63.1154

MOREAU WOODARD & COMPANY LTD.

GEOPHYSICAL E

010

INTRODUCTION

An E.M. Gun electromagnetic survey was carried out on a portion of the Cassels Township property by New Athona's own personnel in February, 1962. The property is located about 7 miles northeast of Temagami, Ontario.

Moreau, Woodard and Company Limited was asked to evaluate a conductor located during this survey. The writer visited the property on March 1, 1962.

METHOD

The conductor was originally located using a 200 foot coil separation, which is normal for reconnaissance type work. In order to provide better resolution in the case of multipe conductors and a more accurate determination of the location of the conductor, a 80 foot coil interval was used with readings taken every 50 feet. This short coil interval also provided easier and more accurate coil orientation over the uneven topography.

A frequency of 3520 c.p.s. was used at all times.

RESULTS

A strong conductor approximately 560 feet long was located. The conductor strikes northeast and has a maximum apparent width of 90 feet.

The high amplitudes of the readings indicate very shallow overburden. The high ratios of the in-phase to out-of-phase readings

indicate good conductivity, characteristic of sulphides.

There were some indications of a strong horizontal secondary field component, suggesting that the conductor has a shallow dip.

The conductor appears to be strongest on Line 4S and becomes weaker to the north.

RECOMMENDATIONS

As there are two trenches in the strongest part of the conductor, a careful examination of the material in the trenches should indicate the cause of the conductor.

MOREAU, WOODARD & COMPANY LTD.

J. A. Woodard, P. Eng.

J. A. Woodard

CASSELS TOWNSHIP, ONTARIO
GEOPHYSICAL SURVEY

INTRODUCTION

New Athona Mines Limited holds 14 claims in Cassels Township, Ontario. Beginning in September, 1961, geophysical work has been carried out to apply to the following six contiguous claims.

Nos. 40272
40273
40274
40275
40276
40278

A strong conductor was detected during the preliminary reconnaissance work and this was outlined by detail work during February of this year. This work was performed by a company crew especially trained and equipped. Results were checked and interpreted by Moreau, Woodard & Company, geophysicists.

METHOD EMPLOYED

The Boliden E-M gun, developed in Sweden, employs horizontal transmitting and receiving coils spaced a fixed interval apart and operating at a frequency of 3,250 cycles per second. In-phase and out-of-phase components of the secondary field are measured and expressed as percentage change from a normal undisturbed field. These values and their mutual ratios are a measure of the conductivity of the underlying conductor. An in-phase/out-of-phase ratio of 4 or more represents high conductivity characteristic of a massive sulfide body. These methods are effective to a depth of 150 feet below surface.

DETAILS OF SURVEY

A total of 7.2 miles of line were cut, chained and

picketed. Employees' names and work times involved are shown in Appendix A to this report. Survey details are shown on map NATE 62-1 as Appendix B. Most cross lines were spaced at 50 foot intervals with readings taken every 50 feet. Coils were spaced 200 feet apart. In the check survey by Moreay, Woodard & Company an 80 foot coil spacing was used for a more accurate definition of the conductor.

RESULTS OF WORK

Work in previous years has been carried out on two mineralized zones within volcanic rocks and some good copper was found. However, the recent E-M work over these gave only weak response. On the other hand strong conductivity was found in an area 200 feet north of the No. 2 Zone. This new zone 560 feet long and up to 90 feet wide is, in all probability, made up of sulfides in concentrations greater than the two previously known zones.

In checking this conductor with the same type of equipment Moreau, Woodard and Company in their report of March 2, 1962 state "The high ratio of the in-phase to the out-of-phase readings indicate good conductivity, characteristic of sulfides. The conductir appears to be strongest on line 4-S and becomes weaker to the north".

