REPORT ON THE

MAGNETOMETER SURVEY

ON THE

EMPIRE LAKE CLAIMS,

THUNDERBAY MINING DISTRICT

BETH-CANADA MINING COMPANY

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BETH-CANADA MINING COMPANY

A. INTRODUCTION:

The following is a report on the magnetometer survey completed by Beth-Canada Mining Company in September, 1980, on 17 claims in its Empire Lake Claim group.

PROPERTY: DESCRIPTION AND LOCATION

Work was carried out on seventeen (17) contiguous mining claims (Figure 2, Map 1): Nos. TB517876-517892, inclusive. All the claims are registered in the name of:

Beth-Canada Mining Company
40 University Ave.
Suite 702
Toronto, Ontario M5J 1T1

Mining Licence No. T511

The claims were staked in January, 1980 to cover disseminated pyrrhotite-chalcopyrite-magnetite mineralization within a differentiated gabbro body. The mineralization was exposed during construction of a Great Lakes Paper Company lumber road. Previous exploration work on the property is unknown.

The claim group is located approximately 80 kilometers (50 miles) N.E. of Upsala, Ontario (Figure 1). Access to the western boundary of the property is gained by: following Hwy 17 for 13 kms. (8 mi.) west of Upsala to the junction of the Graham road; by following the Graham road north to milepost 60 to the Empire Lake road; and, by following the Empire Lake road northeast for ~8 kms. (5 mi.) to where it enters the property (Figure 1). The all-weather roads north of Hwy 17 are maintained by the Great Lakes Paper Company.

GEOLOGY:

The claims cover part of a basic intrusive which is shown on the Sioux Lookout-Armstrong Sheet (Ontario Department of Natural Resources Map 2169, 1968). The body was interpreted from geophysical data to be composed of gabbro, metagabbro or metadiorite.

As shown on Figure 3, the intrusive is outlined by an aeromagnetic anomaly with up to 1300 gammas relief. Recent road building and lumbering activites have exposed a differentiated, banded intrusive composed of coarse grained diorite, hornblende gabbro and a rusty magnetite gabbro containing disseminated

