ground magnetic and horizontal loop EM surveys to detail airborne anomalies. The magnetic survey was run with the Scintrex MF-2 fluxgate magnetometer and the HLEM surveys were run with the Geonics EM-17 using a coil separation of 200 or 300 feet and a frequency of 1600 Hertz. The sample interval in these surveys was 100 feet, 50 feet in anomalous areas, along lines spaced every 400 feet. A total of 21 diamond drill holes were sunk to test EM anomalies; the source of the anomalies was mainly iron formation.

In 1988, McKinnon Prospecting held claim blocks which covered 50% of Casselman Township and 5% of Slack Township. A combined airborne magnetic and VLF-EM survey was flown over the property along northeast-southwest lines spaced every 440 feet; no followup work was reported.

Minor gold exploration was carried in the 1950's, and in 1991 to investigate anomalous gold values in some of the Mattagami drill holes.

There has been no previous work carried out on the Fenton 2 property.

## **SURVEY DESCRIPTIONS**

An eight hundred metre long base line, at an orientation of 40°Az, was established in the middle of claim 1226731. Orthogonal grid lines were cut every 100 metres and tie lines were cut at the northwest and southeast edges of the grid; all of the lines were picketed every 20 metres (Figure 1(b)).

The magnetic readings were taken every 10 metres with a Scintrex IGS-2/MP-4. This instrument is a proton precession magnetometer which measures the earth's total magnetic field to an accuracy of 0.1 gammas. Diurnal variations were monitored every 10 seconds with a Scintrex MP-3 base station magnetometer, located to the northwest of the property on the Swanson Road. A total of 949 readings were taken along 9.3 kilometres of line.

The horizontal loop EM survey was carried out with the Apex Parametrics MaxMin I-5. This instrument measures the in-phase and quadrature components of the secondary field as a percentage of the primary field; the depth of penetration is approximately half of the coil separation. Readings were taken every 20 metres along all of the grid lines using a coil separation of 160 metres and frequencies of 444 and 1777 Hertz. A total of 261 stations were read along 6.9 kilometres of line.

#### **HLEM RESULTS**

The results of the HLEM survey are presented on maps 1 and 2 at a scale of 1:5000; the profile scale is 1cm = 20% for both frequencies. The 444 Hertz results are also presented in Figure 2 at a scale of 1:10000. There were three conductors detected in the survey, which are labelled anomaly 'A', 'B' and 'C' on the maps.

Anomaly 'A' strikes north-south between 130 West on Line 300 North and 300 West on Line 200 North.

The source of the anomaly is interpreted as a narrow zone of fair to good conductivity at a depth of 48 metres (Table 2), however, the calculated parameters are probably not very accurate because of interference

