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PARROTT LAKE

GEOPHYSICAL REPORT

ON THE

PAR GROUP OF MINERAL CLAIMS

HOUSTON AREA, B. C.

FOR

CANADIAN SUPERIOR EXPLORATION LIMITED

BY

RICHARD J. OVERSTALL, B. Sc.

WILLIAM RAINBOTH, P. Eng.

Property Name : Par Group
Location : Goosly Lake Area
Omineca Mining Division, B.C.
54°N, 126°W, S.E.
Date started : January 1st, 1972
Date completed : January 20th, 1972

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INTRODUCTION

The Par Group of 77 mineral claims and fractions is located 18 miles south of Houston in the Omineca Mining Division. They are exclusively owned by Canadian Superior Exploration Limited, and magnetic and electromagnetic surveys in 1972 by personnel of that company are the basis of this report.

The claims form a contiguous block between the northwest end of Tekaiziyis Ridge and the largest of the Parrott Lakes. The northeastern boundary of the group lies within the lake itself. From the lake elevation of 2,760 feet the ground within the claim group rises to just over 4,000 feet, that is about 700 feet below the ridge summit.

The hill is fairly heavily wooded with mature spruce, jackpine and poplar. However deadfalls are not too frequent and the undergrowth is light except for alders and Devil's Club near watercourses and swamps.

Winter access is by a logging road which branches off the Buck Flats Road some 13 miles south of Houston. This road terminates at a small logged off area on the southeast boundary of the property but requires a ski-doo to traverse the final eight miles. The total road and trail distance from Highway 16 at Houston is 22 miles. (Plate 58-72-1).

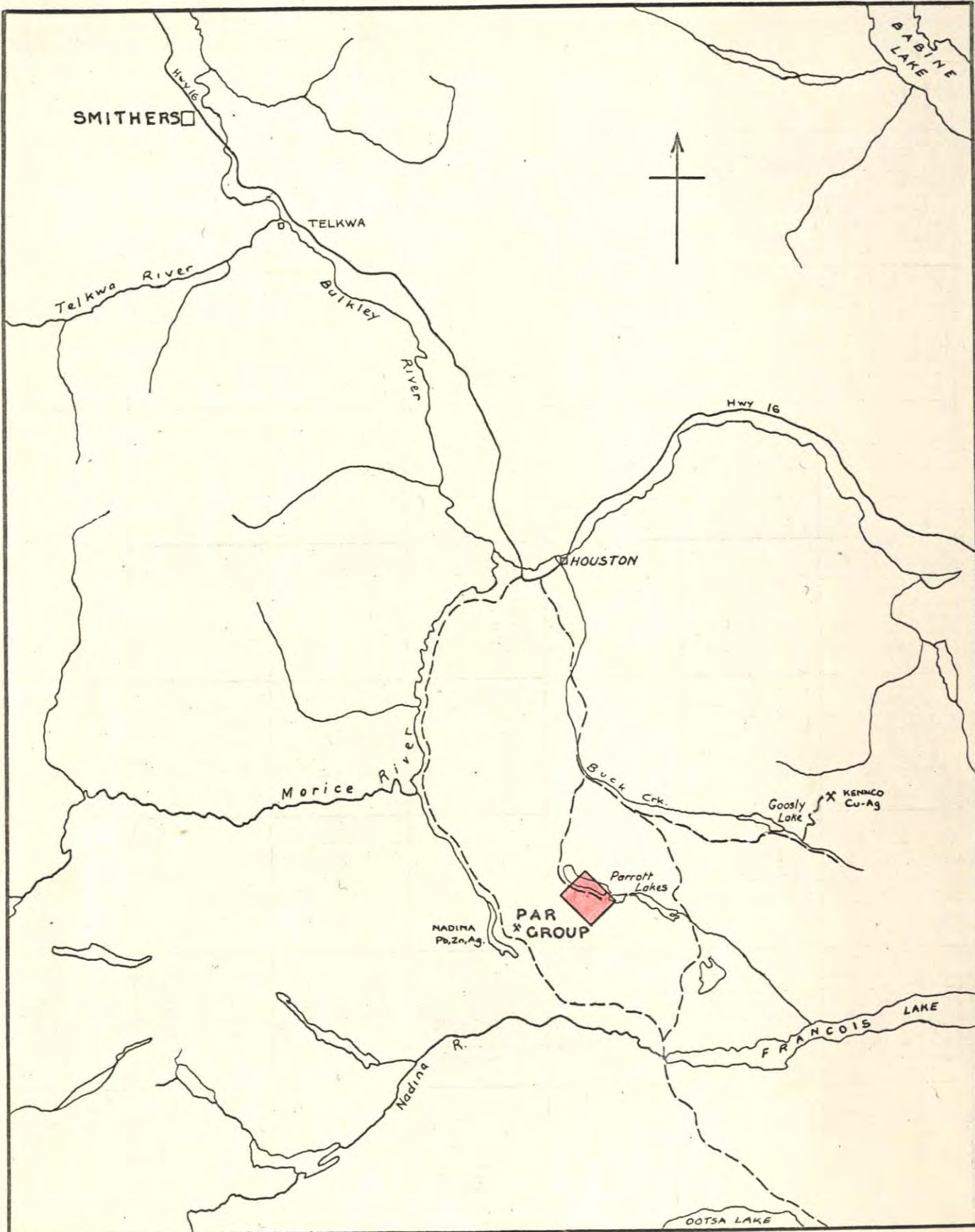
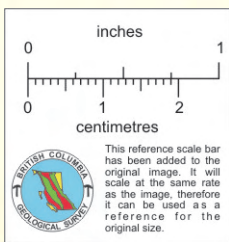


Plate 58-72-1



CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

PAR GROUP

Location Map

DRAUGHTSMAN: R.J.O. SCALE: 1 in. = 8 miles DATE: Dec. 1971

HISTORY

The claims were staked to cover a small igneous intrusion mapped by British Columbia government geologist N. Church as being of similar petrology to the one on Kennco's copper-silver Goosly Lake property (B.C. Dept. of Mines and Petroleum Resources, Preliminary Map No. 6, 1971). The staking was carried out between January 2nd and January 11th, 1971 and the claims recorded on January 21st by J.D. Murphy for Canadian Superior Exploration Limited (Plate 58-72-2).

