WELCOME NORTH MINES LTD. (N.P.L.)
1027 - 470 Granville St., Vancouver, B.C. V6C 1V5 Telephone (604) 687-1658

Office of the Supervising Mining Recorder
AUG 13 1979
WHITEHORSE
Yukon Territory

REPORT ON THE ELECTROMAGNETIC SURVEY

RECEIVED
10 AUG 1979
MINING RECORDERS OFFICE
WHITEHORSE, Y.T.

ON THE

RUTH GRID

WHITEHORSE MINING DISTRICT

N.T.S. 105K-7

Latitude 62°16'N Longitude 132°47'W

Work Conducted During the Period June 11 - July 24, 1979

July, 1979

John E. Betz
H.F. Foster

090487

RECEIVED
AUG 13 1979
MINING RECORDERS OFFICE
WHITEHORSE, Y.T.

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $ 600.00

Resident Geologist or
Resident Mining Engineer

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

TABLE OF CONTENTS

INTRODUCTION

During the period June 11 to July 24, 1979 Max Min II electromagnetic surveys were conducted by J.E. Betz Ltd. over the RUTH 2, 4, 17, 19, 43, 45, 52 and 54 mineral claims (Fig. 1A), which are located in N.T.S. Quadrangle 105K-7 at the headwaters of Blind Creek.

CLAIMS

Following is a list by name, grant number and due dates of the claims which comprise the RUTH claim block:

CLAIMS	GRANT NUMBERS	DUE DATES
RUTH 1- 8	Y92663-Y92670	Feb. 24, 1980
RUTH 17-24	Y92679-Y92686	Feb. 24, 1980
RUTH 25-42	Y92697-Y92704	Feb. 24, 1980
RUTH 43	YA8441	Dec. 30, 1980
RUTH 45	YA8442	Dec. 30, 1980
RUTH 47	YA8443	Dec. 30, 1980
RUTH 49	YA8444	Dec. 30, 1980
RUTH 51	YA8445	Dec. 30, 1980
RUTH 52	YA7511	July 23, 1980
RUTH 53-54	YA8446-YA8447	Dec. 30, 1980
RUTH 55	YA7514	July 23, 1979
RUTH 56	YA7515	July 23, 1980

SURVEYS

The main objective of this survey was to detect conductive zones on the property, which are either due to massive sulphides or indirectly related to massive sulphides.

