

81-# 462,
-9247

GEOPHYSICAL REPORT

ON THE

FFH CLAIM GROUP
OSOYOOS MINING DIVISION

FOR

FREEDOM RESOURCES INC

MAP SHEET 82E/4 + 82E/5



May 13, 1981

W.G. TIMMINS EXPLORATION & DEVELOPMENT LTD
COLUMBIA GEOPHYSICAL SERVICES LTD

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SUMMARY

Freedom Resources Ltd holds the FFH and Joan mineral claims located near Olalla, B.C.

The property is underlain by chert, tuff and greenstone of the Triassic Shoemaker Formation and by greenstone and diorite of the Old Tom Formation. Pyroxenite appears to be present in the eastern portion of the property.

A VLF-EM and geochemical soil sampling survey was carried out over a portion of the FFH claim during March, 1981 by Columbia Geophysical Services Ltd.

Two primary anomalous areas are indicated by the EM survey and the geochemical survey produced four gold anomalous zones and two copper anomalous zones.

The anomalies in general exhibit an east-west trend.

There is correlation of VLF-EM anomaly A with gold anomaly A and Al and copper anomaly E, as well as correlation of gold anomaly B on the flank of VLF-EM anomaly B. Gold anomaly C occurs on the flank of a weak EM anomaly.

A geological survey is currently being carried out over the claim by the company and this data should be correlated

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with the geophysical and geochemical results.

Dependent upon results of geological - geochemical - geophysical correlation it is likely that ground follow-up probably consisting of trenching and/or drilling will be required.

In addition, for purposes of better interpretation with a larger data area, and to investigate the remainder of the property it is recommended that a VLF-EM and magnetometer survey be conducted over the entire property. Since it has been an unusually active year for magnetic storms, it is difficult to obtain enough quiet days in order to conduct lengthy magnetic surveys. In order to facilitate this, as well as the low cost factor, an combined airborne survey is recommended. This would allow rapid, economical extensive coverage and indicate specific areas for additional ground follow-up.

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INTRODUCTION

A VLF-EM survey and geochemical soil sampling survey was conducted over a portion of the FFH claim group by Columbia Geophysical Services Ltd during March 1981.

Information in this report was obtained from government reports and maps covering the area, and from the VLF-EM and geochemical data obtained from Columbia Geophysical Services.

PROPERTY

The property consists of two located mineral claims comprised of a total of 36 units. Particulars are as follows:

<u>Claim Name</u>	<u>No. of Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
FFH	20	1019	March 1981
Joan	16	1215	August 1981

The FFH claim overlaps several Crown granted mineral claims which are not owned by Freedom Resources as seen on the claim map following.

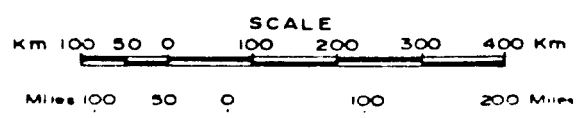
LOCATION AND ACCESS

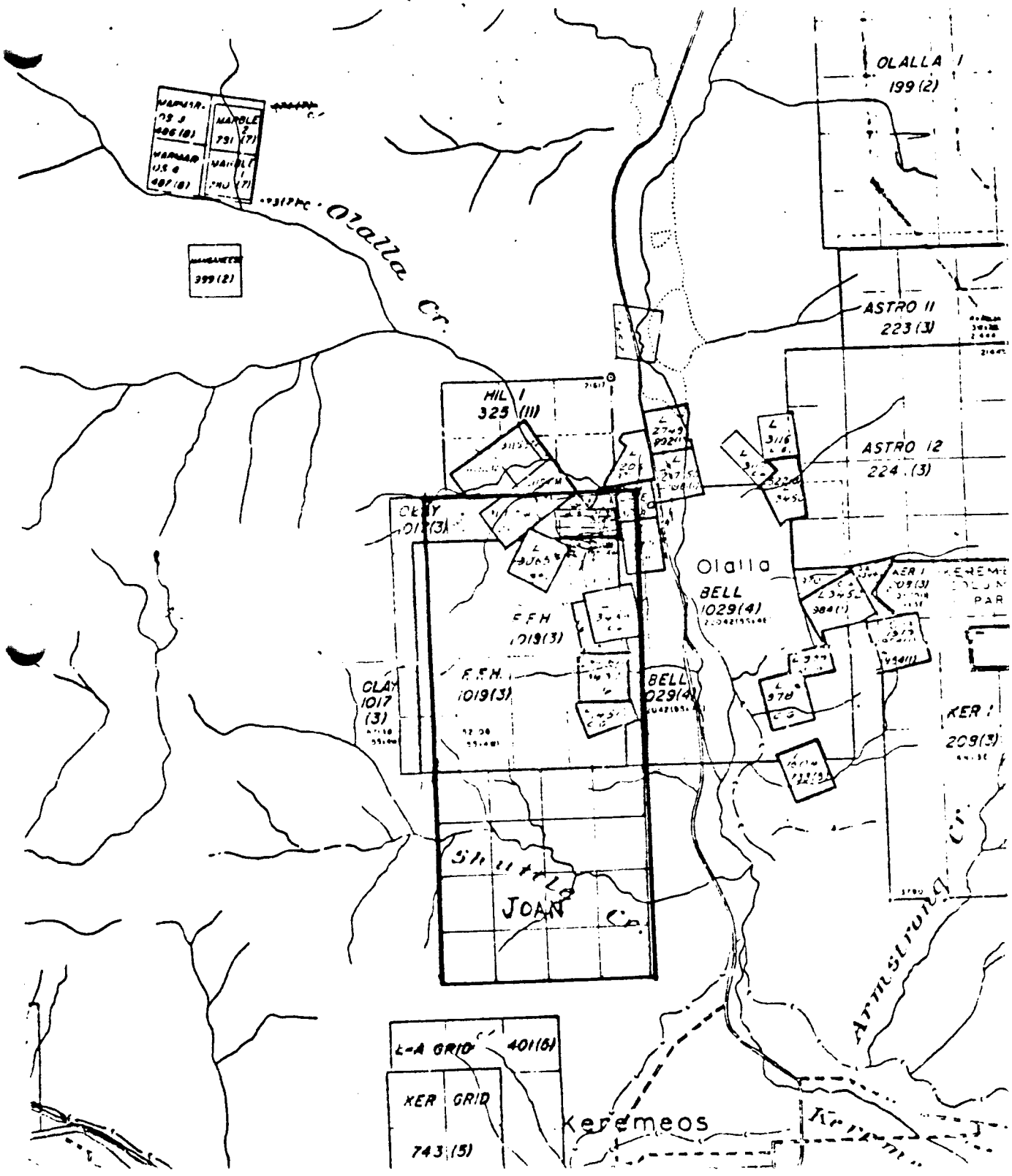
The claim group is located about 5 km north of Keremeos B.C. at Olalla.