The 'Gary' group of 16 claims, indicated on claim map 93 L/2E(M) as covering the western edge of the intrusive, was subsequently found to lie on the southern corner of the Par Group. A geochemical survey was filed for assessment by Summit Oils Limited in September 1970 but no work was recorded in 1971. Therefore the ground is now open and all the Par claims are in good standing.

There was no evidence on the ground of any other claims being held on the property, although marked flagging indicates that creeks in the area had been silt sampled on at least three different occasions.

Geological and silt geochemical surveys by Canadian Superior in 1971 failed to indicate any mineralized areas.

SUMMARY AND CONCLUSIONS

A magnetic survey over the Par Group has indicated a series of anomalous pods or lens shaped bodies appearing as either extreme magnetic peaks or depressions. These bodies are roughly

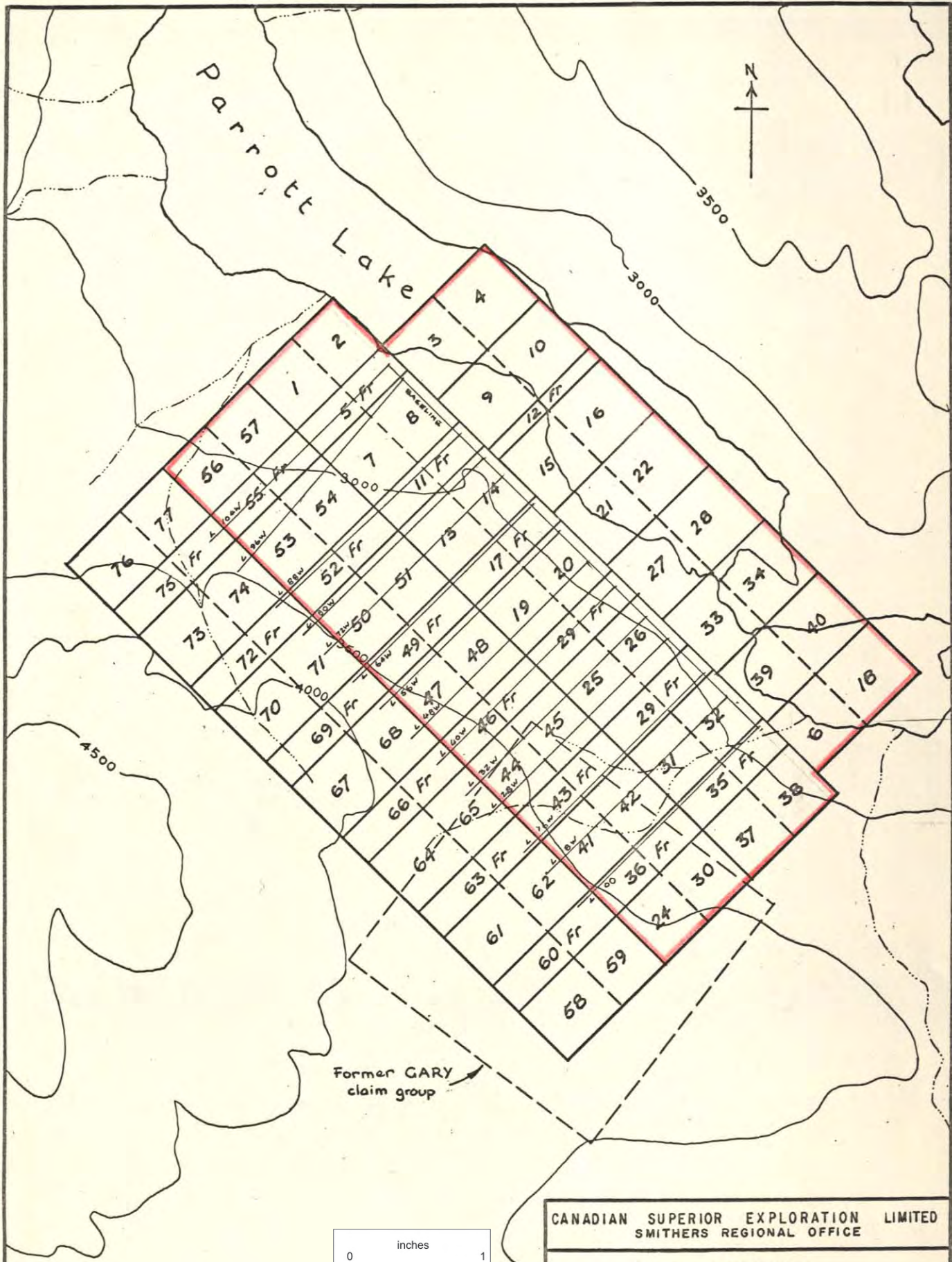
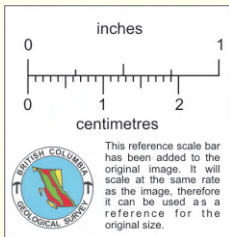


Plate 58-72-2



CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

PAR GROUP
Claim Location

DRAUGHTSMAN: R.J.O SCALE: 1 inch = 1/2 mile DATE: Sept. 1971

parallel, trending at 110 degrees, with magnetic peaks usually lying immediately adjacent to magnetic depressions. These anomalous magnetics have been attributed to pods or lens shaped pyrrhotite bodies.

