J. B. BONIWELL
EXPLORATION GEOPHYSICAL CONSULTANT

41P14NW0018 2.456 SOTHMAN

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ONTARIO, CANADA
278-1545

REPORT OF I.P. SURVEY

SIROLA OPTION (23 CLAIM GROUP), SOTHMAN TWP., ONTARIO

FOR

CANEX AERIAL EXPLORATION LIMITED

BY

J. B. Boniwell

Exploration Geophysical Consultant

- MAY 20, 1971 -

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PROJECTS SECTION

INTRODUCTION

Previous investigations within the subject claim group had revealed the presence of a substantial asbestos-bearing ultrabasic intrusion. However, the quality and grade of the asbestos fibre encountered in three test holes of drilling fell short of making ore; thus, ways and means of improving the definition of asbestos mineralization in what potentially could be commercial quantities were sought as a matter of priority.

One of the approaches attempted was surveying by induced polarization in the area of immediate interest. This work was based on the proposition that zones of increased serpentinization within the ultrabasic body could signify increased chances in asbestos incidence and concentration, and that such zones would be sensitive to the I.P. method. If so, the I.P. data would be complementary to the magnetic and gravimetric measurements earlier collected, the combination thereby offering the improved detection capability sought.

While possibilities in asbestos mineralization formed the prime consideration of this I.P. surveying, there remained outside chances for nickel; particularly at the ultrabasic contacts and particularly in those sectors previously untested for it. Thus the presentation of the I.P. results contained herein needs very much to be viewed in the context of the total exploration effort, and the work that preceded the present survey.

DESCRIPTION OF PROPERTY

The subject property is composed of 23 contiguous claims, all nominally 40 acres, the group so formed occupying a central sector of Sothman Township, Larder Lake Mining Division, District of Sudbury. However the present survey results only pertain to the following eight claims of this group, the restricted coverage reflecting the increasingly localized exploration interest:

L 213549, 242415, 242417, 242418, 242419, 242420, 242421, 242422.

The above claims part-occur in Sothman Lake; otherwise they are characterized by typical forest growth of spruce and fir, birch and poplar. Glacial cover is widespread, and could in places attain considerable thickness. (136' vertically in one hole on line 44S)

WORK UNDERTAKEN

The present I.P. coverage was effected with a pole-dipole electrode array, applied with an 'a' spacing of 200' for n=1. Measurements were achieved with pulse transient equipment with a power rating of 2.5 kva (Scintrex model). A Newmont-type receiver was employed synchronized to the 2 sec-on, 2 sec-off power cycle. Coverage itself was obtained on two separate sub-grids, one oriented east-west (north-south lines), the other north-south (east-west lines), lines being spaced 400' for the former and 800' for the latter. A total of 3.4 line miles of profiling was completed in this surveying, undertaken in the period 26th February - 6th March 1971.

DISCUSSION OF RESULTS

Somewhat predictably, considerable relief in both chargeability and resistivity was found to typify the ultrabasic setting. Also as might be expected, these changes tended to be erratic in occurrence and appearance from line to line. What is a little surprising is the amount of contrast that exists in the extreme: in chargeability from 4-6 msecs. in background to 90 msecs. peak anomaly; in resistivity, from a low of 60 ohm-metres to a maximum of 11,000 ohm-metres. Since in many respects these contrasts are a measure of the degree of alteration within the ultrabasic itself, particular attention needs be given their distribution and extent.

It is fairly evident that the country rocks here are being represented by the very high resistivities and low chargeabilities that have been recorded together, notably on the west side of the coverage on the east-west lines. On the north-south lines the corresponding resistivities do not appear as high but the chargeabilities remain as low as ever. It is thus a possibility that the extremely high resistivities where observed in the wall rocks express a local silicification in the contact zone of the intrusive.

Against such background, the generally low resistivities and increased chargeabilities of the ultrabasic find strong, sometimes dramatic contrast. The difficulty nonetheless is to establish characteristic backgrounds for the intrusive proper against which superimposed anomalies can be evaluated. The difficulty is due to the many local irregularities in response occurring within the intrusive, as already noted. However, it is possible to take a gross average, and approximately 15 msecs. in chargeability, and 350 ohm-metres in resistivity appear, by and large, as levels that could be realistically called symptomatic of the peridotite rock-type.

