MAGNETIC AND ELECTROMAGNETIC GEOPHYSICAL SURVEYS

NAR MINERAL CLAIM GROUP

SHELDON LAKE AREA
Watson Lake Mining Division
Yukon Territory

Long. 62 deg. 01' West
Lat. 129 deg. 52' North

Claim Sheet 105 I 4

by

John S. Brock
Atlas Explorations Limited

June 22 - July 23, 1967

MAGNETIC AND ELECTROMAGNETIC GEOPHYSICAL SURVEYS

NAR MINERAL CLAIMS

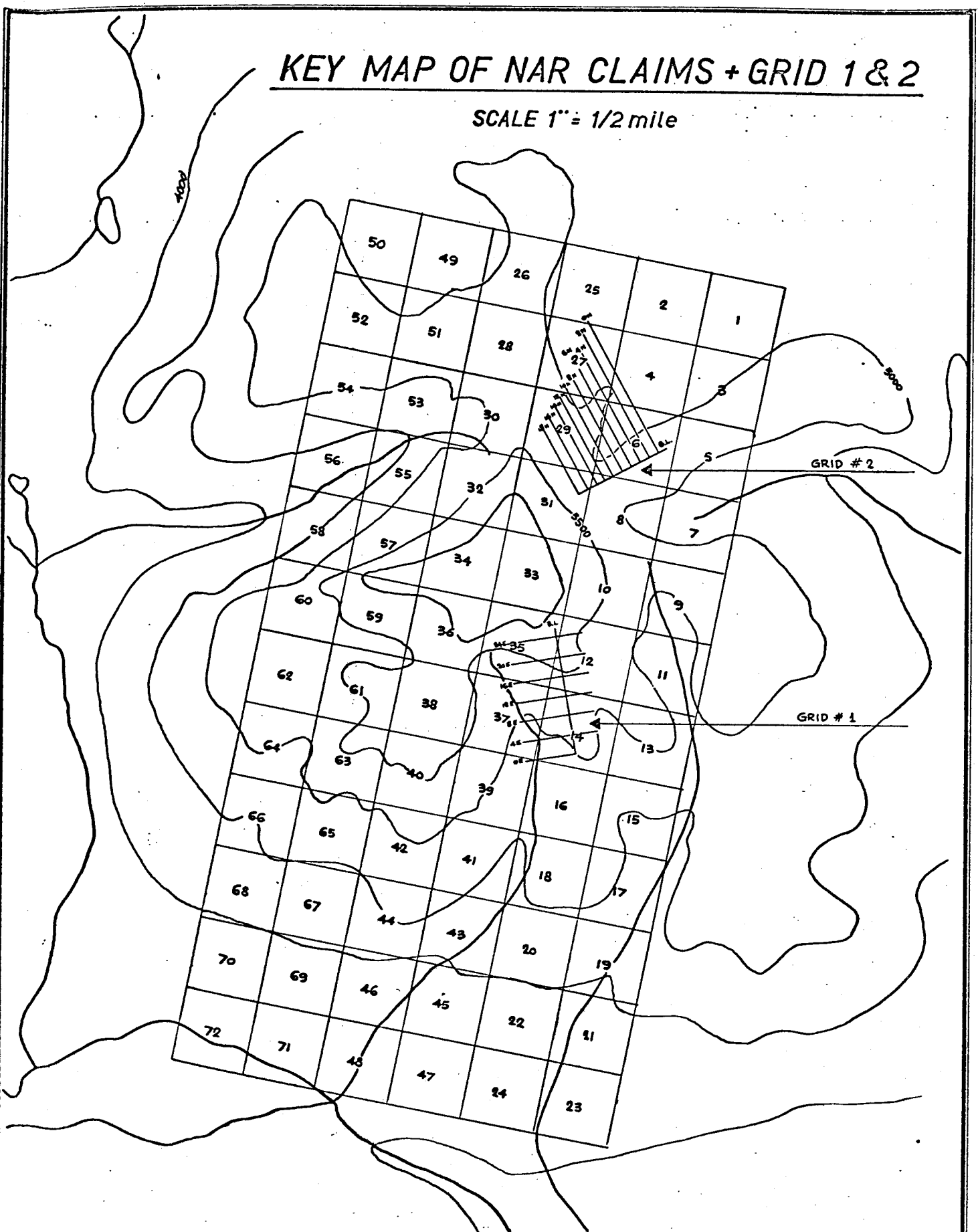
TABLE OF CONTENTS

LIST OF CLAIMS

Claim No.	Grant Nos.	Date Recorded
NAR 1 - 72	Y 16294 - Y 16365	September 21, 1966

KEY MAP OF NAR CLAIMS + GRID 1 & 2

SCALE 1" = 1/2 mile



ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

DRAWN BY : P.V.

