

1951

GEOPHYSICAL REPORT ON THE  
92I/15 FS GROUP  
OF ROYAL CANADIAN VENTURES LTD.  
AND K.W. GEIGER  
AT KAMLOOPS, B.C., 50° 120° NW  
By J.A. Woodard, approved by  
N.B. Vollo, P.Eng.  
July 30, 1969

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Eltran Array showing plotting positions      P age 2

Attached Maps:      Line 20W  
                          Lines 12W  
                          Line 4W  
                          Line 4E  
                          Line 12E  
                          Line 20E

Maps in Envelope: Plan of Induced Polarization Survey -  
                          Map No. 69-39.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1951 MAP

# GEOSEARCH CONSULTANTS LIMITED

## INTRODUCTION

A variable frequency induced polarization survey was carried out for Royal Canadian Ventures Ltd., on the 92I-15 Frederick Siding Grid in July, 1969. The property is located 14 miles west of Kamloops, British Columbia, on the north shore of Kamloops Lake. It is accessible by road or rail from Kamloops Junction. The survey was confined to the following claims: Hilltop 1 to 4, Kamloops 1 and 2, Sage 1 and 2.

The purpose of this survey was to locate sulphide zones which might prove to be base metal deposits of economic importance. A slightly anomalous zone was outlined on Lines 12W and 20W.

The accompanying maps show the area surveyed and the results obtained.

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GEOPHYSICAL SURVEYS

THE INDUCED POLARIZATION METHOD

Induced Polarization surveys have gained widespread acceptance in recent years among mining exploration geologists and geophysicists in the continuing search for mineral deposits. Although Schlumberger recognized polarization effects as early as 1920 it wasn't until the late forties that any application of the phenomena was made in North America.

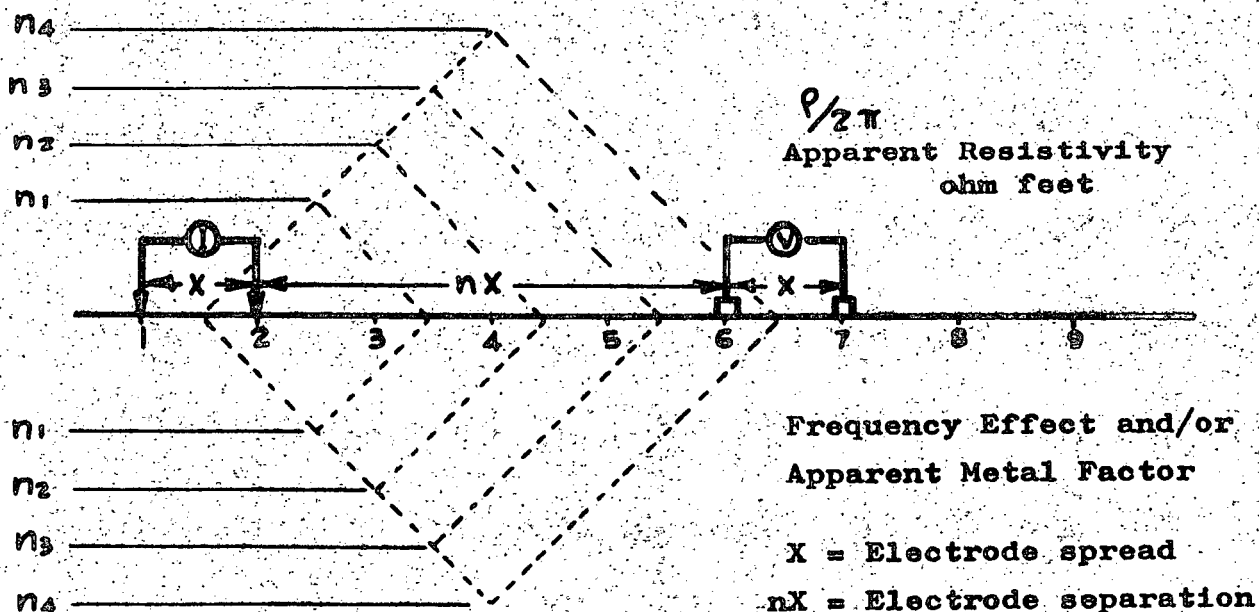
Induced polarization effects or "over voltage effects" are established whenever current is caused to flow across an interface between ionic and electronic conducting mediums, as in the case when current is passed through a volume of rock which contains metallic minerals such as most sulphides, graphite, magnetite and certain other oxides. Two field techniques have been developed to measure this phenomena and are usually referred to as the Transient or D.C.I.P. and the Variable Frequency or A.C.I.P. In the transient method a steady current is made to flow between current electrodes over a short period of time and then abruptly interrupted. The polarization effects are then measured over a short interval while the voltages decay slowly. This is also referred to as the "Time Domain" method.

During the present survey the second technique was used in which sinusoidal current at two low but well separated frequencies (0.31 and 5 cps) was passed through the current electrodes and the ground. The impedance of a system which can be polarized will vary with frequency and therefore if the ground can be polarized the impedances measured will vary with the various frequencies used. This "Frequency Effect" can be expressed as  $\frac{R_1 - R_2}{R_1} \times 100$  where  $R_1$  and  $R_2$  are the apparent resistivities at the lower and higher frequencies respectively.