Quite clearly, recognition of such backgrounds within the ultrabasic renders much of the observed polarization effects therin highly anomalous. This is particularly true of the east-west lines. By contrast, the north-south lines are subdued, even in a sense, regular, and the amount of anomaly that exists on them is exceedingly modest. In fact, it appears confined to lines 52E and 56E only, the two most easterly lines

and whereon the anomaly appears more or less as a tail to the main body of response lying to the east and north of it. Certainly the magnetics indicate that the intrusive here is relatively narrow and dyke-like in its occurrence.

Completely different however is the I.P. anomaly obtained on the east-west lines. While there is a relatively common relationship of chargeability high with resistivity low as before, here it is far from a regular nor a necessary condition, and the anomaly resolutions themselves vary enormously. In some instances, peak chargeability anomaly can be directly attributed to magnetite concentrations, as notably on line 36S just immediately west of the B.L. But more often, chargeability response is centred within the main magnetic body independent of the local magnetite distribution. This leads to the not unexpected conclusion that serpentine is a major component in the I.P. relief. Thus it is consistent to the drill data that the extensive serpentinization encountered in the two holes on the line 44S section finds correlation with a broad region of polarization that at 30 msecs. is about twice background for the ultrabasic host setting. In this same region, the attendant resistivities hover around 100 ohm-metres, or that is, noticeably lower than the prescribed background for resistivities.

Projecting this relationship to other lines of the sub-grid, it is reasonable to infer that more intensive serpentinization underlies the stronger and far more finitely resolved anomaly situations on lines 28S and 4S. In both these cases, discretely peaking chargeability highs of 3-4 times background correlate closely with resistivity lows dipping below 100 ohm-metres (to 55 ohm-metres minimum). Since it has been one of the hopes of the geophysical work, including the earlier gravity coverage, that increased serpentinization could lead to increased probabilities in asbestos mineralization, this apparent definition of fairly precise zones of just this manner of alteration patently provides the type of target sought. In comparison to them, the anomalous response on the remaining lines 12S, 20S and 36S offer lesser chances; indeed for lines 12S and 36S they are apparently less than the control drill-section 44S. Line 20S provides good chargeability anomaly in a peak expression (65 msecs), but the accompanying resistivity (approximately 350 ohm-metres) is at background levels. While this may eventually prove to be a significant occurrence in terms of fibre incidence and quality, the relationship obviously is much more uncertain, and

importantly, so is the strike-potential. As for lines 12S and 36S, it is clear that the first is a return to the modest levels of response previously seen on the north-south lines. A narrowing or even a pinching out of the ultrabasic intrusion, possibly under structural influences, apparently exists here (on the magnetic evidence). Line 36S for its part has recorded unusually erratic and untypical resistivities east of the BL. A number of small zones alternating between high and low serpentine content appears indicated. Again the potential for economic quantities of fibre appears limited in such circumstances.

From the stand point of nickel sulphides, the I.P. data as a whole do not offer any expressions of specific promise. That is, no chargeability anomaly has been picked up distinctively associated with the ultrabasic contact at any point. One of the anomalies closest to qualifying is the aforementioned peaking west of the BL on line 36S, and this anomaly has already been drilled, in part to test this very possibility. However insofar as this hole (DDH 119-1) did not actually intersect the ultrabasic contact, it could be argued that the inherent sulphide possibilities have not been exhausted; nevertheless as it turns out, the drill hole has adequately explored the chargeability response and therefore if sulphides do exist in the immediate contact setting, they must be so minor as to give no I.P. effect. Within the limits of the survey, this circumstance thus appears typical.

As for the ultrabasic intrusion itself, the drilling completed in it shows that the ultramafic material generally is carrying no more than the normal amounts of nickel, viz. approximately 0.25 % with at least half of it in the silicate form. No potential is implicit.

