

2628

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 2628 MAP

REPORT ON
INDUCED POLARIZATION SURVEY
ON SOME LEM CLAIMS
IN THE HIGHLAND VALLEY AREA
BRITISH COLUMBIA
ON BEHALF OF
CYCON RESOURCE MANAGEMENT LTD.

921/70

by

Jon G. Baird, B.Sc., P.Eng.

September 25, 1970

CLAIMS:

Name

LEM 79 - 80

LEM 12 Fr.

LOCATION:

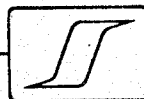
Highland Valley area
About 26 miles southeast of Ashcroft, B.C.
Kamloops Mining Division
120° 50° SW

DATES:

September 9 to 14, 1970

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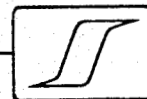
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SUMMARY

An induced polarization survey on this property has revealed some extremely high amplitude, rather isolated chargeability values, particularly for the wide electrode spacing observations. It is thought that these observations are spurious and likely due to improper procedures used when taking readings across a lake. These responses should be checked, preferably in the winter when the lake is frozen, since there is a very small residual possibility that they may arise from concentrations of metallically conducting mineralization.

The shorter spacing results are sufficient to support the conclusion that there is little possibility that a large tonnage, low grade deposit of sulphide mineralization of economic significance may lie within about 300' of the ground surface within the grid covered by this survey. In the western and southern parts of the grid there is little possibility that such a body could occur within about 600' of the ground surface.



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INTRODUCTION

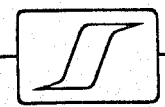
During the period September 9th to 14th, 1970, a geophysical field party under the direction of Mr. Peter Fominoff, B.A.Sc., executed an induced polarization survey in the Highland Valley area, British Columbia on behalf of Cycon Resource Management Ltd.

The property lies about 26 miles southeast of Ashcroft, B. C. and is reached by truck using an unimproved road northeastwards from the Spences Bridge-Merritt Road. Glacial drift covers most of the surface of the property and topographic relief is moderate. The elevation of the survey area is about one mile above sea level.

The claims covered, in whole or part, by this survey are listed on the title page of this report and are shown on Plate 2 on a scale of 1" = 200'.

Seigel Mk VI time-domain (pulse-type) induced polarization equipment has been employed on this property. The transmitting unit had a rating of 2.5 kw. and equal on and off times of 2.0 seconds. The receiving unit was a remote, ground-pulse type triggered by the rising and falling primary voltages set up in the ground by the transmitter. The integration of the transient polarization voltages takes place for 0.65 seconds after a 0.45 second delay time following the termination of the current on pulse.

The purpose of an induced polarization survey is to map the subsurface distribution of metallicly conducting mineralization



beneath the grids covered. In the present area such mineralization could include bornite, chalcopyrite, molybdenite, pyrite and other metallic sulphide minerals. As well, metallic conductors such as graphite and artificial installations such as pipelines, fences, etc., can give responses not always distinguishable from sulphide mineralization. These latter anomalous sources are not expected to occur on this property.

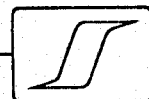
The accompanying copy of H. O. Seigel's paper entitled "Three Recent Irish Discovery Case Histories Using Pulse Type Induced Polarization" gives a description of the phenomena involved in this type of survey, the equipment employed, the field procedures and the nature of the results obtained over various base metal ore bodies.

On the present property the survey lines were cut oriented east-west at 400' intervals. The three electrode array, with electrode spacings of 200', 400', and 800', was employed for a survey totalling 2.5 line miles. Station intervals were 200'.

GEOLOGY

A description of the geology of the area including and surrounding the present claims is found in G.S.C. Memoir 262 "Ashcroft Map Area, British Columbia" by S. Duffell and K. C. McTaggart, 1952 and G.S.C. Memoir 249, "Nicola Map Area" by W. E. Cockfield, 1961. In addition, K. Northcote has mapped the geology of the Guichon Creek Batholith on the scale of 1" = 1 mile.

The Guichon Creek Batholith is a series of differentiated granitic and granodioritic rocks, two of which phases come into contact on the present property.

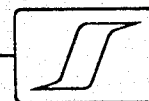


The Highland Valley area, centred on the Guichon Creek Batholith is well known as a locale for disseminated copper deposits. The target of the present survey was one of these low grade, large tonnage deposits; the upper surface of which would occur within 600' of the ground surface.