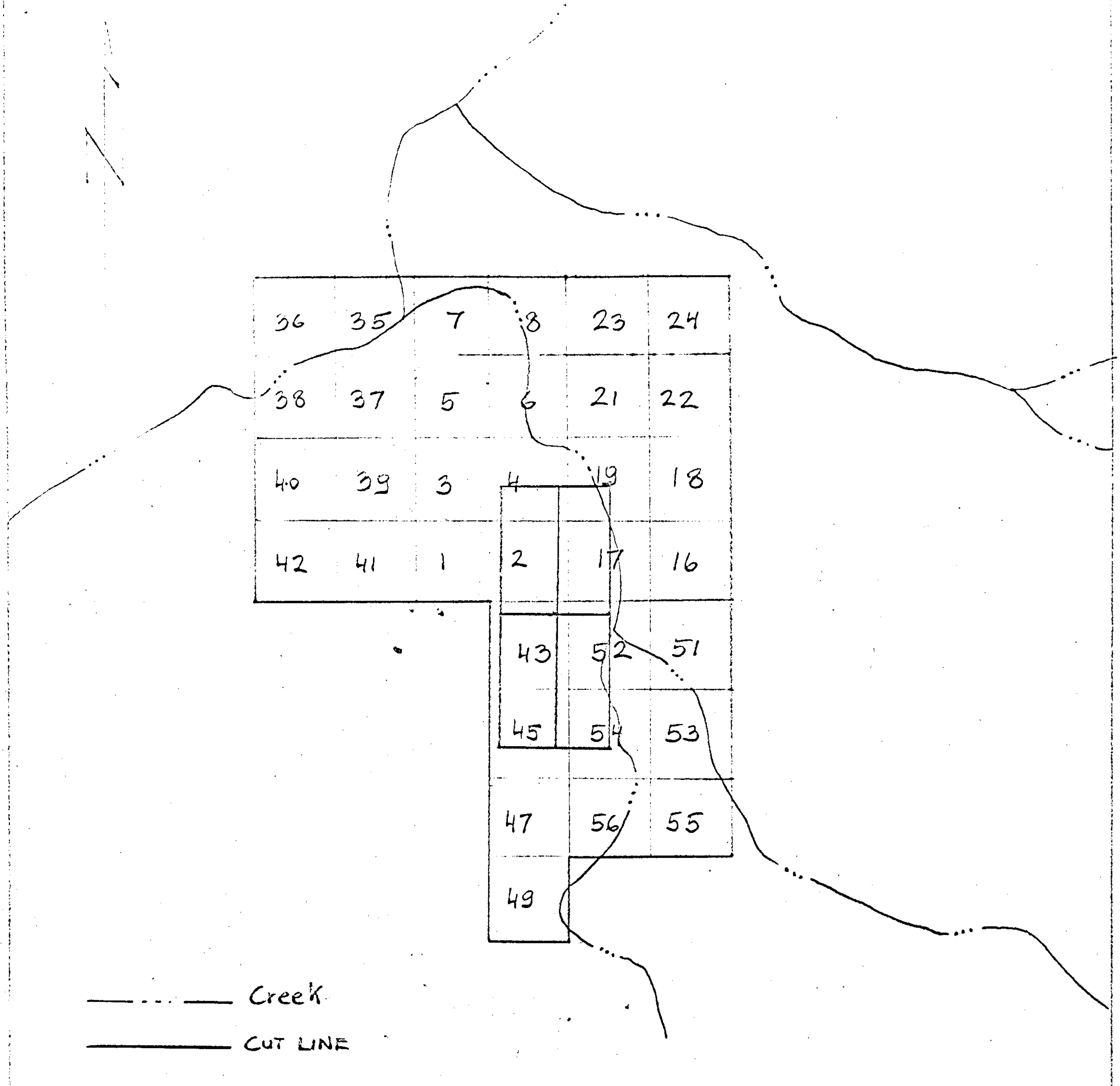
The EM system used on this project was the MaxMin II made by Apex Parametrics Ltd of Markham, Ontario. The specifications for, and methods of operating this system are amply described in the operations manual provided by the manufacturer. They will not be repeated here.

For this project, the MaxMin II was used in a maximum coupled coplanar mode with the turns of the transmitting and receiving coils held parallel to the mean slope of the terrain (along the traverse line) between the coils. On flat ground, this mode of operation is the well known horizontal loop mode.

In order to detect deep bedrock conductors, it is of paramount importance to be able to recognize small anomalous indications--especially in the in-phase component. To this end, steps were taken to keep the coils accurately coplanar and at a known separation for each reading. The topography was monitored on a station-to-station basis using an inclinometer, contemporaneously with the MaxMin II survey. The mean slope value between the coils was calculated in the field, and the coils were held coplanar for each reading. An exact 200 meter length of cable was draped over the topography for each reading with no attempt to allow for the amount 'consumed' by the topography. However, the station-to-station slope information was used in a programmable calculator, following each day in the field, to compute the straight line distance between the coils, and thence the contingent in-phase correction.

With the above-described procedure, the in-phase system noise envelope related to coil control can be kept as small at ±1%P (the primary field strength). Of course, the out-of-phase component is independent of coil control.

