

ELECTROMAGNETIC AND MAGNETIC
GEOPHYSICAL SURVEYS

'GO' MINERAL CLAIMS
Whitehorse Mining District
Yukon Territory

April 1967



GEOLOGICAL SURVEY
JUN 11 1967
Resident Geologist
Whitehorse, Y. T.

This report has been examined by
the Geological Evaluation Unit.
Approved as to technical worth by:
D. J. McIlroy
RESIDENT GEOLOGIST

Approved as to cost in the amount
of: \$ 3500.00
R. S. Pearson
RESIDENT MINING ENGINEER

Accepted as representation work
under Section 53(4) Yukon Quartz
Mining Act.
[Signature]
COMMISSIONER OF YUKON Administration

ELECTROMAGNETIC AND MAGNETIC
GEOPHYSICAL SURVEYS
'GO' MINERAL CLAIMS

INTRODUCTION

At the request of G.H.D. Consultants Ltd., ground geophysical surveys employing magnetic and electromagnetic methods were carried out during April 1967 on the 'Go' Mineral Claims, in the Whitehorse mining district of the Yukon Territory.

LOCATION AND ACCESS

The 'Go' claims are located on the Pelly River at $62^{\circ} 05'$ north latitude and $132^{\circ} 43'$ west longitude (reference, Claim Map 105 K2). Access to the property may be gained either by helicopter from Ross River Settlement, approximately 20 miles up the Pelly, or by foot from the Ross River-Carmacks road, about 3 miles to the southwest.

PREVIOUS WORK

No previous work other than linecutting in preparation for this geophysical survey has been performed on the 'Go' claims to the knowledge of the author.

METHOD OF SURVEY

Instruments Used: For the magnetometer survey, a Jalander 46-65 magnetometer was used, the instrument is hand held and measures the vertical magnetic component by use of an oil-dampened fluxgate which automatically levels itself in the direction of the vertical field. The range of this instrument is 10 to 250,000 gammas over 5 sensitivity ranges, the lowest being 10 gam as per scale division.

The electromagnetic survey was carried out with a Crone JEM

dual frequency unit. The Crone is of the inductive type and may be used either as a horizontal or vertical loop apparatus. Measurements are made of the resultant dip angle of the field and the width of null or out of phase component. It is designed to be operated with a maximum coil spread of 300 feet on frequencies of 480 and 1800 cycles per second with no interconnecting cables. The effective depth penetration is 300 feet for a horizontal conductor with maximum coil spread (no skin effect allowance) and 100 feet for a vertical conductor.

Survey Method: A grid of 400 foot line spacing and 100 foot station intervals was cut prior to the survey for ground control and location purposes.

Readings were taken with the magnetometer at cross line-base line intersections and then looped in order that base values be established for diurnal and drift control. Each cross line was read with re-checks at the base stations every hour during the survey. The survey was done with one operator using the same instrument.

The electromagnetic survey was run using the horizontal loop method with a coil spacing of 300 feet. 1800 cps readings were taken at all 100 foot stations with 480 cps readings over areas of anomalous interest. The coil configuration was not adaptable to conditions of conductive overburden and maximum response from such was expected. All traverses were by the 'in line method' and done over the same area as surveyed magnetically.

Treatment of Data: Magnetic results were corrected for diurnal and drift each night by the field operator. Final gamma values were then plotted on a grid plan at 1:400 scale. Maps showing values-profiles and isomagnetic contours on individual sheets are presented in this report (see folder).

Electromagnetic results are presented on two sheets showing resultant dip angle values and profiles and high frequency contours.

Maps are of the same scale and area as the magnetic presentations.

GEOLOGY

No geologic information was made available for geophysical interpretation purposes.

GEOPHYSICAL RESULTS

An absolute magnetic background of 58,500 gammas was adopted over the area, this was equated to 700 gammas as read over the actual survey. Magnetic profiles are generally flat and average 750 gammas in response over the southwest portion of the grid. The gradient increases uniformly to the northeast to an average response of about 875 gammas. Variations in this trend occur at lines 16N to 32N at stations 8E, where negative or below background values were recorded. Single line magnetic values reach a high of 920 gammas total intensity at line 36N stations 12 to 14 E.