TELEPHONE 685-4331

ATLAS EXPLORATIONS LIMITED
(N.P.L.)
330 MARINE BUILDING
355 BURRARD STREET
VANCOUVER 1, B.C.

INTRODUCTION

Through a prospecting program conducted by Atlas Explorations during the late summer and fall of 1966, numerous lead, zinc and copper showings were discovered and staked. One of these claim groups, the Nar Mineral Claims, is located some 12-1/2 miles east-southeast of the Pelly Lakes Trading Post and covers all known mineral occurances in that area. Follow-up prospecting revealed sulphides of high silver assay as well as encouraging geochemical soil sample results over areas related to known mineral occurances.

From June 22 to July 23, 1967, a crew consisting of linecutters, prospectors, geologists and technical field operators, conducted geological, geophysical and geochemical surveys over the Nar Mineral Claims in order to further determine its economic potential.

LOCATION AND ACCESS

The NAR Mineral Claims are located approximately 12-1/2 miles east-southeast of the Pelly Lake Trading Post on Pelly Lakes. The location of the Claim Group may be found at 129 deg. 52' North Latitude and 62 deg. 01' West Longitude on mineral-claim sheet 105 I 4. The central portion of the NAR Group is located on the peak of a mountain southeast of Ptarmigan Lake. Elevations rise to 6,000 feet above sea level, treeline is at approximately 4,800 feet.

Access to the property was made by helicopter from the Atlas Exploration field base at Pelly Lakes, however, float-equipped aircraft may land with ease on Ptarmigan Lake. A winter tote road was constructed from Finlayson Lake on the Ross River - Watson Lake Highway to Pelly Lake in order that bulk supplies could be brought within close proximity to the NAR Claims.

GEOLOGY

Outcrop is abundant in cirque walls on the west, north and east sides of NAR Mountain where a fairly reliable geologic picture has been developed. The south slope of the mountain is covered with a thick blanket of talus at a repose angle of about 30 degrees.

Seven stratigraphic units have been distinguished. The older five units are complex, consisting of varying thicknesses of quartzite, chert, rhyolite and dolomite; the two younger units consist of limestone with local skarn and fresh dolomite. The sediments are cut by a small granite body west of the mountain peak. Structure is simple, consisting of a moderately tight, gently plunging, east-west trending anticline. Along the north, limb dips are steep and locally recumbent, gentle dips prevail over the crest, the south limb is not exposed.

Two varieties of mineralization have been noted, - lead, zinc, copper replacement in diopside-pyrrhotite skarn and lead-zinc replacement and fillings in quartz veins and quartzite breccia. Mineralization appears to be generally related to the axis of the anticline.

A narrow (up to 2 feet wide) band of diopside-pyrrhotite skarn interbedded in a steeply dipping, east-west striking succession of chert, limestone, dolomite and skarn, contains massive copper, lead, and zinc mineralization. Float occurs westerly from the area of exposure over a distance of about 1,000 feet. Marginal to the band is a 15 foot by 200 foot lense of low grade chalcopyrite-bearing crystalline limestone.

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 grams over five sensitivity ranges, the lowest being 10 gammas per scale division. The magnetometer is of light weight and readings can be obtained quickly, a conversion factor is necessary before gamma values can be determined.

The electromagnetic survey was carried out with a Crone JEM dual frequency unit. The Crone is of the inductive type and may be either used 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 3,300 feet for a horizontal conductor with maximum coil spread (no skin effect allowance) and 100 feet for a vertical conductor. The effective lateral coverage is a direct function of the spread under ideal conditions. The equipment was chosen in order to give reliable information on the attitude and configuration of a conductor, the physical properties of the host rock, dimensions of the conductor and results free from error due to topographic relief.