A reconnaissance coil spacing of 200 meters and frequencies of 222 and 1777 Hz were used throughout the survey. The reasons for this choice of coil spacing and frequency are:



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VANGORDA PROJECT

RUTH 1-56 CLAIMS

GRID LOCATION MAP

Scale 1" = ½ mi. Fig 1A.

a) A coil spacing of 200 m is a compromise value to get moderately good search-depth for deep conductors while getting moderately good resolution of near-surface conductors. It is always possible to use another coil spacing for follow-up work.

b) Two widely-spaced frequencies lead to a fairly accurate conductivity-thickness estimate for conductive zones, as well as helping to interpret the shape and attitude of non-simplistic conductive zones. A very high frequency will detect very "poor" conductors which are scarcely visible to a very low frequency. A very low frequency will detect deep "good" conductors in the presence of shallow "poor" conductors--something that a very high frequency cannot do.

c) The results at one frequency serve to monitor the inevitable reading and/or recording error at the other frequency.

The MaxMin II receiver was operated by me throughout the survey. The transmitter was operated by personnel provided by Welcome North.

Location and access maps have been, and will be, given in other reports composed by Welcome North personnel. They will not be repeated here beyond stating the latitude, longitude, and N.T.S. number in the title and on the plans.

PRESENTATION OF RESULTS AND INTERPRETATION

The MaxMin II results are presented in profile form on Plans #1 and #2, and the conductor interpretation is shown on Plan #3, in the pocket at the end of the report. To aid me in the interpretation and to help the reader to appreciate the interpreted picture in three dimensions, all plans contain topographic contours at a 5 meter interval.

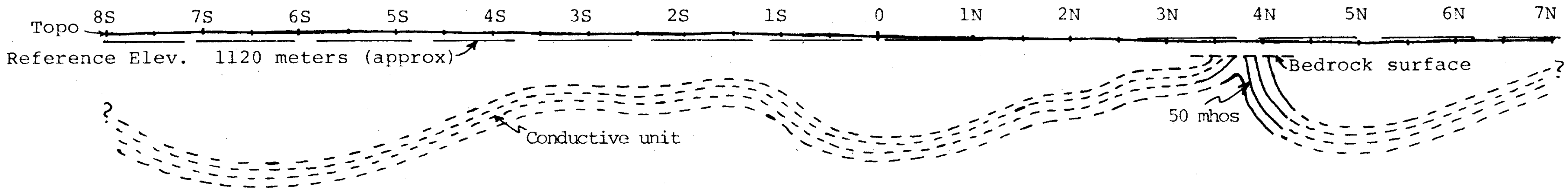
A sectional view of the interpreted conductor picture for L-3W is shown in Figure 1 on the following page.

DISCUSSION OF RESULTS

There is appreciable conductive material underlying this grid, as can be seen on Plan #3.

In this sort of environment, it is not possible to come up with a unique conductor picture--especially when restricted to the information available from a reconnaissance pass, i.e. information at one coil spacing and two frequencies. However, it is possible to construct a couple of highly likely pictures from which one can choose, given some geological information from the area. Examples

SECTIONAL VIEW OF INTERPRETED CONDUCTOR PICTURE FOR LINE 3W.



Note: The depth-to-top and the thickness of this conductive unit are not intended to be exactly as shown here. The depth-to-top is a first-order approximation, but the thickness is not determinate.

Legend:

- 5 to 34 mhos

- 35 to 60 mhos

Scales:

