

191

92I/6E & 7W ND  
 ANSON MINES LTD. MAGNETOMETER SURVEY  
 PIMAINUS LAKE AND WITCHES BROOK AREAS  
 HIGHLAND VALLEY, BRITISH COLUMBIA  
~~50° 121'~~ ~~50° 122'~~  
 FRANK & CO. M.C.S.

6E  
7W

92I/6E & 7W

191

**REPORT ON  
GROUND MAGNETOMETER  
SURVEY**

**for  
PHELPS DODGE CORPORATION**

**by the  
Geophysics Division  
Bunting Technical and Exploration Services Limited**

**October 23rd, 1957**

**Toronto, Canada.**

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## INTRODUCTION.

Ground magnetometer surveys were carried out on two properties of Phelps Dodge Corporation from September 19th till October 4th, 1957.

The surveys were performed by our geophysicist Dr. J. C. Stam and an assistant provided by Photographic Survey Corporation, Western Division, using a Sharpe vertical magnetometer, model A2, with a sensitivity of about 25 gammas per scale division.

Our crew arrived in Kamloops September 20th, were moved to Pimainus Lake in the morning of September 22nd and commenced survey work that afternoon.

The Pimainus Lake survey was completed on Friday September 27th. Eleven profiles, with 362 stations were measured, with a total distance of 6.59 miles. On September 28th the crew moved to Highland Valley where the measurements started that same day on the property west of the Jericho base line. The survey here was complicated by road construction along the valley. Field work here was completed in the morning of October 3rd, after which our crew returned to Vancouver. In this area 30 profiles were measured, with 520 stations, and a total of 8.77 line miles. In total, in both areas, 15.36 line miles were surveyed, with 882 stations.

To provide close control of magnetic diurnal variations, a network of base stations was surveyed. In the Pimainus Lake area 6 base stations were established, and in the Highland Valley area 11. As some discrepancy between our measurements in the Jericho area and existing magnetic maps was noted, a control line along the Jericho base line was re-surveyed. The observations here were in good agreement with our previous results.

Mr. D. Geer, the client's representative, was continuously informed of the results, as the surveys were going on.

Three maps are provided with this report, at scales of one inch to 200 feet. They show the magnetic contours with 100 gammas interval, and the magnetic profiles at a vertical scale of 500 gammas to the inch.

Field data are being forwarded also with this report.

*[Handwritten signature]*

*Frank R. Joubert*

SUMMARY

1. The magnetic measurements in the Pimainus Lake area show that the magnetic depression here is due to the contact between granite and granodiorite.
2. The magnetic measurements in the Highland Valley area show a negative anomaly along the river, due to topographical features. No change in rock type is indicated by the survey.

G.C.S.

Frank Jacobini

INTERPRETATION.Pigwampus Lake Area.

The purpose of the survey here was to find the cause of a magnetic low on the airborne magnetometric map.

From the measured profiles and the known geology, it is clear that this low may be explained by a contact between granite and granodiorite, the granite having the lower magnetic susceptibility. Both rock types are outcropping in the investigated area.

The "granitic" part of the profiles is very regular, with an average level of about 750 gammas. The "granodioritic" part shows many irregularities; local lows and highs occur frequently. Probably these are caused by local variations both in magnetite content of the granodiorite, and in the thickness of the overburden. A mean level would probably lie around 1800 gammas, giving a difference of around 1200 gammas between granite and granodiorite. This would correspond to a difference in magnetic susceptibility of roughly 0.003, which is a reasonable figure for these types of rock. It would imply a magnetite content in the granodiorite of about 1%.

The contact is shown in its interpreted position on the magnetic map. An outlier of granite is shown in the vicinity of Line 7S and was observed also in the field. The contact is not clearly indicated south of Line 27S, where cross-faulting may account for the displacement of the magnetic zone to the north. The contact is interpreted as dipping to the west, which is in agreement with known geology, and supports the evidence that the granite is the younger rock in the area.

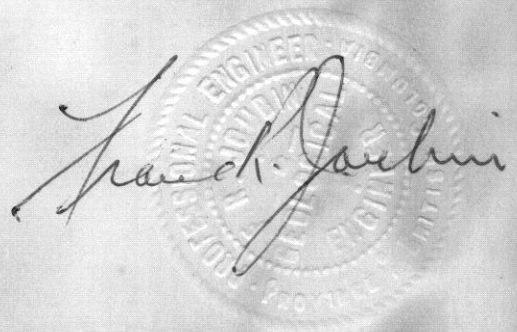
Highland Valley Area.