PROPERTY
LOCATION

INDEX MAP
FREEDOM RESOURCES INC





CLAIM MAP
FREEDOM RESOURCES INC

Access to the property is provided by dirt road from Olalla. The northeast corner of L3065 is situated some 20 meters east of the road at a point approximately 2 km along the road.

TOPOGRAPHY AND TIMBER

The topography is steep with open grazing land below 750 meters and typical interior forest above 50 meters. The property lies on an east facing slope with elevations ranging from 550 meters to 1500 meters. Vegetation is comprised of spruce, pine, fir and poplar at higher elevations and in gullies and prickly pear cactus sagebrush and typical semi arid flora at lower elevations.

WATER AND POWER

Sufficient water should be available from Golconda Creek for all purposes of exploration.

Diesel electric power would be required.

CLIMATE

Winters are cool with moderate snowfall whereas the summer months are hot with light precipitation. Temperatures range from + 38⁰C in summer to - 29⁰C in winter.

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HISTORY

There is no known history of work on the Freedom property with the exception of the recent geophysical and geochemical surveys conducted by Columbia Geophysical Services Ltd.

No research has been conducted with regard to the past work performed on the Crown granted claims as it lies outside the scope of this report.

SUPPLIES

Most supplies would be available from Keremeos or nearby Princeton or Penticton, B.C.

TRANSPORTATION

Daily scheduled air service from Calgary and Vancouver is available at Penticton, Greyhound bus and truck lines service the area.

GENERAL GEOLOGY

The geology of the claims area is taken from G.S.C. Preliminary Map Sheet 15-1961, Geology Kettle River (West Half), B.C., by H.W. Little.

The area is underlain mainly by the Triassic Shoemaker Formation consisting of chert, tuff and greenstone. The old Tom Formation comprising of greenstone and minor diorite may occur in the western sector of the property. Jurassic pyroxenite appears to be present in the eastern portion of the property.

Bedding trends in the area are north-south. The writer is informed that a programme of geological mapping is currently in progress over the property. Upon completion, the geological data may provide information for more accurate geophysical and geochemical interpretation.

GOVERNMENT MAGNETIC DATA

Magnetic surveys were flown for the Geological Survey of Canada between October 1969 and April 1972. The survey was flown at an altitude of 1000 feet above ground level with an approximate line spacing of one-half mile. The Freedom property area is covered by magnetic series maps 8520G and 8519G.

The magnetic contours appear to outline the Shoemaker and Old Tom Formations and the pyroxenite body to the east, on a regional scale. Accurate location of contact areas is difficult to define.

GROUND GEOPHYSICAL SURVEY PROCEDURE

VLF-EM SURVEY

During the month of March, 1981 a ground VLF Electro-Magnetic survey was conducted over the grid on the FFH claim. The grid lines are spaced at 50 meters with 20 meter stations. An east-west grid covers the north east corner of the claim and a north-south grid adjoins it to the south in the area of Crown granted claims L3065 and L3439. Four short east-west lines spaced at 100 meters were run north of the south boundary in the central section. The survey was carried out by a two man crew of Columbia Geophysical Services Ltd., Burnaby B.C. using a Sabre Model 27 VLF-EM receiver tuned to 18.6 KHZ Transmitter located at Arlington, Wash. U.S.A. The field strength and dip angle was measured at each survey station and recorded in the field. A Fraser filter method was applied to the dip angle data at 20 meters, 40 meters and 60 meters to indicate depth, and the results plotted on map scale 1:5000 and contoured at +5 degree intervals, as only the positive anomalies have significance in outlining EM conductors. The survey totalled 30 line km.

ANALYSED SURVEY DATA

The EM data was first plotted in graph form:

- (a) Dip angle data to show (cross over) conductors.
- (b) Filtered data at 20 meter intervals to show near surface conductors.
- (c) Filtered data at 40 meter intervals to show conductors at depth.
- (d) Filtered data at 60 meter intervals for greater depth.

Several anomalous EM zones occur within the limited area surveyed.

ANOMALY A

Anomaly A is selected as a priority zone and is located south of the east - west baseline between L. 10E and L. 40E (150 meters) with a possible extension to L. 65E. This is a strong east-west trending anomaly reading to $+25^{\circ}$ on the 40 meter filter, which could represent a shear and/or sulphide mineralization.

ANOMALY B + B1

Anomaly B is located between L. 15E and L. 45E about 460 meters south of B.L. 0 north, on the 40 meter filter map.

Anomaly B1 appears to be the western extension which is more obvious on the 60 meter filter map. The B - B1 zone has a general east - west trend, and is considered to be a prime exploration area for sulphide occurrences. Anomaly B occurs mainly inside the boundary of Crown grant L 3439.

OTHER ANOMALOUS ZONES

Several other smaller or weaker anomalous zones occur in the grid areas and may represent contact areas, faults or shears.

Ground geological data will assist in a more accurate interpretation of all EM anomalies.

GEOCHEMICAL SOIL SURVEYS

SURVEY PROCEDURE

The soil sampling was carried out on the grids previously established by the VLF-EM and magnetic surveys.

The 1400 samples were picked up on the survey lines at 20 meter intervals. The soil horizon sampled was B which was dark brown to reddish-brown colour. The samples were taken at an 8 to 15 cm depth by a mattock and placed in brown, wet-strength paper bags with the grid co-ordinates marked

there-on.

TESTING PROCEDURE

All samples were tested by Acme Analytical Laboratories of Burnaby, B.C. The sample is first thoroughly dried and then sifted through a -80 mesh screen. A measured amount of the sifted material is then put into a test tube with subsequent measured additions of hot aqua regia. This mixture is next diluted with water. The values of copper and gold were then measured by atomic absorption.