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 GEOPHYSICAL SURVEYS

- 2 -

During the present survey the Eltran electrode array was used which is illustrated in the accompanying diagram. In this procedure current is applied to the ground at two electrodes at a distance  $X$  apart. The potentials are measured at two other points also  $X$  feet apart and separated by a distance  $N$  times  $X$ . Measurements are made along a line keeping all electrodes in line at one or more separations or values of  $n$ .



ELTRAN ARRAY SHOWING PLOTTING POSITION

Both the apparent resistivity and frequency effect are measured for each change in electrode separation. These measurements are plotted as profiles or contoured sections, with the values being plotted at the intersection of grid line from the centre of the current electrodes and the centre of the potential electrodes. The resistivity values are shown above the line and the frequency effect and/or "metal factor" below the line.

- 3 -

The "Metal Factor" can be defined as  $\frac{FE \times 1000}{Ra}$  and is often useful in that I.P. effects are emphasized, particularly where concentrated and conducting sulphides are expected.

The choice of electrode spacing (X) depends on the size of the body which can be expected and the depth of penetration desired. Penetration can also be achieved by measuring increasing values of n (1, 2, 3, 4, 5, and 6) however the time and expense involved may suggest increased values for X as a more practical approach.

Measurements of two or more values of n give a varying penetration and therefore are useful in estimating changes in I.P. effects and resistivity with depth. The "contoured profiles" should not however be considered true sections of the electrical properties of the ground below the survey line.

Metallic minerals are not the only causes of I.P. effects. A number of possible contributory agents have been established, such as some types of clay minerals, however many I.P. anomalies are as yet unexplained. The method, nevertheless, can be a valuable exploration tool when used in particular applications where its higher costs relative to other geophysical methods is justified.

RESULTS

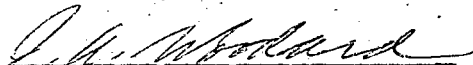
The area surveyed was found to have a very low apparent resistivity, generally less than 200. The low resistivities cause relatively little effect from deep conductors as most of the induced current travels in the near surface region.

An anomalous zone has been indicated on Lines 12W and 20W near the base line. It has been indicated only as "possible" because of the low (up to 5%) frequency effects associated with it. There is no corresponding resistivity anomaly.

RECOMMENDATIONS

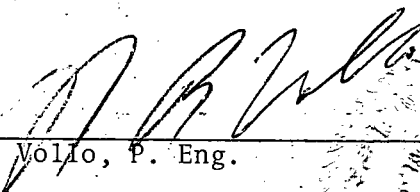
Detailed prospecting and geological mapping is recommended in the area of the anomalous zone. Consideration should be given to some detailed induced polarization work at closer line intervals and 100 foot dipoles, which would improve the resolution.

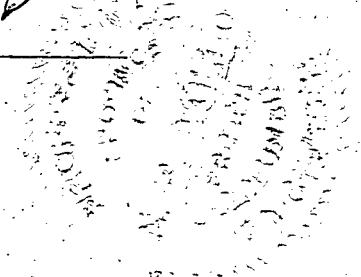
Respectfully submitted,  
GEOSEARCH CONSULTANTS LTD.

  
\_\_\_\_\_  
J. A. Woodard, P. Eng.  
Consulting Geophysicist.

JAW/om

The foregoing survey and report was done under the supervision of the undersigned, who takes full responsibility for the work done and the conclusions drawn therefrom.

  
\_\_\_\_\_  
N. B. Volio, P. Eng.



ASSESSMENT WORK DETAILS

Field Work - July 2 and 3, 1969.

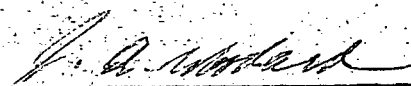
Operator - Robert Lee, Toronto, Ontario	..... 2	8 hr.days
Helper - Spence Eeg, " "	..... 2	" "
Helper - James McDiarmid, " "	..... 2	" "
Helper - Paul Sullivan, " "	..... 2	" "

Drafting, Consulting and Compilation - July 16, 1969.

J. A. Woodard, Scarborough, Ontario	..... 1	" "
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Total - 9 8 hr. days

  
\_\_\_\_\_  
J. A. Woodard, P. Eng.

EQUIPMENT DESCRIPTION

McPhar Model P 650 Induced Polarization Unit

Motor generator No. 6677  
Receiver No. 6634  
Transmitter No. 6624



CERTIFICATION

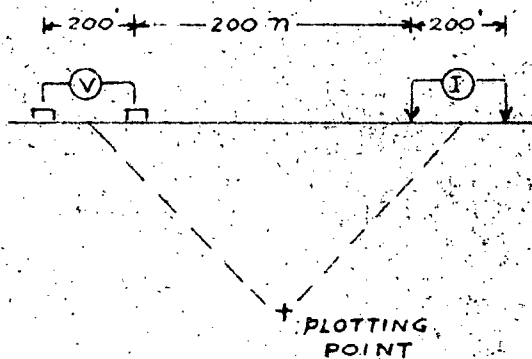
I, James Austin Woodard, of the Borough of Scarborough, in the Province of Ontario, hereby certify:

1. That I am a member of the Association of Professional Engineers, Province of Ontario and Province of Manitoba, residing at 77 Toynbee Trail, Scarborough, Ontario.
2. That I graduated from the University of Manitoba in 1947 with a B.Sc. degree.
3. That I have been engaged in mining exploration as a geologist and geophysicist for the past 21 years.
4. That I do not have, nor do I expect to receive either directly or indirectly, any interest in the property, or in the securities of Royal Canadian Ventures Limited.
5. That the information contained in this report is based on the original field observations made by an experienced technician in the employ of Geosearch Consultants Limited and on my experience with the same type of survey in the same general area.

