

**Department of
Mines and Petroleum Resources
ASSESSMENT REPORT**

NO. 3478 MAP

GROUND MAGNETOMETER SURVEY
OF THE OWEN GROUP I AND OWEN GROUP II
MINERAL CLAIMS 24 MILES E OF 70 MILE HOUSE

92P/6E 121° 02' W. 51° 18' N.
CLINTON MINING DIVISION

G. V. Lloyd Exploration Ltd.

July - August, 1971

3478

**GROUND MAGNETOMETER SURVEY
OF THE OWEN GROUP I AND GROUP II MINERAL CLAIMS
RAYFIELD RIVER, CLINTON MINING DIVISION
BRITISH COLUMBIA**

by
**G. V. Lloyd Exploration Ltd.
Calgary, Alberta**

August, 1971

GROUND MAGNETOMETER SURVEY
OF THE OWEN GROUP I AND II MINERAL CLAIMS GROUPS
RAYFIELD RIVER, CLINTON MINING DIVISION
BRITISH COLUMBIA

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A. Schwendtmayer
G. V. Lloyd

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GROUND MAGNETOMETER SURVEY
OF THE OWEN GROUP I AND GROUP II MINERAL CLAIMS
RAYFIELD RIVER, CLINTON MINING DIVISION
BRITISH COLUMBIA

INTRODUCTION

Summary

This report presents the results of a ground magnetometer survey, carried out on the Owen Claims Groups I and II. This preliminary survey was made to determine the locations and extent of any magnetic anomalies on the property. Porphyry copper mineralization has been found on the property and in the vicinity, but exposures are confined to a small number of outcrops, therefore, a magnetometer survey was considered advisable.

Property Location

The Owen Groups I and II claims consist of two mineral claims groups extending northward and southward from Campeau Creek, on the east side of Rayfield River. The southeast corner of the claim groups is situated at Young Lake, on the Bonaparte River.

Accessibility

The subject groups are easily accessible from 70 Mile House, B. C., via Green Lake, Pressy Lake and Young Lake. An alternate route leads from Little Fort, north of Barriere, B. C., via Eakin Creek, North Bonaparte and Young Lake. 70 Mile House is located on Highway 97 from Cache Creek, and Little Fort lies on Highway 5 from Kamloops. The Pacific Great Eastern Railway lies 20 miles to the northwest.

Within the claim groups are a considerable number of old and new logging roads and open meadows, providing easy access to all parts of the property.

History

The geology of the area was mapped on a scale of 4 miles to the inch in 1964-66, by R. B. Campbell and H. W. Tipper, of the Geologic Survey of Canada, and is shown and described on the Bonaparte River Sheet (Map 3-1966).

West of the property, exploration has been carried out by Amax Exploration. Some diamond drilling was done in 1968 on their claims. A large number of mineral occurrences found by that company lie on the eastern portion of their claim group, adjoining the west side of the Owen claims. Cominco completed work to the west of the Owen I and II claims groups in 1966, conducting a magnetic - geologic - geochemical survey on a small number of claims (Claims IDS 1 - 16).

OPERATIONAL DATA

Instrument Used

The survey was carried out with a Scintrex MF-2 Fluxgate Magnetometer, Serial No. 002129. The sensitivity at 10,000 gammas, full scale, is 200 gammas per scale division. The temperature coefficient is less than one gamma per degree centigrade, or 1/2 gamma per degree fahrenheit. This instrument is extremely sensitive to variations of the intensity of the magnetic field, and the results are read directly. Checks on the magnetic drift were taken every two to four hours. Diurnal variations were obtained by taking measurements of the base station several times daily.