DISCUSSION OF RESULTS

Plate 2, on the scale of 1" = 200', shows the geophysical survey results in profile form. Two parameters are plotted, chargeability (the induced polarization characteristic of the rock) and resistivity. The vertical scales for these profiles are 1" = 10.0 milliseconds for chargeability and 1" = 1000 ohm-metres for resistivity.

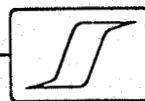
The chargeability profiles indicate that in the western part of the grid and on L 20 S the observed chargeability values range between 2.0 and 5.0 milliseconds. This is well within the non-metallic chargeability range for the intrusive rocks believed to underlie the survey area. With this background a uniform distribution of 1% by volume of metallicly conducting mineralization in the subsurface would be expected to raise the chargeability responses by approximately 10.0 milliseconds. Certain chargeability responses in excess of about 8.0 milliseconds could be considered worthy of further investigation since deposits of very low concentrations of copper and molybdenum of sufficient dimensions may have economic significance. Experience has shown however, that most deposits of the Highland Valley type contain at least 1% by volume of sulphide mineralization and their depth of burial is not great in comparison with their volume such that observed responses



of at least 12.0 milliseconds may be expected.

On Lines 8 S, 12 S and 16 S from approximately 4 W to 6 E and at 2 E and 4 E on Lines 0 and 4 S respectively, high amplitude chargeability observations have been taken, particularly for the 800' electrode spacings. If such observations arise from subsurface concentrations of metallically conducting material there must be a high percentage by volume of such material and anomalous responses would be expected for at least two of the three electrode spacings. For example, a chargeability value of 81 milliseconds for the 400' electrode spacings occurs at 4 W on L 16 S. It is highly unlikely that a geologic body could exist which would cause this response and not give any response for the 200' and 800' electrode spacings. In places where the high values occur for the 800' electrode spacings and there are no wider electrode spacings, one cannot be this definite. A body causing the high responses for the 800' spacings from 0 to 6 E on L 12 S would have to contain at least 5% by volume of metallically conducting material and not approach to within about 300' of the ground surface. No body of such high metallic content has yet been discovered in the Guichon Batholith.

It is most likely that all the chargeability responses in excess of about 7.0 milliseconds taken during the present survey are spurious and arise from improper field procedures in traversing a lake running north-south just west of the baseline. Such values have therefore not be profiled but have been shown numerically on Plate 2. Induced polarization surveys of lakes are normally executed over the ice in winter and the three days spent in the field for the present survey were not sufficient to establish a good technique for working in water.

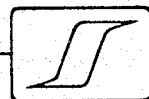


Three factors which may have contributed to the spurious results are: polarization caused by water in contact with metal wires or parts of the porous pots; inductive effects when both current and potential wires were submerged and polarization near a potential electrode caused by nails in a wet wooden boat. The first two of these possibilities would be most pronounced on the wider electrode spacings and particularly for the 800' electrode spacings if this potential wire were less well insulated than the potential wires used for the shorter electrode spacings. It is noted that the reading is plotted some distance from the potential electrodes so that a spurious reading caused by an electrode or wire in water may be plotted over land.

The resistivity values are usually several hundred ohm-metres although they range from about 200 to above 1500 ohm-metres. There is a slight increase in the observed resistivities with increasing electrode spacing as is expected for the Highland Valley area where the overburden is usually less resistive than the bedrock. There is a noticeable east to west increase in resistivity which may indicate a change in the resistivity of the bedrocks or a change in the type or thickness of the overburden. No distinct resistivity difference is seen to correspond to the lake indicating that it is probably quite shallow.

CONCLUSIONS AND RECOMMENDATIONS

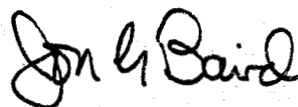
Since there are no significant abnormal chargeability responses for the 200' and 400' electrode spacings we may conclude that there is little possibility that a large tonnage, low grade deposit of sulphide mineralization of economic significance may lie within about



300' of the ground surface within the survey grid. There is also little possibility of such a deposit occurring within 600' of the ground surface near the west ends of the profiles and near L 20 S. There is a very small residual possibility of the occurrence of concentrations of metallicly conducting mineralization at depths greater than 300' near the baseline particularly between L 8 S and L 16 S. This possibility should be investigated by resurveying part of the grid using a technique which will not allow the lake water to affect the validity of the observations. If abnormal observations are again encountered for the 800' electrode spacings, additional observations should be made with 600' and 1000' electrode spacings to allow precise quantitative interpretation of the location and extent of subsurface concentrations of metallicly conducting material.