RECOMMENDATIONS

The conductors outlined by the survey should be explored across its full width. Trenching over this distance may be a difficult undertaking. As an alternative a hole should be

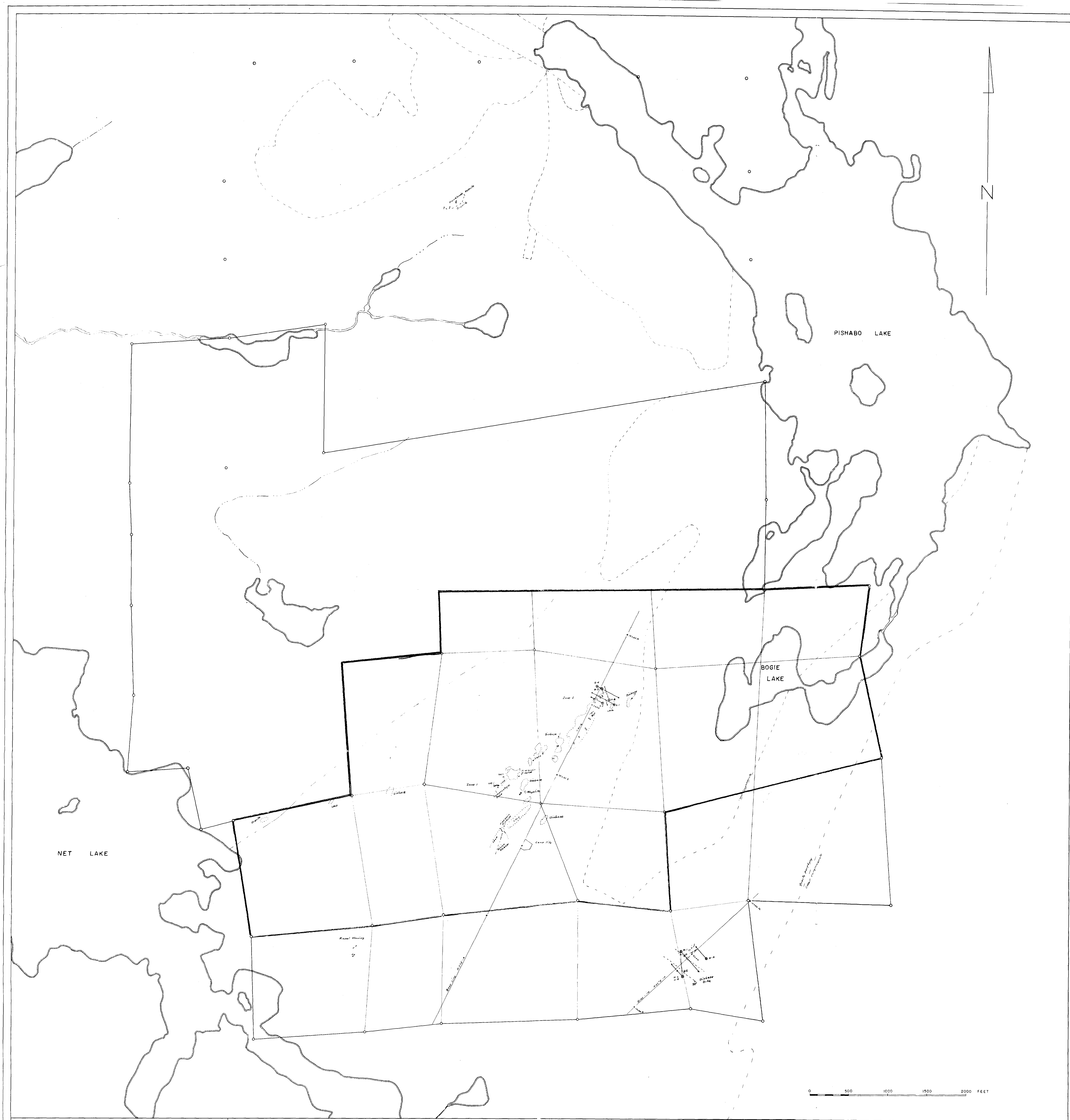
diamond drilled to the north on Line 4S to transect the conductor, with further drilling to be determined by the results of this first hole.