GEOLOGY

Regional Geology

Maps prepared by the Geologic Survey of Canada (Map 3, 1966) show the survey area to lie at the contact between two major rock types. To the east lie Tertiary plateau lavas, olivine basalt and basalt andesites. In contrast to the volcanics lie Middle Jurassic (?) biotite granites, diorites and hornblende diorites (Campbell and Tipper, 1964-1966). In addition, amphibole and leucocratic syenites, gabbro and aplite and pegmatite dikes have been found in the area. Campbell and Tipper (1964-1966) state that the extensive fracturing and the copper and molybdenum mineralization, in the areas underlain by Triassic and Jurassic volcanic sedimentary and intrusive rocks, have considerable potential for mineral exploration, being in many aspects, geologically comparable to copper producing areas to the south.

Copper and gold mineralization has been found 10 miles to the southeast of the claims groups in altered andesites and related rocks. Properties on which exploration has been carried out lie to the west and north and throughout the general area.

The entire area was overridden by ice sheets in Pleistocene and Recent times, and though the glacial overburden is extensive, it is not deep.

Local Geology

Examination of outcrops in the area indicates several rock types, but basically a Middle Jurassic (?) intrusive complex and Tertiary plateau lavas dominate.

In the western portion of the property are found mainly fine-grained leucosyenites and hornblende-biotite-syenites of varying texture and granularity. Numerous pegmatite and aplite dikes of varying composition intrude into, and cut across, the syenites. These dikes, of various widths, are usually mineralized with bornite, chalcopyrite, chalcocite and pyrite as disseminations and along joint faces. The syenites examined have been extensively fractured and carry copper and sphalerite mineralization along the fractures and joint faces.

Float, found in the east central portion of the property, varies from basalt and vesicular lavas to syenites, epidote hornblende syenites and granites.

In the eastern and southeastern portions, fine-grained basalts and andesites, containing usually olivine, are the dominant rock types. No mineralization in the volcanics has been found to date.

The contact between the Tertiary lavas and the intrusive rock is overlain by glacial deposits, but the magnetics of the contact area may serve to outline the contact. "Islands" of basalt, found in the western portion of the property, indicate that the contact may be quite irregular.

TABLE OF FORMATIONS

Cenozoic	Pleistocene	Unnamed	Till, gravel, clay, silt, alluvium
	Miocene and, or Pliocene	Plateau Lava	Olivene basalt, basalt andesite, ash and breccia beds, basaltic andesite, minor necks and plugs.
Mesozoic	Middle Jurassic (?)	Unnamed	Biotite granite, quartz diorite, hornblende granodiorite, porphyritic hornblende syenite.
	Upper Triassic	Nicola Group	Augite andesite flows and breccia, tuff, argillite, greywacke, grey limestone.

GEOPHYSICS

Operator

All measurements with the magnetometer were made by the operator. The geophysical crew consisted of two members: A. Schwendtmayer and S. Lynes. The survey grid was laid out by L. Timmons, M. Torontow and J. Davis. A base camp was constructed on Campeau Creek, in the subject claims.

Period of Survey

The survey was commenced July 21, 1971 and completed August 22, 1971.

Survey Control

The survey was conducted along blazed and flagged lines bearing east to west and 400 to 1,000 feet apart, depending on the favourability for mineralization and the indications for anomalous magnetics obtained from the aeromagnetic survey (Map 5226 G, Green Lake, B. C. 1967). A baseline was established through the west center of the block, in order to establish and control the crosslines. The lines were chained and a station was flagged every 200 feet. A total of considerably more than 240,000 feet of crosslines, plus 25,000 feet of baselines, was measured, picketed and flagged through the bush in the Owen Groups and the adjacent mineral claims.

Frequency of Measurement

Measurements of the intensity of the magnetic field, relative to a base station at the camp, with an arbitrary intensity of 1,000 gammas, were made every 200 feet along the crosslines. Where magnetics variations changed rapidly, additional readings along the 200 foot interval were taken.

Survey Results

The isogamma contours indicate that the general trend of the magnetic intensities is northwesterly.

Owen Group I

The isogamma values reveal that the general trend is northerly to north-northwesterly.

