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**MINISTRY OF NORTHERN  
DEVELOPMENT AND MINES**

**MAR 17 1991**

**INCENTIVES OFFICE**

REPORT ON THE OTTO TOWNSHIP  
PROPERTY  
LARDER LAKE MINING DIVISION  
FOR  
WILLIAM BIRNIE

Stewart J. Carmichael B.Sc., FGAC  
Kirkland Lake, Ontario

February 26, 1991  
NTS 41 P/16, 42A/1  
OPAP # OP90-367

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(1)

### SUMMARY

This report on the Otto Township property has been prepared by S.J. Carmichael, B.Sc., FGAC at the request of William Birnie, 42 Churchill Drive, Apt. 217, Kirkland Lake, Ontario, the registered owner of the claim group. It is intended to complete the OPAP reporting obligations, of which Mr. Birnie has applied for, and been accepted for a total sum of \$10,000.00 (ten thousand dollars) Mr. Birnie's OPAP grant number is OP90-367. The grant was approved in May of 1990.

The property is comprised of fourteen contiguous claims, eight of which have been brought to lease. Because Otto Township is a surveyed township, a perimeter legal survey is not required for lease status. The remaining claims require varying amounts of assessment work for lease status. The total area of the group is approximately 560 acres.

The claims are located in the northwest portion of Otto Township, District of Timiskaming, Larder Lake Mining Division, approximately 1.5 miles southwest of Swastika within Lot 12, concessions IV & V.

Mining exploration in Otto Township has been extensive, given its close proximity to Kirkland Lake. Despite these efforts, the only recorded production is from the Gateford Mines property located at the north end of Otto Lake. Given the favourable geology of the area, exploration, mainly for gold, continues. The claims held by Mr. Birnie lie adjacent to, and along strike of documented showings of both gold and copper and a program of washing and sampling of areas stripped by Mr. Birnie under the recently completed OPAP grant are recommended along with ground geophysics and geological mapping to further explore the property are recommended. This program is estimated to cost \$8350.00 (eight thousand three hundred and fifty dollars).

Report on the Otto Township Property  
Larder Lake Mining Division  
for  
William Birnie

INTRODUCTION

This report on William Birnie's Otto Township mining exploration property has been prepared by S.J. Carmichael at the request of Mr. Birnie. It is a geological assessment of the property intended to fulfil final OPAP reporting guidelines. An appropriate exploration program and budget has been included for additional OPAP funding.

Information on the property is derived from the records of the Ministry of Northern Development and Mines and publications by the Ontario Geological Survey. Although the author was unable to visit the property, he is very familiar with the area having supervised many exploration programs in the Kirkland Lake area and in particular in Otto Township. All work on the claims was performed between August 1 and November 16, 1990. Eighty percent of the intended work program was completed by Mr. Birnie, however, the final phase of washing and sampling of the stripped areas was not completed due to a combination of mechanical problems (due to low wet ground which delayed property access)