An electromagnetic survey over the Par Group has located three conductive zones with the following characteristics:

Zone 1

1. A one line anomaly (L 72 W)
2. The in - phase anomaly profile indicates a vertical or steeply dipping sheet type conductor
3. The anomaly is a) probably lying at depth b) directly coincident with a magnetic depression and c) lying within a gabbroic intrusive
4. Probable cause - pyrrhotite lens

Zone 2

1. A two line anomaly (lines 64W and 56W)
2. The in - phase anomaly profile indicates a tabular conductor moderately dipping to the southwest
3. The anomaly is a) of poor conductivity, b) of no direct magnetic correlation and c) lying within a gabbroic intrusive
4. Probable cause - unknown

Zone 3

1. A two line anomaly (lines 56W and 48W)
2. The in - phase anomaly profile (L 56 W) indicates a vertical or steeply dipping sheet type conductor

3. The anomaly a) is probably covered by mildly conductive overburden, b) is of relatively good conductivity, c) has no direct magnetic correlation, and d) is lying with a feldspar porphyry
4. Probable cause - unknown

RECOMMENDATIONS

1. A geological survey using the existing geophysical grid should be carried out in the immediate area of the conductive zones in an attempt to obtain a physical explanation for these zones.

2. A secondary magnetic survey should be conducted over the block bounded by L 80 W and L 40 W between 12S and 32S with magnetic readings being taken at a maximum of 100 ft. intervals. This would further delineate the anomalous magnetics and possibly locate additional anomalies in the areas of conductive Zones 2 & 3.

3. If, by this time, there is no satisfactory explanation for the electromagnetic anomalies an induced polarization survey should be conducted over the block mentioned above to obtain additional information on the length, depth and conductivities of the anomalies.

SURVEY METHODS

During the period January 1st to January 20th, 1972 magnetic and electromagnetic surveys were conducted over a large portion of the Par Group. These surveys resulted in the collection of 418 magnetic readings and 808 electromagnetic readings.

Both surveys were conducted on lines spaced approximately

800 ft. apart with readings being taken at 200 ft. intervals. In specific instances readings were taken at 100 ft. (or less) intervals.

MAGNETIC SURVEY

Method

Magnetic data was collected with a Sharpes MF-1 flux-gate magnetometer which measures the vertical component of the Earth's magnetic field.

Diurnal variations in the Earth's magnetic field were accounted for by establishing a primary base station at 0+00 on L 0 and secondary base stations throughout the grid. The secondary base stations were corrected relative to the primary base station and individual survey readings were corrected relative to the secondary base stations.

The base level of the magnetometer was arbitrarily established at 450 gammas (at the primary base station).

The collected data is presented as a contoured plan map (contoured at 500 gammas) showing survey grid lines, stations, and magnetic readings obtained at these stations. (Plate 58-72-3).

Discussion of Results

Anomalous magnetics over the Par Group consist of a series of pod or lens shaped bodies trending approximately 110 degrees. These bodies appear as either extreme magnetic peaks or depressions with maximum and minimum amplitudes of 3240 gammas and - 2010 gammas, superimposed upon a relatively flat magnetic background of approximately 600 gammas. They are oriented in roughly a parallel manner with magnetic peaks usually lying immediately adjacent to depressions.

Correlation with known geology indicates that the majority of the anomalous bodies lie within or flank a gabbroic intrusion.

It is most likely that the magnetic anomalies are due to pyrrhotite lenses and pods directly associated with the gabbroic intrusion. The conclusion has been reached after consideration of the following facts:

- (a) although pyrrhotite is magnetic the intensity of magnetization is extremely variable usually resulting in a magnetic "signature" composed of alternating peaks and depressions.
- (b) large occurrences of pyrrhotite are usually directly associated with basic igneous rocks.

ELECTROMAGNETIC SURVEY

Method

Electromagnetic data was collected with a Geonics EM - 16 receiver operating on an 18.6 kHz signal from Jim Creek, Wash.

Physical quantities measured by this instrument were the in - phase and quadrature (out - of - phase) components of the induced electromagnetic field. It should be noted at this point that the EM - 16 does not measure the true in - phase or quadrature components but only makes approximations to them given by respectively:

- (a) the tangent to the angle of inclination of the polarization ellipse
- (b) eccentricity of the polarization ellipse.

The collected data is presented as line profiles of the measured in - phase and quadrature quantities (Plate 58-72-4).

Discussion of Results

Three conductive zones have been located on lines 72W, 64W, 56W, and 48W. These zones will be discussed individually.

Zone 1

This zone occurs on L72 W only. It has a maximum - minimum in - phase amplitude of 20%.

The in - phase profile is indicative of a sheet like conductor dipping vertically or steeply to the southwest as shown by the sharp, symmetrical nature of the cross-over trace.

The quadrature profile has a reverse slope indicating a negative phase shift of the secondary field. This suggests that the causative body is a) lying at depth and/or b) is lying under weakly conductive overburden. Of these two situations it is most probable that the anomaly is lying at depth.

This zone is lying in direct coincidence with a magnetic depression and as such the causative body is most probably the same as that of the magnetic anomaly, that is a pyrrhotite lens.

Note: Zone 1 maybe a northwesterly extension of Zone 2 however it has been considered as a separate entity for the following reasons:

- a) the anomaly profile and characteristics of Zone 1 do not compliment those of Zone 2.
- b) it was considered desirable to retain a conformity in trend between the geologic, magnetic, and electromagnetic trends.