Survey Method, Linecutting

All grids designed for ground geophysical and geochemical surveys were laid out using two hundred foot line spacing with one hundred foot station intervals. Central base lines were used for survey control, all cross lines were surveyed by picket and chain methods. Linecutters were hired from the native settlement of Ross River; survey control was checked by the party chief.

Magnetometer Survey

Prior to the actual magnetometer survey, readings were taken along the central base line at cross line intersection points. These stations were looped and re-read every hour as a means of controlling drift and diurnal variations. With base stations of an established value serving as a means of controlling drift and diurnal variations, a rapid and precise check was kept on magnetic variations and the entire survey was thus kept on a relative basis during day to day operation. Each cross line was read with re-checks at the base station within every hour, this method provided an internal control for detecting diurnal and drift variations. The survey was done by one operator using the same instrument.

Electromagnetic Survey

All surveys were run with horizontal loop configuration and 300 foot coil spacing in order that highest response could be obtained from flat lying sulphide bodies. Both 1800 and 480 cps readings were taken at each station. The coil configuration was not adaptable to conditions of conductive overburden and maximum response from such was expected. All traverses were made by the "in line method" and done over the same grid as used for the magnetometer surveys. Spacing was reduced to 300 feet over areas of interest. The two man EX crew did all their ground work in coincidence with the magnetometer and soil sampling crew.

Treatment of Data

Magnetic Results

Magnetic results were corrected for diurnal and drift each night by the field operator. The final gamma values were then plotted on a grid plan using scale of 200 feet to 1 inch. This data was presented to the party chief who profiled and contoured the data on overlay material in order

that he could remain familiar with day to day results and progress of the survey, direct its course and have results available for comparison with electromagnetic and geological-geochemical data. Field plots of this information were forwarded to the base office at Ross River at the end of the survey for final plotting and examination on a scale of 1 inch to 200 feet. Magnetic data is presented in this report on such maps showing gamma values and contoured results. (See Appendix). All maps show major topographic features and locations of mineral claim posts.

Electromagnetic Results

All results as derived in the field were plotted each night by the EX operators on a grid plan using a scale of 1 inch to 200 feet. High and low frequency results were presented to the party chief for inspection and profiling in order that thisdata be compared with the other surveys and the course of the electromagnetic survey be directed on a daily basis.

GEOPHYSICAL OBSERVATIONS

A well defined magnetic anomaly occurs in the vicinity of line 10E between 8N and 14N (Risby-Waugh float location). Background for the area has been determined as 500 gammas, the anomaly reaches a peak intensity of over 7,000 gammas and strikes in a northwesterly direction for approximately 700 feet covering an average width of 300 feet. This magnetic anomaly is coincident with a well defined geochemical lead-zinc response.[1]

Another smaller magnetic anomaly was delineated in the vicinity of line 20 E, 8N. (J. French float area). This anomaly strikes in a westerly direction and is 'open' at its western end due to incomplete survey coverage caused by a topographic break.

Results from the electromagnetic survey did not prove conclusive in locating areas of sulphide mineralization. High frequency resultant dip angles were recorded, all of which do not have greater magnitudes than plus or minus 2 degrees.

CONCLUSIONS

The magnetic anomaly in the vicinity of 10E, 10N is believed to be caused by a pyrrhotite-bearing skarn, host to lead, zinc mineralization previously discovered by prospecting. The magnetic anomaly is coincident with a geochemical lead-zinc anomaly over the same area.