COMPILATION OF DATA

The sample results in gold over .01 ppm and gold over .025 ppm were plotted on Sheets 1 and 2 and results of copper ppm and copper over 100 ppm were plotted on sheets 3 and 4 respectively. The distribution of results were than examined and the parameters chosen as follows: -

		<u>COPPER</u>	<u>GOLD</u>
Background	Value	100	.01
Threshold	Value	300	.035

The anomalies appear to have a general east-west trend.

There are four anomalous or sub-anomalous gold zones labelled A to D on sheet 2, and three anomalous copper zones labelled E to G on sheet 4.

Gold anomaly A correlates with copper anomaly E, and gold sub-anomaly D correlates with copper anomaly F.

The characteristics of the anomalies are as follows:

<u>Anomaly</u>	<u>Gold/high</u>	<u>Copper/high</u>	<u>Strike</u>	<u>Length</u>	<u>Width</u>
A	.815		E-W	300 M	20-60 M
B	.145		E-W	50-100 M	20 M
C	.720		E-W	175 M	20 M
D	.04			one line	
E		3600	E-W to Ne-SW	100 M	20 M
F		1850		one line	80 M
G		1250		one line	20 M

Gold anomaly A-1 could be an extension of gold anomaly A.

Gold anomaly A has correlation with copper anomaly E and gold anomalies A and A-1, and copper anomaly E correlate closely with VLF-EM anomaly A. Anomalous gold values to the east just outside the eastern boundary may indicate a further eastern extension.

The "A" anomalous area indicates the presence of sulphide mineralization and gold values and is a first priority

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target area for further exploration.

Gold anomaly B correlates on the north flank of VLF-EM anomaly B providing a secondary priority target for further exploration.

Gold anomaly C occurs on the north flank of a weak VLF-EM conductor and warrants field investigation.

Gold anomaly D occurs on line 30 W which is the most western line surveyed, and the one line anomaly is situated within Crown grant L 3065. It has some correlation with copper anomaly F lies southwest of gold anomaly A,- copper anomaly E - EM anomaly A, suggesting a possible western extension.

Copper anomaly G occurs on L 45 N which is the most northern line surveyed, located on the northern claim boundary. It is a two sample anomaly only, however should be field checked.

Numerous other one-reading anomalous gold anomalies occur sporadically over the grid area.

CONCLUSIONS AND RECOMMENDATIONS

Freedom Resources Ltd holds the FFH and Joan mineral claims located near Olalla, B.C.

The property is underlain by chert, tuff and greenstone of the Triassic Shoemaker Formation and by greenstone and diorite of the Old Tom Formation. Pyroxenite appears to be present in the eastern portion of the property.

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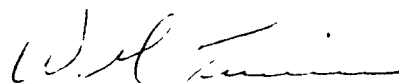
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Respectfully submitted,



W.G. Timmins P. Geol.
W.G. Timmins Exp^{ltd} & Dev Ltd

May 13, 1981



T. Rolston
Columbia Geophysical Services Ltd

W. G. TIMMINS EXPLORATION & DEVELOPMENT LTD.

CONSULTING GEOLOGISTS

Columbia geophysical supplies Ltd.

7050 HALLIGAN STREET, BURNABY, B.C. V5E 1R6

Phone: (604) 528-1732
or (604) 687-6671

CERTIFICATE OF QUALIFICATIONS

I, Tom Rolston, of 7050 Halligan Street, Burnaby, B.C. have actively been engaged in my profession since 1953 and state as follows:

1. 1953 to 1964 with the R.C.A.F. as Instrument and Electronic Technician with crew supervisory capacity in various electronic and instrumentation systems.
2. 1964 to 1966 with Kerr-Addison Mines Ltd. as Electronic Technician servicing, repairing and maintaining various types of geophysical instruments. Also two seasons as Field Supervisor and Geophysical Instrument Operator in mining exploration, including airborne and ground geophysical surveys, geochemical surveys, geophysical and geochemical drafting and mapping.
3. 1966 to 1981 contracting geophysical/geochemical surveys in close association with mining engineers for various mining companies as Exploration Manager and Field Supervisor of geophysical and geochemical surveys and Instrument Operator of various geophysical instruments such as airborne and ground systems magnetometer, electromagnetic, gravity meter, self-potential meter, scintillometer and induced polarization.
4. Exploration Manager of Columbia Geophysical Services Ltd., airborne geophysical services.

Dated at Burnaby, British Columbia this 1 day of JAN 1981.



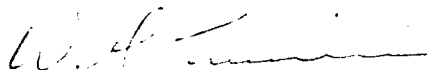
Tom Rolston, Project Manager

CERTIFICATE

I, WILLIAM G. TIMMINS maintaining offices at 502-900- 6th Avenue S.W. Calgary Alberta do hereby certify that:

1. I am a geologist having been practising my profession for seventeen years.
2. I am a graduate of the Provincial Institute of Mining, Halleybury, Ontario, and have attended Michigan Technological University, Houghton, Michigan.
3. I am a member in good standing of the Association of Professional Engineers of British Columbia, and of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
4. I have no interest direct or indirect in the property or securities of Freedom Resources Ltd., nor do I expect to receive any such interest.
5. This report is based on private and government reports, and an analysis of VLF-EM and geochemical data from a survey conducted by Columbia Geophysical Services Ltd during March, 1981.

Dated at Calgary, Alberta the 13th day of May, 1981.



W.G. Timmins P. Geol.
Consulting Geologist.

W. G. TIMMINS EXPLORATION & DEVELOPMENT LTD.

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APPENDIX I

GROUND INSTRUMENTATION AND THEORY

VLF-Electromagnetic Survey

A VLF-EM receiver manufactured by Sabre Electronic Instruments Ltd of Burnaby B.C. was used for the VLF-EM survey. The transmitter used was NKL Arlington (Seattle) Washington, U.S.A. transmitting at 18.6 KHZ. This station transmission was used due to its orientation in line with the geological structure on this property and very good signal strength. Measurement taken on this survey was variation in the horizontal component of the signal field strength. Because of its EM frequency, the VLF-EM can pick up conductors caused by electrolyte-filled fault or shear zones and porous horizons, graphite, carbonaceous sediments, lithological contacts as well as sulphide bodies.