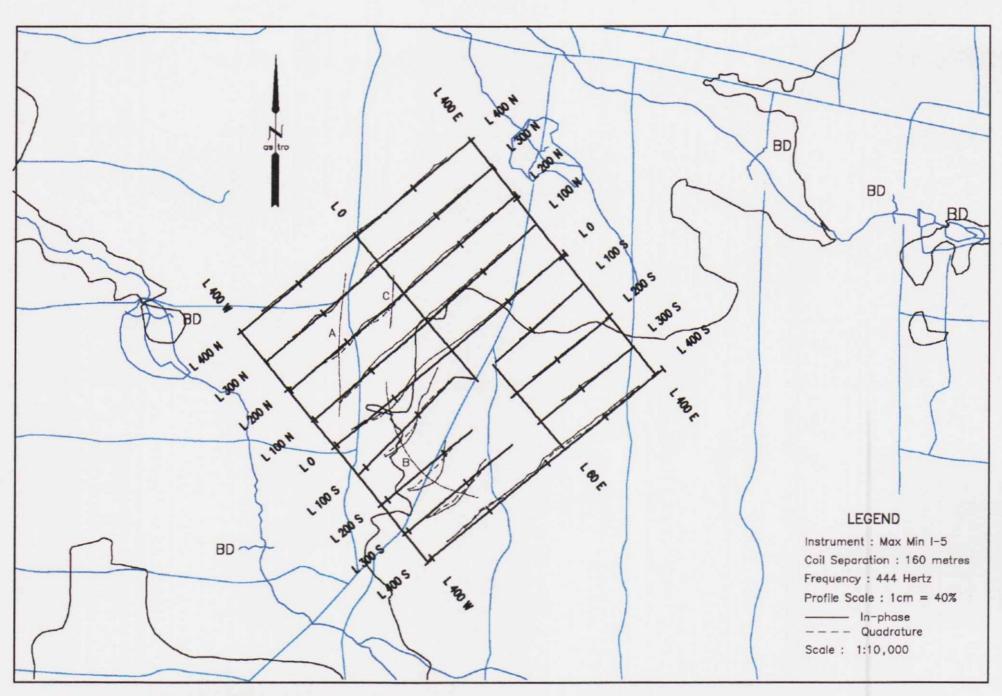


Figure 2: HLEM Survey, 444 Hertz, Fenton 2 Grid

from anomalies 'B' and 'C'. The high positive response on Line 400 North, just west of the baseline is likely an end effect from conductor 'A'. The high positive shoulder to the east on Line 300 North may be due to a shallow east dip or the possibility that both anomalies 'A' and 'C' swing to the northeast.

LINE	ANOMALY CENTER	ANOMALY WIDTH (m)	IP (%)	Q (%)	DEPTH (m)	CONDUCTIVITY THICKNESS (mhos)	COMMENTS
100 N	300 W	?	-10	-9	48	18	
200 N	220 W	narrow	-7	-10	34	7	
300 N	130 W	narrow	-12	-9	48	20	

Table 2: Anomaly 'A' Interpretation, 444 Hz, 160 metre coil separation.

Anomaly 'B' strikes northwest from 240 West on Line 300 South to 280 West on Line 100 South and then swings north to 220 West on Line 0. The source of this anomaly is good conductivity at a depth which ranges from 16 metres on Line 200 South to 40 metres on Line 300 South (Table 3). The width and dip can not be determined on Lines 100 to 300 South because the west shoulder of the anomaly is incomplete; the profiles do suggest that the width on Line 300 South is at least 20 metres. The positive response along Line 400 South suggests that the conductor swings to the northeast, south of Line 300 South.

Anomaly 'C' is a one line anomaly centered at 50 West on Line 200 North. The strike can not be

LINE	ANOMALY CENTER	ANOMALY WIDTH (m)	IP (%)	Q (%)	DEPTH (m)	CONDUCTIVITY THICKNESS (mhos)	COMMENTS
300 S	365 E	?	-19	-10	40	35	
200 S	365 E	?	-36	-16	16	52	
100 S	330 E	?	-25	-13	30	37	
0 N	310 E	narrow	-17	-14	32	18	

Table 3: Anomaly 'B' Interpretation, 444 Hz, 160 metre coil separation.

determined, however it is likely north-south, parallel to the magnetics and EM anomaly 'A'; a survey along Line 0 East should accurately define the strike.

The source of the anomaly is fair conductivity at a depth of 56 metres (Table 4). The width and dip of the zone is difficult to determine because of interference from anomaly 'A', to the west.

LINE	ANOMALY CENTER	ANOMALY WIDTH (m)	IP (%)	G (%)	DEPTH (m)	CONDUCTIVITY THICKNESS (mhos)	COMMENTS
200 N	50 W	?	?	?	?	?	

Table 4: Anomaly 'C' Interpretation, 444 Hz, 160 metre coil separation.

## **MAGNETIC RESULTS**

The magnetic results are posted and contoured every 25 nT on Map 3 at a scale of 1:5000. The results are also presented in Figure 3 at a scale of 1:10,000.

The magnetics trend north-south and increase from east to west over most of the survey area, except in the south where they swing to an east-west direction, similar to EM anomaly 'B'. The strongest magnetic response on the property is a east-west anomaly in the southwest corner of the grid; EM anomaly 'B' is located on the east flank of this anomaly on Lines 0, 100 and 200 South and coincides with it on Line 300 South. EM anomalies 'A' and 'C' do not have coincident magnetic responses.

There is no evidence of a northeast strike, parallel to the survey lines, which is suggested by the EM profiles.