CONCLUSIONS AND RECOMMENDATIONS

Previous to this reporting, it had already been concluded from the results of this survey that the strong chargeability highs obtained in association with marked resistivity lows within the ultrabasic intrusive setting represented zones of markedly increased serpentinization, zones wherein the chances of asbestos incidence and grade were potentially improved. On this basis, a diamond drill hole was located on the line 28S section (6+50E) to test the strongly resolved chargeability-cum-resistivity zone obtained thereon. The result of this drilling showed that while all the inferences about the incidence here of increased serpentinization were correct, the hoped-for relationship with asbestos fibre was not. In fact, the hole was noted more for the absence of fibre than its presence, only one or two seams being noted in the hole and none of these exceeding 1/8" width. In the face of this outcome, the premise on which the I.P. surveying had largely been based became untenable; moreover, the drill hole itself, as the latest of several drill samplings of the ultrabasic body had reduced the available space in which an ore-body could occur to uneconomic proportions. Thus, no recommendations for continued investigations in terms of asbestos are made for this grid area.

Possibilities in nickel ore, however, could remain what is lacking here is a clear indication of the probabilities but the fact is if ore-grade material exists, it almost certainly has to exist at the ultrabasic contacts to be of any interest. Here sufficient concentration of sulphides could occur to provide the requisite potential. Nevertheless, while no contact section has actually been test-drilled, there is no positive indication in either em. or I.P. to suggest that the necessary sulphides do indeed occur. Failing such expression, the question of nickel mineralization becomes a dubious quality. Its future consideration appears very much dependent on investigations being carried out in adjoining claims; but should these re-emphasize possibilities in contact sulphide mineralization, then it is recommended that the line 20S section be the focus for the renewed investigations, a section on which there is both I.P. and resistivity anomaly separately, in seemingly close proximity to ultrabasic contacts.

JBB:sm
May 20, 1971

J. B. Boniwell
Exploration Geophysical Consultant

ASSESSMENT

41P14NW0018 2.456 SOTHMAN

900

1. Type of Survey Geophysical - Induced I

2. Township or Area Sothman Township

3. Numbers of Mining Claims Traversed by Survey

L-242415 1/2 not covered L-242420

L-242417 2/3 L-242421 1/3 not covered Area of claims not covered = 3

L-242418 1/2 L-242422 1/3

L-242419 3/4 L-213549

4. Number of Miles of Line Cut 1.1 miles cut & chained
2.1 miles re-chained Flown

*5. Number of Stations Established 147

*6. Make and type of Instrument Used 2.5 KW Transmitter (Scintrex Model IPC-7) Newmont Receiver IPR-7.

*7. Scale Constant or Sensitivity

*8. Frequency Used and Power Output

9. Summary of Assessment Credits (details on reverse side)

Total 8 hour Technical Days (Include Consultants, Draughting etc.) 29

Total 8 hour Line-Cutting Days 11

allow 20 for

Calculation

29	x 7 =	203	+	11	=	214	÷	(8+3)	=	~~26.7~~ 19.5
Technical				Line-cutting				Number of claims		Assessment credits per claim

OJ

The dates listed on this form represent working time spent entirely within the limits of the above listed claims [x] Check
If otherwise, please explain

Dated: January 31, 1972 Signed: Jos. B. Sothman

Note: (A) * Complete only if applicable.
(B) Complete list of names, addresses and dates on reverse side.
(C) Submit separate breakdown for each type of survey.
(D) Submit in duplicate.

ASSESSMENT WORK BREAKDOWN

1. FIELD WORK

Type of Work	Name & Address	Dates Worked	Number of 8 hour days
I.P. Survey	F.H. Faulkner, 8 Rollins Pl. Islington, Ontario.	Feb.26-28, Mar.1,2,4,6/71	7
"	P. Makinen, 101 Crawford St. South Porcupine, Ont.	Feb.26-28, Mar.1,2,4,6/71	7
"	W.R. Taylor, R.R. #2, Red Bank, New Brunswick	Feb.26-28, Mar.1,2,4,6/71	7
"	B. Van Zoost, Wolfville, N.S.	Feb.26-28, Mar.1,2,4,6/71	7

2. CONSULTANTS

Name & Address	Dates Worked (specify in field or office)	Number of 8 hour days
J.B. Boniwell 1522 Clearwater Drive, Port Credit, Ontario.	May 20, 1971 (Report writing in office)	1