The purpose of the survey in this area was to locate zones of low magnetic intensity which might indicate faults or sheer zones. As shown on the map and the attached profiles, the only persistent magnetic low in the investigated area is along the valley of Witches Brook. Geologically it is very well possible that this valley represents a fault. The magnetic survey however does not give evidence in this respect.

The observed anomalies are usually of the order of a few hundred gammas. On profiles 116N and 120N they reach values of ground 1000-1500 gammas. Here however the valley is very deep and narrow.

If we assume a magnetic susceptibility of 0.003 for the bedrock, which is in accordance with the measurements for granodiorite at Pimainus Lake, negative anomalies of around 1000 gammas can be caused entirely by the topographical depression over Witches Brook.

In our opinion therefore, the observed anomalies in this area are due to the topography. No significant geological structures are revealed.



FRANK JACOBSON  
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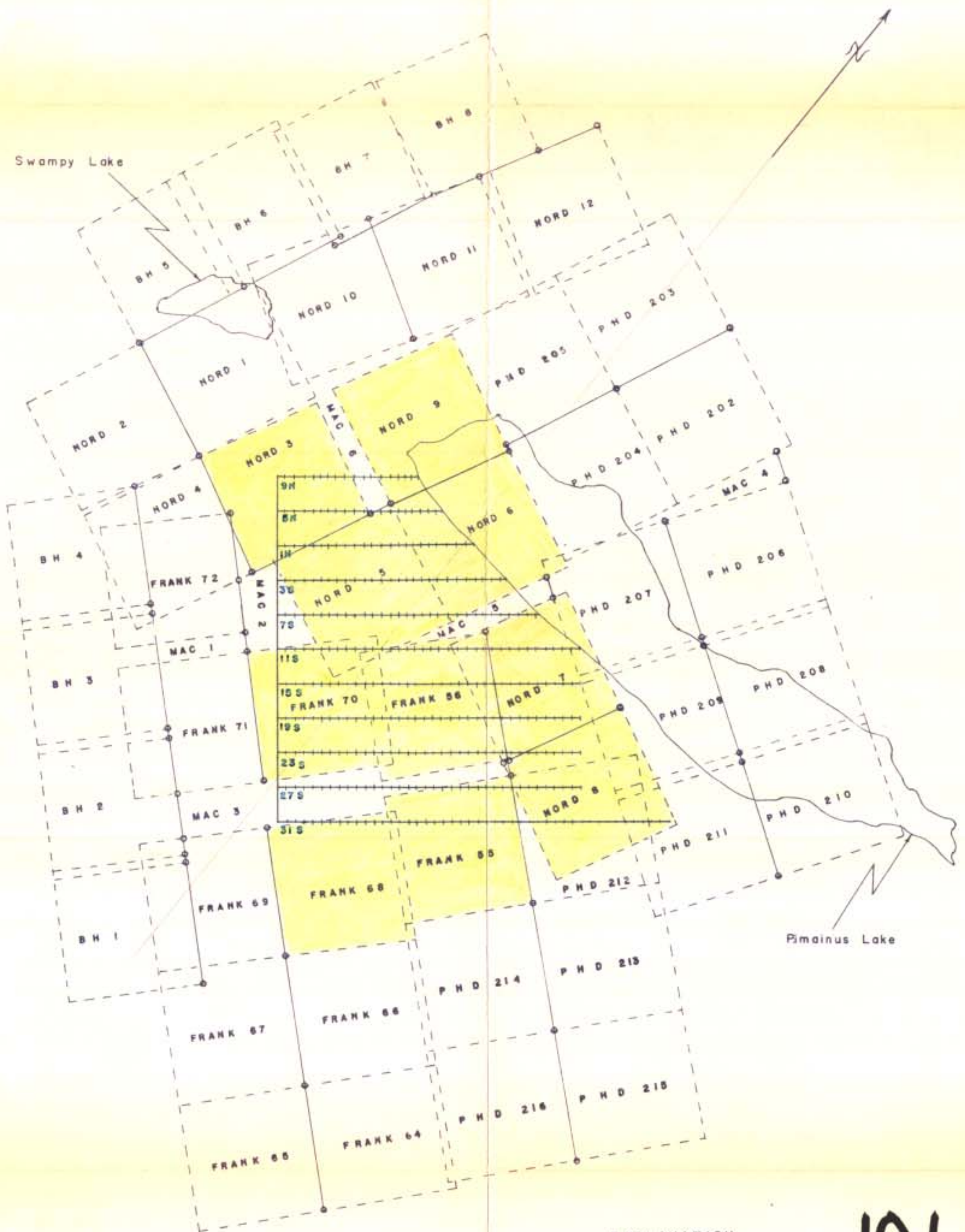
ATTACHMENTS