Zone 2

Zone 2 occurs on 1 64W, and L 56W. It has a maximum -

minimum in - phase amplitude of 36% on L 64 W.

On both lines the in - phase anomaly profile is relatively broad with a slow, negative "roll - off". This suggests that the causative body is tabular in nature and dips moderately to the southwest. This interpretation is partially substantiated by the quadrature anomaly profile of L 64 W. Conductivity of this zone is not good as evidenced by the relatively strong quadrature components.

Correlation of this zone with known geology and magnetics indicates that it lies within the gabbroic intrusion and flanks an extreme magnetic depression. The nature of the causative body is unknown at present. It is however a valid electromagnetic conductor and as such requires further study.

Zone 3

Zone 3 occurs across lines 56 W, and 48 W. It is most strongly expressed on L 56 W where the maximum - minimum in - phase amplitude is 11%.

The in - phase profile (L 56 W) is indicative of a vertical or near vertical sheet type conductor as shown by the sharp, symmetrical nature of the cross-over trace.

The quadrature profile (L 56 W) has a reverse slope of relatively large amplitude indicating a negative phase shift of the secondary field of considerable degree. This suggests that the causative body is a) lying at great depth or b) is lying under mildly conductive overburden. Of these two situations it seems most plausible that the causative body is lying under mildly conductive overburden especially as the anomaly is coincident with swampy terrain. This interpretation is substantiated by

type curve comparison which indicates that the causative body is a good conductor lying under conductive overburden.

The in - phase profile on L 48 W is asymmetrical and suggests that the causative body probably approaches but does not reach the survey line. The instrument does, however, respond to the conductor and indicates a relatively good conductor as evidenced by the negligible quadrature response.

Correlation with geologic information indicates that the conductive zone flanks the gabbroic intrusive and lies within a feldspar porphyry. The conductive zone lies within an area of relatively flat magnetics and has no direct or flanking magnetic correlation.

The nature of the causative body is unknown but it does exhibit relatively good conductivity and as such requires further study.

Dated at Smithers

February 18th, 1972.

Richard J. Overstall B. Sc.

William Rainboth P. Eng.

APPENDIX 1

ASSESSMENT DETAILS

PROPERTY NAME : PAR GROUP

OWNER : Canadian Superior Exploration Ltd.,
2201-1177 West Hastings Street,
Vancouver 1, B.C.

LOCATION : Goosly Lake Area,
Omineca Mining Division,
British Columbia.

NUMBER OF CLAIMS : 57

NATURE OF SURVEYS : Ground Electromagnetic (EM - 16)
Ground Magnetometer

INSTRUMENTS : Geonics EM - 16 (18.6 kHz)
Sharpes MF - 1 Fluxgate Magnetometer

LINE MILES SURVEYED : 14.6

APPENDIX II

LABOUR COST BREAKDOWN BY EMPLOYEE

<u>Employee</u>	<u>Position</u>	<u>Days Worked</u>	<u>Rate/Day</u>	<u>Cost/Employee</u>
Brace, G. R.	Geophysicist	5	40.00	200.00
Johnson, D.	Geologist (operating EM-16)	20	40.00	800.00
Overstall, R. J.	Geologist (operating Magnetometer)	25	40.00	1,000.00
Rainboth, W.	Supervisor	2	50.00	100.00
				<hr/>
				\$ 2,100.00
				<hr/> <hr/>

APPENDIX III

COST STATEMENT

In partial support of an affidavit on application for certificate of work on Par claims #1 to #57 inclusive.

Costs incurred carrying out geophysical surveys from January 1st to January 20th, 1972.

LABOUR

Salaries as per appendix II \$2,100.00

EXPENDABLE MATERIAL

Groceries 99.65
Operating Supplies 49.99

INSTRUMENT RENTAL

EM-16 rental 250.00
Shipping, parts and batteries 58.18

TRANSPORTATION

Company vehicle (Unit 6) 55.65
Ski-doo, parts and repair 173.47
Helicopter (Alpine Helicopters) 155.00

BOARD AND LODGING

51.50

DRAFTING

35.45

\$3,028.89

APPENDIX IV

CERTIFICATE

I, Richard J. Overstall, of the village of Telkwa, Province of British Columbia, do hereby certify that:

- 1) I am a Geologist resident at West Highway 16, Telkwa, British Columbia.
- 2) I am a graduate of the University of London, England (1964) with a B. Sc. (Hons.) degree in Geology.
- 3) I have been practising my profession for six years.
- 4) I am a Fellow of the Geological Society of London and a member of the Institution of Mining and Metallurgy.

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This 18th day of February 1972.

Richard J. Overstall, B. Sc.

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Dated at Smithers

February 18th, 1972.

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William Rainboth P. Eng.

APPENDIX 1

ASSESSMENT DETAILS

PROPERTY NAME : PAR GROUP

OWNER : Canadian Superior Exploration Ltd.,
2201-1177 West Hastings Street,
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LOCATION : Goosly Lake Area,
Omineca Mining Division,
British Columbia.