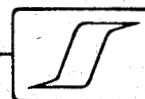
Respectfully submitted,

SEIGEL ASSOCIATES LIMITED



Jon G. Baird, B.Sc., P.Eng.
Geophysicist

Vancouver, B.C.
September 25, 1970



DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
To WIT:

In the Matter of a geophysical survey on behalf of
Cycon Resource Management Limited

I, J. L. McCrea for Seigel Associates Limited

of 750 - 890 West Pender Street, Vancouver

in the Province of British Columbia, do solemnly declare that an induced polarization survey has been executed on some LEM claims Highland Valley area, British Columbia between September 10 to September 14, 1970. The following expenses were incurred:

(1) Wages:			
	P. Fominoff	5 days at \$35.00/day	<u>\$175.00</u>
			\$175.00
(2) Transportation & shipping to the job			123.00
(3) Transportation on the job			65.10
(4) Food & living expenses			9.40
(5) Use of geophysical equipment			
	IP - 5 days at \$60.00/day		300.00
(6) Paid to Seigel Associates Limited to cover geophysicist's supervision, calculating, plotting and fairdrawing data and preparation of final reports			<u>669.75</u>
			\$1,342.25

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

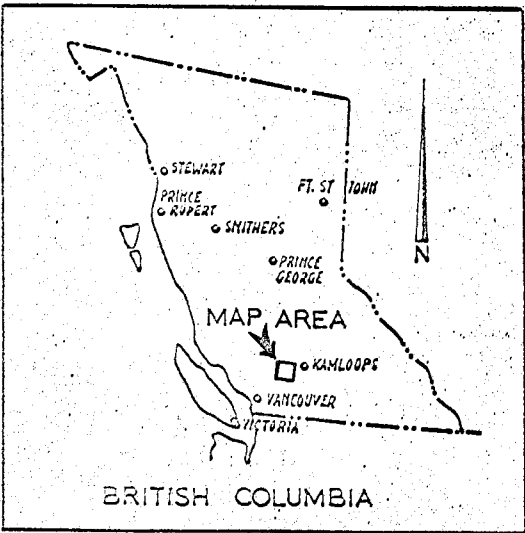
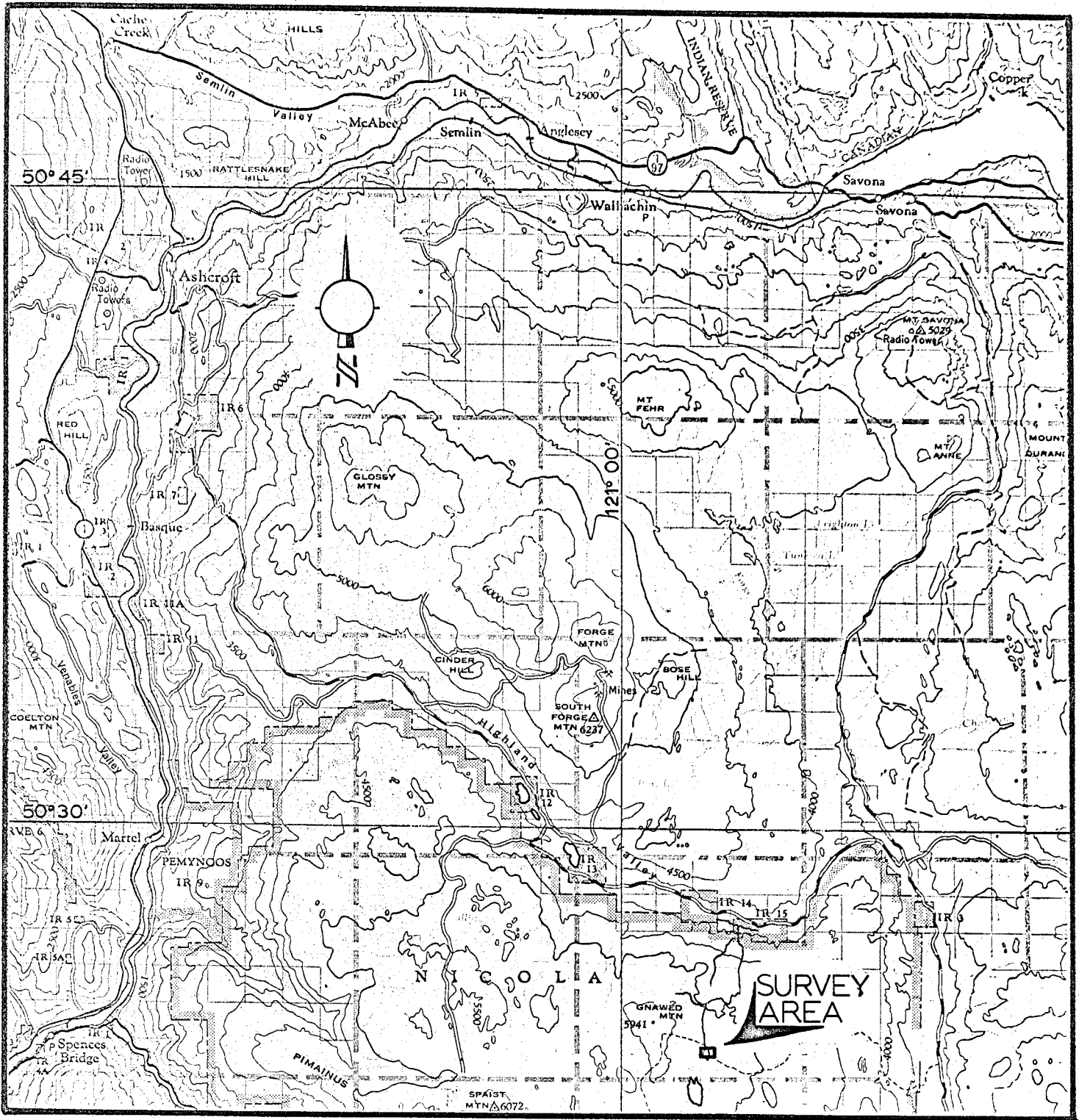
Declared before me at the City
of Vancouver, in the
Province of British Columbia, this 1st
day of October, 1970, A.D.