Two zones are of interest in the central part, and several others near the edges of the Group. The anomalies consist of long, sub-parallel "highs" and "lows". The position of these anomalies, relative to the grid and claim boundaries, is shown on Figure 2, prepared to accompany this report.

Owen Group II

The isogamma values reveal that the general trend in Group II is northwesterly.

Several zones are of interest. One is a long, sinuous, magnetic "low" in the central-southern part. Another place of interest is the northeastern part where sharp, considerable magnetic variations occur. Here, magnetic "highs" (plus 1,000 gammas) flank magnetic "lows" (minus 2,000 gammas) which in turn flank other magnetic "highs" (to plus 3,000 gammas). In every case, the magnetic values vary across a narrow zone. The anomalous values persist for distances of 200 to 2,000 feet on the ground and are terminated by either a sharp rise, or decrease in the magnetic intensities. This anomalous area contains subzones of highly diverse magnetic values.

Minor anomalous magnetics are found throughout the property. Magnetic "highs" are more frequent in the eastern portion of the property, and are thought to be influenced by the high iron content of the basalts in that

area. Magnetic "lows" unaccompanied by anomalous "highs", are more widespread in the western and central portions of the property.

The aeromagnetic survey map (Map 5226 G) indicates a 10 mile long N.N.W. trend of magnetic "lows" adjacent to the magnetic "highs" in the area. Frequent mineralization of rocks along this trend has been found.

The position of the anomalies described, relative to the grid and cross-lines, is shown on the map.

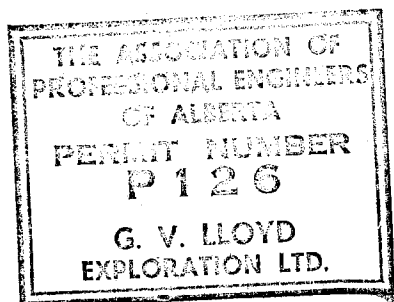
CONCLUSION

The Fluxgate Magnetometer Survey shows a highly anomalous condition in the east portion of the Groups. The size and the extreme diversity of the magnetics within the anomaly suggest that the underlying rock has considerable geologic potential for mineralization. *By itself?*

The large number of magnetic "lows" in the western and central areas, found together with porphyritic mineralization, suggests that they may be important indicators.

RECOMMENDATIONS

Much of the area is overlain by glacial deposits, covering in particular the major anomalous area and many of the minor anomalies. More extensive and detailed geophysical exploration in these areas is recommended. This includes checking anomalies with an electromagnetic or I.P. instrument to locate and evaluate any conductors that may be associated with the anomalous magnetics and rechecking and detailing magnetic anomalous zones that appear to have size and extent. The overburden is thin and the relief is low and the area is favourable for geophysical and geochemical prospecting.