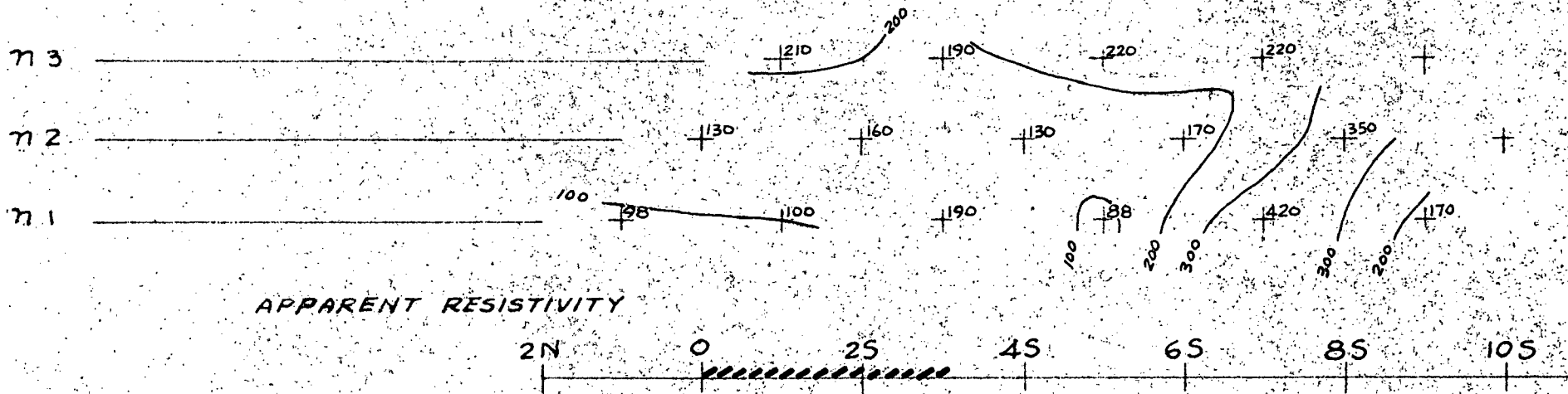
Dated this 30th day of July, 1969.

  
\_\_\_\_\_  
J. A. Woodard, P. Eng.

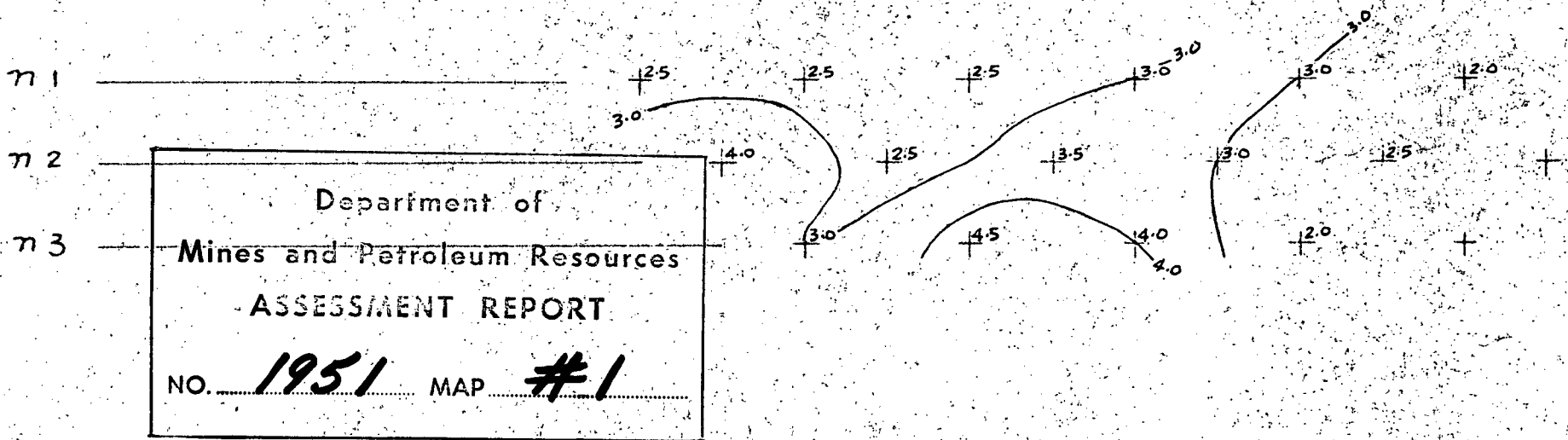
ELECTRODE CONFIGURATION



INDUCED POLARIZATION SURVEY  
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FREQUENCY EFFECT



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NO. 1951 MAP # 1

ANOMALOUS AREA

DEFINITE   
PROBABLE   
POSSIBLE 

FREQUENCIES: 0.3 & 5.0 Hz

ROYAL CANADIAN VENTURES LTD.