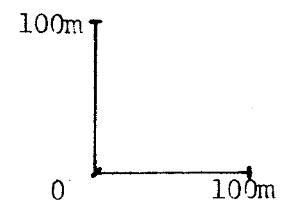
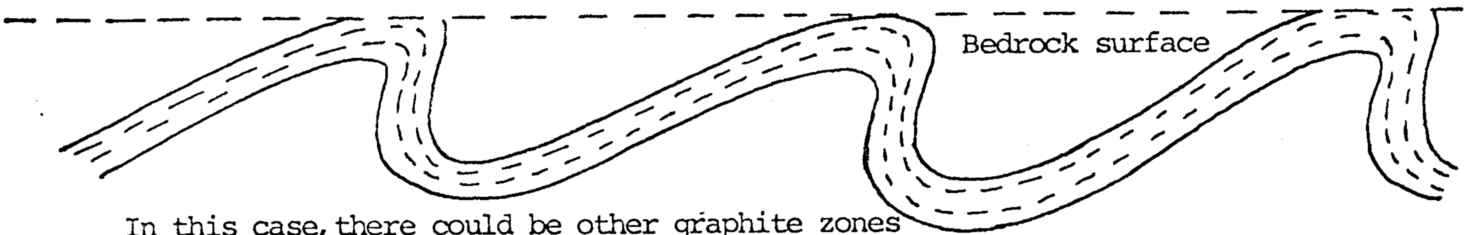


FIGURE 1.

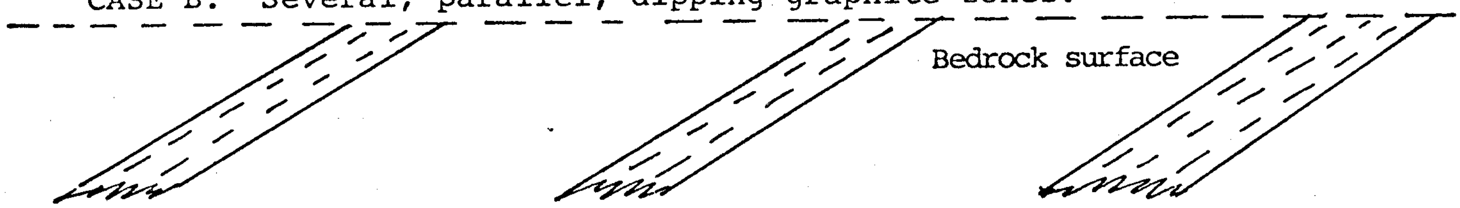
of two possible conductor geometries to explain a given set of anomalous results are as follows:

CASE A. Single, highly-folded, flat-lying graphite zone.



In this case, there could be other graphite zones beneath the uppermost, but they would not have a strong effect on the picture.

CASE B. Several, parallel, dipping graphite zones.



In the light of other information from this area, it is thought that the picture in Case A is the more likely. This Case was used in constructing Figure 1 on the adjoining page, which Figure contains the interpreted conductor picture for L-3W.

The conductances are generally in the region of 5 to 35 mhos--common for formational graphites. The presence of graphite has already been established by an earlier diamond drill hole around 2+50S on L-3W.

There is a perceptible increase in conductance around the shallowest part of the conductor, e.g. around 4+00N on L-3W, where the conductance reaches 50 mhos. It is visualized, that tight folding in this area has led to a more highly developed graphite, or to an increase in the number of sulphide stringers, associated with the graphite.

CONCLUDING REMARKS

A drill hole was recommended orally in early June based on the results discussed in this report. A vertical hole from around 3+75N on L-3W was thought to have the best chance of encountering sulphides.

WRITER'S DECLARATION

Neither I, nor John Betz Limited, have any financial interest in any of the properties of Welcome North Mines Ltd or its joint venture partners.

I hold BA (1952) and MA (1953) degrees in geophysics from the University of Toronto.