1. Magnetic map of the Pimainus Lake area, scale 1" = 200', contour interval 100 gammas.
2. Magnetic profiles of the Pimainus Lake area, horizontal scale 1" = 200', vertical scale 1" = 500 gammas.
3. Magnetic map and profiles of the Highland Valley area, scale 1" = 200', contour interval 100 gammas, horizontal scale of the profiles 1" = 200', vertical scale 1" = 500 gammas.

# PIMAINUS LAKE CLAIM MAP

HIGHLAND VALLEY AREA

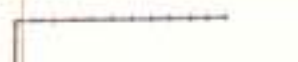
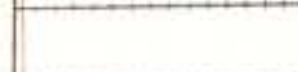

BRITISH COLUMBIA



## EXPLANATION

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MAP 1**

 Magnetometer survey applied as assessment work

-  Magnetometer Survey Lines & Stations
-  Claim Line & Posts
-  Projected Claim Boundary

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NO. **191** MAP **#1**

Scale 1" = 1000'

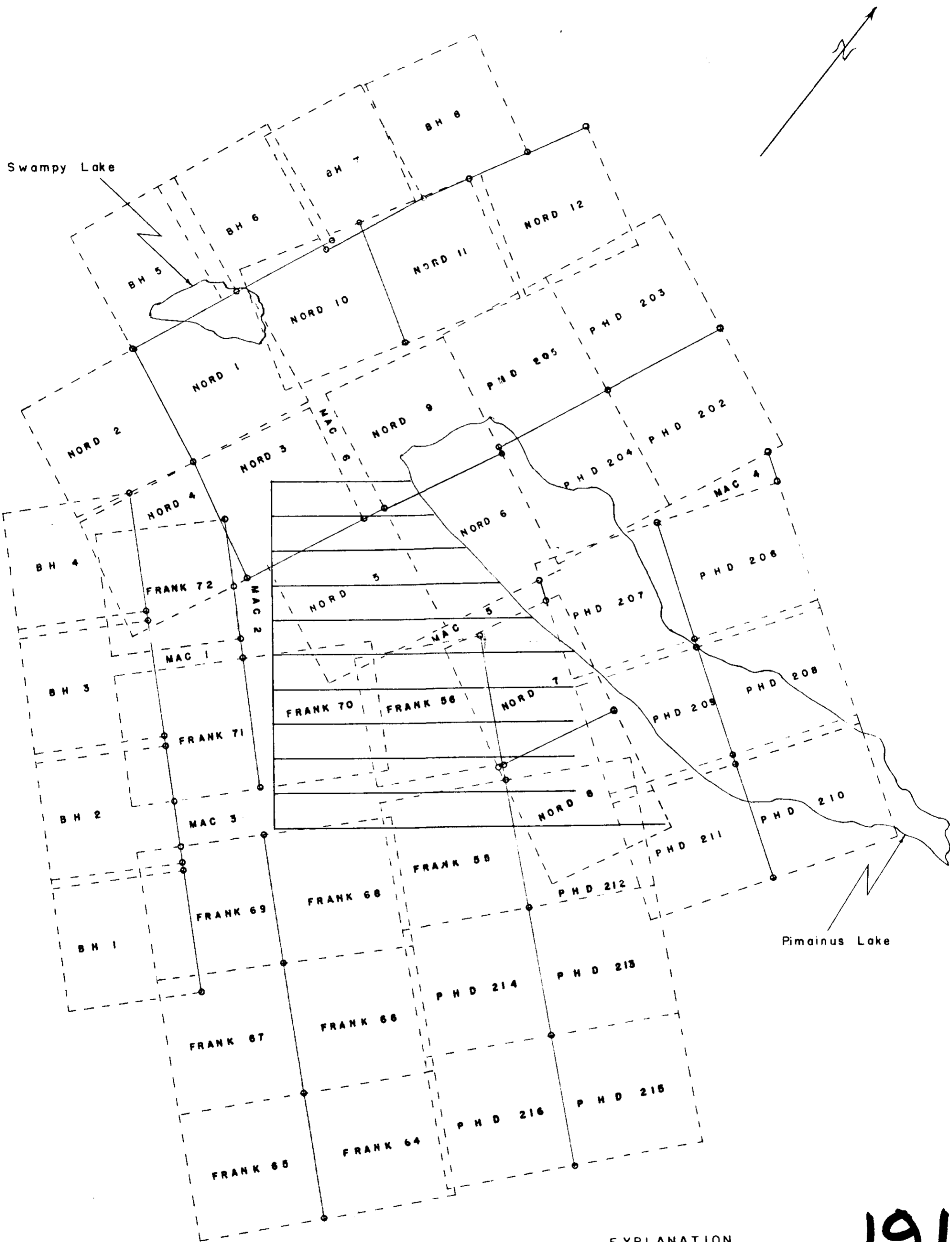
Anson Mines Ltd.  
by *Richard C. Lees*

*W. Eric Smith*  
My Commission expires October 29, 1958

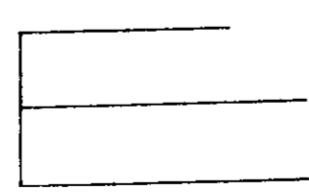


PIMAINUS LAKE CLAIM MAP

HIGHLAND VALLEY AREA

BRITISH COLUMBIA



EXPLANATION

-  Magnetometer Survey Lines
-  Claim Line & Posts
-  Projected Claim Boundary

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NO. **191** MAP **#2**

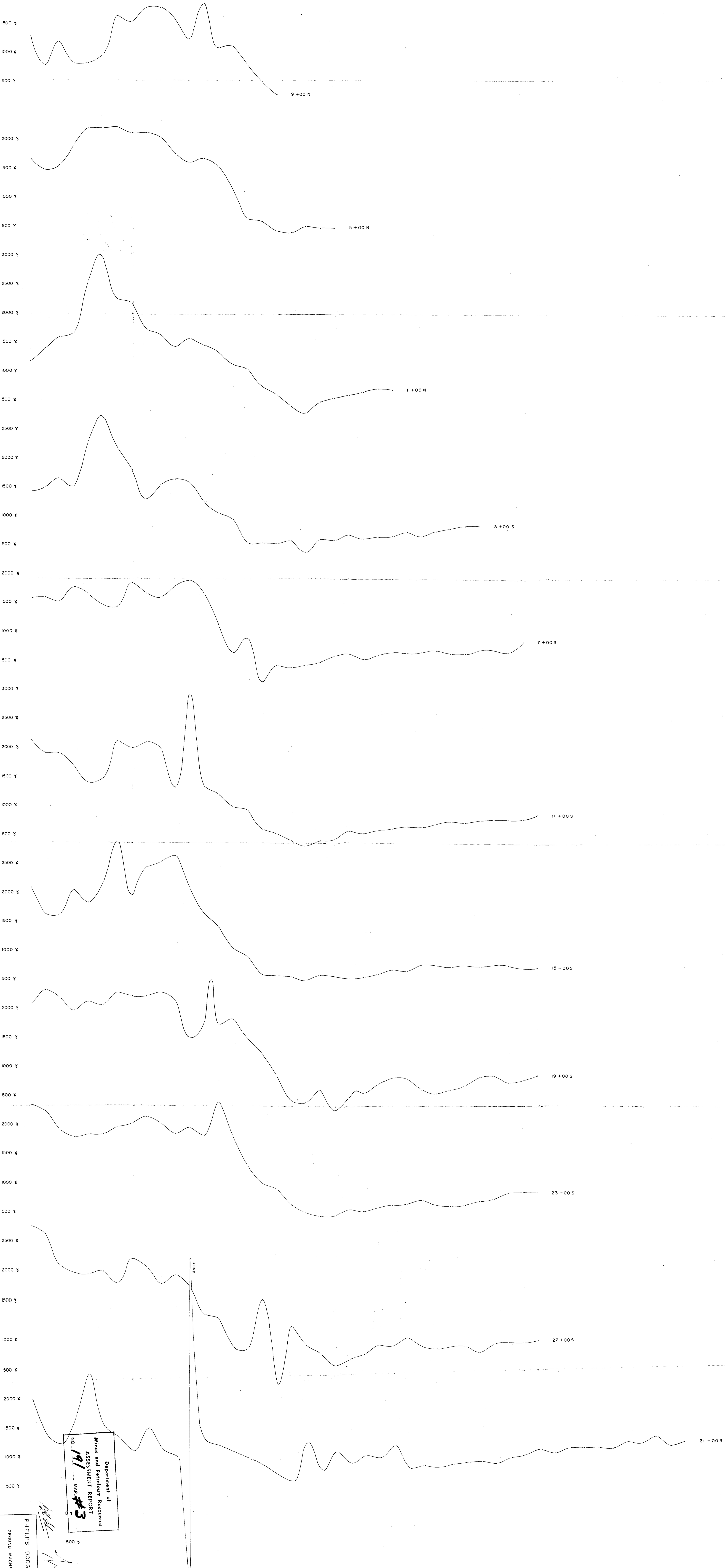
Scale 1" = 1000'