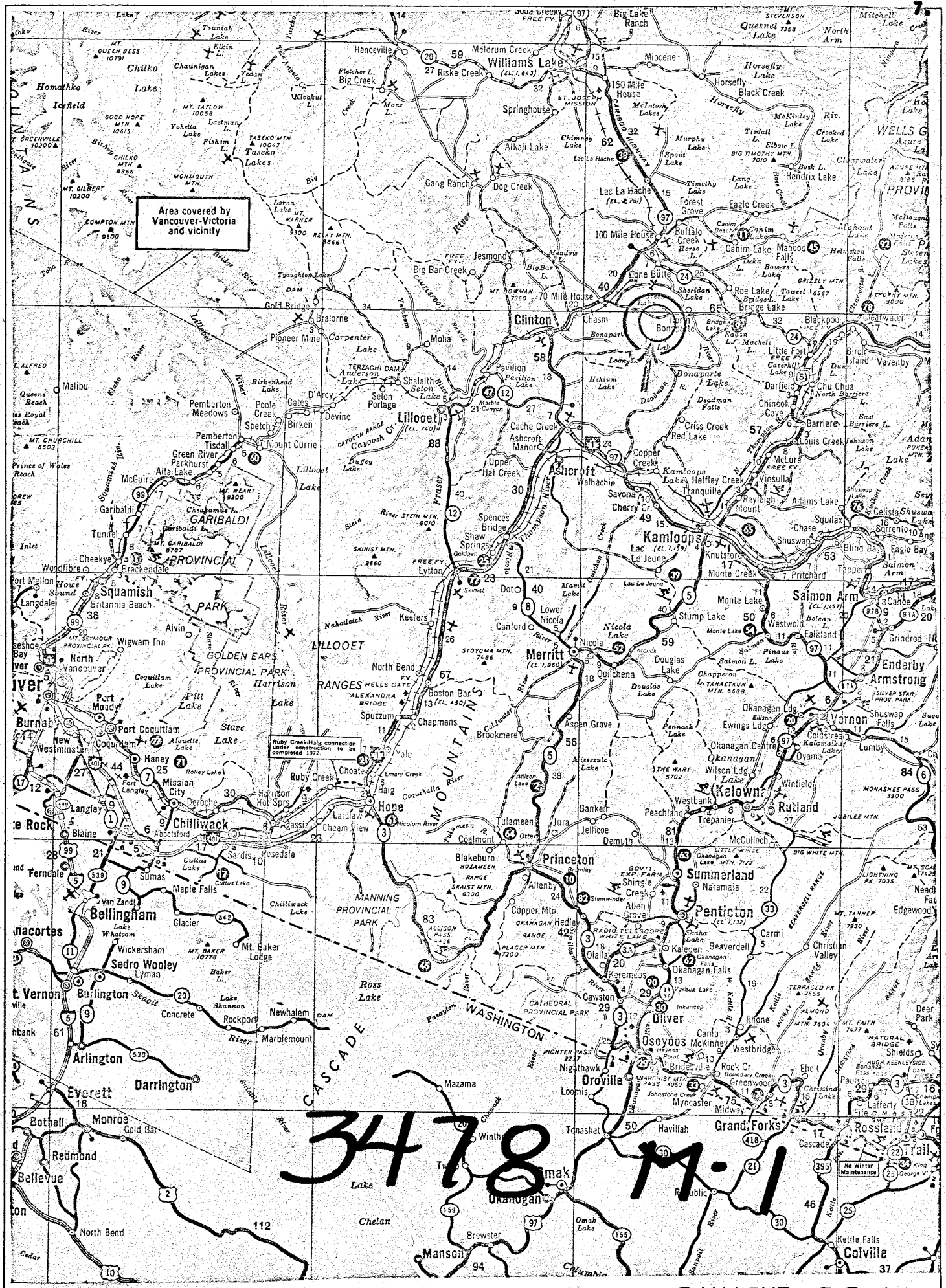
G. V. LLOYD EXPLORATION LTD.

A. Schwendtmayer

[Signature]
G. V. Lloyd, P. Geol.

August 27, 1971
Calgary, Alberta.

FIGURE 1 - INDEX MAP



STATEMENT OF QUALIFICATIONS

of

Alfred R. Schwendtmayer

- 1) I, Alfred R. Schwendtmayer, hereby certify that I am employed as a geologist with G. V. Lloyd Exploration Ltd., whose offices are at 703 Fifth Street, S.W., Calgary 2, Alberta.
- 2) I am a graduate in Geology from the University of Calgary (B.Sc. 1969).
- 3) I have been employed as a minerals exploration geologist since that time and have had four previous summers' experience in this profession.
- 4) I have no financial interest in the properties described herein.

A. R. Schwendtmayer

Calgary, Alberta

STATEMENT OF QUALIFICATIONS
of
G. V. Lloyd, P. Geol., P. Eng.