Figure 1
Location Map
EMPIRE LAKE CLAIMS
Scale: 1:1,013,760

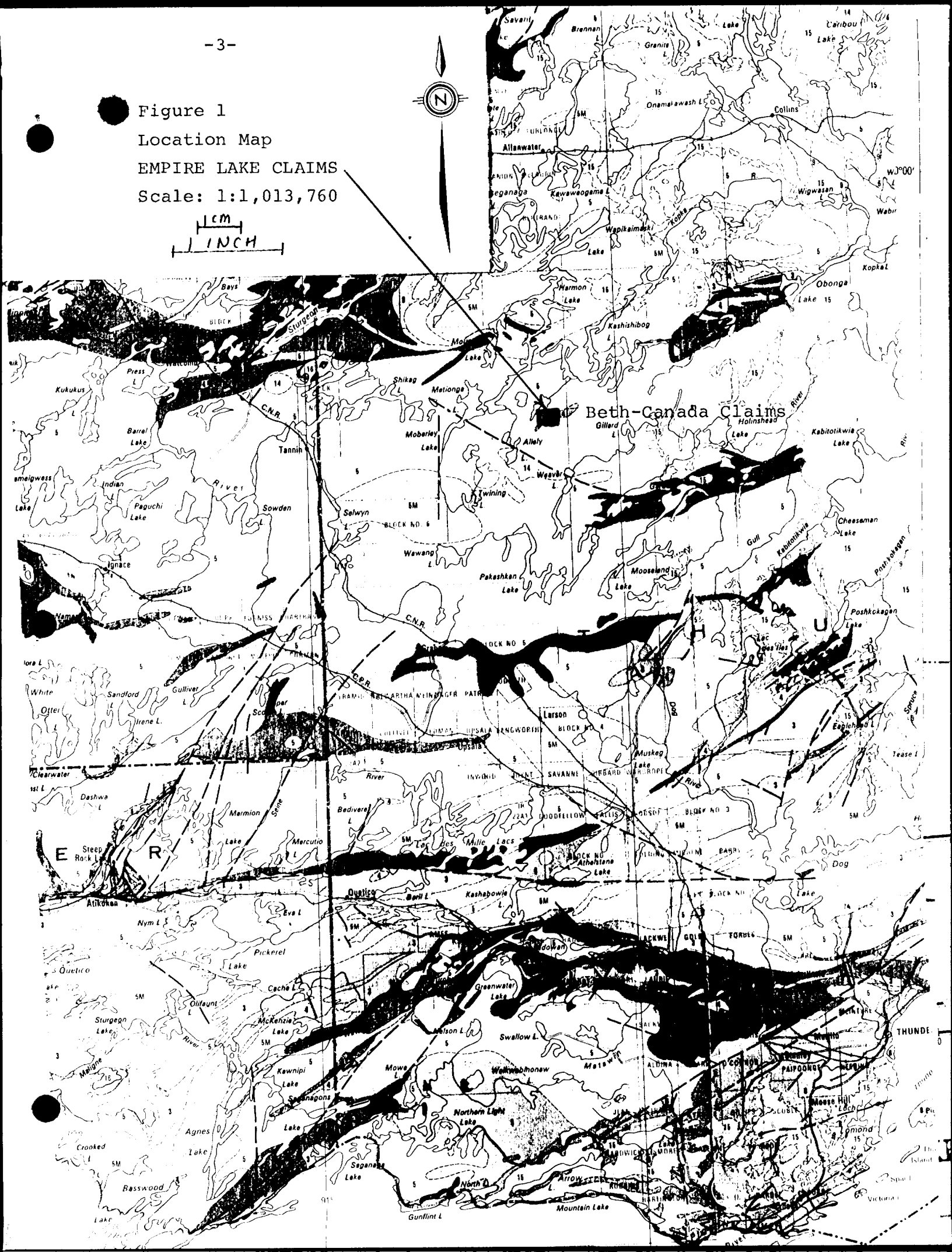
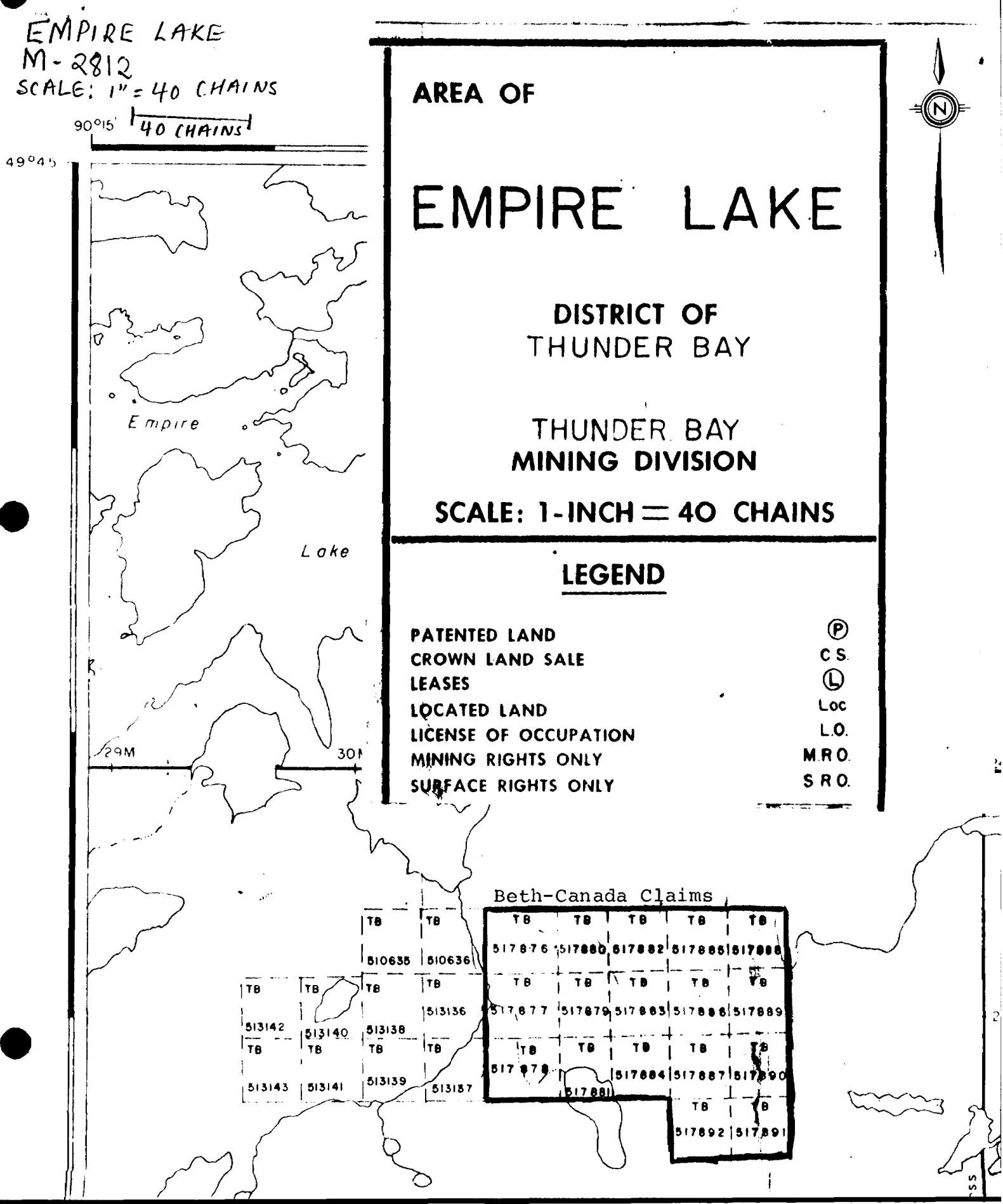