Respectfully submitted

J. L. Ward, P. Eng.

Toronto, Ontario
April 2, 1962

REGISTERED PROFESSIONAL ENGINEER
J. L. WARD
PROVINCE OF ONTARIO



LEGEND

PRE-CAMBRIAN

Keweenawan
- Olivine diabase dikes
- Nipissing diabase, quartz-diabase, granophyre & aplite

Animikean (Cobalt Series)
- Upper. Quartzite, arkose & quartzite conglomerate
- Lower. Slate-like graywacke
- " Conglomerate, quartzite, graywacke & arkose

Matachewan
- Diabase dikes

Algoman
- Granite, granite-gneiss, syenite, pegmatite, quartz & feldspar porphyry
- *Quartz - diorite*

Haileyburian
- Gabbro, diabase & diorite

Timiskamian (not recognised)

Keewatin
- Iron formation
- Altered basalt, amygdaloidal lavas, sericite schist, quartz-porphyry & agglomerate

Note: Regional geology & legend adapted from Map 34b, Matabitchuan Area.

63.1154

63.1154

J. L. WARD — Registered Professional Engineer, Province of Ontario

31M04SE0012 63.1154 CASSELS

200

NEW ATHONA MINES LIMITED	DRAWN JPB DATE 12 / 56 SCALE 1" = 400'	GEOLOGY - CASSELS TOWNSHIP GROUP	LOCALITY TEMAGAMI, ONTARIO FILE NO. NATE- 05- D

No. 4

PISHABO LAKE

40278 40274 40273 40272

40276 40275

BOGIE LAKE

GRANITE

GREENSTONE

NO 1 LODE

NO 2 ZONE

CONGLOMERATE

COBALT

QUARTZ PORPHYRY

BEST LINE NORTH

N

NET LAKE

BEST

CASSELS

STRATHY

Pishabo Lake

NEW ATHONA MINES LTD.

NET LAKE

Long Lake

SOUTH LORRAINE

KEY MAP

11M. = 1ML.

RIDDELL

NEW ATHONA MINES LIMITED

CASSELS TOWNSHIP GROUP TEMAGAMI, ONTARIO

CROSS LINE LAYOUT FOR ELECTROMAGNETIC SURVEY

REGISTERED PROFESSIONAL ENGINEER J. L. WARD PROVINCE OF ONTARIO

0 500 1000 1500 2000 FEET

63.1154

A.R.D. MARCH 10, 1962

N 0 3

NEW ATHONA MINES LIMITED

E.M. GUN SURVEY

CASSEL'S TOWNSHIP

Temagami Area, Ont.