3. DRAUGHTSMAN, TYPING, OTHERS (specify)

Name & Address	Type of Work	Dates Worked	Number of 8 hour days

TOTAL 8 HOUR TECHNICAL DAYS 29

4. LINE-CUTTING & Re-Chaining

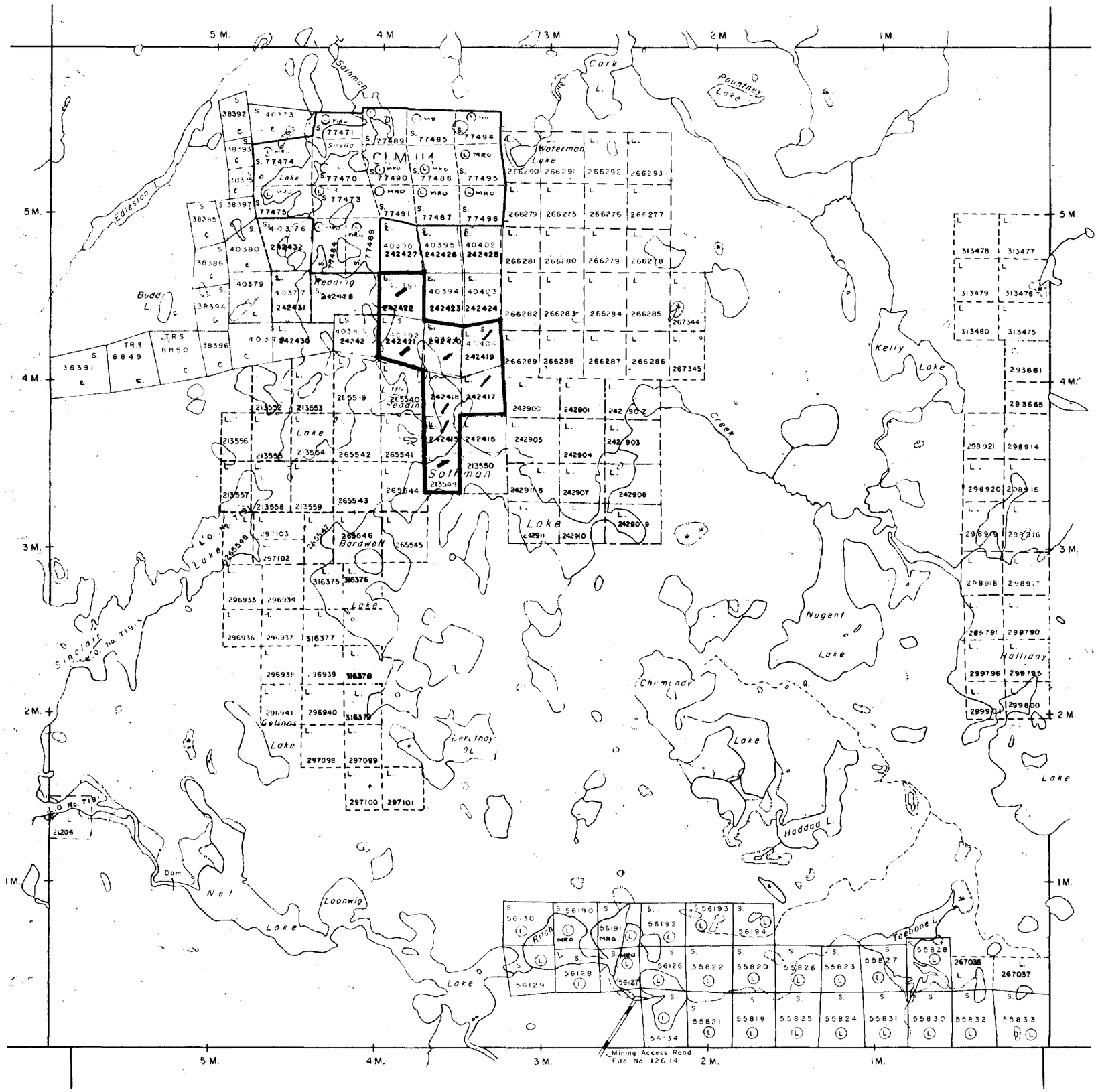
Name	Address	Dates Worked	Number of 8 hour days
F.H. Faulkner	8 Rollins Place, Islington	Feb.25, 1971	1
P. Makinen	101 Crawford St. South Porcupine, Ontario	Feb.16-18, 25, 1971	4
W.R. Taylor	R.R.#2, Red Bank, N.B.	Feb.16-19, 25, 1971	5
B. Van Zoost	Wolfville, N.S.	Feb.25, 1971	1

TOTAL 8 HOUR LINE-CUTTING DAYS 11

Semple Twp. - M. 1100

Nursey Twp. - M. 1031

Halliday Twp. - M. 910



Kemp Twp. - M. 966

THE TOWNSHIP
OF

SOTHMAN

Claim map

DISTRICT OF
SUDBURY

LARDER LAKE
MINING DIVISION

SCALE; 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.