Nov. 17/28

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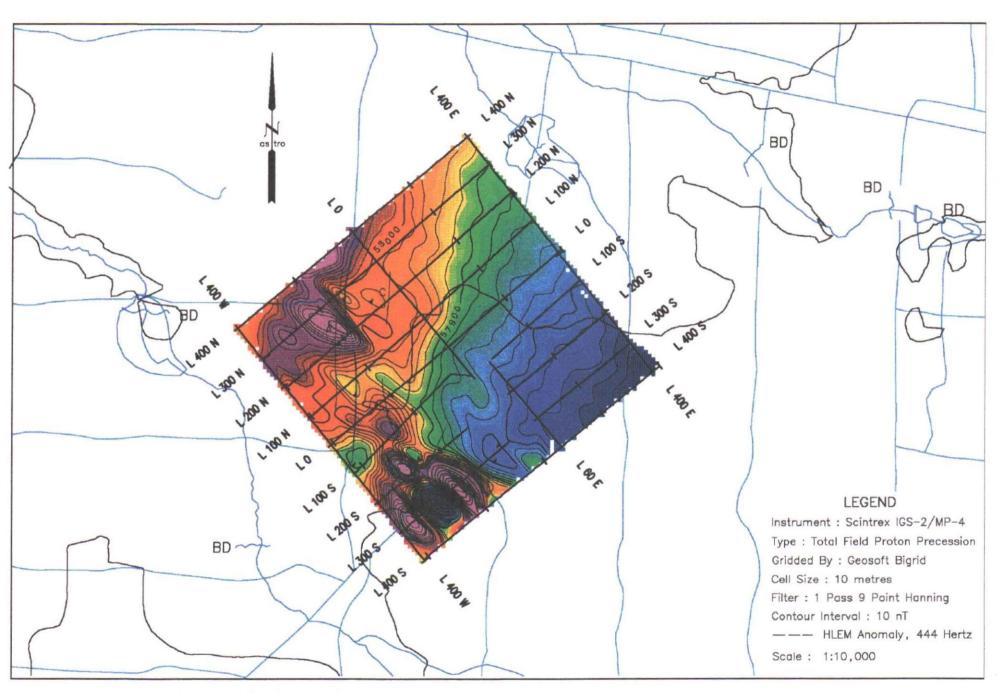


Figure 3: Colour Image of Total Magnetic Field, Fenton 2 Grid

#### **REFERENCES**

Bennett G., Brown D.D., George P.T. and Leahy E.J.

1967: Hearst-Kapuskasing Sheet; Ontario Division of Mines, Geological Compilation Series, Map 2166, scale 1" = 4 miles.

Hogg, N.

1948: Geology of Portion of Fenton Township, District of Cochrane; Ontario Department of Mines, Preliminary Report, P.R. 1948-1

McMurchy, R.C.

1960: Geology of the Saganash Lake, Wakusimi River Area; Ontario Department of Mines, Annual Report, Volume LXIX, Part 3

Thurston P.C., Sage R.P. and Siragusa G.M.

1975: Chapleau-Foleyet Sheet; Ontario Division of Mines, Geological Compilation Series, Map 2221, scale 1" = 4 miles.



## **Declaration of Assessment Work** Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use) 10060,00023 Assessment Files Research Imaging



P.O. Box 1140, Kidd Creek Minesite Drop 702, Timmins P4N 7H9

0241 (03/97)

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of subsection 65(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, ie assesment work and correspond with the mining land holder. Questions about this f Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury,

200

Instructions: - For work performed on Crown Lands before recording a claim, use form 0240. - Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary) Name Client Number Falconbridge Limited 130679 Address Telephone Number (705) 264-5200 Ext. 8242 P.O. Box 1140, Kidd Creek Minesite **Drop 702** Fax Number Timmins, Ontario P4N 7H9 Client Number Name Address Telephone Number Fax Number **Type of work performed:** Check (✓) and report on only ONE of the following groups for this declaration. Geotechnical: prospecting, surveys, Physical: drilling stripping, Rehabilitation assays and work under section 18 (regs) trenching and associated assays Work Type Office Use Linecutting, Magnetic Survey, HLEM Survey Commodity Total \$ Value of Work Claimed 98 na October **Dates Work** 24 June То 98 From NTS Reference Day Month Year Performed Day Global Positioning System Data (if available) Township/Area Fenton Mining Division M or G-Plan Number Resident Geologist District Please remember to: - obtain a work permit from the Ministry of Natural Resources as required; - provide proper notice to surface rights holders before starting work; - complete and attach a Statement of Costs, form 0212; - provide a map showing contiguous mining lands that are linked for assigning work; - include two copies of your technical report. JAM 27 2000 GEOSCIENCE ASSESSMENT OFFICE Person or companies who prepared the technical report (Attach a list if necessary) 3. Name Telephone Number Doug Londry, Timmins Geophysics Ltd. (705) 523-5479 Address Fax Number 547 Loach's Road, Sudbury Ontario, P3E 2R3 (705) 523-5479 Name Telephone Number JAN Address Fax Number 25 Telephone Number PORCUPINE MINING DIVISION Name Address **Certification by Recorded Holder or Agent** Michael Collison , do hereby certify that I have personal knowledge of the facts set forth in (Print Name) this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true. Signature of Recorded Holder or Agent Date 0 Agent's Address Telephone Number Fax Number