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D. GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL

(Details in report submitted as per section 5, 6, or 7 of regulations.)
 (The itemized cost statement must be part of the report.)
 (State type of work in space below.)

VLF E.M. survey, 30 L Km @ \$150.00

\$ 4,500.00

1,395 soil samples @ \$6.00

8,370.00

REPORT TO FOLLOW WITHIN 30 DAYS

TOTAL OF C AND D

12,870.00

Who paid for the above-described work? Name **Freedom Resources Ltd.**

Address **911 - 470 Granville Street,
 Vancouver, B.C.**

Portable Assessment Credits (PAC) Withdrawal Request

AMOUNT

Amount to be withdrawn from owner(s) account(s):

Name of Owner

(May be no more than 30 per cent of value of the approved work submitted as assessment work in C and (or) D.)

- 1.
- 2.
- 3.
- 4.

TOTAL WITHDRAWAL

TOTAL OF C AND (OR) D PLUS PAC WITHDRAWAL

I wish to apply \$ **10,800.00** of this work to the claims listed below.

(State number of years to be applied to each claim and its month of record.)

**FFH Group (FFH, Record #1019(3), 20 units
 (Joan, Record #1215(8), 16 units**

Apply 3 years work

Report to follow within 30 days

Value of work to be credited to portable assessment credit (PAC) account(s).

(May only be credited from the approved value of C and (or) D not applied to claims.)

Name

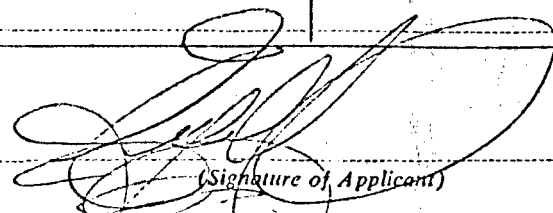
AMOUNT

In owner(s) name.

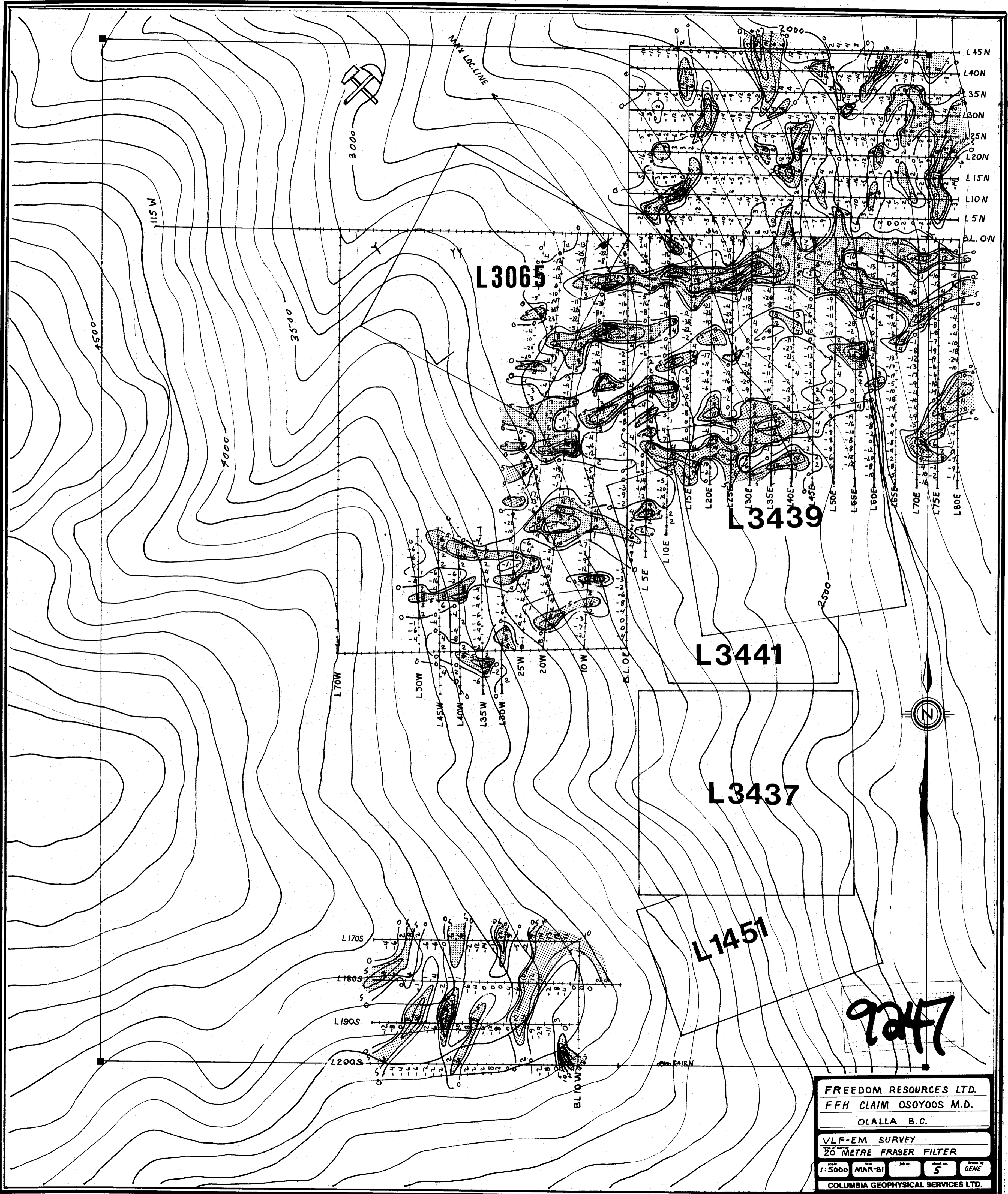
- 1.
- 2.
- 3.