NUMBER OF CLAIMS : 57

NATURE OF SURVEYS : Ground Electromagnetic (EM - 16)
Ground Magnetometer

INSTRUMENTS : Geonics EM - 16 (18.6 kHz)
Sharpes MF - 1 Fluxgate Magnetometer

LINE MILES SURVEYED : 14.6

APPENDIX II

LABOUR COST BREAKDOWN BY EMPLOYEE

<u>Employee</u>	<u>Position</u>	<u>Days Worked</u>	<u>Rate/Day</u>	<u>Cost/Employee</u>
Brace, G. R.	Geophysicist	5	40.00	200.00
Johnson, D.	Geologist (operating EM-16)	20	40.00	800.00
Overstall, R. J.	Geologist (operating Magnetometer)	25	40.00	1,000.00
Rainboth, W.	Supervisor	2	50.00	100.00
				<hr/>
				\$ 2,100.00
				<hr/> <hr/>

APPENDIX III

COST STATEMENT

In partial support of an affidavit on application for certificate of work on Par claims #1 to #57 inclusive.

Costs incurred carrying out geophysical surveys from January 1st to January 20th, 1972.

LABOUR

Salaries as per appendix II	\$2,100.00
-----------------------------	------------

EXPENDABLE MATERIAL

Groceries	99.65
Operating Supplies	49.99

INSTRUMENT RENTAL

EM-16 rental	250.00
Shipping, parts and batteries	58.18

TRANSPORTATION

Company vehicle (Unit 6)	55.65
Ski-doo, parts and repair	173.47
Helicopter (Alpine Helicopters)	155.00

BOARD AND LODGING

51.50

DRAFTING

35.45

\$3,028.89

APPENDIX IV

CERTIFICATE

I, Richard J. Overstall, of the village of Telkwa, Province of British Columbia, do hereby certify that:

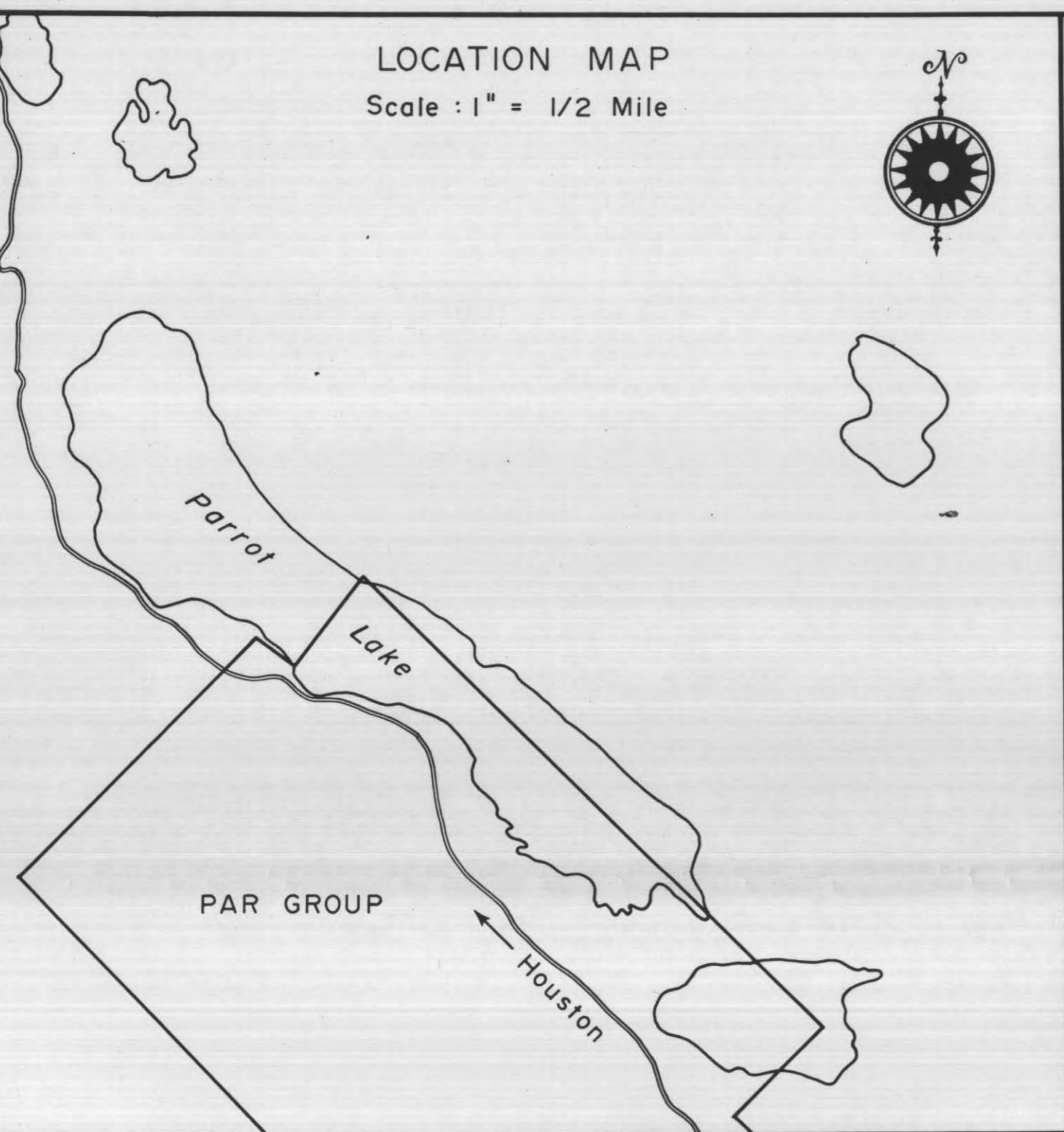
- 1) I am a Geologist resident at West Highway 16, Telkwa, British Columbia.
- 2) I am a graduate of the University of London, England (1964) with a B. Sc. (Hons.) degree in Geology.
- 3) I have been practising my profession for six years.
- 4) I am a Fellow of the Geological Society of London and a member of the Institution of Mining and Metallurgy.