apr 24/2000

(705) 264-5200 Ext. 8242

(705) 267-8874

mining lan olumn the	aim Number. Or if done on other eligible d, show in this elocation number on the claim map.	Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of wor to be distributed at a future date
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# **Statement of Costs** For Assessment Credit

Transaction Number (office use)	
W8060.00022-	

Personal information collected on this form is obtained under the authority of subsection 6 (1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, this information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to a Provincial Mining Recorder, Ministry of Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of work  Depending on the type of work, list the number of hours/day worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
Linecutting	9.3 km	\$305/km	\$2837
Magnetic Survey	9.3 km	\$107	\$995
ILEM Survey	6.9 km	\$177	\$1221
Report Charge		\$535	\$535
Grid planning, grid spotting, contract and environmental compliance	2 days	\$250/day	\$500
Associated Costs (e.g. supp	olies, mobilization and demobilization).		
Trans	sportation Costs		
Fruck Rental		\$30/day	\$60
Gas			\$50
Food a	and Lodging Costs		
	Total \	/alue of Assessment Work	\$ 6198
Calculations of Filing Discounts:		20011	
2. If work is filed after two years ar	erformance is claimed at 100% of the above To nd up to five years after performance, it can only his situation applies to your claims, use the calc	y be claimed at 50% of the To	
TOTAL VALUE OF ASSESSMENT	WORK x 0.50	Total \$ value of	worked claime
	ired to verify expenditures claimed in this staten cation. If verification and/or correction/clarification		of a request for ster may reject
Certification verifying costs:			
I, Michael Collison	, do hereby certify, that the amounts	shown are as accurate as ma	ay reasonably
(please print full name) be determined and the costs were	incurred while conducting assessment work on	the lands indicated on the ad	companying
Declaration of Work form as Ago,	nt / Project Geologist I am authori:	zed to make this certification.	
Declaration of Work form as Ager	oned halder again or state company position with signing authorit	ty)	

PORCUPINE MINING DIVISION

4:10Am

Ministry of Northern Development and Mines Ministère du Développement du Nord et des Mines

March 1, 2000

Dear Sir or Madam:

Mike Collison FALCONBRIDGE LIMITED P.O. Box 1140, Kidd Creek Mine site Drop 702 Timmins, Ontario P4N 7H9



Geoscience Assessment Office 933 Ramsey Lake Road 6th Floor Sudbury, Ontario P3E 6B5

Telephone: (888) 415-9845 Fax: (877) 670-1555

Visit our website at: www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

Submission Number: 2.20011

**Status** 

Subject: Transaction Number(s): W0060.00022 Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact STEVE BENETEAU by e-mail at steve.beneteau@ndm.gov.on.ca or by telephone at (705) 670-5855.

Yours sincerely,

ORIGINAL SIGNED BY

Blair Kite

Supervisor, Geoscience Assessment Office

Mining Lands Section

# **Work Report Assessment Results**

**Submission Number:** 

2.20011

Date Correspondence Sent: March 01, 2000

Assessor: STEVE BENETEAU

Transaction Number

First Claim

Number Township(s) / Area(s)

Status

**Approval Date** 

W0060.00022

1226739

FENTON

Approval

March 01, 2000

Section:

14 Geophysical MAG14 Geophysical EM

Correspondence to:

Resident Geologist South Porcupine, ON

Assessment Files Library

Sudbury, ON

Recorded Holder(s) and/or Agent(s):

Mike Collison

**FALCONBRIDGE LIMITED** 

Timmins, Ontario

