

4058

Norman Paterson & Associates Limited

92I/2W

A Geophysical Report

on

An Induced Polarization Survey

on

SHOT Group of Mineral Claims
(50⁰, 120⁰, S.W.)

Merritt, British Columbia

Claims Surveyed: SHOT 5, 6, 7, 8

JIM #2 Fr.

Survey Dates: November 22nd - 24th,
1972

by

Roger K. Watson, P.Eng.

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. 4058 MAP

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MAPS

- #1 I.P. Survey - Contours of Apparent Resistivity & Chargeability
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INTRODUCTION

During the period from November 22 to 24, 1972, an induced polarization I.P. survey was carried out on the Shot Group of Claims in the Nicola Mining Division of British Columbia for Donald S. Paterson by Norman Paterson and Associates Limited.

The purpose of the survey was to extend and better define an I.P. anomaly that had previously been located at the southern end of the claim group.

PROPERTY DESCRIPTION

The property under discussion consists of the following claims:

Name	Record No.
Shot 1	9905A
Shot 2	9906A
Shot 3	9907A
Shot 4	9908A
Shot 5	9909A
Shot 6	9910A
Shot 7	9911A
Shot 8	9912A
JJM #1 Fraction	12547N
JJM #2 Fraction	12548N
Nora #6 Fraction	9247M
Vulgar Fraction	15467P

The present survey covered all or parts of Shot 5, Shot 6, Shot 7, Shot 8 and JJM No. 2 fraction.

The group lies about two miles ^E~~west~~ of the Craigmont mine and adjacent to the road connecting the mine to the town of Merritt, 6 miles to the east.

GEOLOGY

The entire property is covered with overburden to a depth of at least 200 feet so that the geology is not well known. The geology of the Craigmont Mines Limited property immediately to the west of the Shot Group is, however, well known. By extrapolation it is expected that the northern part of the Shot Group is underlain by granodiorites of the Guichon Batholith, whereas the southern part is underlain by volcanic rocks of the Kingsvale group.

PREVIOUS WORK

Prior to 1961 four weak magnetic anomalies had # 339
been located on the property. During 1961 Hunting Survey
Corporation Limited ran an I.P. survey line over each of # 395
these magnetic anomalies to investigate the possibility of
mineralization. Two separate seismic lines were also run
to determine the depth of overburden. A moderate, but ill-
defined, I.P. anomaly was located in Shot Claim No. 8 M.C.
During 1963⁸ Huntec Limited carried out an I.P. survey over # 1686
the southern group of Shot Claims. The anomaly on Shot
Claims No. 7 and 8 M.C. was better, but still not adequately,
covered.

1972 I.P. SURVEY

Three different spacings of the pole-dipole array, illustrated on Figure 1, were used to cover 6,800 feet of line from 12S to 28S or 30S on Lines 16E, 20E, 24E and 28E at 200 foot station intervals. Contours from the 400 foot pole dipole array ($n_a=400$ feet, $n=2$) are shown on Figure 1. Profiles of the data from all three spacings are shown on Figure 2.

INSTRUMENTATION

The I.P. equipment used was the pulse-transient 7.5 kw unit manufactured by Hunttec Limited, Toronto, Ontario. The transmitter puts out a direct current which is on for 1.5 seconds and off for 0.5 seconds in regular periodic pulses with alternating polarity. The receiver integrating time is 400 milliseconds with a delay time of 15 milliseconds from the instant that the current is turned off. The measurements taken in the field are the current, I_g , flowing through the current electrodes, C_1 and C_2 , the primary voltage, V_p , between the receiver electrodes, P_1 and P_2 , and the secondary voltage, V_s , between the receiver electrodes integrated during the off period of the primary current. The apparent chargeability, in milliseconds, is calculated according to the formula $M_a = (V_s/V_p) \times 400$. The apparent resistivity is calculated according to the formula $\rho_a = V_p/I_g \times K$, where K is a geometrical factor appropriate to the electrode array being used.

INTERPRETATION

The 1972 I.P. survey confirmed the existence of a chargeability anomaly on Shot Claims No. 7 and 8 M.C. and extended the anomaly eastwards to 26E, thus giving a total strike length of 2,600 feet. The anomaly is still open to the west of Line 0, off the Western edge of the Shot Group.