Figure 2 CLAIM MAP: EMPIRE LAKE CLAIMS



PROVINCE
OF
ONTARIO
MENT OF MINES

WEAVER LAKE

THUNDER BAY DISTRICT
ONTARIO

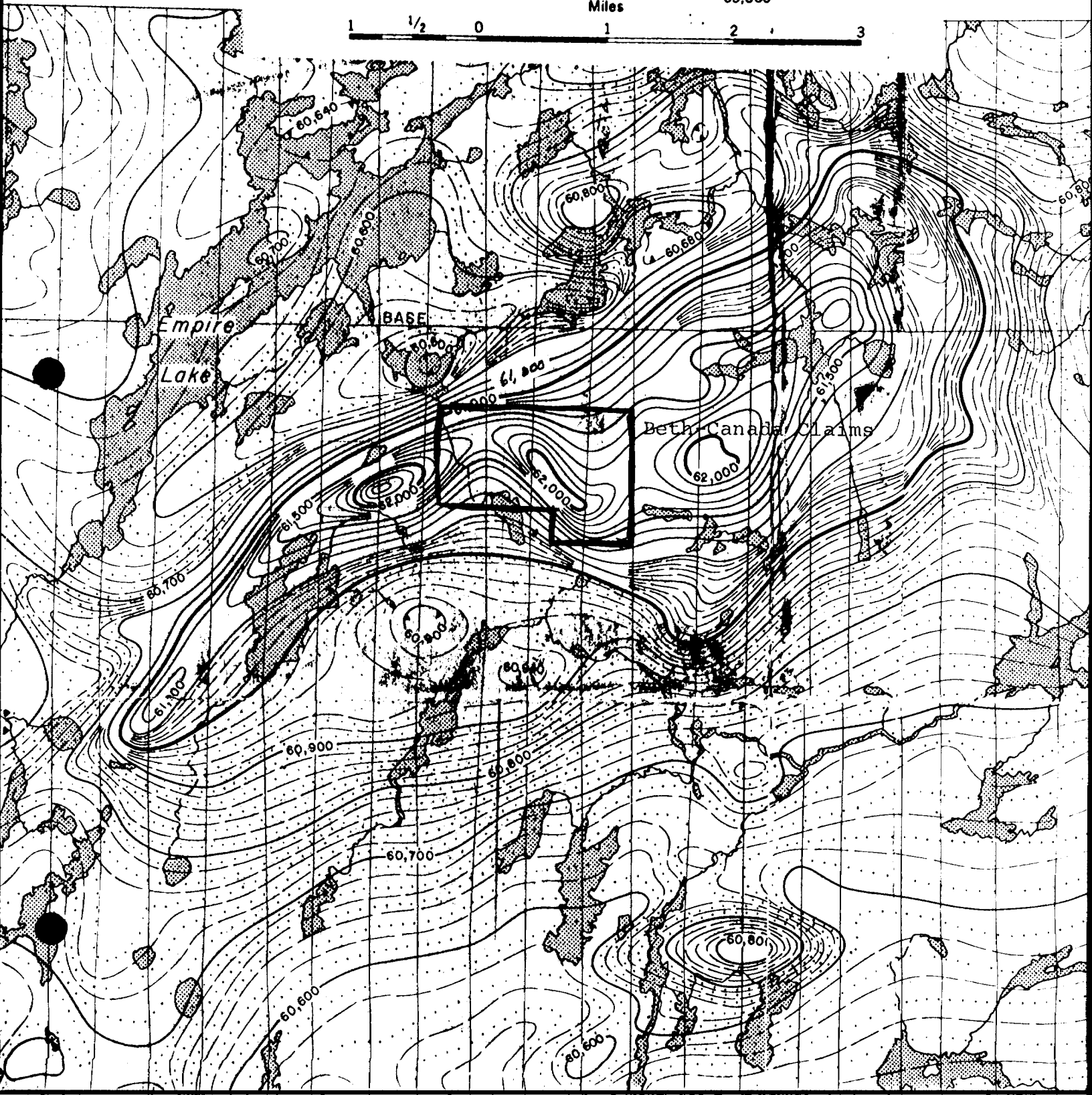
Figure 3
Aeromagnetic Survey

Joins Map 1107

Scale: One Inch to One Mile = $\frac{1}{63,360}$

Miles

1 ½ 0 1 2 3



pyrrhotite and chalcopyrite. The body is surrounded by coarse grained pink-white granite and is cut by narrow granitic and pegmatitic dykes.

LINECUTTING:

Linecutting under the direction of David Molloy was carried out from August 1-September 7, 1980 by:

Bruce Fagan
RR #3
Coldwater, Ontario

Laurra White
32 Edenridge Drive
Bramalea, Ontario

Grid lines were turned off the main base line at 100 meter intervals and were picketed at 25 meter intervals (see Map 1). Tie line 8+00E was used for control. A total of 21.4 km. (13.4 miles) of grid lines, base and tie lines was cut. Air photos (scale 1"= 1/4 mile were used for control.

MAGNETOMETER SURVEY:

The survey was carried out by:

Bruce Fagan
Coldwater, Ontario

Laurra White
Bramalea, Ontario

on September 18-22, 1980. Vertical field readings (Map 2) were taken with a Phoenix Model MV-1 magnetometer (see section B for specifications) at 12.5 meter intervals on the picket lines.

A Phoenix base station magnetometer and recorder were used to correct for diurnal variations.

RESULTS, CONCLUSIONS:

The results of the magnetometer survey are shown on Map 2. The results have been contoured on Map 3.

The ground magnetic survey was used to outline the N.W. trending, seemingly isolated, aeromagnetic anomaly shown in Figure 3. The ground survey located a N.W. trending zone of strong magnetic anomalies - values range from -12835 to +18000 gammas. The zone is outlined by the 3000 gamma contour (Map 3), is ~2000 meters (~6500 feet) long, and has an average thickness of ~150 meters (500 feet) in the central part of the grid. The zone thickens to ~400 meters (~1300 feet) in the vicinity of L 19N and to ~300 meters (~1000 feet) in the vicinity of L 6N.

The present survey and the ground magnetic survey carried out by Beth-Canada in 1979 on contiguous claims to the west (see Report on the Magnetometer Survey, Empire Lake Claims, Ontario Geological Survey Assessment Work Files) suggest that the airborne magnetic anomalies as outlined by the 62,000 gamma contour (Figure 3) are in fact continuous and have been folded into syn and antiform structures. The folding has resulted in considerable thickening of the anomalous magnetic zone at the fold noses.