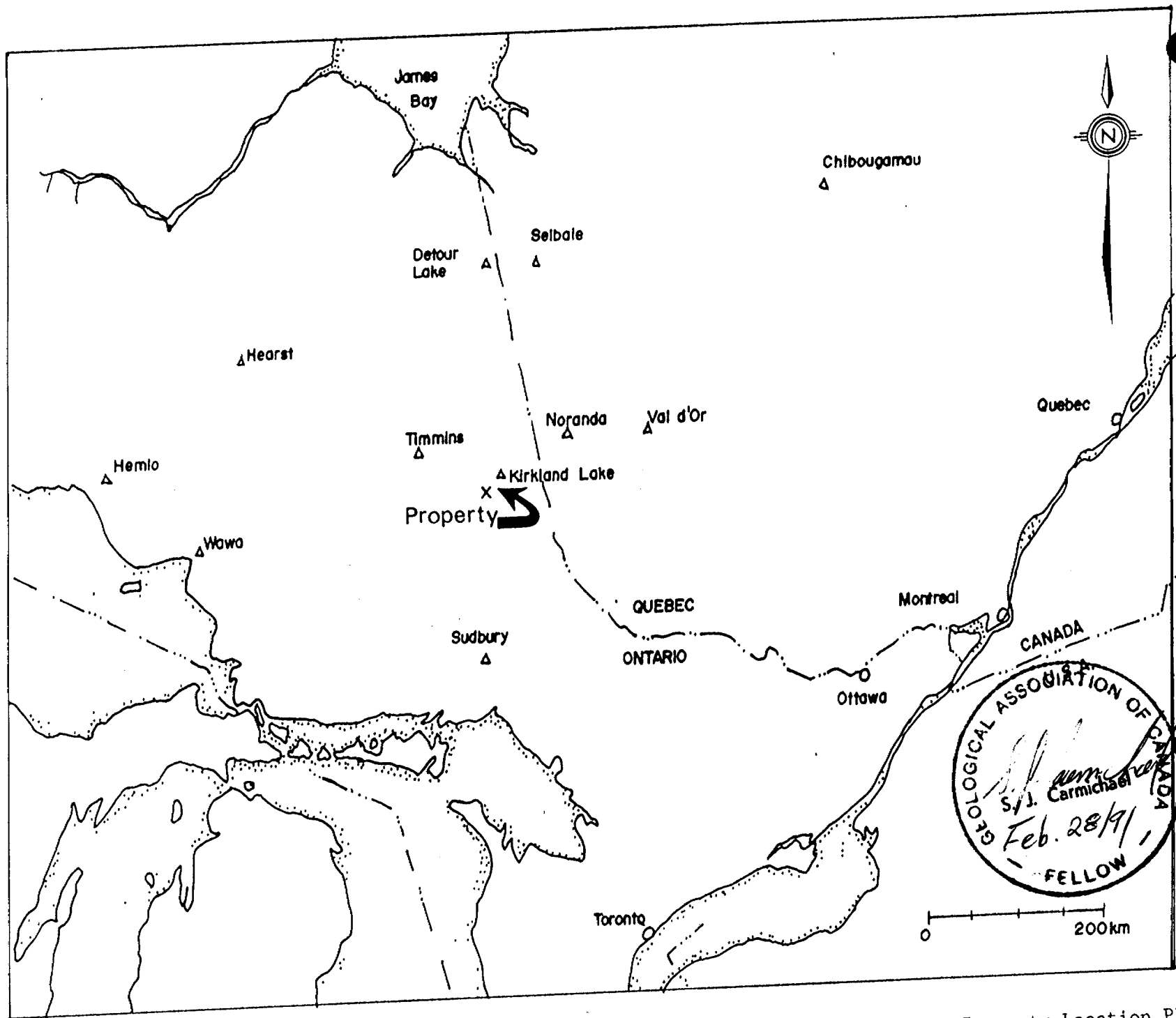


Figure 1 Property Location Plan

and seasonal constraints. Additional work aimed at pinpointing airborne geophysical surveys is also recommended.

#### PROPERTY LOCATION ACCESS AND FACILITIES

The Birnie claim group is located in the northwest of Otto Township (NTS 41P/16, 42A/1), District of Timiskaming and within the Larder Lake Mining Division approximately 1.5 miles southwest of Swastika. Access to the property is from a tote road which heads north to the claims from the Otto road #1, one thousand feet west of highway 11. Much time was spent refurbishing the tote road, including the installation of culverts to gain access to the claims. Alternative access is by the Otto Lake Road which is located just west of Swastika and leads southwest to the eastern claims.

Numerous beaver dams and creeks occur throughout the claims providing an ample supply of water for diamond drilling and sluicing of outcrops. Facilities capable of supporting a mining operation on the property are not present on the property but are available in Kirkland Lake.