High frequency electromagnetic profiles are flat over most of the grid. Some positive dip angles occur, but most of them are over one line and no trends are evident. At lines 76 and 80N and stations 8 and 9E respectively, weak negative dips trend in a northerly direction. At lines 112N and 116N and stations 8E a weak positive trend to the north is outlined. The major conductive zone is characterised by strong negative dip angles on both 1800 and 480 cps frequencies between lines 32N and 60N. A maximum response is obtained on line 40N, 12E, of -34° . The conductor appears to be of poor quality as represented by low 480/1800 cps ratios.

CONCLUSIONS AND RECOMMENDATIONS

The magnetic profiles demonstrate a uniform increase in gradient to the northeast, a feature which is characteristic of a combination of stratigraphic horizons of uniform susceptibility dipping to the southwest coupled with an increasing thickness of river deposition in that direction. The strong negative angle conductor at the east end of the grid builds up over the main drainage of the Pelly River and is probably due to water saturated conductive sediments.

The magnetic 'high' on line 36N, 12E is coincident with the conductor thought to be due to sediments, however the magnetics are not fully delineated due to the survey boundaries. It is suggested that the survey be extended to the east when possible, so that the extent of the magnetic and electromagnetic coincidence here can be determined.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'J. S. Brock', written over a horizontal line.

John S. Brock, Geophysicist

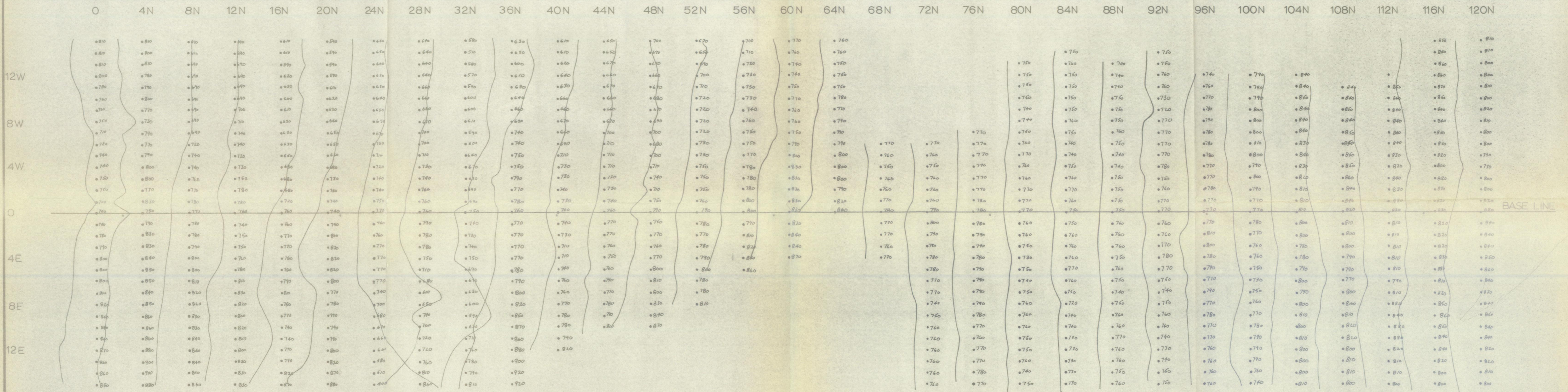
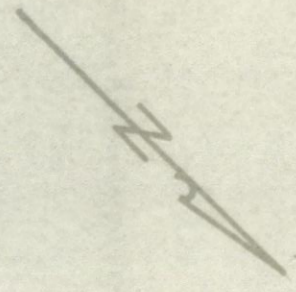
April 22, 1967