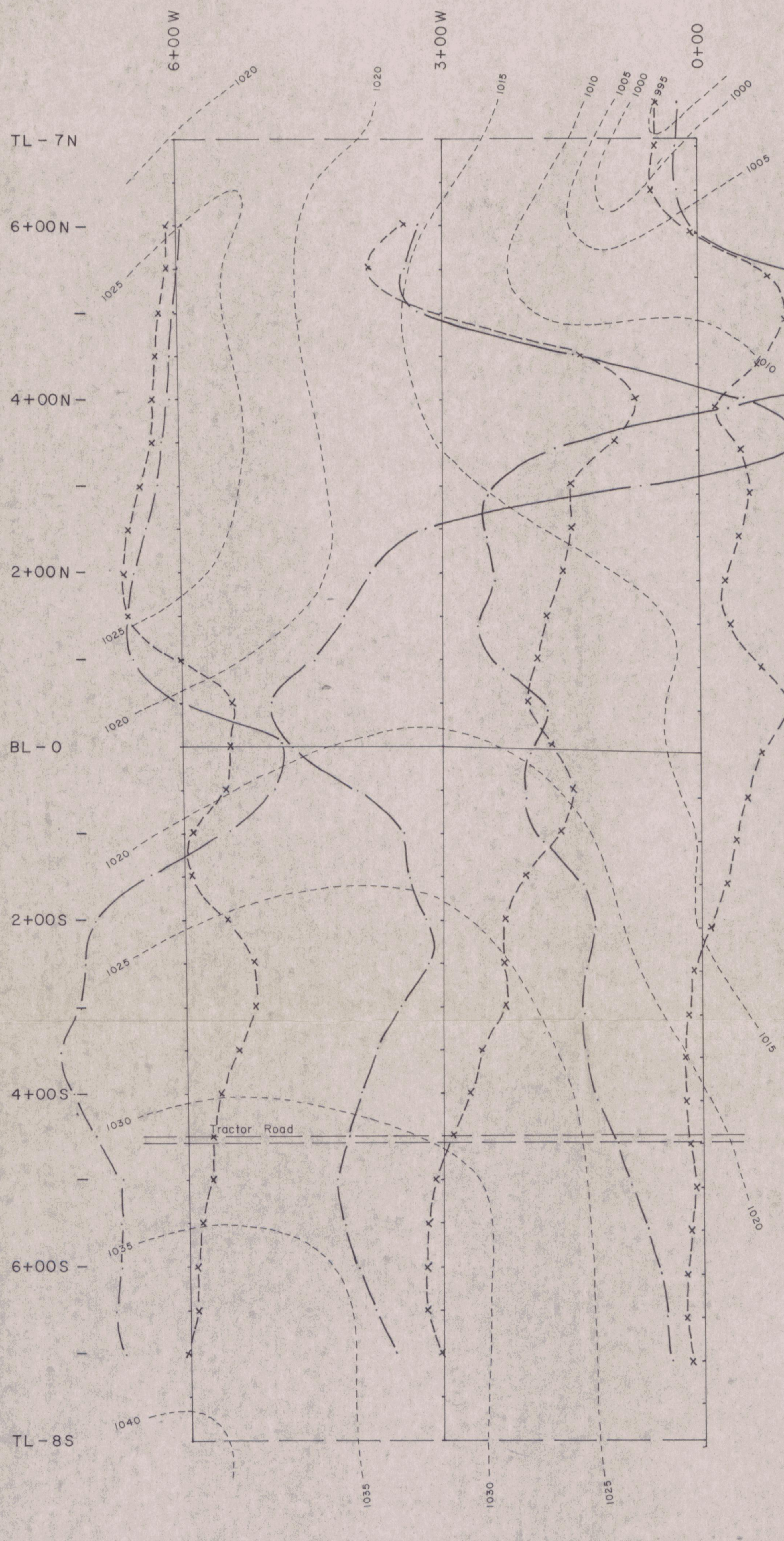
I have worked full time in mining exploration geophysics since 1953, and two summer seasons prior to 1953.