The resistivity data on the northern portion of the lines clearly shows a two layer case, with the lower resistivity layer on the bottom. The deep layer, at about 425 feet and with a resistivity of about 150 ohm-metres, is presumed to be bedrock, and the upper layer, with a resistivity of 2,500 ohm-metres, is presumed to be overburden. Because the bedrock has a considerably lower resistivity than the overburden, the sharp decrease in apparent resistivity on the southern edge of the survey grid is certainly almost entirely caused by the decrease in overburden thickness as the survey traverses the slope to the road.

A firm interpretation of the chargeability anomaly is impossible because of the complexity of the profiles and because the profiles could not be extended further south over the tailings area of the Craigmont Mine. One interpretation of the anomaly is that it is caused by a change of bedrock chargeability from 5 milliseconds to about 2 milliseconds across an interface which would be dipping approximately 45° N, with the low chargeability rock to the south. This interpretation is unlikely to have economic significance since the value high chargeability is not high enough to indicate significant amounts of sulphide mineralizations but is more likely caused by change in bedrock type.

Secondly, there could be a relatively shallow localized area of high chargeability material which is

outlined approximately by the contours. In this case the low chargeabilities observed on the two widest pole-dipole spacings would be caused by edge effects of this shallow chargeable area. Because the overburden appears to be of the order of 100 to 200 feet thick at the base of the hill, it would appear that this shallow chargeable area would lie in the overburden and therefore have no economic significance.

A third possible interpretation is that the chargeability anomaly is an edge effect associated with the strong resistivity anomaly in the valley. Theoretically it is known that resistivity changes affect apparent chargeability, but not enough is known about this phenomenon to make it possible to predict the changes in apparent chargeability that would be observed in the situation seen here.

Fourthly, it is quite likely that effects from the tailings complicate the chargeability picture. Only by performing the almost impossible task of extending the profiles southwards across the tailings could some of these conflicting interpretations be resolved.

SUMMARY AND CONCLUSIONS

The present I.P. program was designed to outline and detail an I.P. anomaly found on earlier surveys. This has been accomplished but the anomaly has been found to be complex and incapable of being analysed by standard methods. This complexity can be attributed to the high conductivity of the nearby Craigmont tailings pond and by the inability of the survey traverse to cross the tailings pond. In any case the anomaly that has been observed in this and the previous surveys quite possibly originates within the deep overburden and is not believed to have economic significance. It is recommended that exploration within 1000 feet of the tailings pond would be more effectively accomplished by drilling, followed by drill hole I.P. methods.

North of this somewhat arbitrary thousand foot limit the I.P. method should be an effective exploration tool. However, the previous surveys used an electrode separation which was too short to have effectively penetrated the overburden which was subsequently found to be in excess of 400 feet. Therefore this area remains relatively unexplored from a geophysical standpoint and useful work could be done in future using wider electrode separations.

Respectfully Submitted,
NORMAN PATERSON & ASSOCIATES LIMITED

V. Esbensen

V. Esbensen, B.Sc.

Roger K. Watson

R.K. Watson, B.A.Sc., P. Eng.



ASSESSMENT CREDIT DATA

Property: Shot Group of Claims, Nicloa Mining Division,
British Columbia.

Sponsor: Donald S. Paterson

Type of Survey: Induced Polarization

Detail Line Miles Surveyed: 1.29

Number of Stations: 38, with 3 different electrode spacings
at each station.

Date started: November 22, 1972.

Date Finished: November 24, 1972.

Field Personnel

<u>Name</u>	<u>Position</u>	<u>Time</u>
Peter E. Walcott	Geophysicist	3 days
G. Macmillan	Operator	3 days
P. Charlie	Lineman	3 days
W. Bozek	Lineman	3 days
D. Walters	Lineman	3 days

Consulting Personnel

V. Esbensen	Geophysicist	15 hrs.
R.K. Watson	Geophysicist	7 3/4 hrs.
H. Ricketts	Draughtsman	19 3/4 hrs.

Equipment

I.P. Unit	3 days
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Norman Paterson & Associates Limited / Consulting Geophysicists

Suite 2306, The Simpson Tower, 401 Bay Street, Toronto 103, Ontario, Canada. (416) 363-4261. Cables: Norquest.