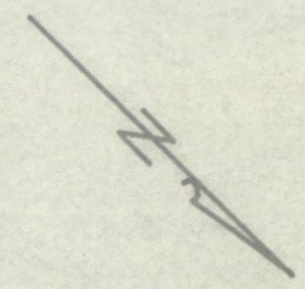
LOCATION
OF
GO 41-56 M.C.S.
APRIL 1967

EXCERPT FROM
MAP SHEET
105-K-2
1" = 1/2 MILE

RUM
65

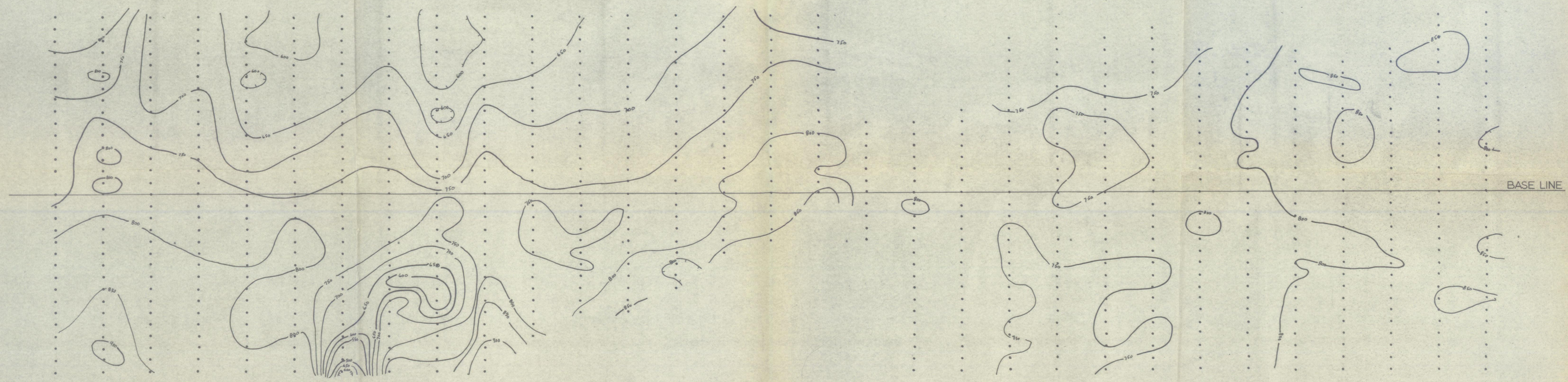


"GO" MINERAL CLAIMS *41-56	
GHD CONSULTANTS LTD.	
MAGNETOMETER SURVEY	
VALUES & PROFILES	
Profile scale: 1/10"=20'	Instrument: Jalander
Scale: 1"=400'	Date: April 1967
Operator: J. Lerner	
Drawn by: <i>Blake</i>	

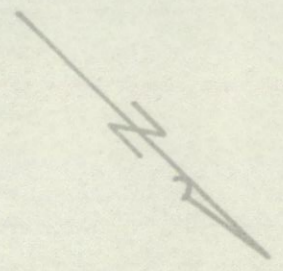


0 4N 8N 12N 16N 20N 24N 28N 32N 36N 40N 44N 48N 52N 56N 60N 64N 68N 72N 76N 80N 84N 88N 92N 96N 100N 104N 108N 112N 116N 120N