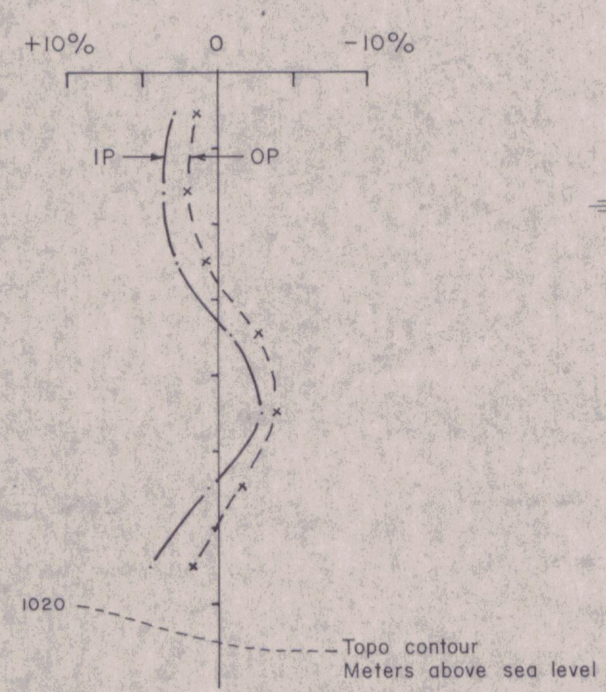
All statements made in this report are correct to the best of my knowledge.

REGISTERED PROFESSIONAL ENGINEER
J. E. BETZ
PROVINCE OF ONTARIO

July 1979
Toronto, Ontario

John E. Betz
John Betz Limited





WELCOME NORTH MINES LTD.

VANGORDA PROJECT

RUTH GRID

WHITEHORSE MINING DISTRICT, YUKON TERR.