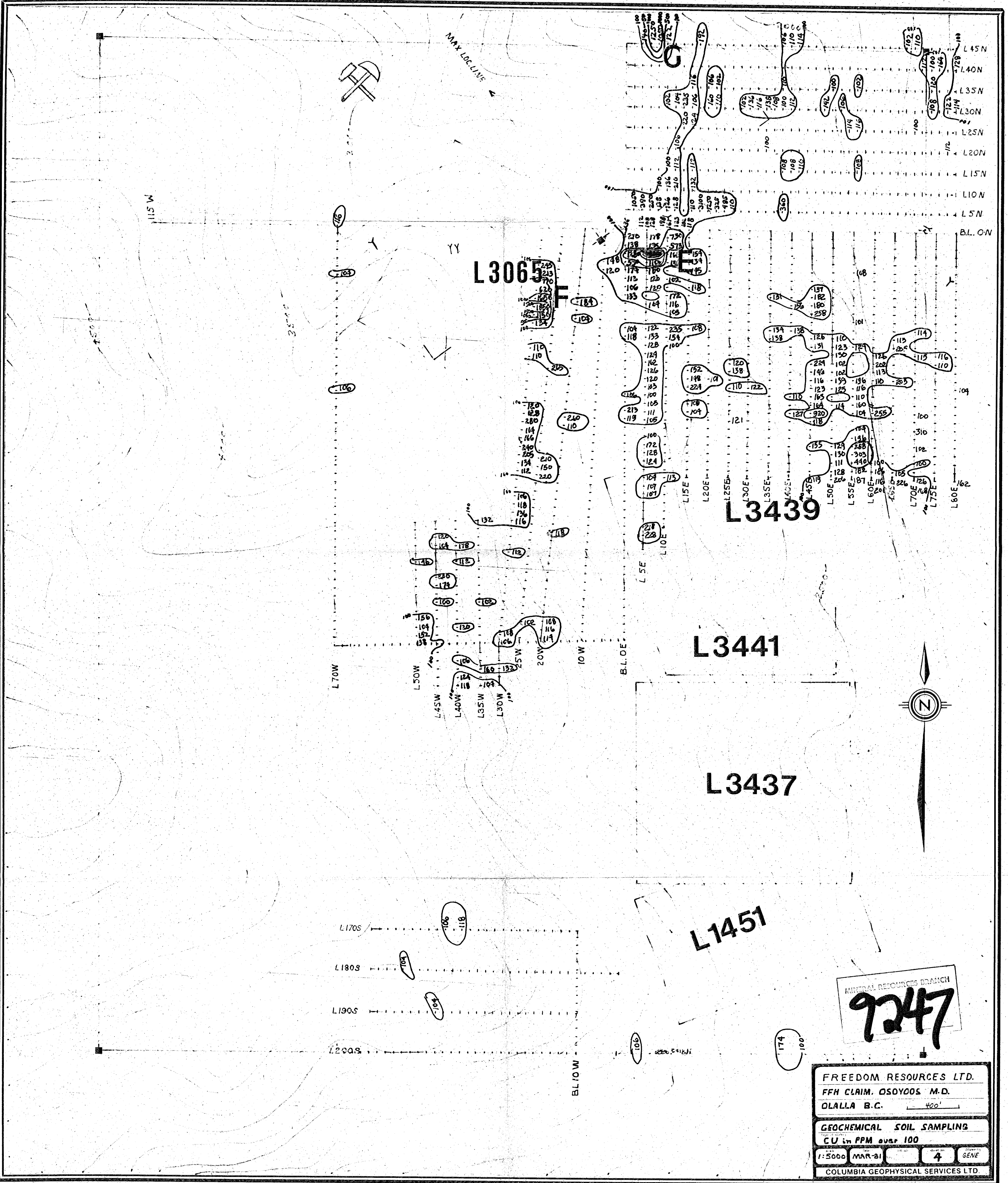
In operator(s) name
 (person paying for the work).

- 1.
- 2.
- 3.



(Signature of Applicant)