92 I-15 FREDERICK SIDING GRID

KAMLOOPS AREA  
BRITISH COLUMBIA

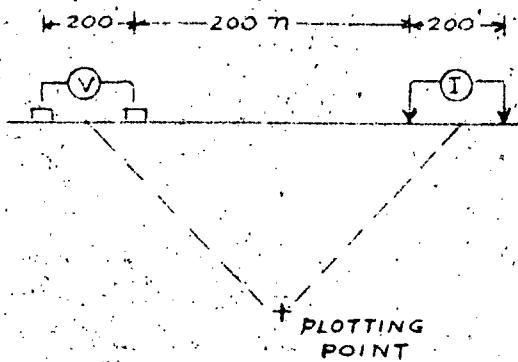
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1951

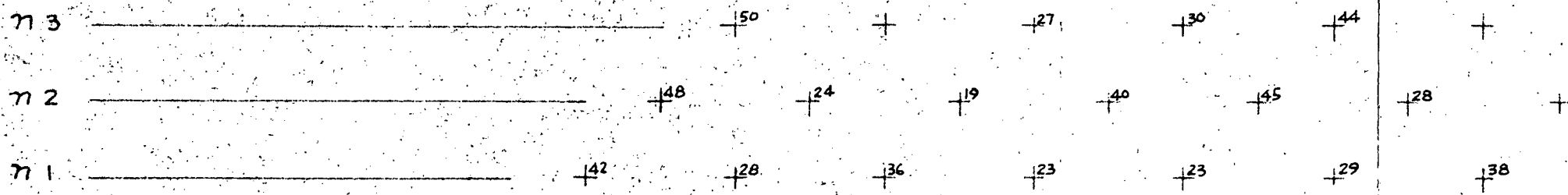
*[Handwritten signature and stamp]*

LINE 20W

ELECTRODE CONFIGURATION

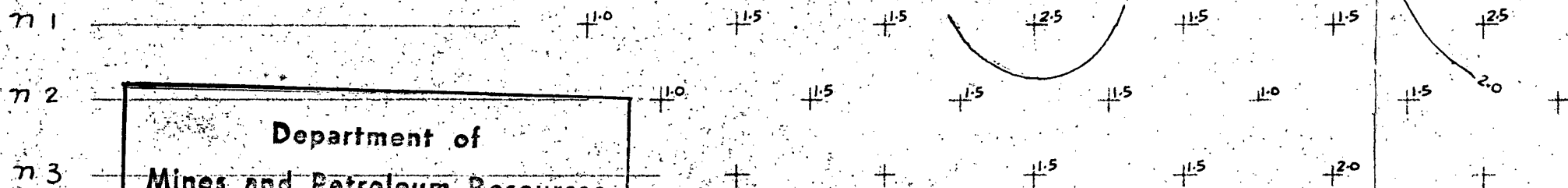


INDUCED POLARIZATION SURVEY  
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APPARENT RESISTIVITY

FREQUENCY EFFECT



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ANOMALOUS AREA

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.3 & 5.0 Hz

ROYAL CANADIAN VENTURES LTD.