62° 16′ N , 132° 47′ W

N.T.S. 105 - K - 7

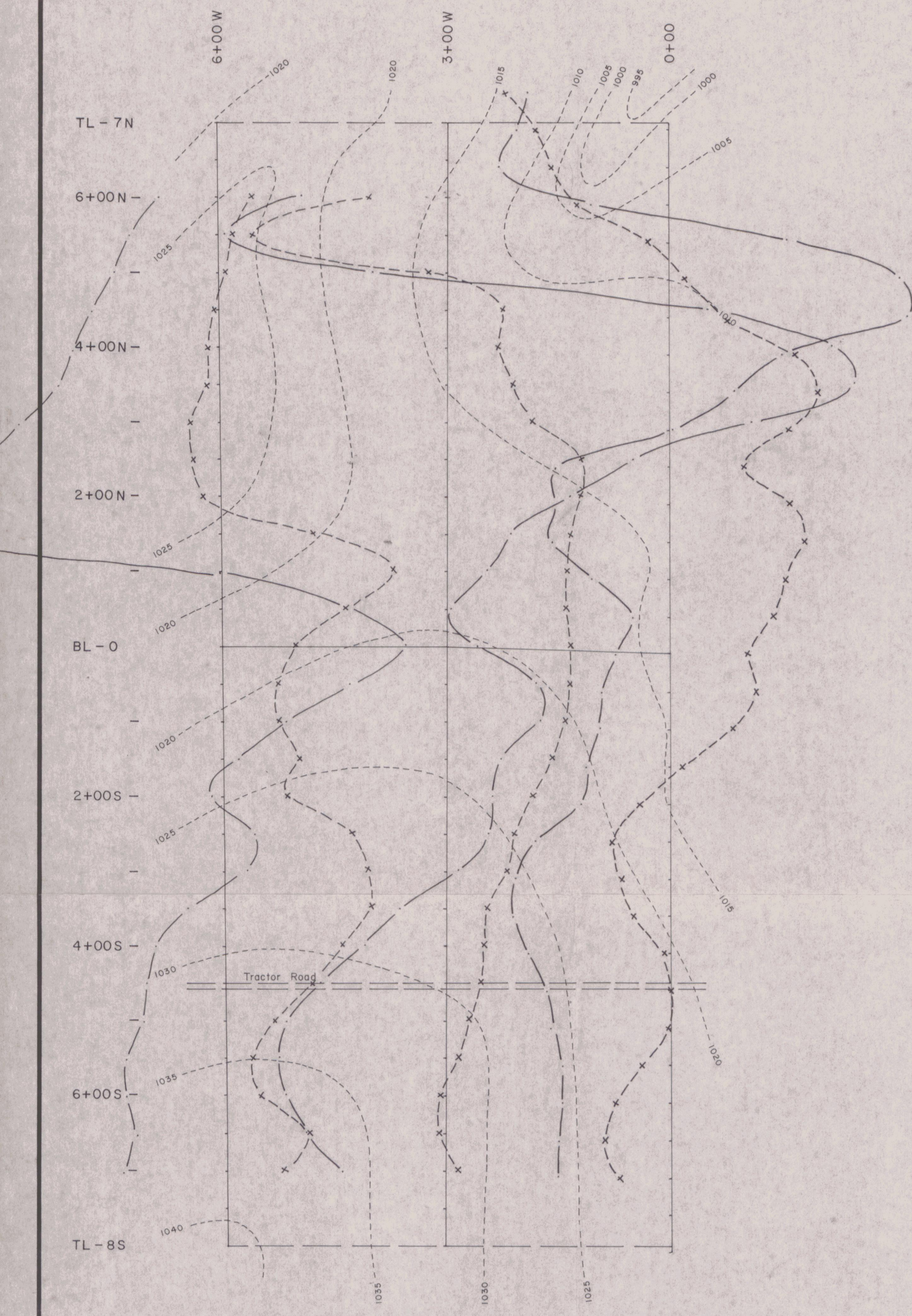
MAXMIN II PROFILES 222 Hz

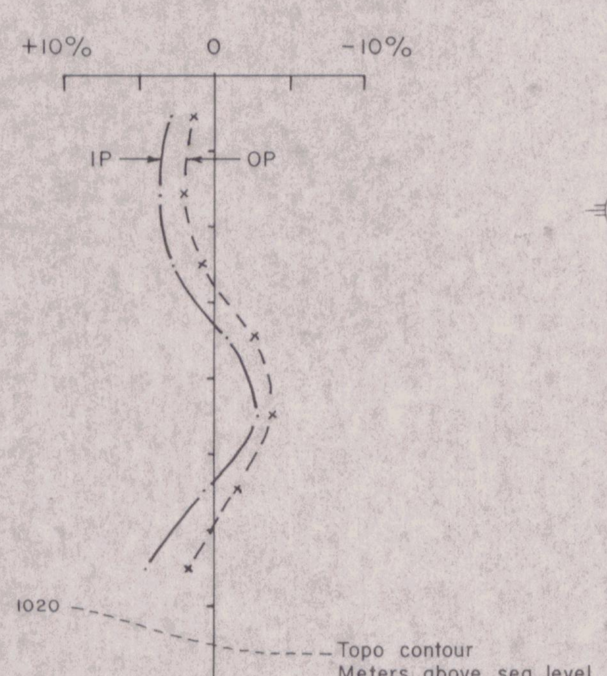
0 100 200 m.

TO ACCOMPANY REPORT

JOHN BETZ LTD.
JULY, 1979

PLAN I





WELCOME NORTH MINES LTD.

VANGORDA PROJECT

RUTH GRID

WHITEHORSE MINING DISTRICT, YUKON TERR.