- 1) I, Griffin V. Lloyd, hereby certify that I carry out a geological consulting practice, with offices at 703 Fifth Street, S.W., Calgary 2, Alberta.
- 2) I am a graduate in Honours Geology from the University of British Columbia (1951) and have also studied postgraduate geology at the same University (1953).
- 3) I have been employed as a geologist since that time and have held responsible positions, including that of Exploration Manager of a medium-sized Canadian resource company.
- 4) I am a registered Professional Geologist in the Province of Alberta, and am a member of the Alberta Society of Petroleum Geologists and the Society of Economic Paleontologists and Mineralogists. G. V. Lloyd Exploration Ltd., is licensed to practice as Professional Engineers in the Province of Alberta. I am also licensed as a Professional Engineer in the Province of Saskatchewan.
- 5) I have a financial interest in the properties described.
- 6) I have applied for registration as a Professional Engineer in the Province of British Columbia.

G. V. Lloyd, P. Geol.

Calgary, Alberta.

LIST OF PERSONNEL AND

TIME ON PROJECT #4571

<u>Personnel</u>	<u>Home Address</u>	<u>Dates</u>	<u>Duties</u>
K. Sen	902 - 921 5th Ave. S.W. Calgary, Alberta.	4/26 - 5/28/71 6/5 - 6/30/71	Geologist
L. Timmons	P.O. Box 861, Grand Forks, B.C.	4/26 - 8/22/71	Party Manager
M. Torontow	1696 Mallard Dr. Ottawa, Ontario.	6/3 - 8/22/71	Engineer: Line- cutting & flagging
A. Schwendtmayer	1827 24th Ave. N.W., Calgary, Alberta.	7/20 - 8/22/71	Geologist
S. Lynes	834 Radford Rd., Calgary, Alberta.	7/20 - 8/22/71	Cook & Assistant
J. Davis	227 23rd Ave. N.W., Calgary, Alberta.	7/1 - 8/22/71	Line-cutting & flagging
A. Staniforth	General Delivery, 100 Mile House, B.C.	5/17 - 5/22/71	Line-cutting
A. Newton	c/o The Point, 70 Mile House, B.C.	May 8/71	Line-cutting
C. File	c/o General Delivery, 70 Mile House, B.C.	May 28/71	Line-cutting
G. V. Lloyd	607 Willowbrook Dr. S.E., Calgary, Alberta.	May 8, 9, 23, 24/71 June 13/71 August 21, 22/71	Geologist

SELECTED BIBLIOGRAPHY

Campbell, R. B. and
Tipper, H. W. (1966)

Geology Bonaparte River, B.C.
Map 3-1966, Geological Survey,
Canada.

Tipper, H. W. (1971)

Map 1293A, Surficial Geology,
Bonaparte Lake, Geological
Survey, Canada.

Geophysics Paper 7716G

Aeromagnetic Series, Bonaparte
Lake, 1" = 4 miles, Geological
Survey, Canada.

Geophysics Paper 5226G

Aeromagnetic Series, Green Lake,
Geological Survey, Canada.

STATEMENT OF COSTS

1) Transportation

Vehicles

Unit #142 Chevrolet Pickup

4/26 - 8/22/71 @ \$180.00/mth \$ 667.71
Mileage - 4,594 miles @ \$.10/mi. 459.40 \$1,127.11

Unit #139 I.H.C. Scout

5/13 - 8/22/71 @ \$325.00/mth \$1,069.32
Mileage - 3,130 miles @ \$.12/mi. 375.60 \$1,444.92

Unit #136 Ford Crewcab

7/19 - 8/22/71 @ \$200.00/mth \$ 219.35
Mileage - 1,621 miles @ \$.12/mi. 194.52 \$ 413.87