Norman R. Paterson, Ph.D., P.Eng.
Roger K. Watson, B.A.Sc., P.Eng.
Fraser S. Grant, Ph.D., P.Eng.

December 31, 1972.

Donald S. Paterson,
609 Grain Exchange Building,
Winnipeg, Manitoba R3B 0V5.

Invoice #404

RE: Shot Claim Group, Nicola Mining Division, B.C.

Induced Polarization Survey: Supervision, Interpretation, Report

Roger K. Watson	8 hrs. @ \$25.00	\$200.00
V. Esbensen	15 hrs. @ \$15.00	225.00

Drafting

19 3/4 hrs. @ \$10.00	<u>197.50</u>
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Total:	<u><u>\$622.50</u></u>
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KN:097

Declared before me at the
VANCOUVER, B. C.
 in the
 of
 Province of British Columbia, this
JAN 11 1973
 day of
 Sub - Mining Recorder

Paterson
get for
 DONALD S. PATERSON.

PETER E. WALCOTT & ASSOC. LTD.

605 RUTLAND COURT, COQUITLAM, B.C. • TEL. 939-0383

INVOICE

NO. 1133

Date: December 31st, 1972

Terms: NET 10 DAYS

**To: Norman Paterson & Assoc. Ltd.,
2306 - 401 Bay Street,
Toronto, Ontario**

Re: I.P. Survey, Merritt, B.C.

1.	Provision of senior geophysicist, operator, 7.5 kw pulse equipment & 3 helpers for 2 days at \$420.00 per day		\$840.00
2.	Provision of above for one day looking for claims and putting in lines, plus travel Cache Creek - Merritt		320.00
3.	Provision of claim map & topo map	\$1.30	
	Board 3 days	\$108.97	
	Room 3 days	69.30	
	Gasoline	11.65	
	Truck rental (4 x 4 crew cab - Charter rentals	119.25	
	Telephone	<u>27.80</u>	
			338.27
4.	10% on item (3)		<u>33.83</u>
			<u>\$1,532.10</u>

Declared before me at the

of

Province of British Columbia, this

VANCOUVER, B.C.