62° 16' N , 132° 47' W

N.T.S. 105 - K - 7

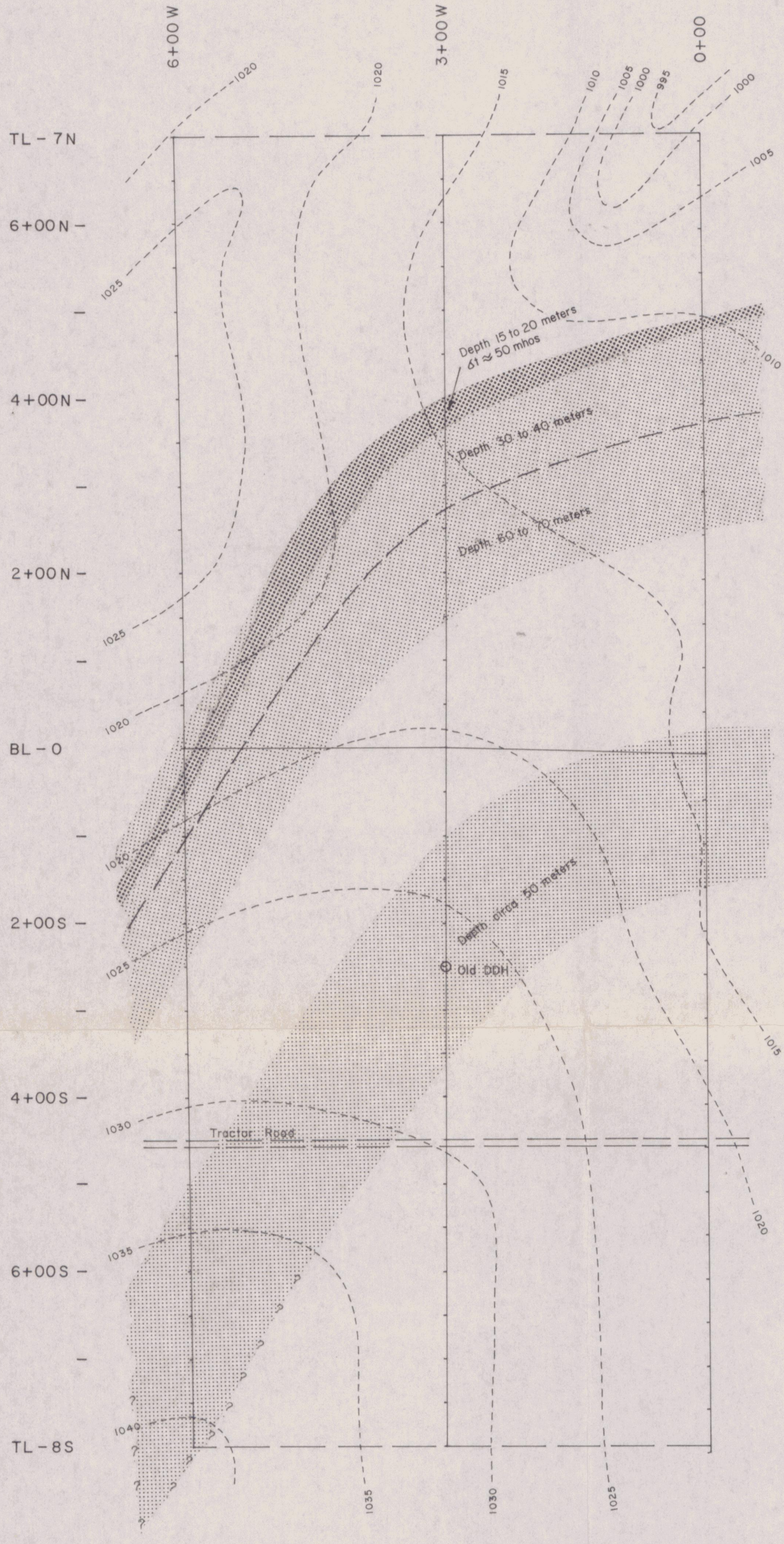
MAXMIN II PROFILES 1777 Hz

0 100 200 m.

TO ACCOMPANY REPORT

JOHN BETZ LTD.
JULY, 1979

PLAN 2



LEGEND

35 to 60 mho conductor

5 to 34 mho conductor

1020 - - - - - - Topo contour – meters above sea level (approx.)

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VANGORDA PROJECT

RUTH GRID

WHITEHORSE MINING DISTRICT, YUKON TERR.

62° 16' N , 132° 47' W

N.T.S. 105-K-7

CONDUCTOR INTERPRETATION

0 100 200 m.

TO ACCOMPANY REPORT

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JULY, 1979

PLAN 3