921-15 FREDERICK SIDING GRID

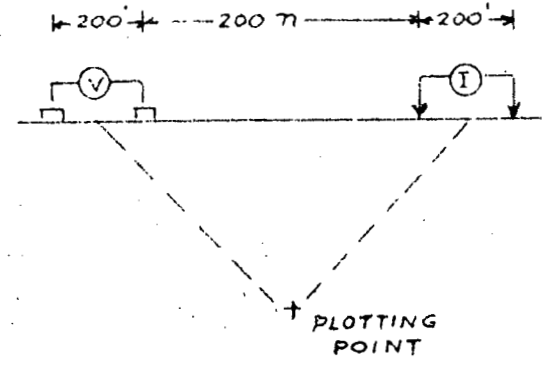
KAMLOOPS AREA  
BRITISH COLUMBIA

SCALE: 1 INCH TO 200 FEET

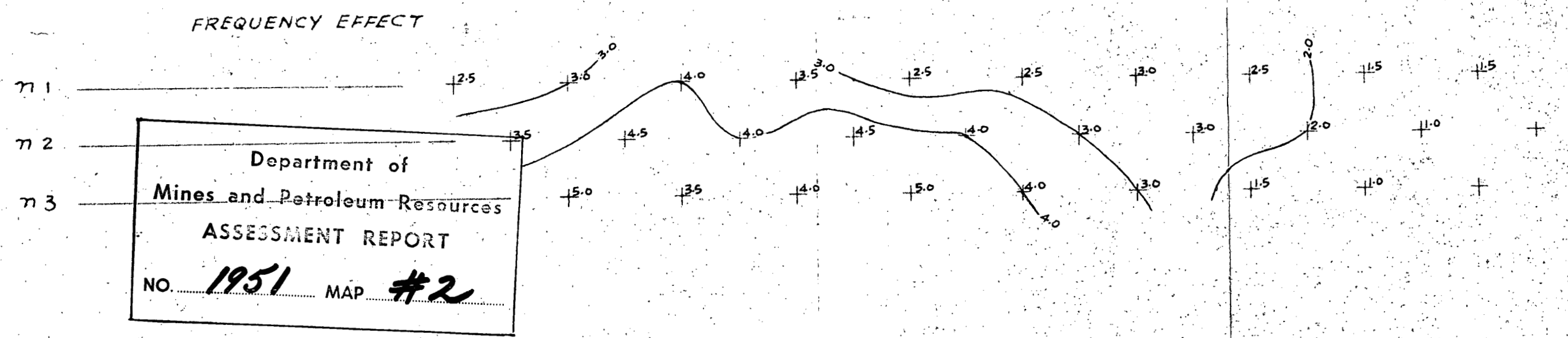
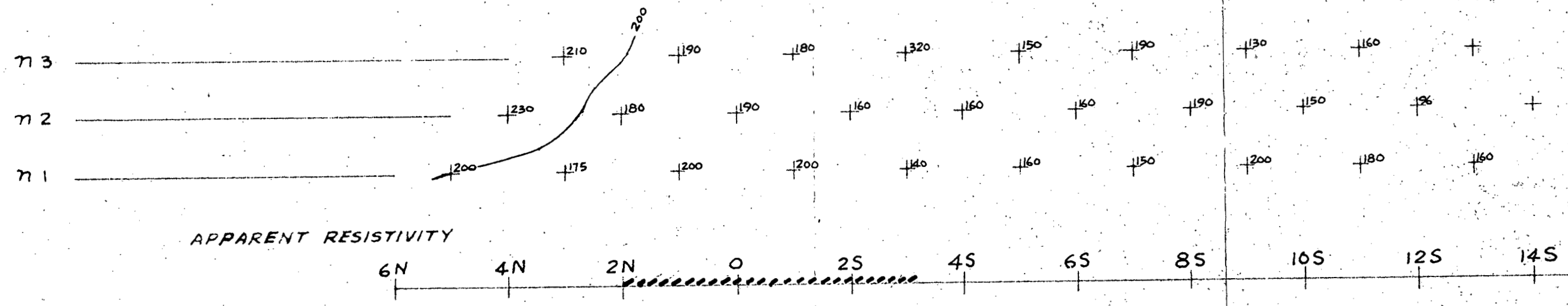
1951

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ELECTRODE CONFIGURATION



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Mines and Petroleum Resources  
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ANOMALOUS AREA

- DEFINITE
- PROBABLE
- POSSIBLE

FREQUENCIES: 0.3 & 5.0 Hz

ROYAL CANADIAN VENTURES LTD.

92 I-15 FREDERICK SIDING GRID  
KAMLOOPS AREA  
BRITISH COLUMBIA

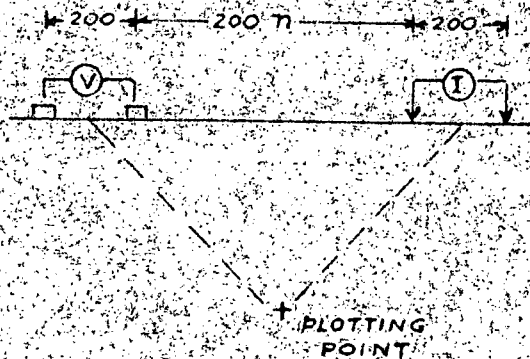
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1951

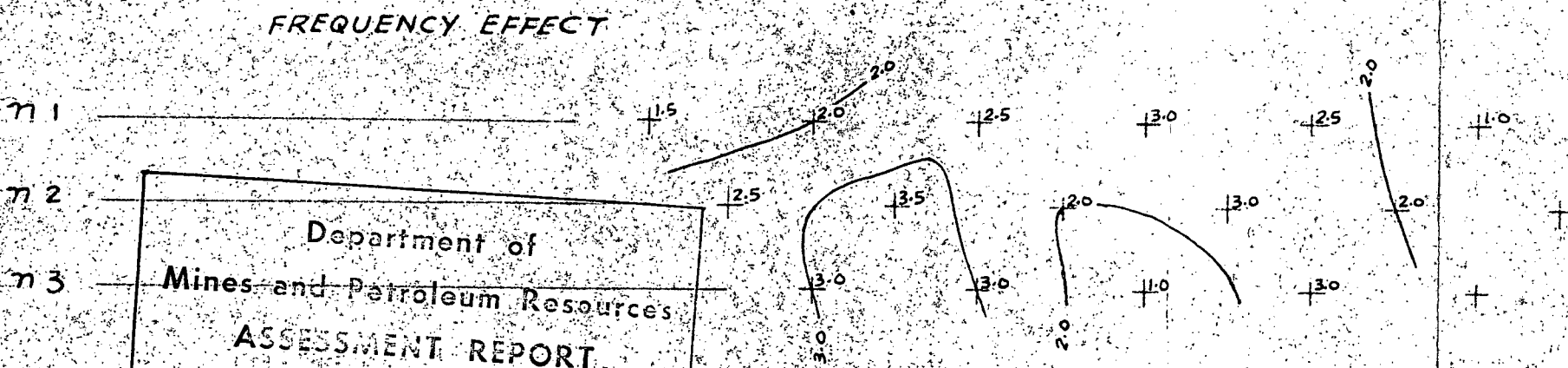
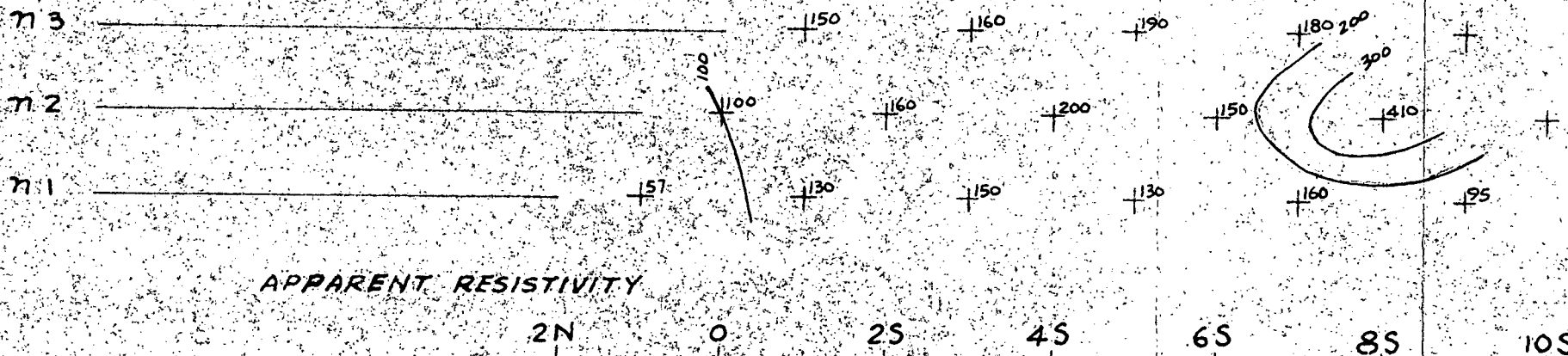