**191  
MAP 2**

*J.P.H.*  
*James R. Johnston*

SW

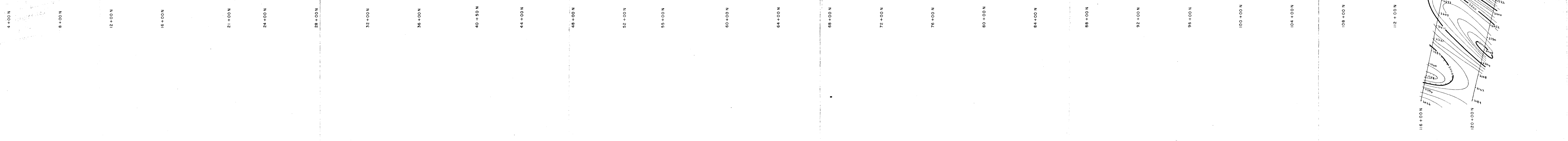
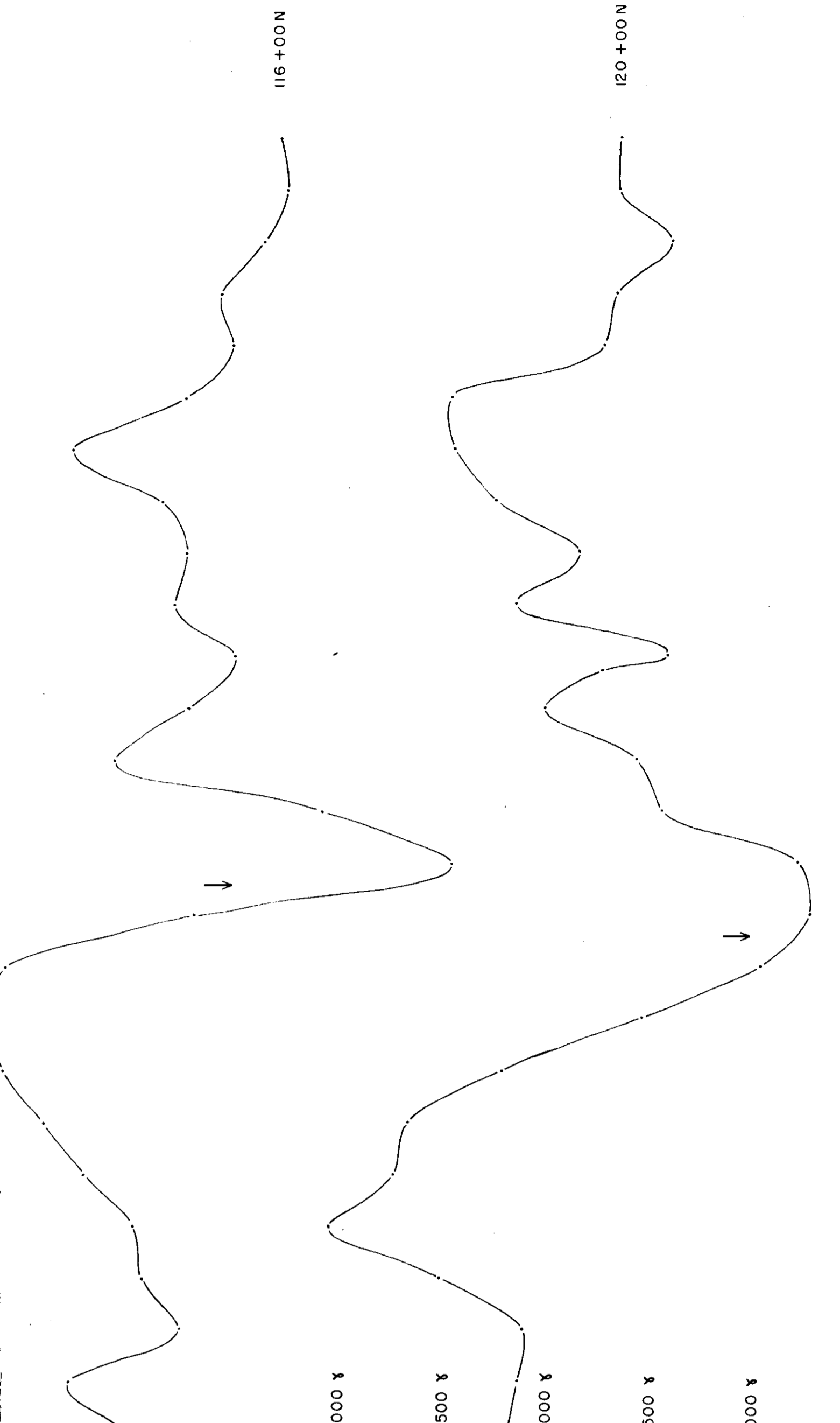
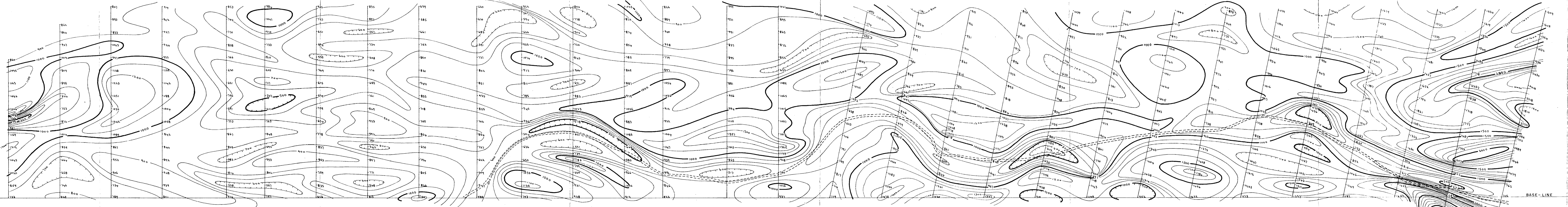
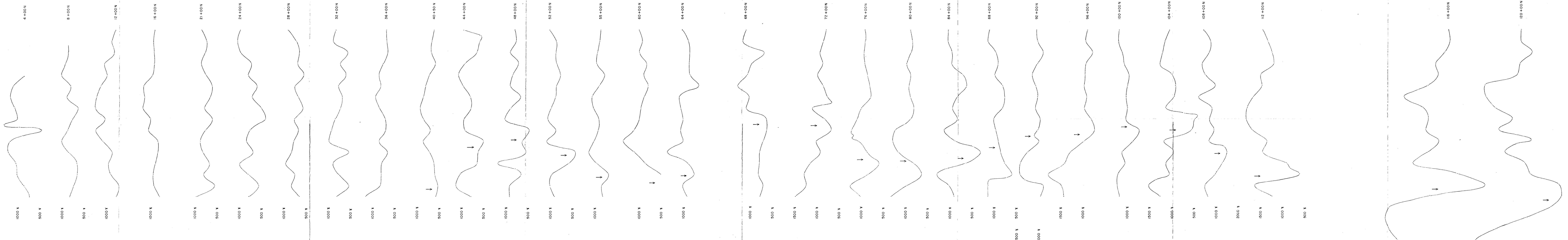
NE



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 MAP #3

*[Signature]*

PHIELDS DODGE CORPORATION  
 GROUND MAGNETOMETER SURVEY  
 PIMAINIUS LAKE AREA  
 MAGNETOMETER PROFILES  
 Scale: 1" = 200'  
 Scale: 1" = 500 gamma