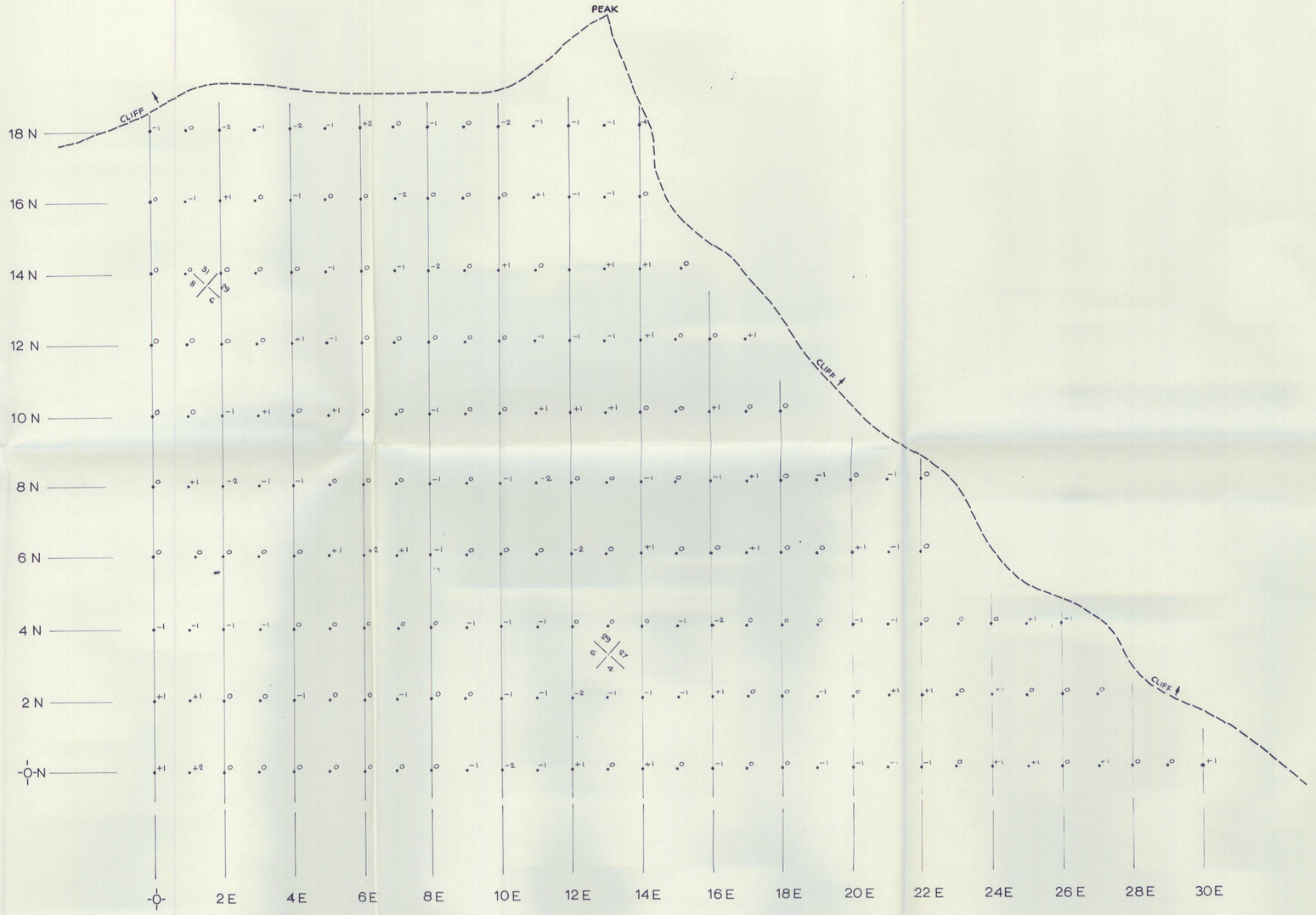
The second, and smaller magnetic expression is thought to be due to a pyrrhotite-bearing skarn that is also mineralized with lead-zinc sulphides.

RECOMMENDATIONS

The areas delineated by magnetics in coincidence with geochemical results should be further prospected by hand trenching methods.

Respectfully submitted,

John S. Brock,
Assistant Exploration Manager,
Atlas Explorations Limited.