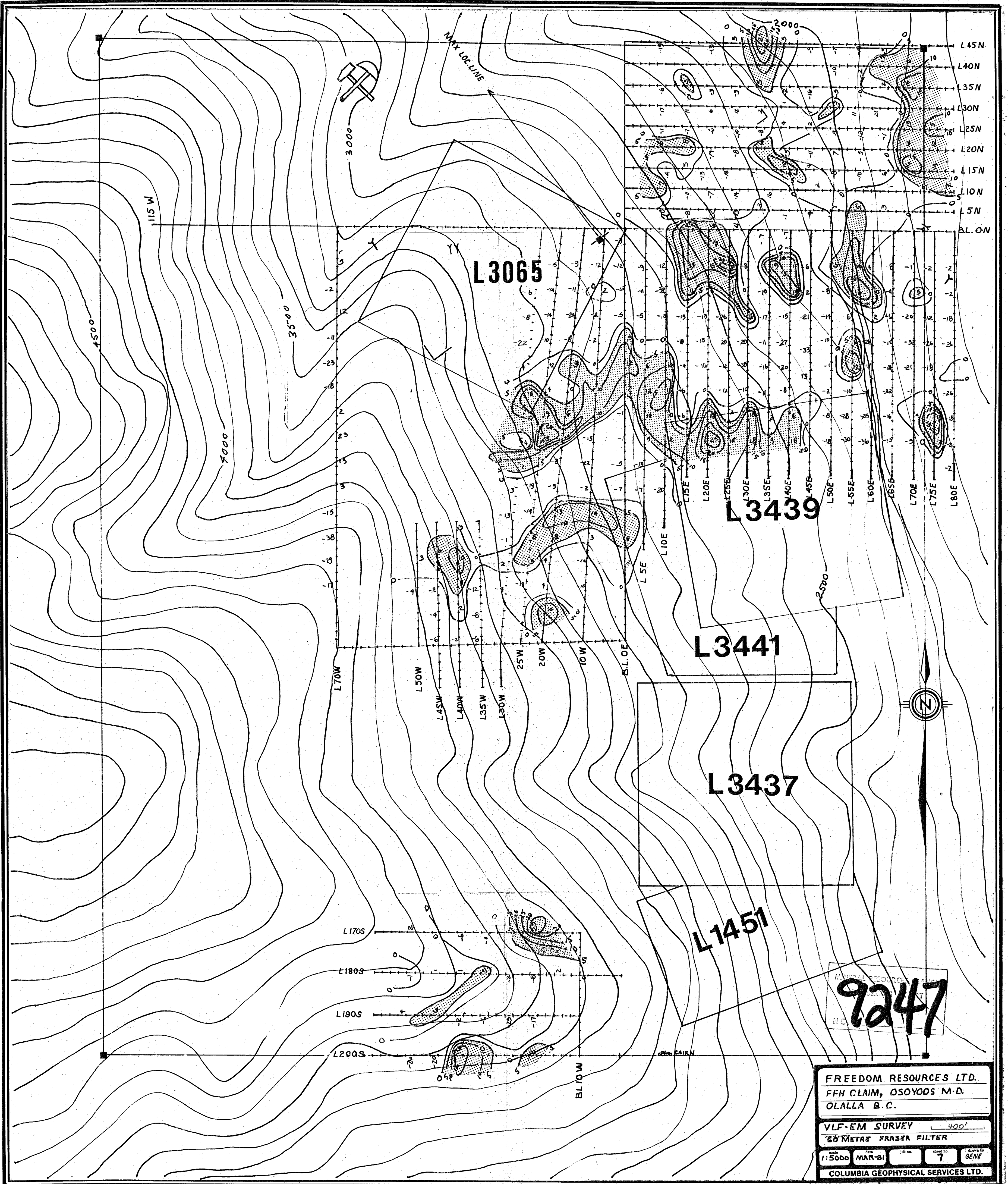
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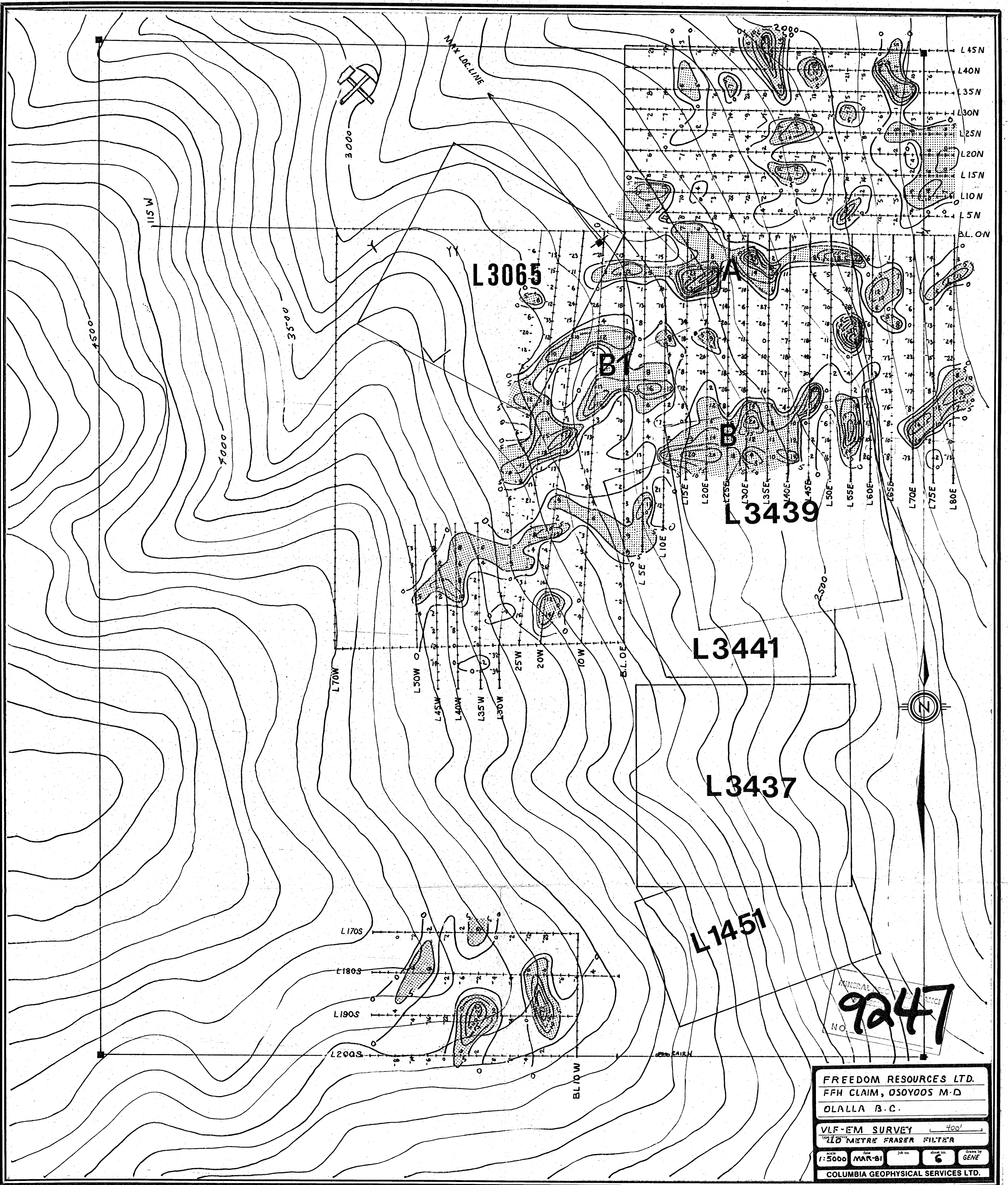
FREEDOM RESOURCES LTD.
 FFH CLAIM, OSOYDOS M.D.
 OLALLA B.C. 400'

GEOCHEMICAL SOIL SAMPLING
 CU in PPM over 100

1:5000 MAR-21 4 GENE

COLUMBIA GEOPHYSICAL SERVICES LTD.