LINE 12W

ELECTRODE CONFIGURATION



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ANOMALOUS AREA

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.3 & 5.0 Hz

ROYAL CANADIAN VENTURES LTD

92 I-15 FREDERICK SIDING GRID

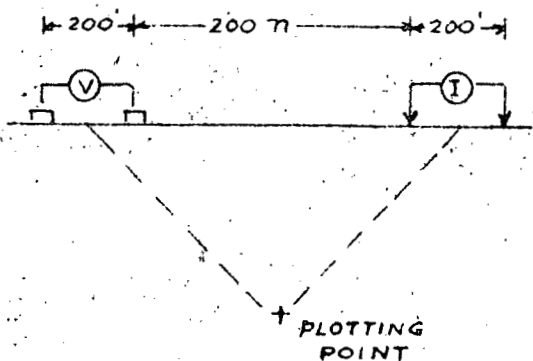
KAMLOOPS AREA  
BRITISH COLUMBIA

SCALE: 1 INCH TO 200 FEET

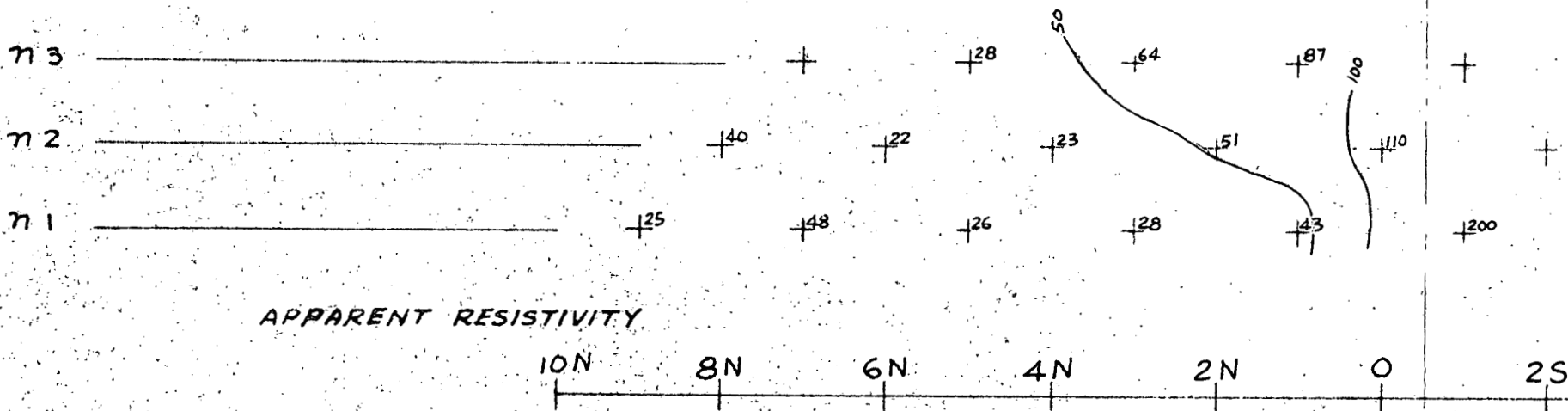
LINE 4W

1951

ELECTRODE CONFIGURATION

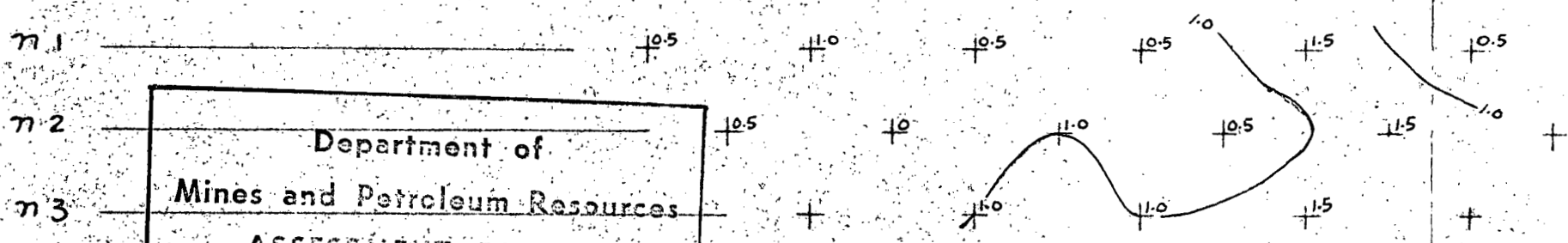


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GEOSEARCH CONSULTANTS LTD.