NOTES

400 Surface Rights Reservation around all Lakes and Rivers.

Flooding Rights - L.O. No. 7191, File No. 1162, volume No. 4.

file 2.456
L.P.

DATE OF ISSUE
JUN 18 1971
ONT. DEPT. OF MINES
AND NORTHERN AFFAIRS

PLAN NO. M-1121

ONTARIO
DEPARTMENT OF MINES
AND NORTHERN AFFAIRS

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MAG. N.
ASTRO. N.

READING LAKE

ISLAND

LITTLE READING LAKE

SOTHMAN LAKE

BASELINE A (145°)

— 8+00W — 6+00W — 4+00W — 2+00W — 2+00E — 4+00E — 6+00E — 8+00E — 10+00E — 12+00E — 14+00E

L 4+00S

L.12+00S

L.20+00S

L.28+00S

L.36+00S

L.44+00S

L.60+00S

L.56+00E L.52+00E L.48+00E L.44+00E L.40+00E

L.M.00+12.00W

242422 242423 242421 242420 242419 242417 242416 242415 242418 2-42417 242900 242901 242902 242903 242904 242905 242906 242907 242908 242909 242910 242911 213549 213550

DDH 119-6 DDH 119-1 DDH 119-4 DDH 119-2A DDH 119-3

ρ_a 1000 500 100 50

Ma 75 50 25 0

ρ_a 10,000 5000 1000 500 100

Ma 100 75 50 25 0

ρ_a 3000 1000 500 100

Ma 25 0

ρ_a 100 500 1000 2000

6+00 N — 4+00 N — 0+00 — 2+00 S — 4+00 S — 6+00 S — 8+00 S — 10+00 S

Road

B.L. A' (045°)

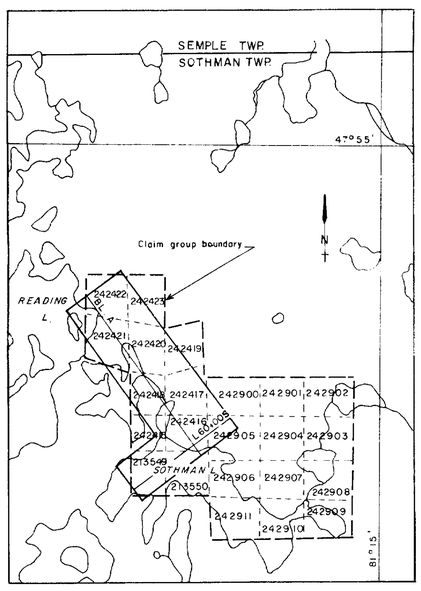
C_1 to South

C_1 to North

Creek

Road

LOCATION MAP
SCALE 1" = 2640'



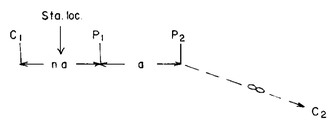
LEGEND

- Claim boundary
- Lake shore
- Road
- Location of diamond drill hole (CAEL 1970-1971)
- I.P. anomaly
- Ma, Apparent Chargeability profile Scale : 1 in. = 25 msecs.
- ρ_a ; Apparent Resistivity profile Scale : 2 ins. = 1 log cycle – ohm-meters (500 ohm-m. at the base line)

ELECTRODE CONFIGURATION

Pole-dipole Array – a = 200', n = 1

C_1 to the west on east-west lines & to the south on north-south lines except where otherwise indicated.



CANEX AERIAL EXPLORATION LTD.

I. P. SURVEY

D.E. SIROLA OPTION

23 Claim Group

SOTHMAN Twp. ONT.

LARDER LAKE MINING DIVISION

SCALE: 1" = 200'	DRAWN: D.B.
DATE : May 1971	FILE No NTS: 41-P-14 V.119

Dwg. No. 119-23-1

41P14NW9818 2.456 SOTHMAN