JAN 11 1973

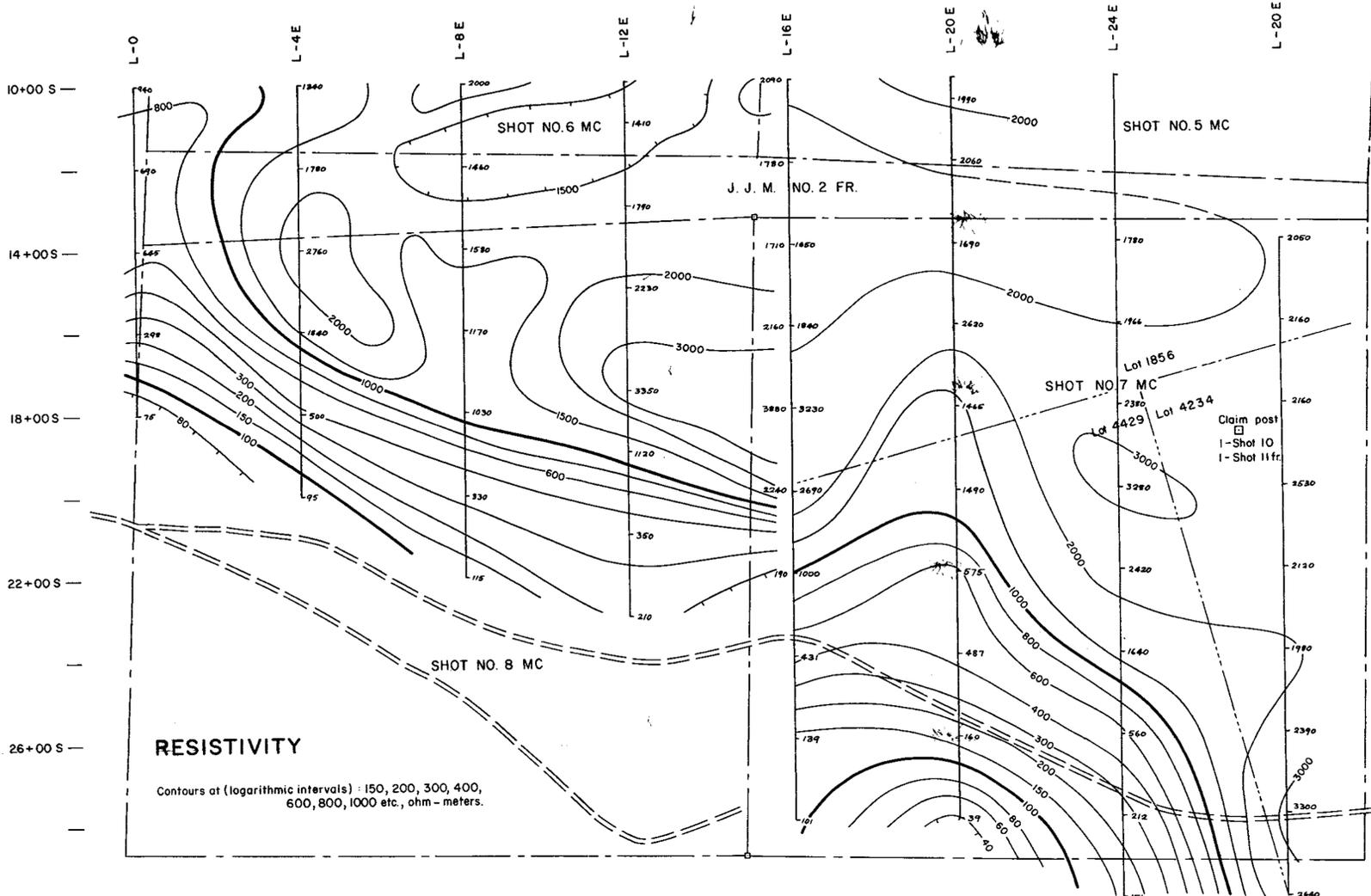
A.D.