Dated at Smithers

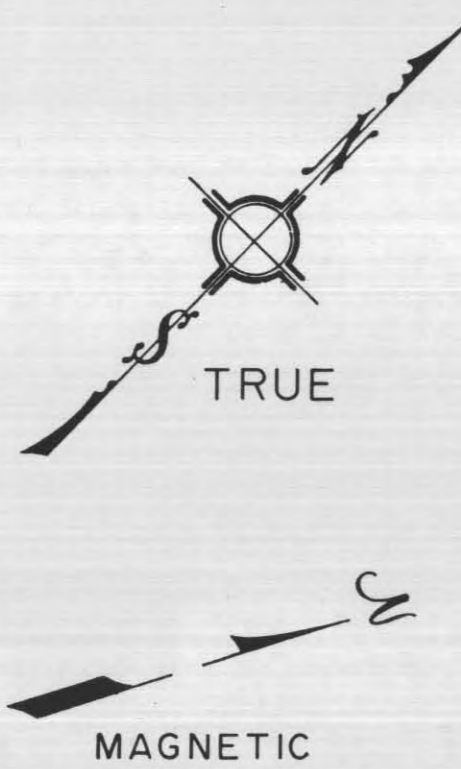
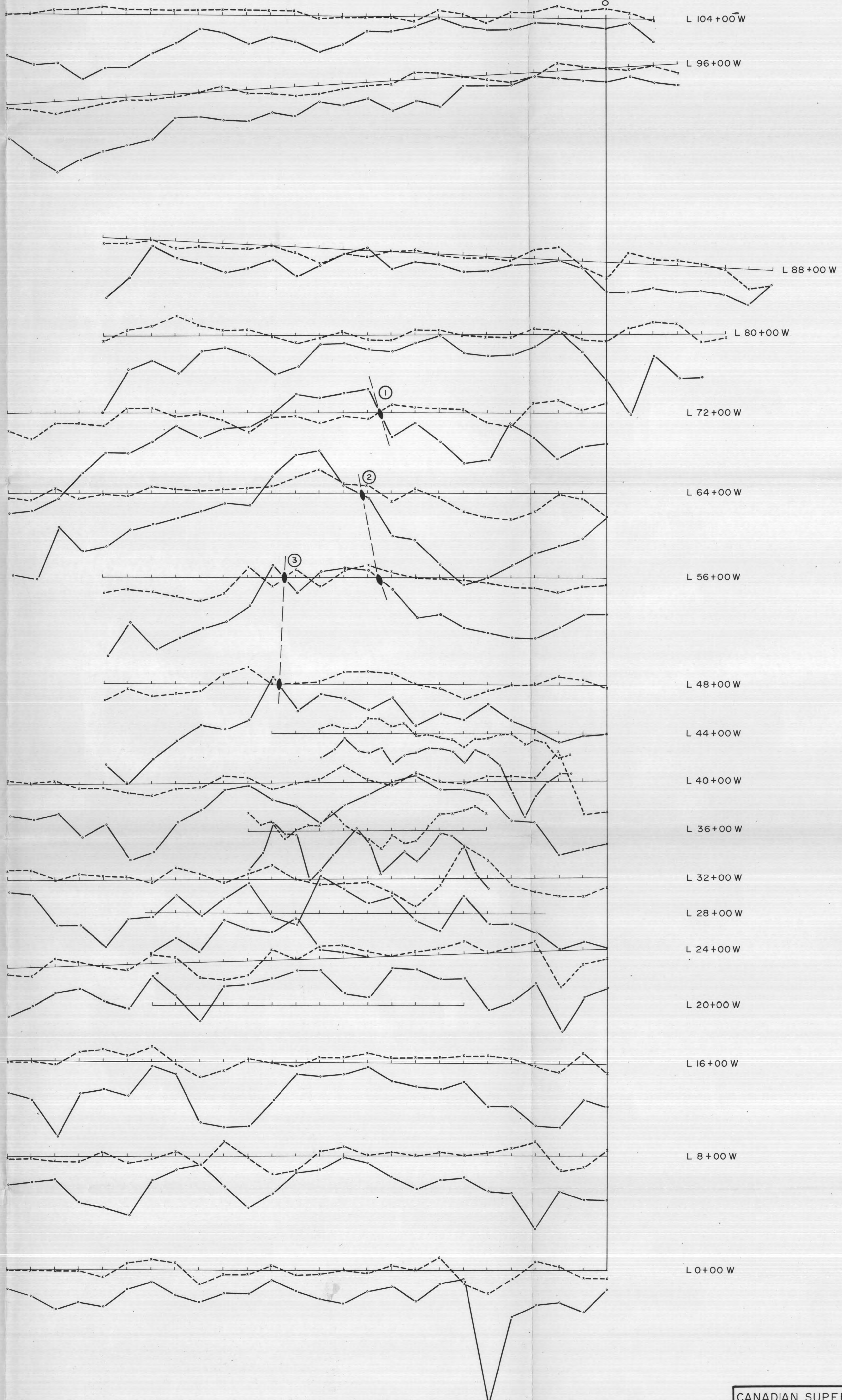
This 18th day of February 1972.

Richard J. Overstall, B. Sc.