Automobile

5/8,9,23 & 24, 6/13,*8/21,22/71*

* 2/3 of these 2 days*

6 1/3 days @ \$14.00/dy \$ 88.66

Mileage - 2,799 miles @ \$.13/mi. 363.87 \$ 452.53 \$ 3,438.38

2) Equipment Rentals

Tent Accommodation

6/6 - 8/22/71 77 days @ \$2.00/dy \$ 616.00

Camp and Field Hardware

Rental Rate - \$1.00/day/man

351 man-days x \$1.00 x 4 tents \$ 351.00

Prospecting Equipment

Rental Rate - \$1.00/day/man

351 man-days x \$1.00 \$ 351.00

Geophysical

Rental of MF-2 Fluxgate Magnetometer

7/20 - 8/20/71 @ \$250.00/mth \$ 250.00 \$ 1,568.00

3) Salaries and Wages

L. E. Timmons, Party Manager, (119dys)

4/26 - 8/22/71 @ \$750.00/mth \$2,919.33

K. Sen, Geologist (33dys) @ \$500.00/mth

4/26 - 5/28,*6/5 - 6/30/71* *Office* \$1,016.72

J. Davis, Line-cutter (53dys)

7/1 - 8/22/71 @ \$150.00/mth \$ 263.86

M. Torontow, Line-cutter (81dys)

6/3 - 8/22/71 @ \$635.00/mth \$1,667.18

A. Schwendtmayer, Geologist (65dys)

7/20 - 8/22/71 @ \$850.00/mth \$ 932.26

\$6,799.35

3)	<u>Salaries and Wages (Contd)</u>		
	Amount brought forward	\$6,799.35	
	G. V. Lloyd, Geologist (6 1/3 dys)		
	5/8, 9, 23 & 24/71		
	6/13/71		
	8/21 & 22/71 (2/3 of 2 days)		
	@ \$150.00/day	\$ 950.00	\$ 7,749.35
4)	<u>Assays</u>		\$ 16.00
5)	<u>Lodging</u>		\$ 324.10
6)	<u>Meals/Groceries</u>		\$ 997.57
7)	<u>Field Supplies</u>		\$ 108.65
8)	<u>Fuel</u>		\$ 573.95
9)	<u>Maps</u>		\$ 114.69
10)	<u>Telephone</u>		\$ 133.01
11)	<u>Freight</u>		\$ 4.05
12)	<u>Fees & Licenses</u>		\$ 5.00
13)	<u>Geochemical (Estimate)</u>		
	1,500 cold extraction @ \$.50 ea	\$ 750.00	
	1,500 AA & Preparation @ \$2.25 ea	<u>3,375.00</u>	\$ 4,125.00
14)	<u>Travel/Transportation</u>		\$ 67.20
15)	<u>Miscellaneous</u>		\$ 61.65
16)	<u>Report Compilation & Drafting</u>		\$ 300.00
			\$19,586.60
	10% Administrative		<u>1,958.66</u>
	<u>Total Foregoing Costs</u>		<u>\$21,545.26</u>