Sub - Mining Recorder

Paterson
agent for

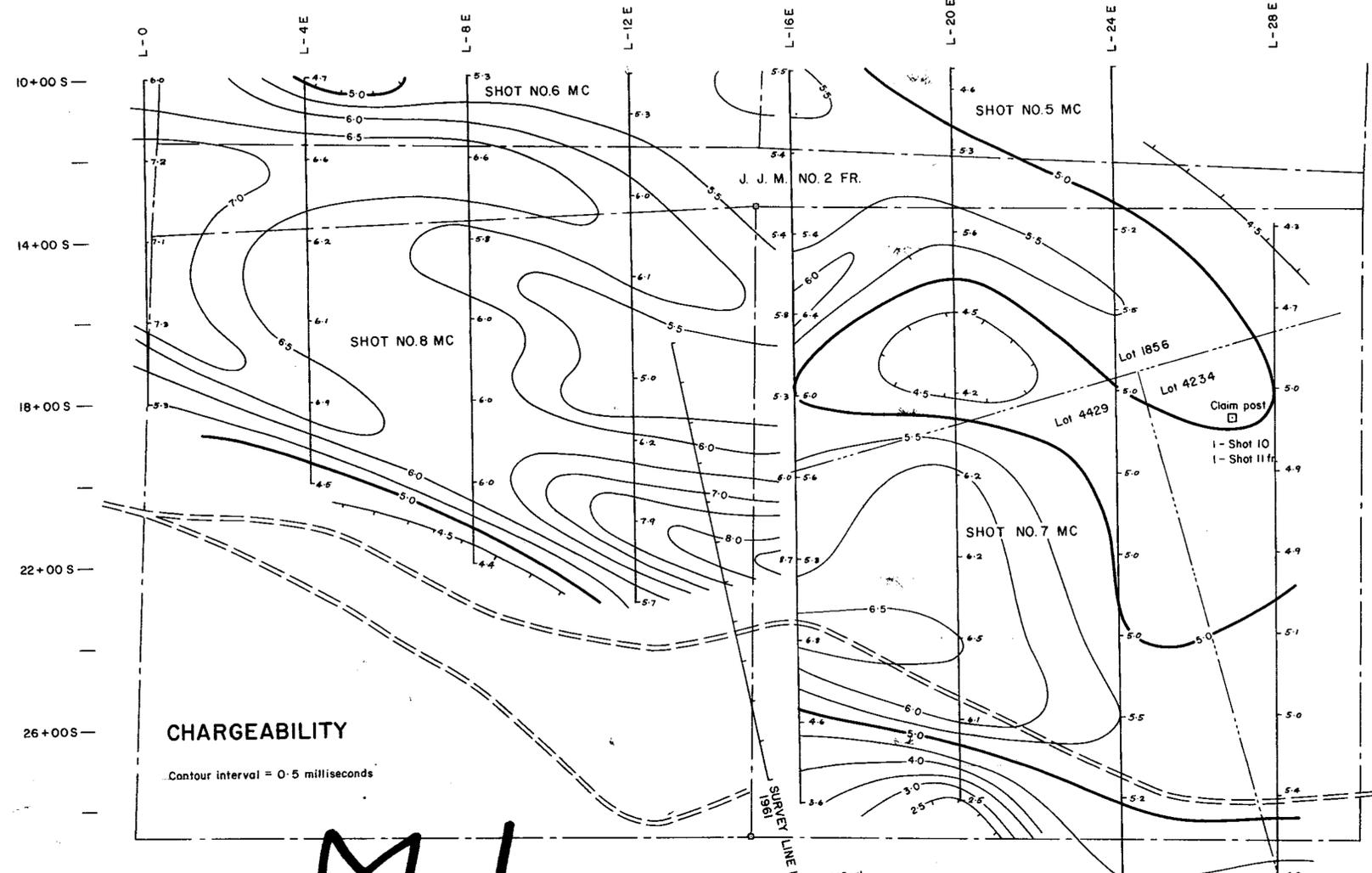
DR. ARD S. PATERSON

INVOICE NO. 1133



RESISTIVITY

Contours at (logarithmic intervals) : 150, 200, 300, 400, 600, 800, 1000 etc., ohm - meters.



CHARGEABILITY

Contour interval = 0.5 milliseconds

POLE - DIPOLE ARRAY

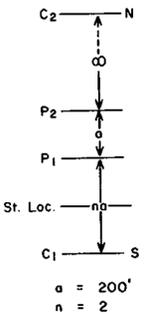
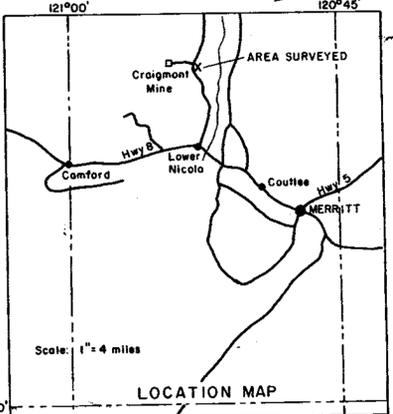


Figure 1

M-1

NOTE: Survey by Norman Paterson & Associates Ltd. in 1972, covered Lines 16E to 28E from 14S to 30S. Data shown on the rest of the area was recorded by HUNTEC Ltd. in 1968.



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DONALD S. PATERSON
SHOT CLAIMS, MERRITT MINING DIVISION, B.C.
INDUCED POLARIZATION SURVEY
CONTOURS OF APPARENT
RESISTIVITY AND CHARGEABILITY



N.T.S. No.	SCALE: 1" = 200'
DRAWN by: A. Huhtala	DRAWING NO: 097-1
APPROVED: <i>R. K. Watson</i>	DATE: December 1972
NORMAN PATERSON & ASSOCIATES LIMITED CONSULTING GEOPHYSICISTS, TORONTO, CANADA	