APPARENT RESISTIVITY

FREQUENCY EFFECT



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NO. 1951 MAP # 4

ANOMALOUS AREA

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.3 & 5.0 Hz

ROYAL CANADIAN VENTURES LTD.

92 I-15 FREDERICK SIDING GRID

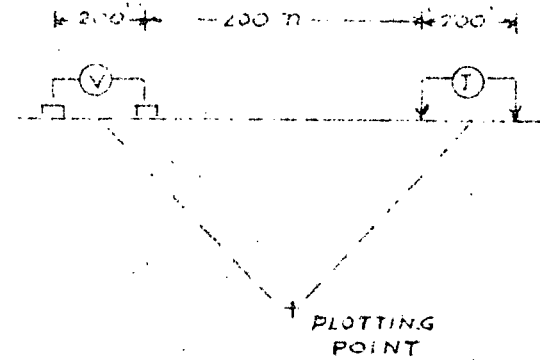
KAMLOOPS AREA  
BRITISH COLUMBIA

SCALE: 1 INCH TO 200 FEET

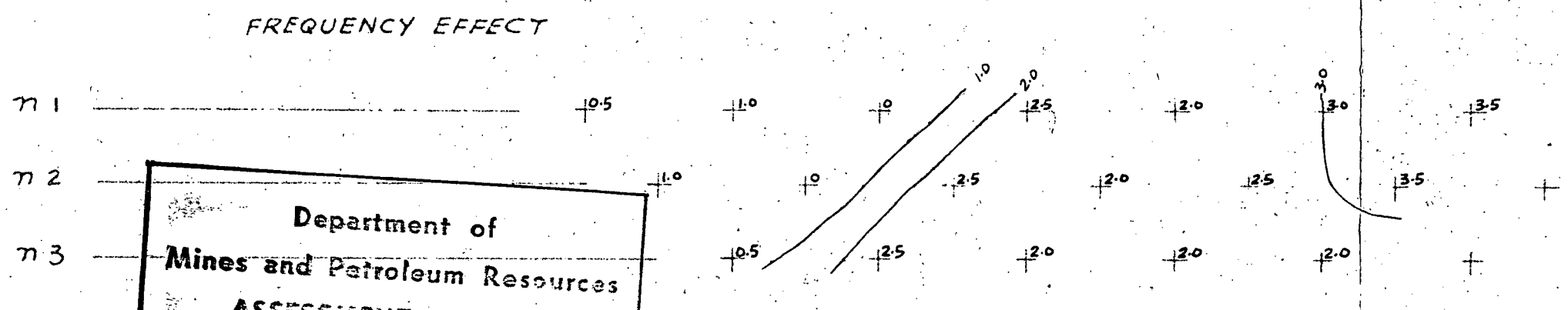
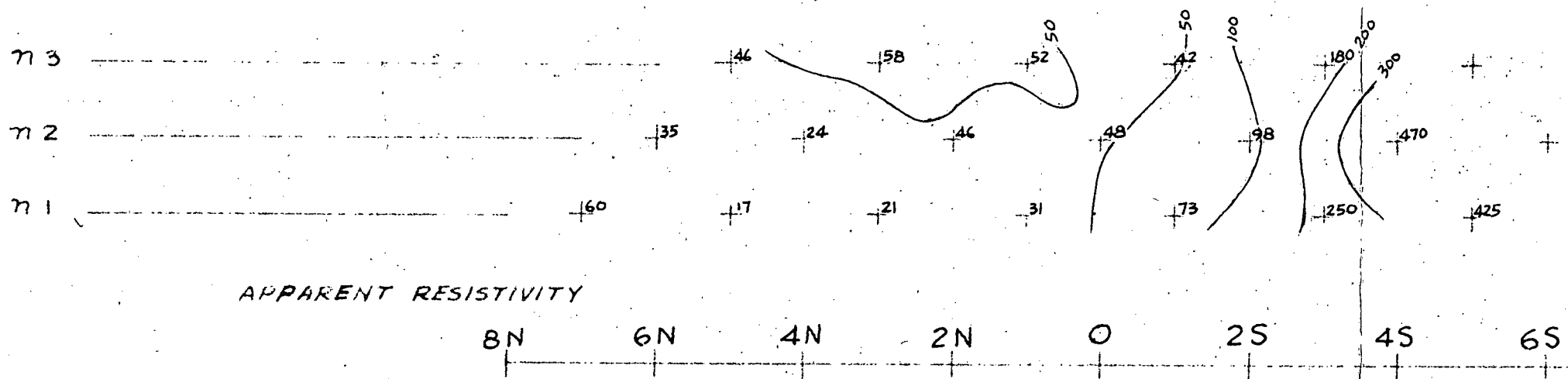
1951