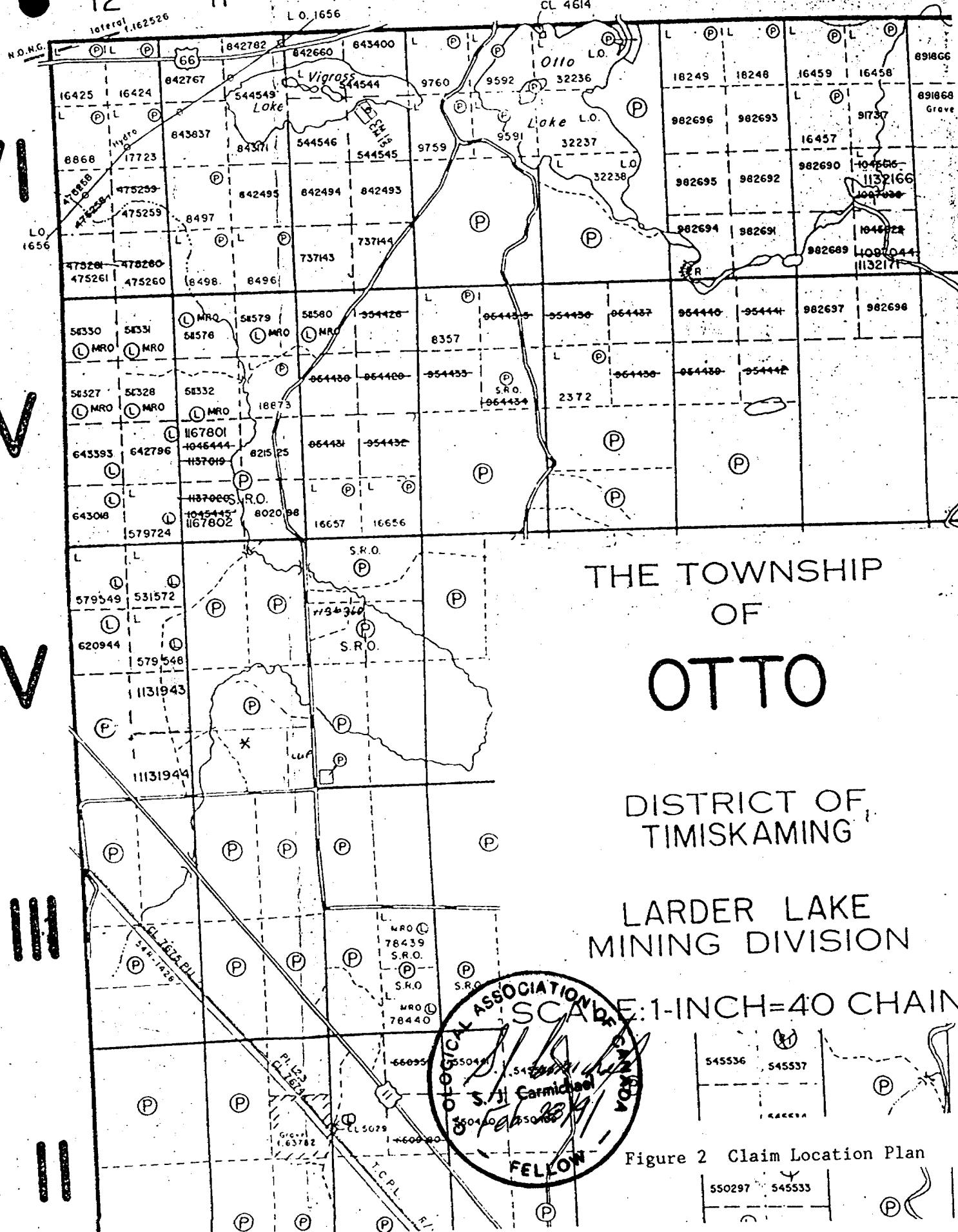
#### TOPOGRAPHY

Bedrock outcrops over the north half of the claims and creeks, dammed by beavers have resulted in swampy low ground over the central and southern portions of the property.

#### LAND TENURE AND OWNERSHIP

The Otto property comprises 14 staked contiguous mining claims with a total area of approximately 560 acres. Eight of these claims have been brought to lease. The claim numbers, recorded

12 11 10 9 8 7 6



VI  
V  
IV  
III  
II

THE TOWNSHIP OF OTTO

DISTRICT OF TIMISKAMING

LARDER LAKE MINING DIVISION

GEOLOGICAL ASSOCIATION OF CANADA  
 S. J. Carmichael  
 FEB 28 1954  
 FELLOW

SCALE: 1-INCH=40 CHAINS

Figure 2 Claim Location Plan

dates and applied assessment credits are listed in the following table:

CLAIM NUMBER	RECORDED DATE	APPLIED CREDITS	NOTES
L-531572	July 9, 1979	200 days	Brought to lease on April 25, 1986
L-579548	November 4, 1980	200 days	Brought to lease on April 25, 1986
L-579548	November 4, 1980	200 days	Brought to lease on April 25, 1986
L-579724	November 17, 1980	200 days	Brought to lease on April 25, 1986
L-620944	October 30, 1981	200 days	Brought to lease on August 1, 1990
L-643393	December 14, 1982	200 days	Brought to lease on August 1, 1990
L-642796	December 14, 1982	200 days	Brought to lease on August 1, 1990
L-643018	May 20, 1982	200 days	Brought to lease on August 1, 1990
L-821525	October 9, 1984	145 days	Under extension until August 30, 1991
L-802098	July 13, 1984	200 days	Lease application not made
L-1167801	December 17, 1990	0 days	20 days work required by Dec.17, 1991
L-1168802	December 17, 1990	0 days	20 days work required by Dec. 17, 1991
L-1131943	April 27, 1990	0 days	20 days work required by April 27, 1991
L-1131944	April 27, 1990	0 days	20 days work required by April 27, 1991

All stripping performed during the past year was on leased ground and additional work on the remaining non-leased claims will be required this year to maintain good standing.