-1 = 1800 cps RESULTANT DIP ANGLE

ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

NAR MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

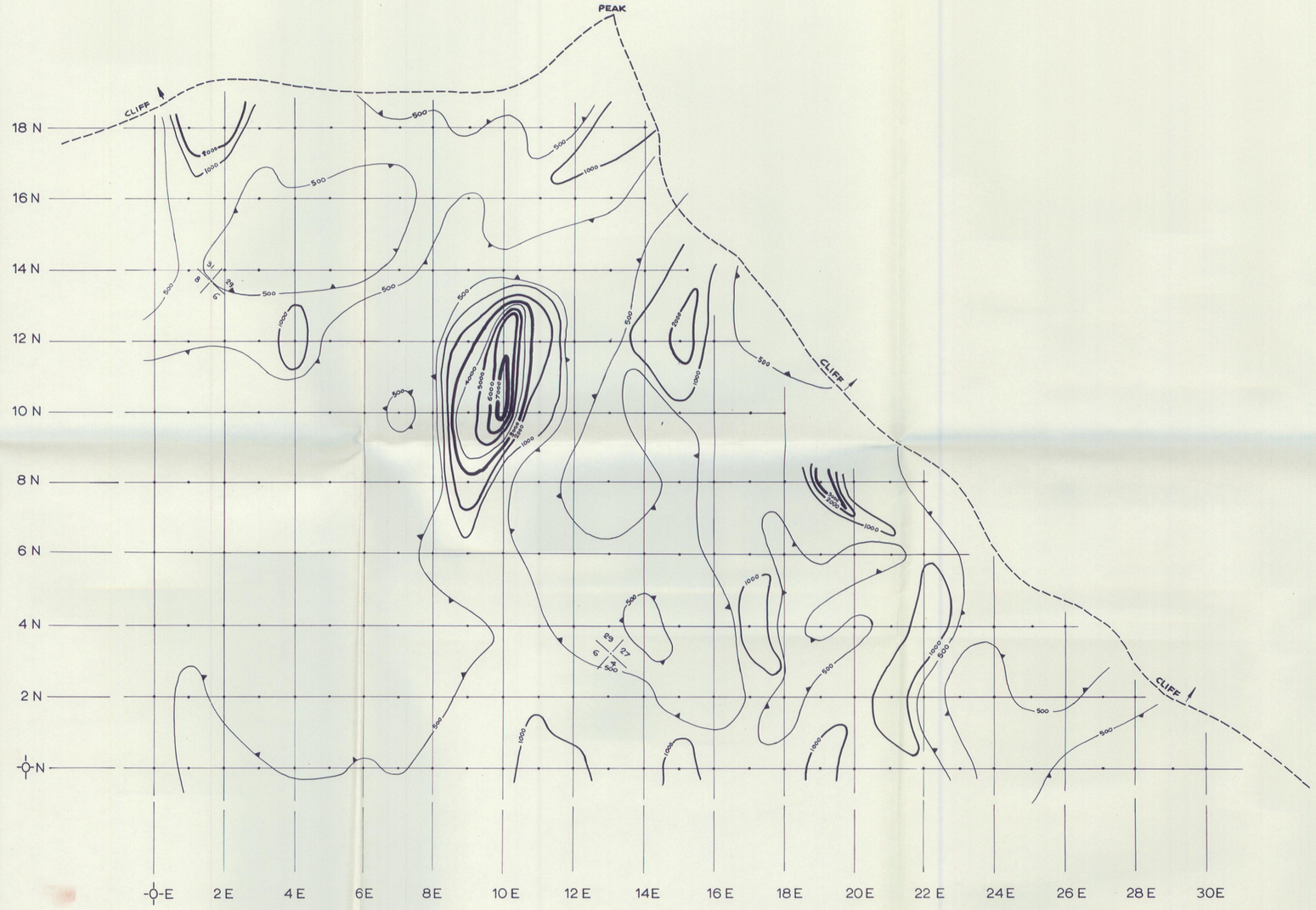
HIGH FREQUENCY VALUES (SOUTH-NAR)