Claims on which work is to be applied

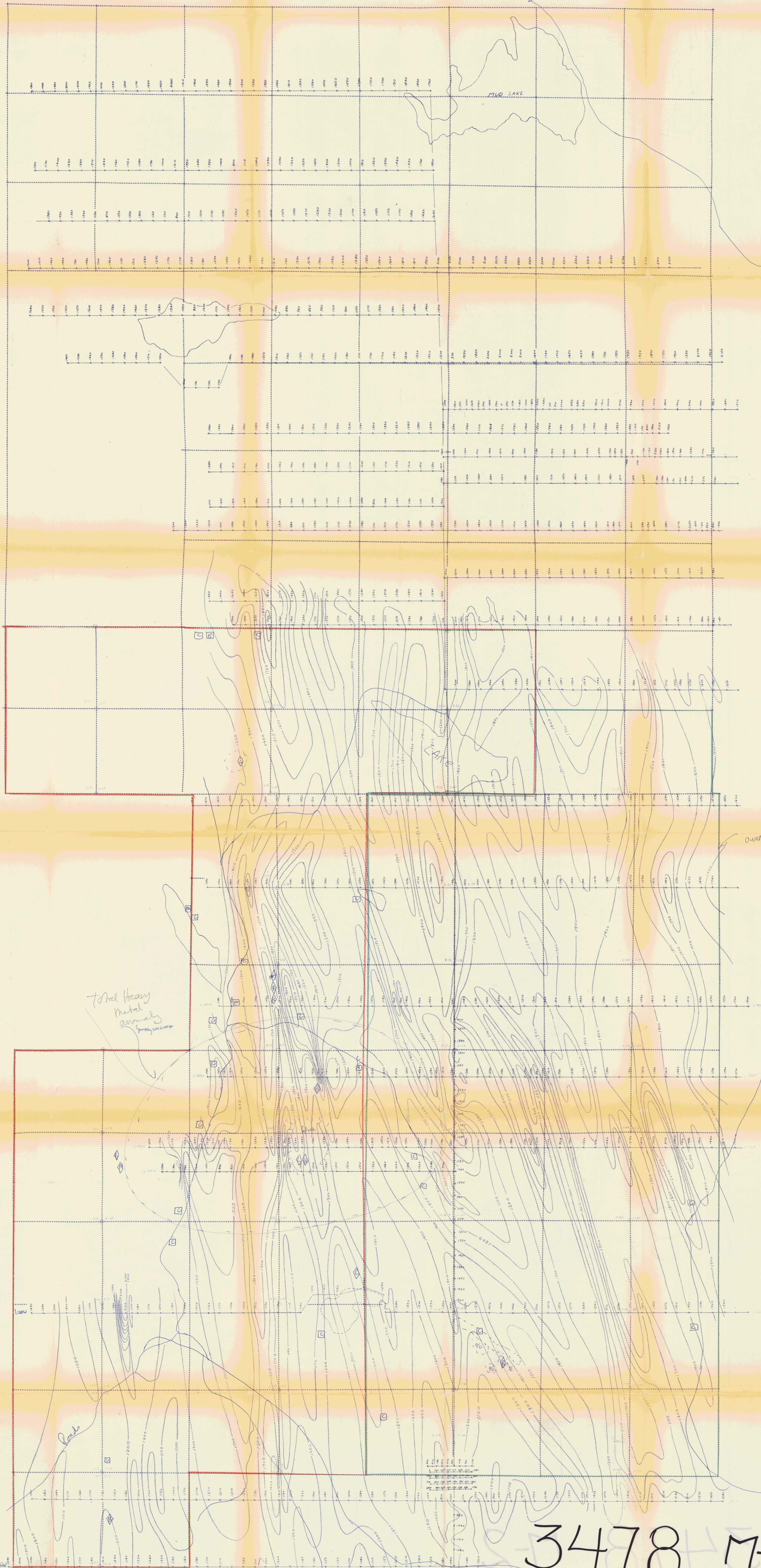
A total of \$4,000.00 is to be applied to Owen Group I.

A total of \$3,400.00 is to be applied to Owen Group II.

The balance is to be applied to Groups yet to be formed, composed of mineral claims designated Alan and Owen.

Total work to be applied for is \$21,500.00.


G. V. Lloyd, P. Geol.



3478 M-2

LEGEND
Elevation line
Magnetic field
Fault line
Owen Group I
Owen Group II
Owen Group III

FIG. 2
MAGNETIC INTENSITY MAP
OWEN GROUP II
CLINTON MINING DIVISION, B.C.
Values by A.C. Interval 100 Gauss
Interpretation by A.C. Datum 1950 M.F.S.
Drawn by A.C. Date 20-10-57
G. V. LLOYD EXPLORATION LTD.

THE ASSOCIATION OF
PROFESSIONAL ENGINEERS
OF ALBERTA
PERMIT NUMBER
5123
G. V. LLOYD
REGISTERED GEOLOGIST

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3478 MAP 42

To: Mr. J. H. McPherson, Edmonton, Alberta
G. V. LLOYD EXPLORATION LTD., 1000-10th St., Edmonton, Alberta

Legend
gc chalcant
br limonite
No scale
No scale