J. L. McCrea

Joan Turner

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

Sub-mining Recorder

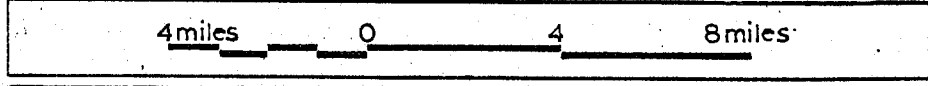


CYCON RESOURCE MANAGEMENT LTD.
for KELVER MINES (N.P.L.) LTD.

LOCATION MAP
LEM CLAIMS

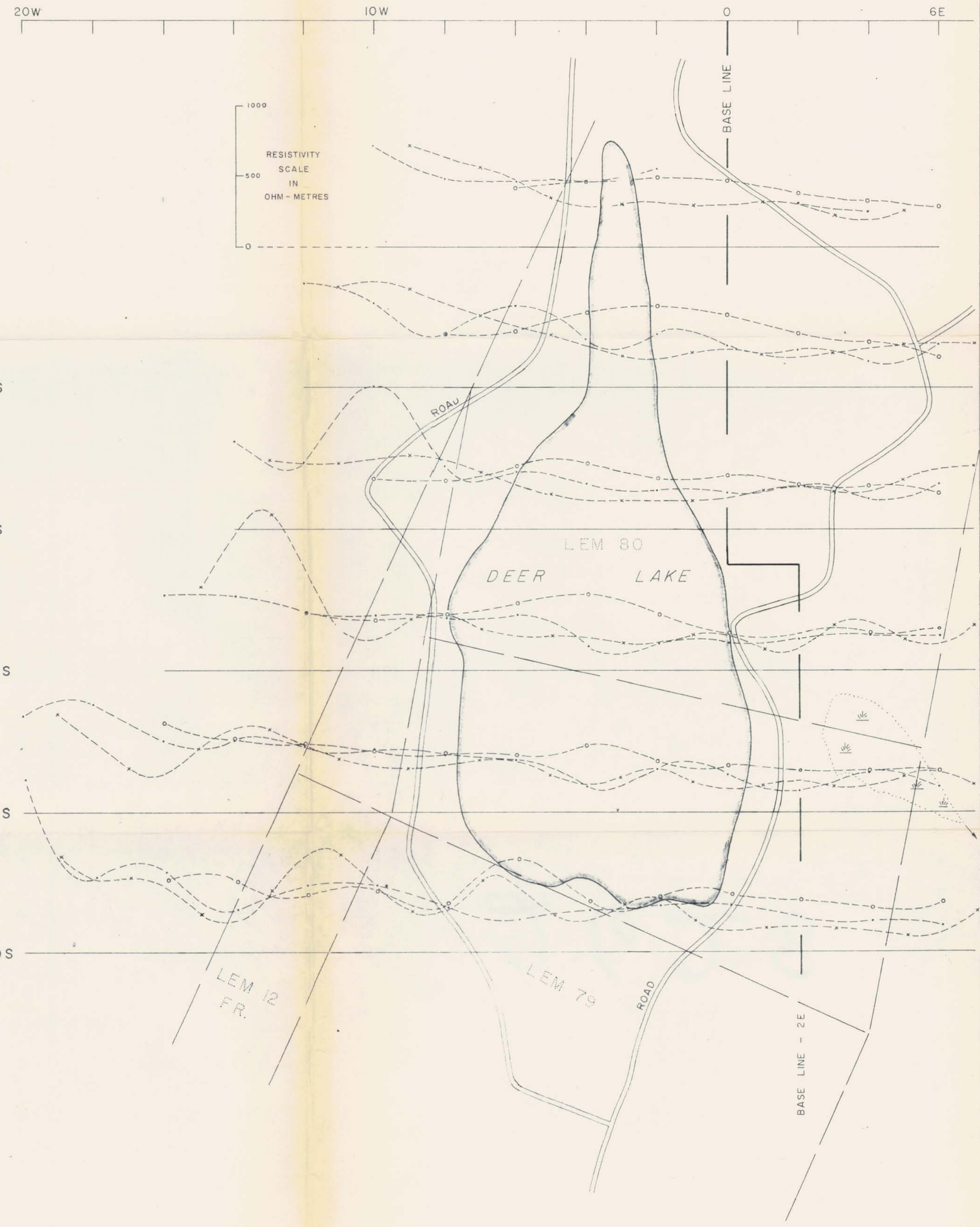
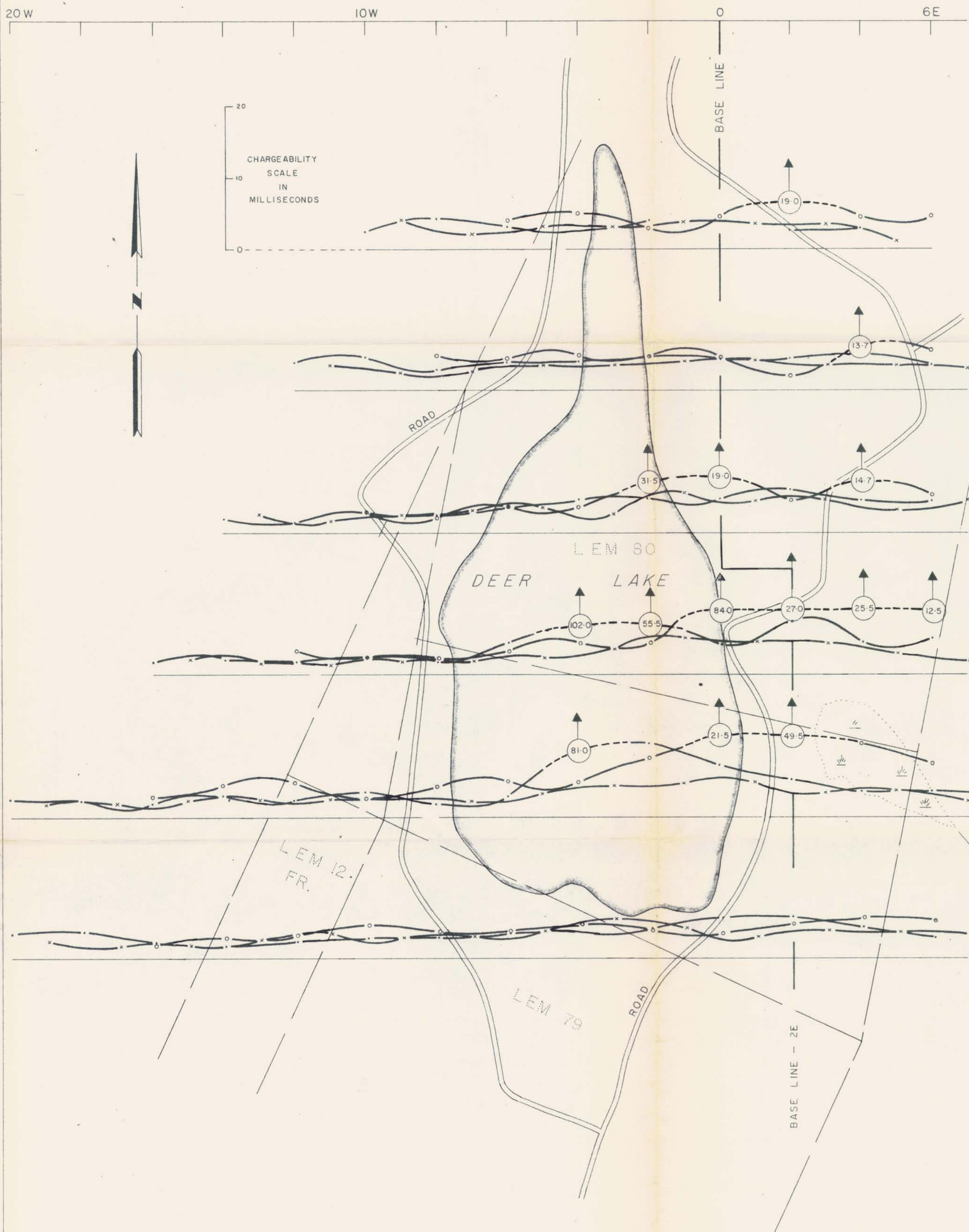
HIGHLAND VALLEY AREA, BRITISH COLUMBIA