Geological mapping on the eastern claims confirms observations made on the western claims - the magnetic anomalies are caused by magnetite concentrated in bands. The bands occur in a differentiated gabbroic body and also contain disseminations of pyrrhotite and chalcopyrite.

Exploration should be concentrated in the vicinity of the fold noses. Sulfides may have been remobilized and concentrated in the noses during folding.

Ontario

Ministry of N

GEOPHYSICAL – GEOI
TECHNICAL D

52G09NE8168 2.3768 EMPIRE LAKE

900

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

MAR - 9 1981

MINING LANDS SECTION

Type of Survey(s) Magnetometer .

Township or Area Empire Lake Area

Claim Holder(s) Beth-Canada Mining Company
40 University Ave., Toronto

Survey Company Beth-Canada Mining Company

Author of Report David E. Molloy

Address of Author 221 Pandora Cres., Kitchener

Covering Dates of Survey Aug.-Sept.1980, Feb., 1981
(linecutting to office)

Total Miles of Line Cut 13.4 miles (21.4 km)

SPECIAL PROVISIONS
CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Feb. 25, 1981 SIGNATURE: David E Molloy
Author of Report or Agent

Res. Geol. _____ Qualifications 2.3124

Previous Surveys

File No.	Type	Date	Claim Holder
			L.D.

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
TB	517876
TB	517877
TB	517878
TB	517879
TB	517880
TB	517881
TB	517882
TB	517883
TB	517884
TB	517885
TB	517886
TB	517887
TB	517888
TB	517889
TB	517890
TB	517891
TB	517892

TOTAL CLAIMS 17

If space insufficient, attach list

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS If more than one survey, specify data for each type of survey

Number of Stations 1839 Number of Readings 1839

Station interval 12.5 m. Line spacing 100 m.

Profile scale

Contour interval 1000, 2000, 3000, 5000, 7000, 10,000 gammas

MAGNETIC

Instrument Phoenix Fluxmaster Model MV-1 Magnetometer

Accuracy – Scale constant ± 5 gammas on 300 gamma range

Diurnal correction method Base Station

Base Station check-in interval (hours) Magnetometer (Model MV-1) and recorder

Base Station location and value at camp, off grid; 400 gammas

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency (specify V.L.F. station)

Parameters measured

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

Mag. Survey

MAG SURVEY

Mag.

B.A.H. Canada Mining Co.

BETH CANADA MINING CO.

2.3768

2.3768

	Mag.
TB5 1876	1/4
77	1/4
78	✓
79	✓
80	✓
81	1/2
82	✓
83	✓
84	✓
85	1/2
86	✓
87	✓
88	3/4
89	✓
90	1/4
91	3/4
92	1/4

Line 25N
Line 23N
Line 22N
Line 21N
Line 20N
Line 19N
Line 18N
Line 17N
Line 16N
Line 15N
Line 14N
Line 13N
Line 12N
Line 11N
Line 10N
Line 9N
Line 8N
Line 7N
Line 6N
Line 5N

517876
517877
517878
517879
517880
517881
517882
517883
517884
517885
517886
517887
517888
517889
517890
517891
517892

BASE LINE 300'

Legend

- Grid line
- Claim line
- Located claim post
- Assumed claim post
- Truck road
- Bush road
- Creek
- Intermittent creek
- Swamp
- Esker