LOCATION MAP
Scale: 1" = 1/2 Mile

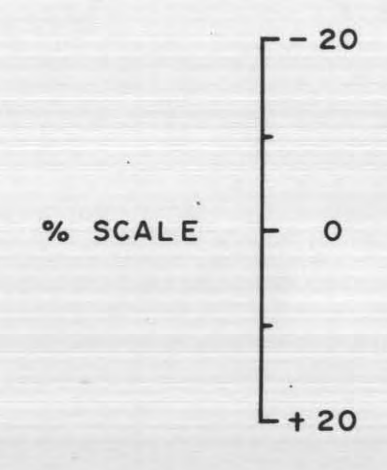


0+00 BASE LINE

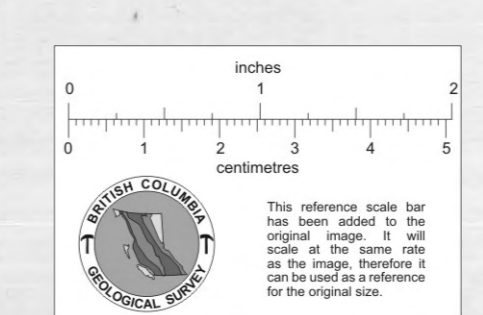


— LEGEND —

INSTRUMENT - EM-16
TX STATION - JIM CREEK
FREQUENCY - 18.6 KHz
IN PHASE ———●———
QUADRATURE - - - - -

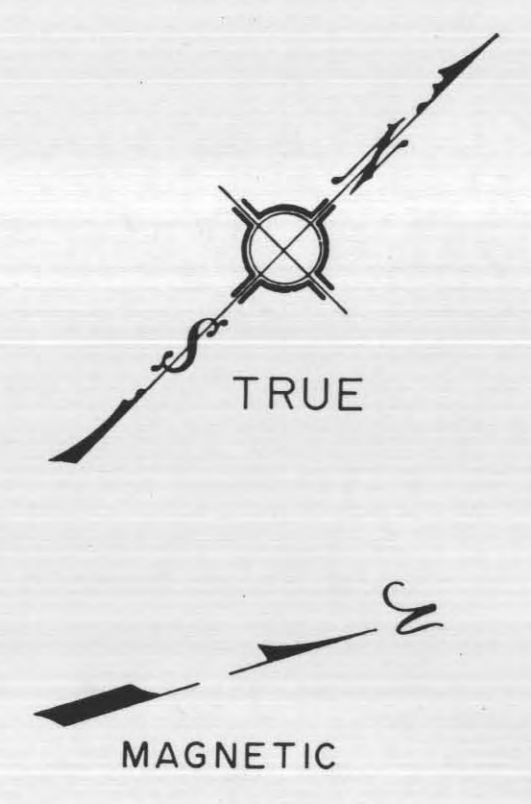
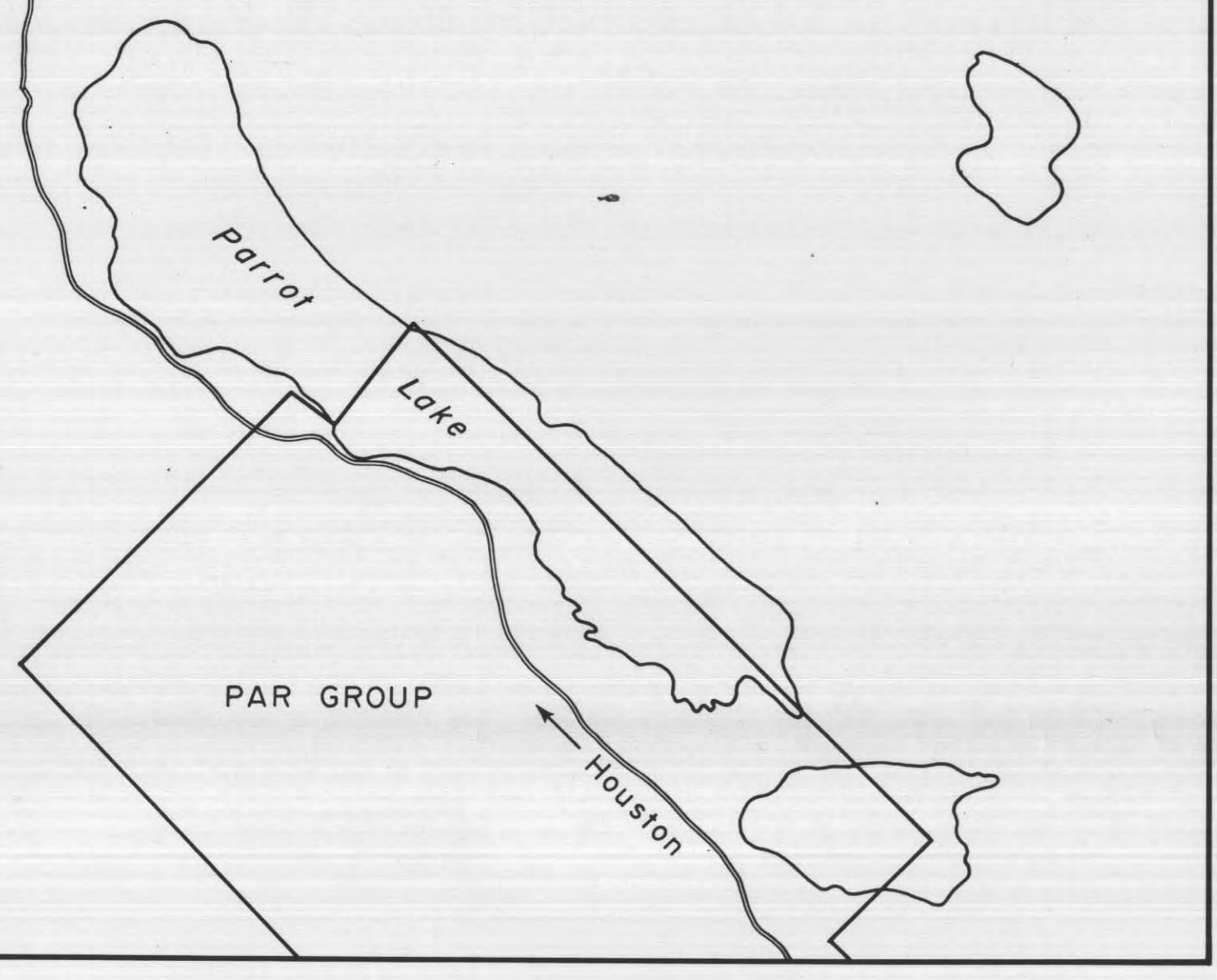