#### PROPERTY HISTORY

Government geological mapping of Otto township was initiated in 1914 by Burrows and Hopkins followed by Thomson (1948) and Lovell (1972). The most useful of these programs was by Lovell with accompanying map 2239 (Eby and Otto Townships) at a scale of 1" = 1/2 mile.

Little previous work has been filed on the Birnie claims, however much work has occurred on the claims adjacent to the north boundary of the group. In 1948, the Todora Kirkland Prospecting syndicate completed geological mapping, trenching and diamond drilling on claims immediately to the north and west of the



Birnie group. A shaft was sunk to a depth of 112 ft. on present claim 511327 with reported grab samples assaying 5.32% to 13.39% copper. In 1948, Macassa Mines optioned the property and completed a number of drill holes in the shaft area, all of which returned negligible gold and copper assays, putting some question as to the validity of Todora's work. In 1971, Thas Gudrie completed some trenching on Birnie's present claim 579549 but there is no record of any assaying completed. Mr. Birnie has completed trenching on his claims which have been brought to lease and reported gold assays up to 0.5 opt Au from float and grab samples from some of the trenches. Unfortunately, these assays have not been properly located. Birnie also reports the occurrence of visible gold from his claims. Cook (GSC, 1919) reports platinum mineralization in a band of tuffs and agglomerate in lot 12, concession IV (within the Birnie claims) and probably close to the areas recently stripped by Birnie.

In 1979, the township was flown by an Airborne EM and magnetic survey.

This survey shows a series of moderate to strong EM anomalies associated with a roughly circular magnetic high, the implications being a gabbroic intrusive with massive sulfide mineralization. Little work has been directed towards these anomalies, however prospecting by Birnie has uncovered sulfide mineralization in the immediate area.

#### REGIONAL AND PROPERTY GEOLOGY

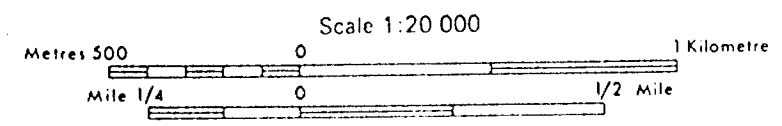
The Birnie claims are underlain by Archean felsic meta-volcanics and sediments of the Skead Group and ultramafic volcanics of the