ASIGEL



Survey by
SEIGEL ASSOCIATES LTD.
September 1970

PLATE 1



LEGEND

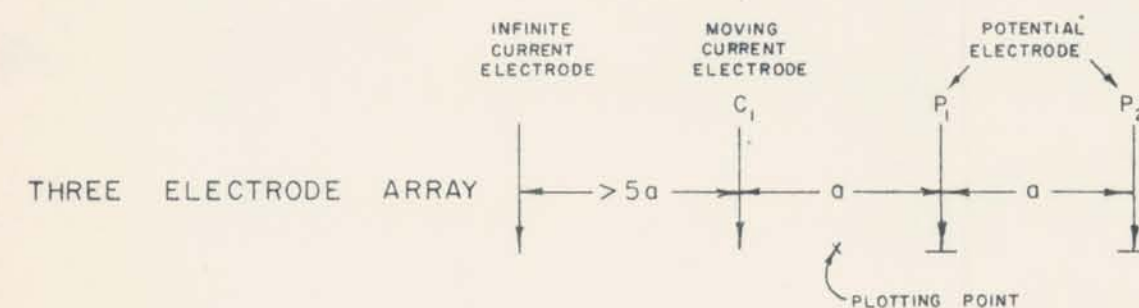
CHARGEABILITY SCALE: 1" = 10 MILLISECONDS
 ELECTRODE SPACING: a = 200' (x---x), a = 400' (---), a = 800' (o---o)

RESISTIVITY SCALE: 1" = 500 OHM - METRES
 ELECTRODE SPACING: a = 200' (x---x), a = 400' (---), a = 800' (o---o)

↑ (21.5) - VALUE IN MILLISECONDS OF OBSERVATION BELIEVED TO BE SPURIOUS DUE TO EFFECTS OF LAKE WATER ON MEASURING CIRCUIT.

NOTES

SCINTREX MK VII INDUCED POLARIZATION INSTRUMENTATION

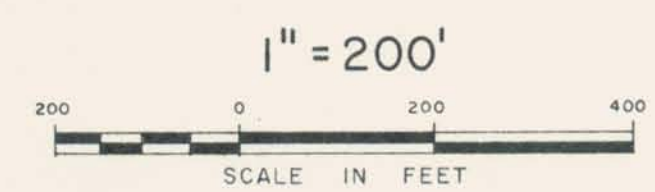


C1 EAST OF ARRAY

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 2628 MAP #2

TO ACCOMPANY A GEOPHYSICAL REPORT BY
 J.G. BAIRD DATED SEPTEMBER 25, 1970

PLATE 2
 CYCON RESOURCE MANAGEMENT LTD.
 FOR KELVER MINES (N.P.L.) LTD.
 LEM CLAIM GROUP
 HIGHLAND VALLEY AREA, BRITISH COLUMBIA
 INDUCED POLARIZATION SURVEY
 CHARGEABILITY AND RESISTIVITY PROFILES



SCALE IN FEET
 SURVEY BY SEIGEL ASSOCIATES LIMITED
 SEPTEMBER 1970

2628 *J.G. Baird*