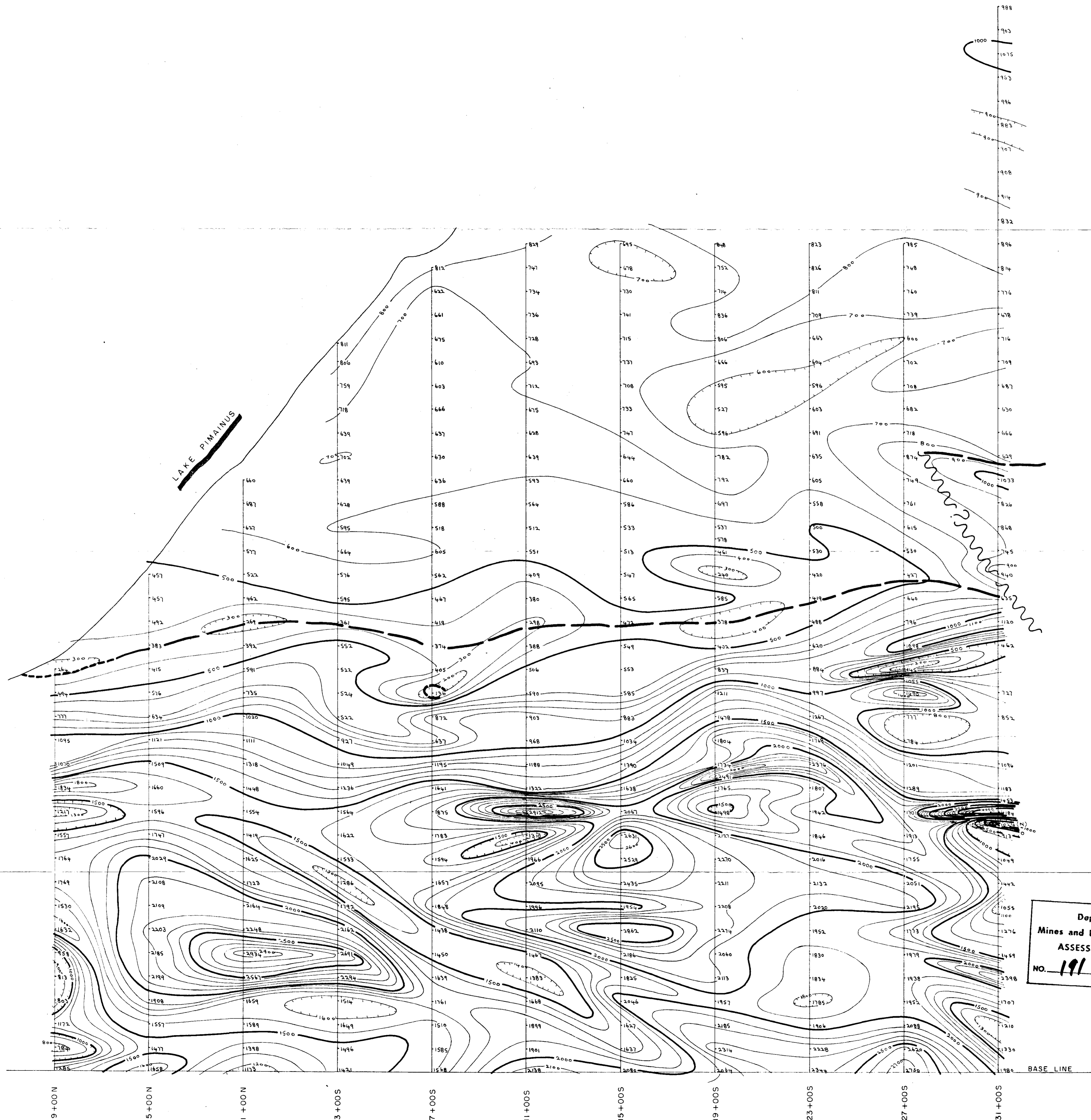
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**ASSESSMENT REPORT**  
NO. 191 MAP #4

*J.C.M.*  
*John J. Gardner*

**LEGEND**

500 gamma contours  
 100 - - -  
 Magnetometer Profiles  
 Approximate position of Witchet Brook

PHELPS DODGE CORPORATION  
GROUND MAGNETOMETER SURVEY  
HIGHLAND VALLEY AREA  
Scales: 1" = 200'  
1" = 500 gammas



**LEGEND**

- 500 gamma contours
- 100 " "
- Interpreted contact between granite and grano-diorite
- Possible fault

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NO. 191 MAP #5

**PHELPS DODGE CORPORATION**  
GROUND MAGNETOMETER SURVEY  
PIMAINUS LAKE AREA

Scale: 1" = 200'