LINE 4E

ELECTRODE CONFIGURATION



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 NO. 1951 MAP # 5

**1951**

ANOMALOUS AREA

DEFINITE   
 PROBABLE   
 POSSIBLE

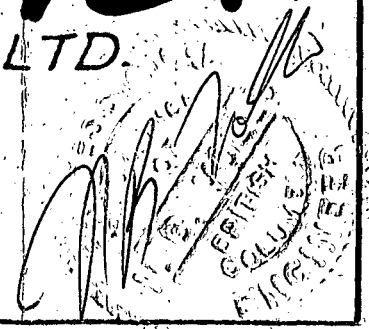
FREQUENCIES: 0.3 & 5.0 Hz

**ROYAL CANADIAN VENTURES LTD.**

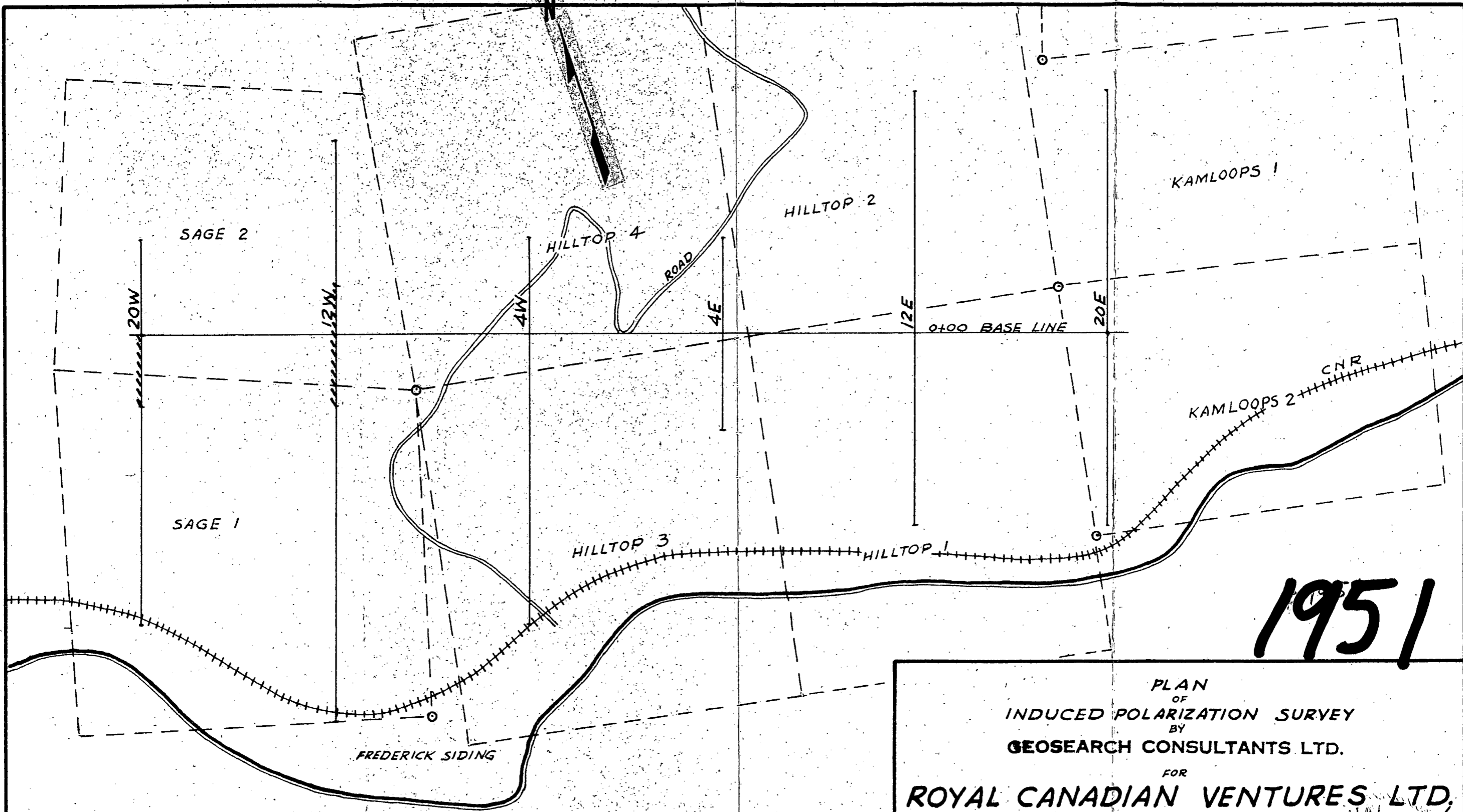
921-15. FREDERICK SIDING GRID

KAMLOOPS AREA  
 BRITISH COLUMBIA

SCALE: 1 INCH TO 200 FEET



LINE 12E



1951

ANOMALOUS AREA  
 PROBABLE - - - - -  
 POSSIBLE / / / / /

PLAN  
 OF  
 INDUCED POLARIZATION SURVEY  
 BY  
 GEOSearch CONSULTANTS LTD.  
 FOR  
**ROYAL CANADIAN VENTURES LTD.**  
 92 I-15 FREDERICK SIDING GRID  
 KAMLOOPS AREA  
 BRITISH COLUMBIA  
 SCALE: 1 INCH TO 400 FEET

DRAWN BY: J.W.  
 DATE: JULY, 1969

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