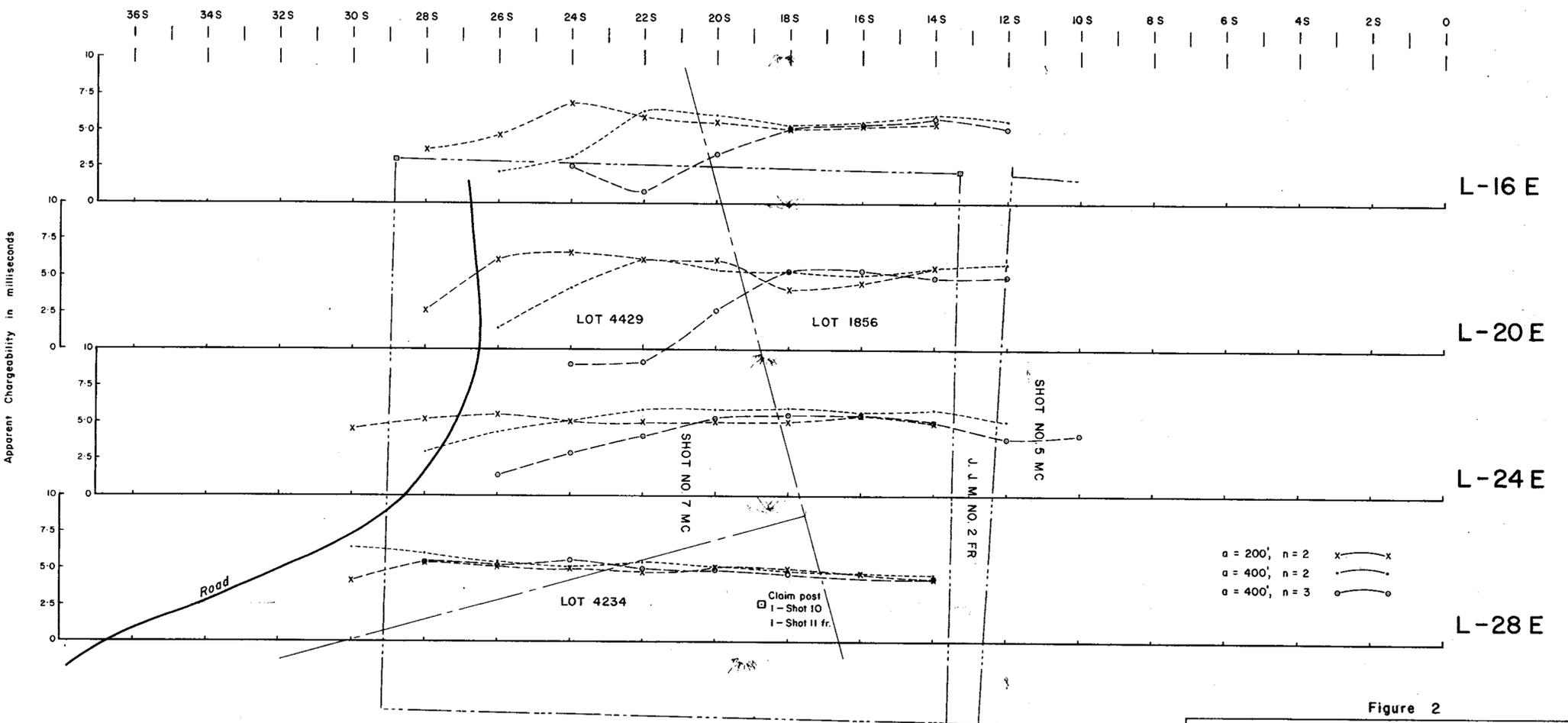
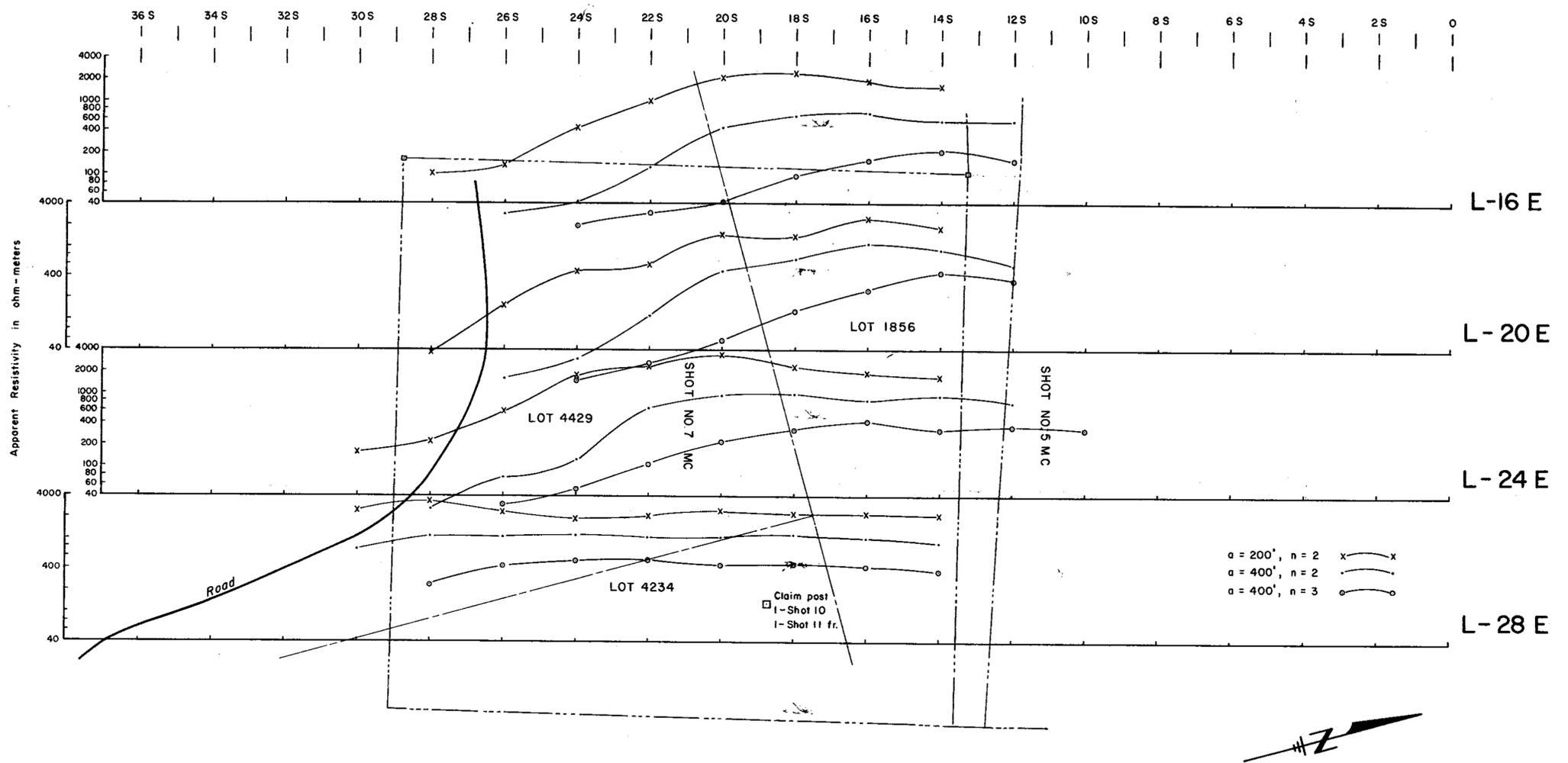
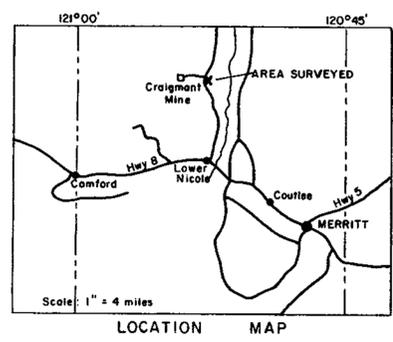
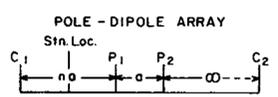


Figure 2



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NO. 4058 MAP #2



DONALD S. PATERSON	
SHOT CLAIMS, MERRITT MINING DIVISION, B.C.	
INDUCED POLARIZATION SURVEY	
PROFILES OF APPARENT RESISTIVITY AND CHARGEABILITY	
N.T.S. NO.	SCALE: 1" = 200'
DRAWN by: A. Huhtala	DRAWING NO: 097-2
APPROVED: <i>Robert K. Watson</i>	DATE: December 1972
NORMAN PATERSON & ASSOCIATES LIMITED CONSULTING GEOPHYSICISTS, TORONTO, CANADA	