CONDUCTOR AXIS ———●———
① ② ③ ZONE NUMBERS

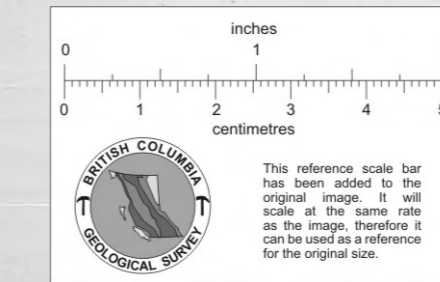
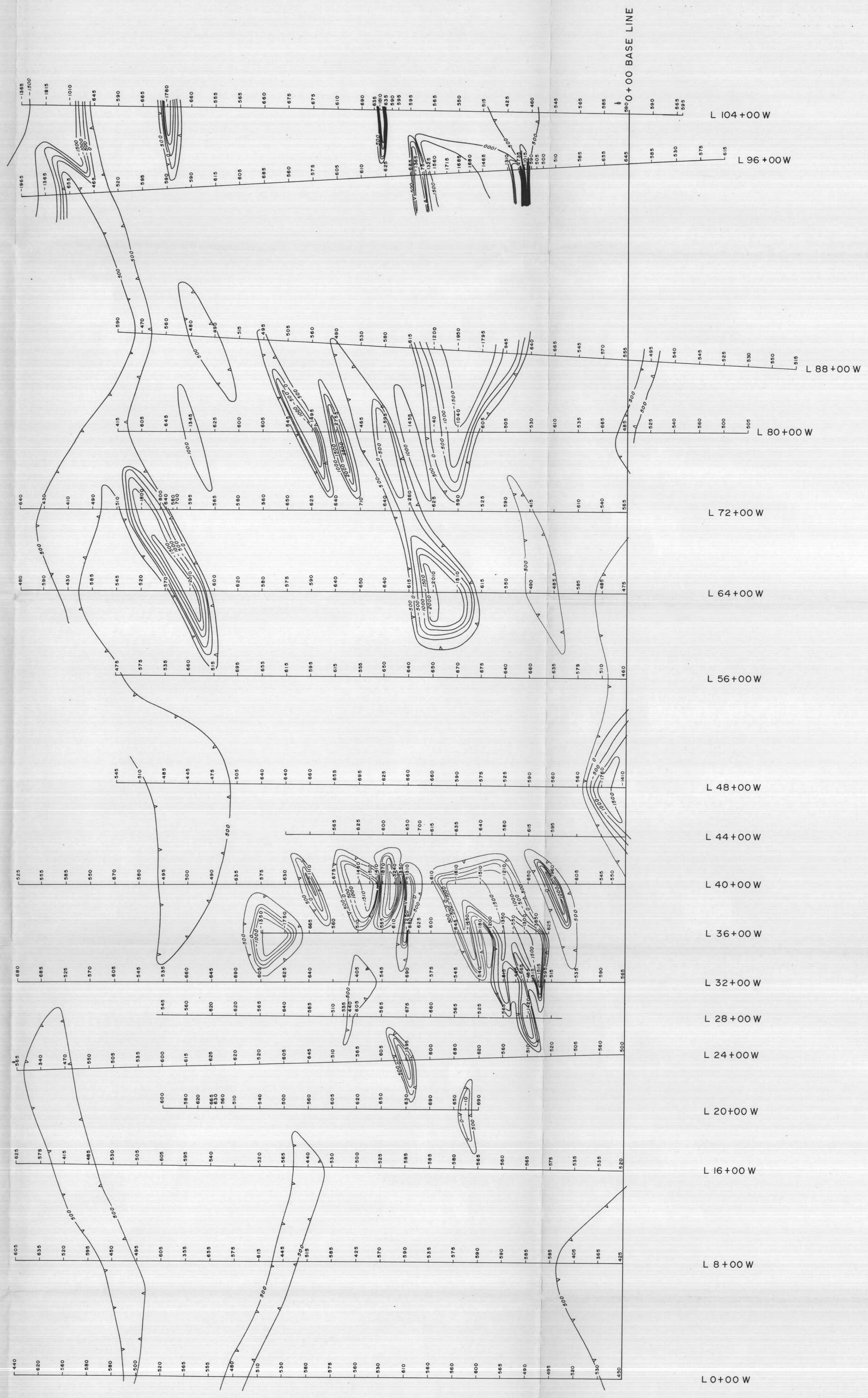


CANADIAN SUPERIOR EXPLORATION LIMITED SMITHERS BRITISH COLUMBIA	
OMINECA MINING DIVISION	
PAR GROUP	
ELECTROMAGNETIC SURVEY	
Date: February 1972	Scale: 1" = 400'
Dwn By: Graphic Supply & Service Center	Dwg No 2 58-72-4

LOCATION MAP
Scale: 1" = 1/2 Mile



— LEGEND —
INSTRUMENT - SHARPES MF-1 (FLUX GATE)
CONTOUR INTERVAL - 500 γ
BASE - 450 γ
DEPRESSION



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PAR GROUP	
ELECTROMAGNETIC SURVEY	
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Dwn By: Graphic Supply & Service Center	Dwg No 1 56-72-3