NO. 2 ZONE

NO. 1 ZONE

CLAIM 4027S

CLAIM 4027N

BASE LINE N22°E

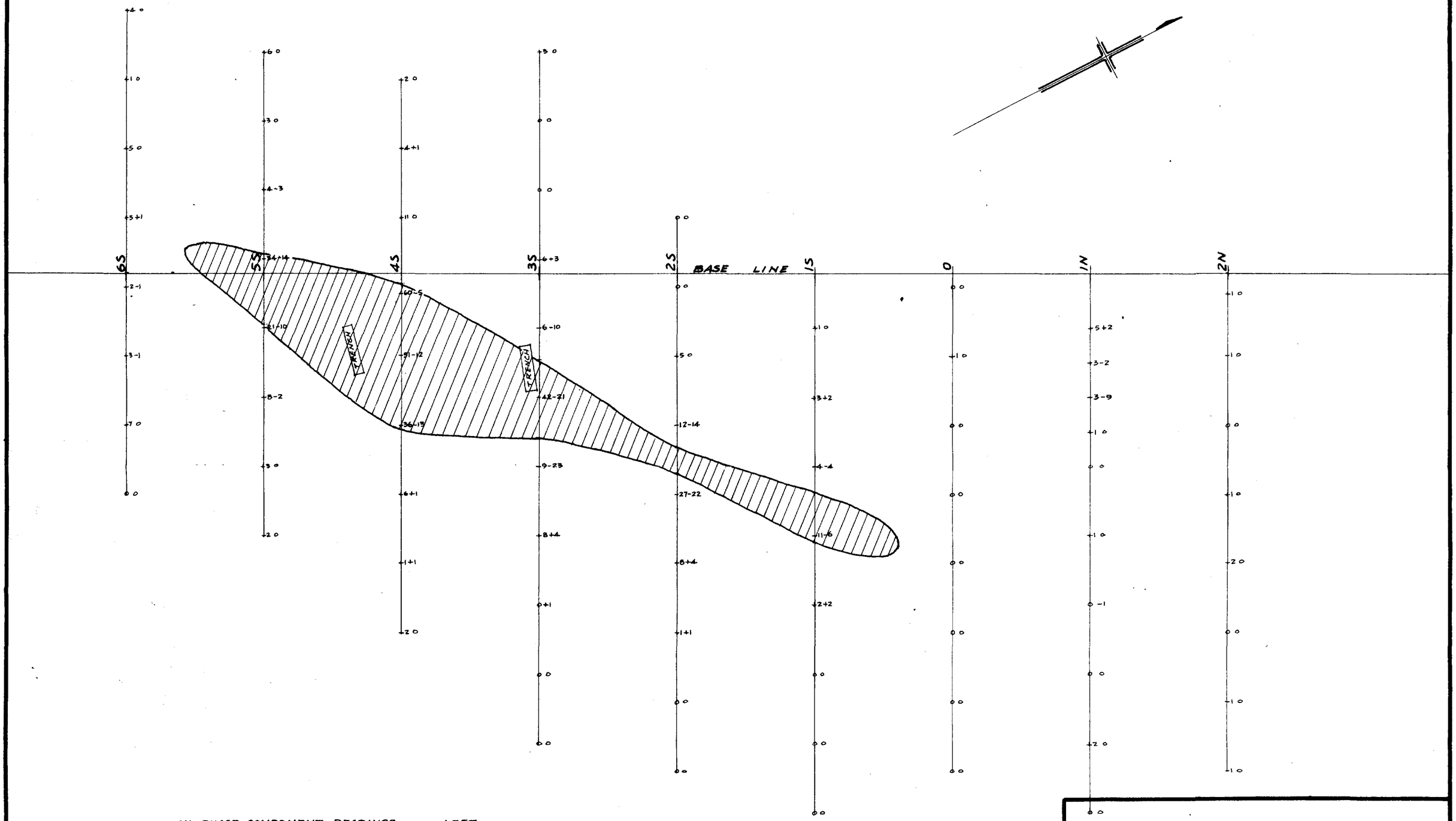
File No. NATL - 62-1	Scale 1"=50'
Feb 5, 1962	Drawn by R.H.B.
Mar. 6, 1962	Checked

TYPE OF SURVEY	ELECTROMAGNETIC
TYPE OF INSTRUMENT	SOLDEX GUN
COIL SPACING	200 FEET
FREQUENCY	3520 c.p.s.
INSTRUMENT OPERATOR	F. BLAKE
IN-PHASE COMPONENT READINGS	LEFT
OUT-OF-PHASE COMPONENT READINGS	RIGHT
CONDUCTOR	

R.H.B.

5/2/1962

J.L. WARD



IN-PHASE COMPONENT READINGS . . . . LEFT
OUT-OF-PHASE COMPONENT READINGS . . RIGHT
CONDUCTOR . . . . . ⟨≡⟩

EMG ELECTROMAGNETIC SURVEY
BY
MOREAU, WOODARD & CO. LTD.
FOR
NEW ATHONA MINES LIMITED
CASSELS TOWNSHIP PROPERTY
TEMAGAMI AREA
ONTARIO

SCALE: 1 INCH = 50 FEET
DRAWN BY: J.A.W.
DATE: MARCH, 1962.

62-5

J. A. Woodard

63-1154