12W
8W
4W
0
4E
8E
12E

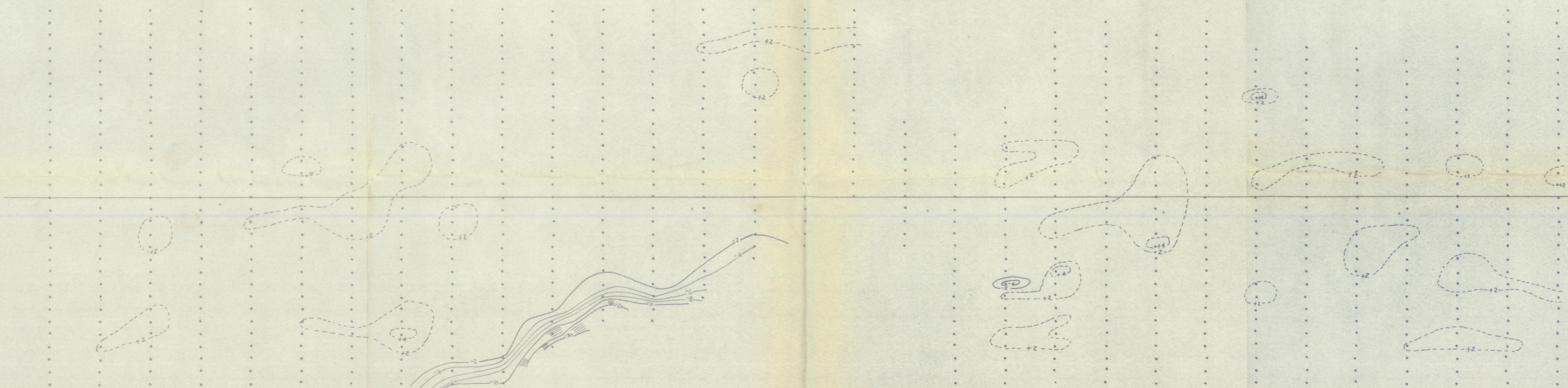


"GO" MINERAL CLAIMS *41-56	
GHD. CONSULTANTS LTD.	
MAGNETOMETER SURVEY	
CONTOUR MAP	
Profile scale: 1/10"=20'	Instrument: Jalander
Scale: 1"=400'	Date: April 1967
Operator: J. Lerner	
Drawn by: <i>Blk</i>	

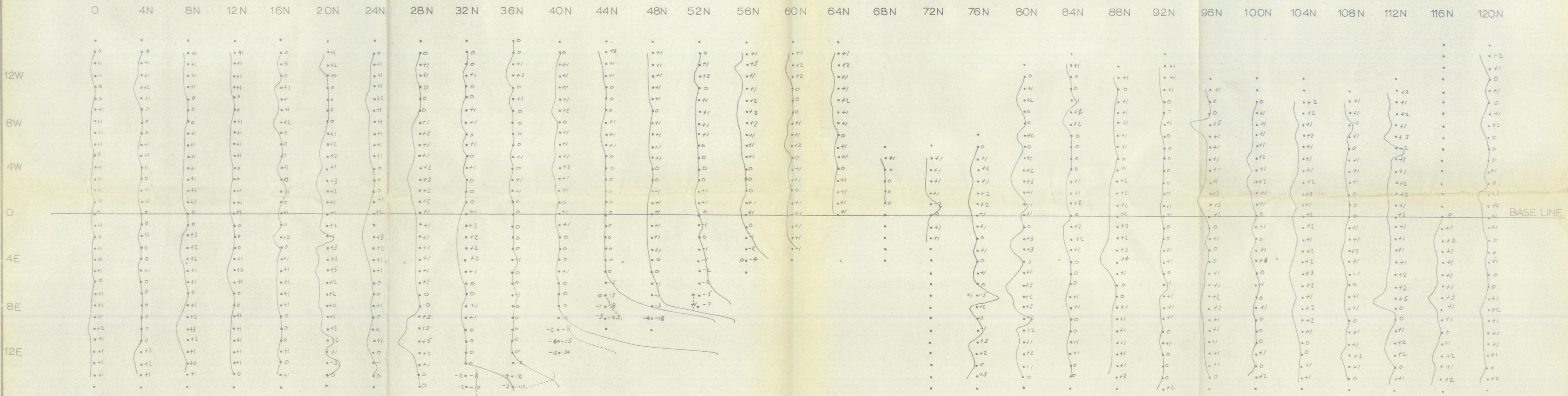
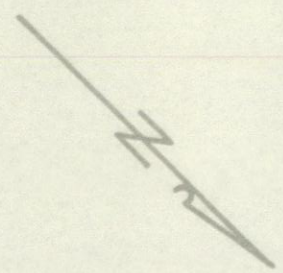


0 4N 8N 12N 16N 20N 24N 28N 32N 36N 40N 44N 48N 52N 56N 60N 64N 68N 72N 76N 80N 84N 88N 92N 96N 100N 104N 108N 112N 116N 120N

12W
8W
4W
0
4E
8E
12E



"GO" MINERAL CLAIMS *41-56	
G.H.D. CONSULTANTS LTD.	
GROUND ELECTROMAGNETIC SURVEY CONTOUR MAP	
Date : April 1967	Coil spacing: 300'
Contour interval 2'dip angle	Instrument: Crane JEM
Scale: 1" = 400'	Contoured 1800 cps
Operators: J. Lerner A. McLeod	Positive contours - - - -
Drawn by: <i>gbb</i>	Negative contours ———



"GO" MINERAL CLAIMS *41-56	
G.H.D. CONSULTANTS LTD.	
GROUND ELECTROMAGNETIC SURVEY VALUES & PROFILES	
Date : April 1967	Coil spacing: 300'
Profile scale 1/10°:1° dip angle	Instrument : Crane JEM
Scale: 1" = 400'	1800cps.
Operators: J. Lerner A. McLeod	480cps.
Drawn by:	+ve -ve