INSTRUMENT : CRONE JEM
OPERATOR : T. ADAMSON & CH. SCOTT

DRAWN BY : P.J.F. VLASVELD
DATE : JULY 1967

200 0 200 400
SCALE IN FEET

27/4



ISO MAGNETIC CONTOUR INTERVAL = 1000 GAMMA'S

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SHELDON REGION

NAR MINERAL CLAIMS

GROUND MAGNETOMETER SURVEY

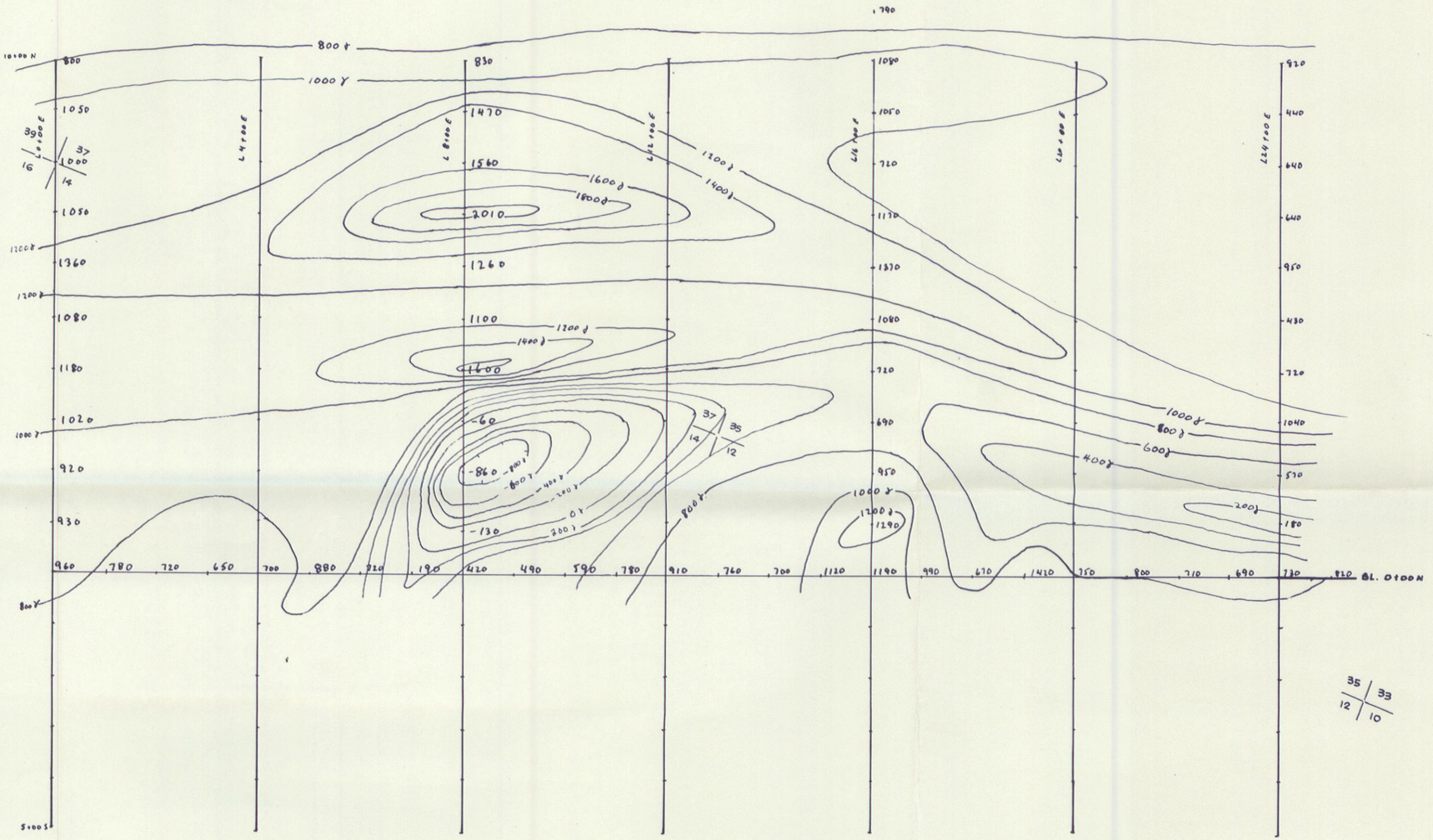
CONTOUR MAP

INSTRUMENT: JALANDER
OPERATOR: CH. SCOTT

DRAWN BY: P.J.F. VLASVELD
DATE: AUGUST 1967

200 0 200 400
scale in feet

27/4



NAR GROUP (WEST)