ONTARIO GEOLOGICAL SURVEY  
PRELIMINARY MAP P.22

# KIRKLAND LAKE AREA OTTO TOWNSHIP

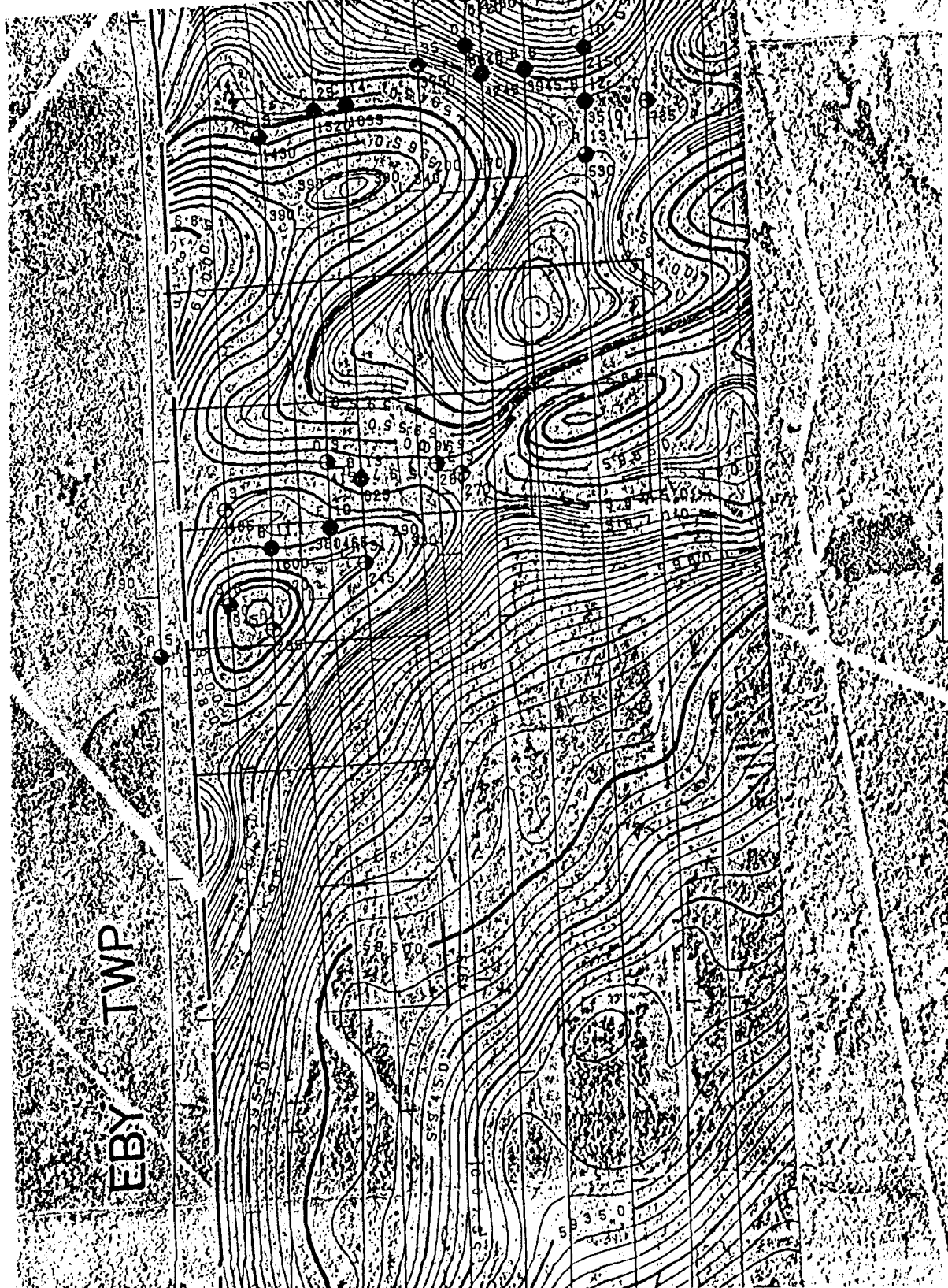
## Airborne Electromagnetic Survey Total Intensity Magnetic Survey

DISTRICT OF TIMISKAMING



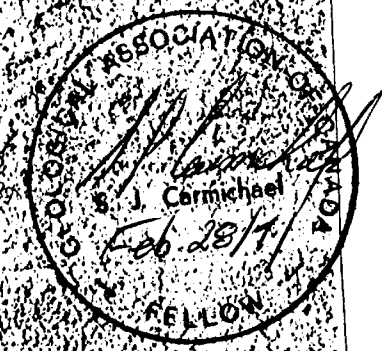
NTS Reference: 42A/1  
ODM-GSC Aeromagnetic Map: 289G (Rev)  
ODM Geological Compilation Map: 2205

© OMNR-OGS-1979



50 GAMMA CONTOUR LINE  
500 GAMMA CONTOUR LINE  
MAGNETIC DEPRESSION  
FLIGHT ALTITUDE 400' ABOVE TERRAIN

- 6 Channel Anomaly
- 5 Channel Anomaly
- 4 Channel Anomaly
- 3 Channel Anomaly
- 2 Channel Anomaly
- 1 Channel Anomaly
- Magnetic Correlation



Anomaly Letter B, 5  
1800

Figure 3

Larder Lake Group. The extreme southern portion of the claims are underlain by part of the Otto Stock, the contact of which is located on claim L-620944. A major northeast trending structure appears to have caused carbonatization with associated quartz veining marginal to the structure. Birnie reports andesitic to rhyolitic volcanics cut by quartz veining along with gabbro on some of the stripped areas.

#### 1990 EXPLORATION PROGRAM

Much of the initial work by Mr. Birnie involved road access into the property including the placement of three culverts. Bulldozer access was complicated by the low swampy ground which hindered access. Upon completing the access to the claims, a total of seven areas were stripped totalling approximately 16,000 sq.ft. Although Mr. Birnie was unable to complete sampling of the stripped areas, he did briefly note the rock types, which are shown on the accompanying map.