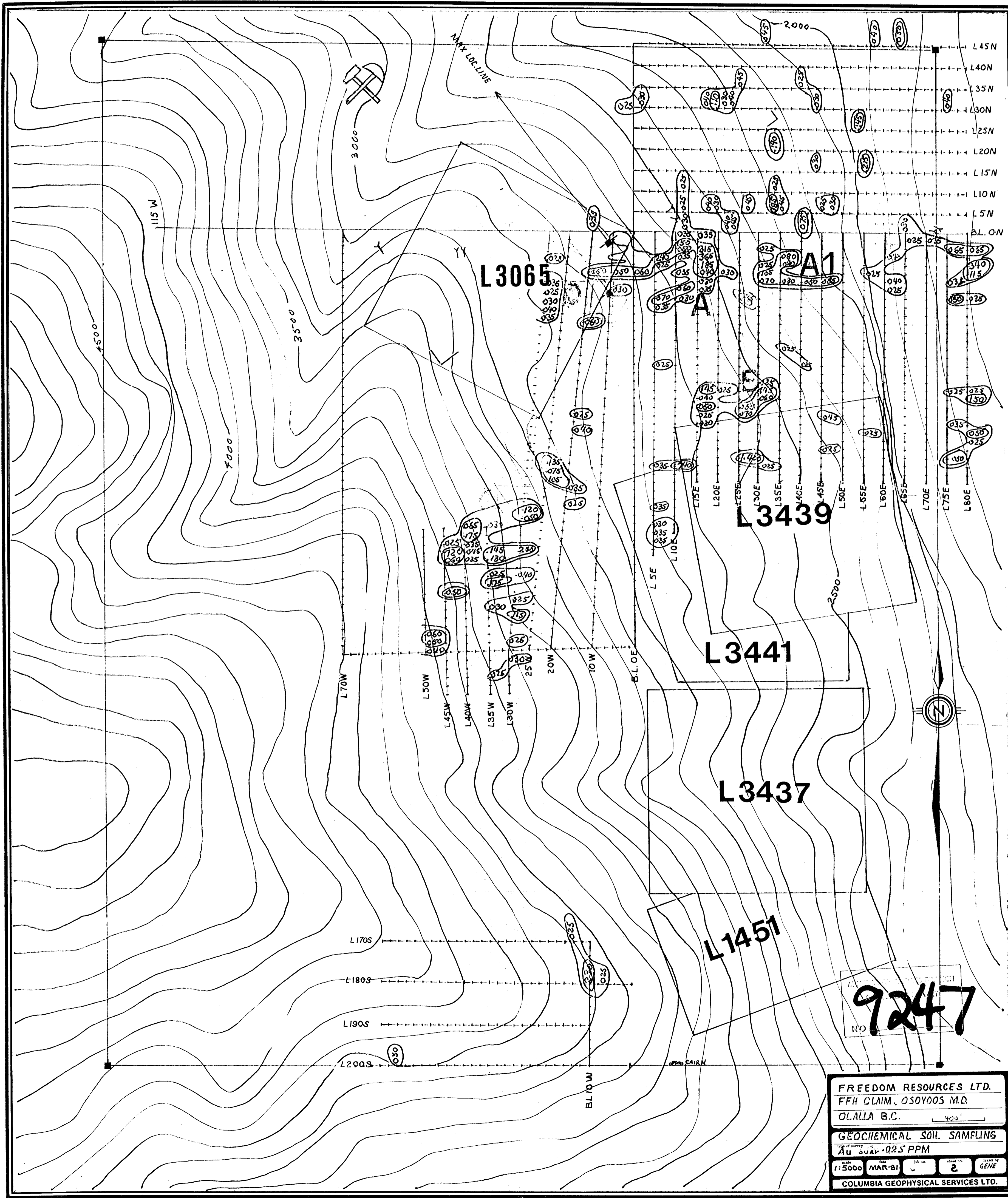


MINERAL RESOURCES ACT
 NO. **9247**

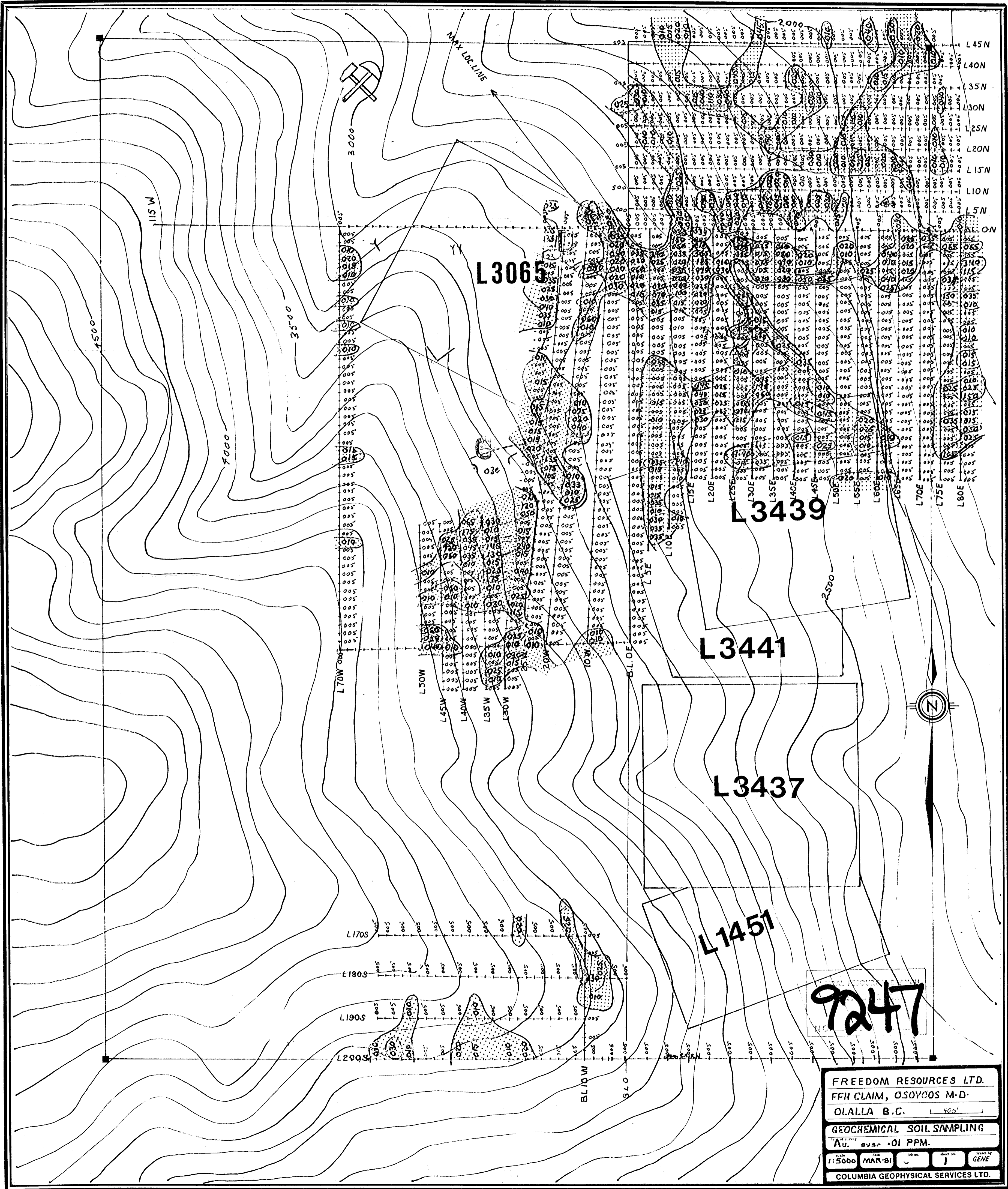
FREEDOM RESOURCES LTD.
 FFH CLAIM, OSOYOOS M.D.
 OLALLA B.C.