GRID # 1

MAGNETOMETER SURVEY

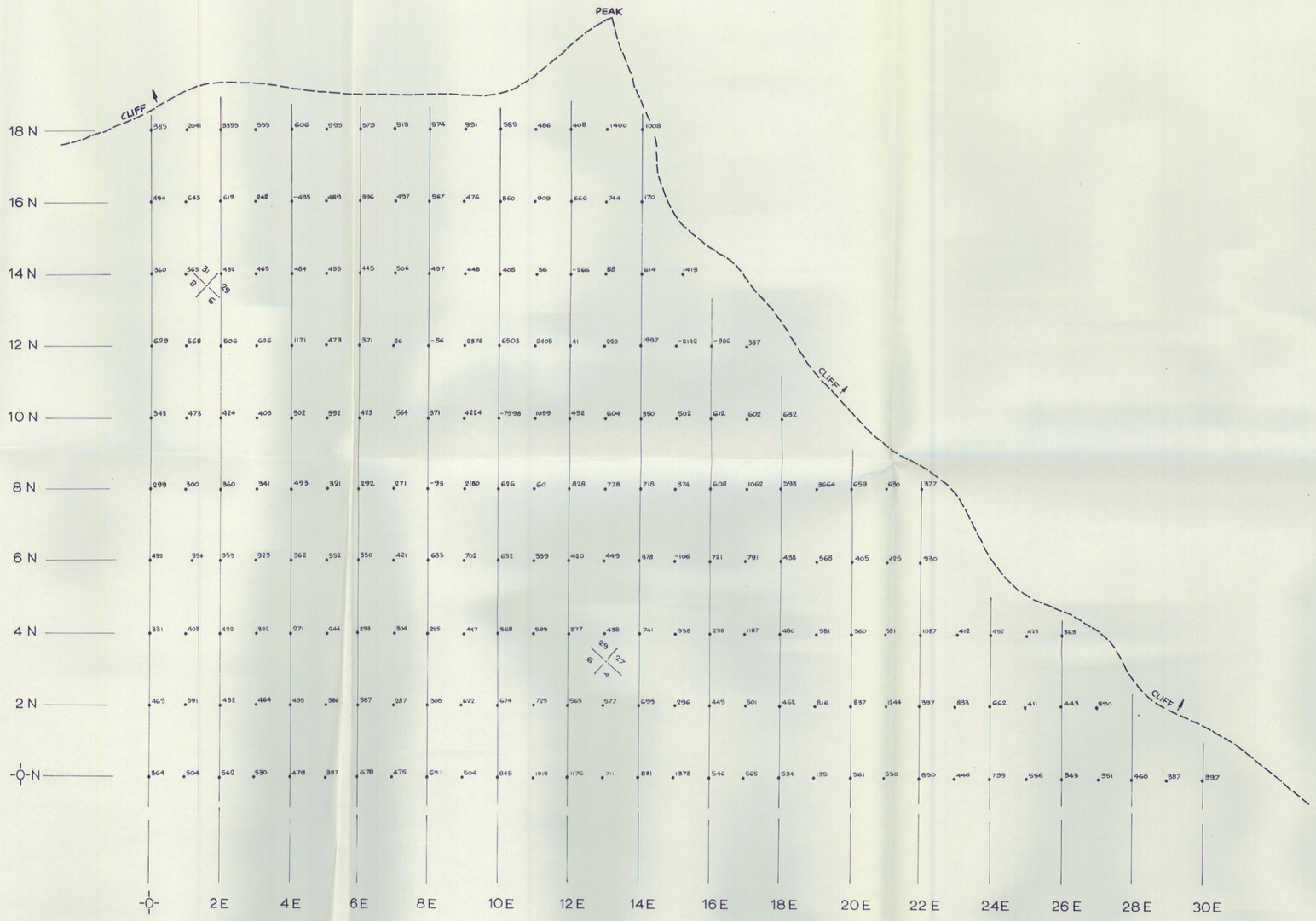
CONTOUR MAP

SCALE 1"=200'

CONTOUR INTERVAL : 200 γ

MAG. OPERATOR : P. DEAN

DATE : JUNE '67



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ROSS RIVER (Y.T.)

SHELDON REGION

NAR MINERAL CLAIMS

GROUND MAGNETOMETER SURVEY

(VALUES IN GAMMA'S) **VALUES** (SOUTH-NAR)

INSTRUMENT: JALANDER
OPERATOR: CH. SCOTT

DRAWN BY: P.J.F. VLASVELD
DATE : JULY 1967

200 0 200 400
SCALE IN FEET