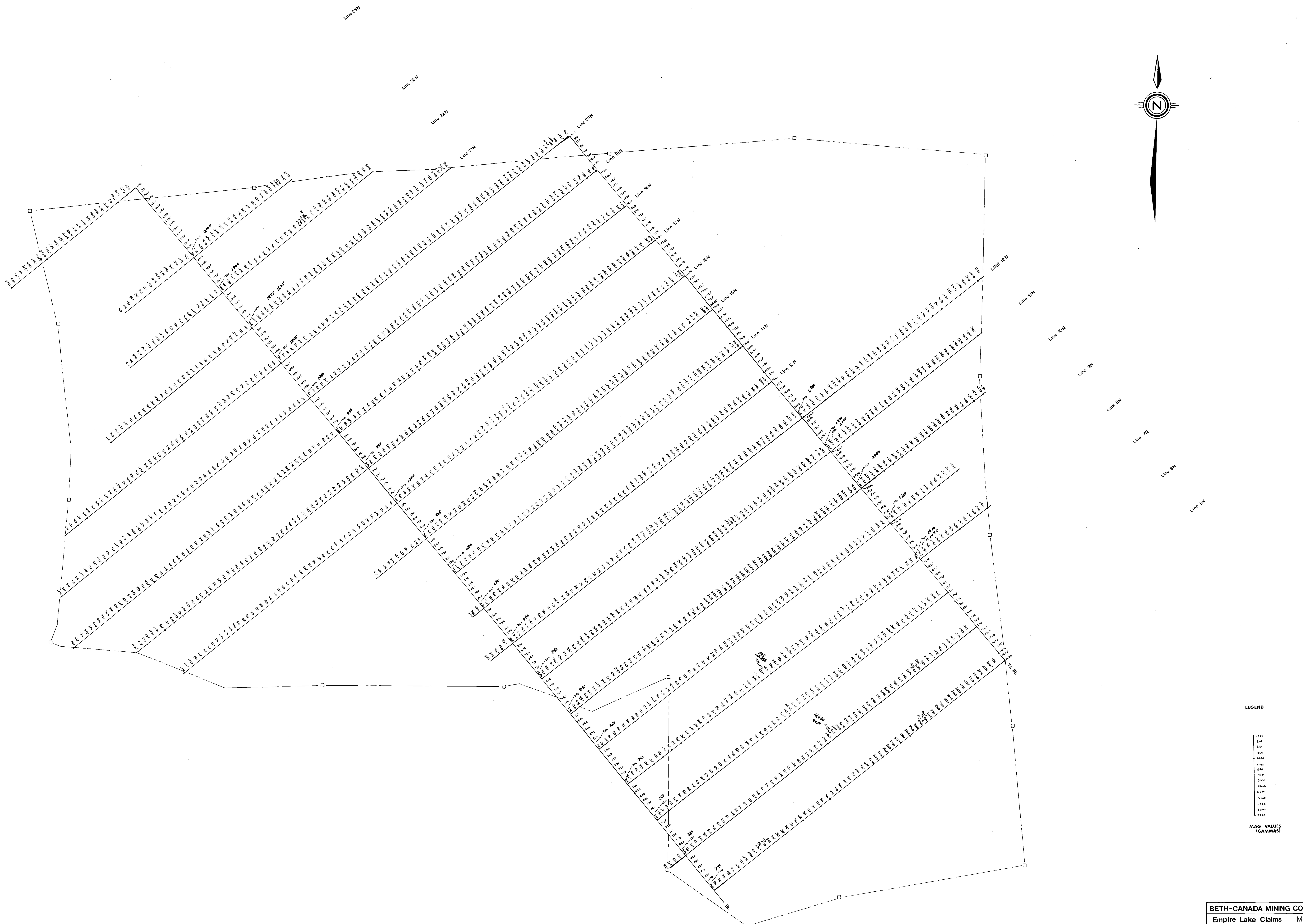
EMPIRE LAKE
BETH-CANADA CLAIMS
SCALE: 1 INCH= 1 MILE

[redacted]

BETH-CANADA MINING CO.	
Empire Lake Claims	
Base Map MAP 1	
Nw Ont Proj: 060n13	Date: Sept., 1980
NTS: 52G/8	Scale: 1:2500
David E. Mills	Prep. By: L.W.

200

2 3768



[redacted]

BETH-CANADA MINING CO.	
Empire Lake Claims	MAP 2
Magnetometer Survey	
NW Ont Proj: 060n13	Date: Sept., 1980
NTS: 52G/8	Scale: 1:2500
David E. M...	Prep. By: L.W.

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[redacted]

BETH-CANADA MINING CO.	
Empire Lake Claims MAP 3	
Magnetometer Survey	
NW ONT PROJ:060nl3	DATE: FEB., 1981
NTS: 52G/8	SCALE: 1:2500
David E Molloy	

2.3768

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