#### SUMMARY AND RECOMMENDATIONS

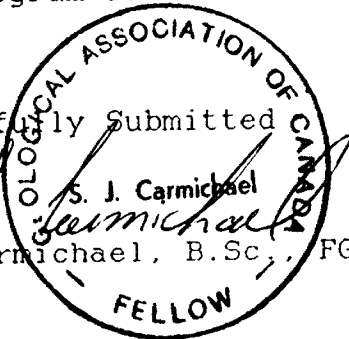
The potential for gold and base metal mineralization is apparent, given the results of the airborne geophysical survey, government geological mapping and previous work on the adjoining claims. It is recommended that Mr. Birnie complete the washing of his stripped area and follow this by sampling (both grab and channel) over mineralized areas. It appears as though little attention has been given to the input anomalies in association with magnetic highs and given the reported occurrence of platinum mineralization, some effort should be made in pinpointing these

anomalies for either future stripping or diamond drilling.

Therefore, a program of line cutting followed by Max Min II, and magnetometer is recommended over part of the claim group. Mr. Birnie may also be advised to have the stripped and gridded areas mapped, or at least examined by a geologist.

This program is estimated to cost \$8350.00.

Respectfully Submitted  
*S. J. Carmichael*  
S.J. Carmichael, B.Sc., FGAC



PROPOSED EXPLORATION PROGRAM FOR 1991

Line Cutting - 4 miles @ \$400.00/mile.....	\$1600.00
Max Min II Survey - 3.5 miles @ \$300.00/mile.....	1050.00
Magnetometer Survey 3.5 miles @ \$200.00/mile.....	700.00
Geological Mapping 7 days @ \$250.00/day.....	1750.00
Outcrop Washing 7 man days @ \$100/day.....	700.00
Pump Rental 7 days @ \$50.00/day.....	350.00
Prospecting 7 days @ \$100.00/day.....	700.00
Assaying.....	500.00
Reports and Drafting.....	1000.00
TOTAL.....	<u>\$8350.00</u>

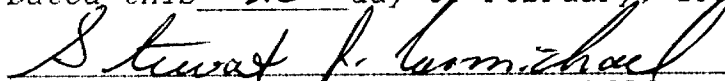
Appendix A

**CERTIFICATE OF QUALIFICATIONS**

I, Stewart J. Carmichael, of the Town of Kirkland Lake, in the District of Timiskaming, in the Province of Ontario, Canada, do hereby certify that:

- 1) I am a consulting geologist with address P.O. Box 271, Swastika, Ontario, P0K 1T0.
- 2) I am a graduate of McMaster University, Hamilton, Ontario, having received the degree of Bachelor of Science, Geology from the Faculty of Science in 1982. I have since practised in the field of mineral exploration continuously since graduation.
- 3) I am a Fellow of the Geological Association of Canada.
- 4) I have no direct interest, nor do I expect to receive any interest in the Birnie claims.
- 5) In addition to my personal knowledge of the area, I have made use of the records of the Ministry of Natural Resources of Ontario, and of Mr. Birnie's records in the preparation of this report.

Dated this 28 day of February, 1991

  
Stewart J. Carmichael, B.Sc., FGAC



APPENDIX B  
BIBLIOGRAPHY

1. Cooke, M.F.  
1919: Exploration of the Townships west of Kirkland Lake, Ontario; Geol. Surv. Canada, Summary Report, 1919, pt. E, p.18E-19E.
2. Jenson, L.S., and Langford, F.F.  
1985: Geology and Petrogenesis of the Archean Abitibi Belt in the Kirkland Lake Area, Ontario; Ontario Geological Survey, Miscellaneous Paper 123, 130p.
3. Lovell, H.L.  
1972: Geology of the Eby and Otto Area, District of Timiskaming; ODM, GR99, 30p. Accompanied by Map 2239, scale 1 inch to 1/2 mile.
4. OGS  
1979: Airborne Electromagnetic and Total Intensity Magnetic Survey, Kirkland Lake Area, Otto Township, District of Timiskaming, by Questor Surveys Limited for the Ontario Geological Survey, Prelim. Map P.2269 Geophys. Ser., scale 1:20,000. Survey and Compilation, February and March 1979.
5. Thomson, Jas. E  
1948: Geology of Teck Township and the Kenogami Lake area, Kirkland Lake gold belt; ODM Vol 57 pt. 5, p. 1-53.