VLF-EM SURVEY 400'
 100 METRE FRASER FILTER

Scale 1:5000 Date MAR-81 Job No. 6 Drawn by GENE
 COLUMBIA GEOPHYSICAL SERVICES LTD.

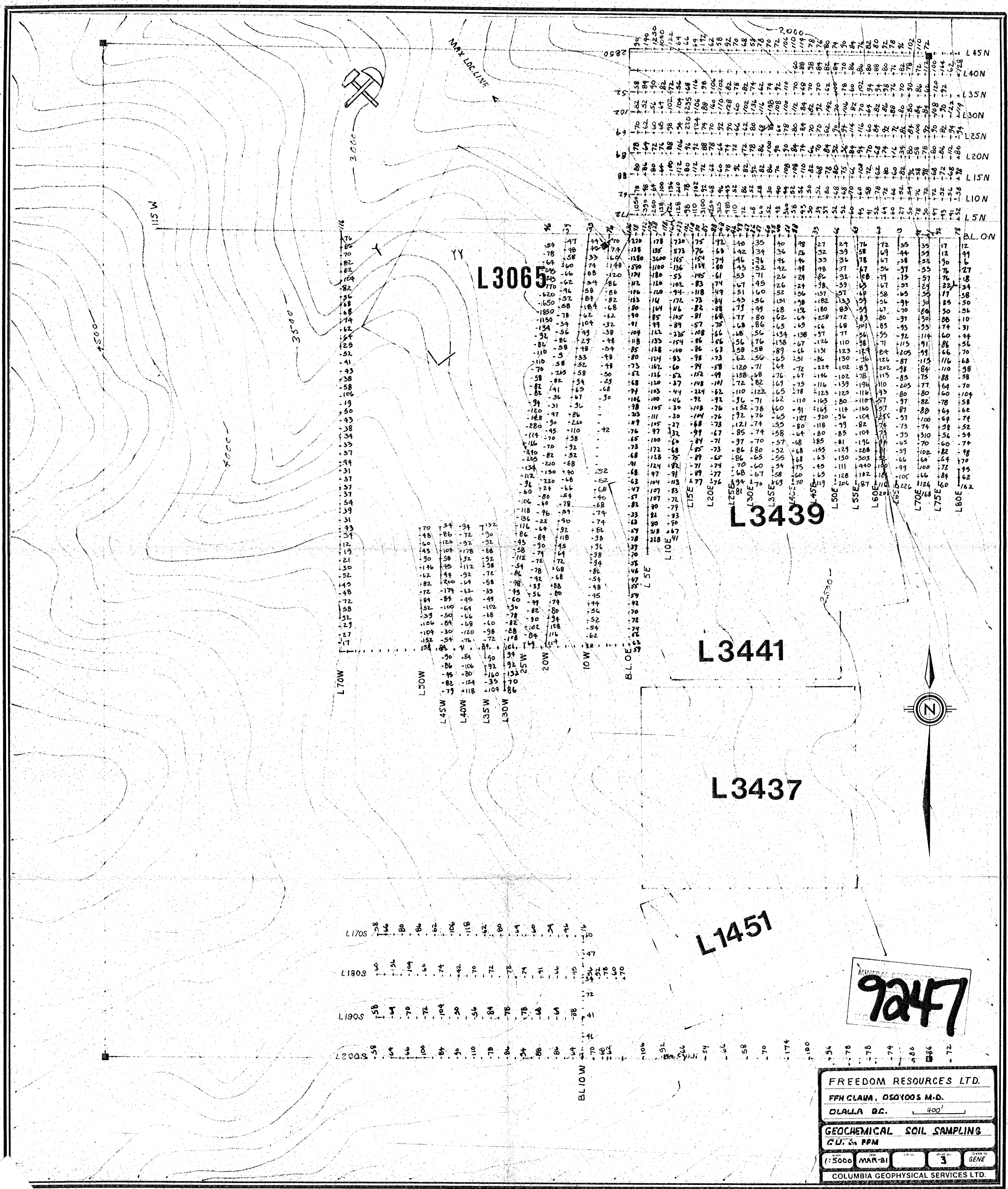


FREEDOM RESOURCES LTD.
 FFH CLAIM, 030Y003 M.D.
 OLALLA B.C. 400'
 GEOCHEMICAL SOIL SAMPLING
 Au over 0.25 PPM
 1:5000 MAR-81 job no. 2
 COLUMBIA GEOPHYSICAL SERVICES LTD.



9247

FREEDOM RESOURCES LTD.			
FFH CLAIM, OSOYCOS M-D			
OLALLA B.C. 400'			
GEOCHEMICAL SOIL SAMPLING			
Au. ± 0.01 PPM.			
Scale	Date	Job no.	Sheet no.
1:5000	MAR-81		1
DRAWN BY			GENE
COLUMBIA GEOPHYSICAL SERVICES LTD.			



FREEDOM RESOURCES LTD.
 FPH CLAIM, OSOYOS M.D.
 DALILA BC. 400'

GEOCHEMICAL SOIL SAMPLING
 C.U. & PPM

1:5000 MAR-81 3 GENE
 COLUMBIA GEOPHYSICAL SERVICES LTD.