800227

A REPORT

on

A MAGNETIC & INDUCED POLARIZATION SURVEY

Shesley Area, Atlin M.D.,B.C.

for

UNITED CAMBRIDGE MINES LTD.

Vancouver, B.C.

by

PETER E. WALCOTT & ASSOC. LTD.

Vancouver, B.C.

DECEMBER 1980

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INTRODUCTION.

Between September 10th and October 14th, 1980, Peter E. Walcott & Associates Limited undertook a ground magnetic and induced polarization (I.P.) survey programme on the Star claims held by United Cambridge Mines Ltd.

The survey was carried out over two grids namely the Dick Creek and Copper Creek grids respectively, the lines of which were put in by the staff of R.H. Seraphim Engineering Limited.

Measurements (first to third separation) of apparent chargeability (the I.P. response parameter) were taken along the picket lines using a dipole of 100 metres. The first separation measurements were taken at 50 metre intervals while the other two were recorded at the standard 100 metre intervals. In addition simultaneous readings of apparent resistivity were also obtained.

Readings of the relative vertical intensity of the earth's field were obtained at 50 metre intervals along the picket lines using a McPhar M-700 fluxgate magnetometer.

The proposed I.P. coverage was not entirely obtained due to the fact that the I.P. generator packed it in with five traverses left undone. A review of the data to date at that time did not justify the delay in sending in a replacement and the camp breakup and move out was initiated at that time.

The data are presented in contour and profile form on Maps W-288-1 to 6 that accompany this report.

PROPERTY, LOCATION AND ACCESS.

The property, known as the Star Claims, is located in the Atlin Mining Division of British Columbia.

It is situated astride the Hackett River between the 600 and 1200 metre elevations some 48 kilometres northwest of the settlement of Telegraph Creek.

Access was obtained either by fixed wing to the Sheslay strip, about a kilometre and a half northwest of the property boundary, or directly by helicopter from bases in Telegraph Creek or Dease Lake.

PURPOSE.

The purpose of the survey was to investigate the geophysical nature of the skarn zone on the Dick Creek prospect and to try to outline zones of sulphide mineralization in the Copper Creek area where previous exploration had indicated good grade copper mineralization.

PREVIOUS WORK.

The reader is referred to reports held by United Cambridge Mines Ltd. reference to which may be obtained from a report by T.E. Lisle, P.Eng. of Seraphim Engineering Limited.

GEOLOGY.

The reader is referred to the forementioned report by T.E. Lisle, P.Eng.

SURVEY SPECIFICATIONS.

The induced polarization (I.P.) survey was carried out using a pulse type system, the principal components of which are manufactured by Huntec Limited and Crone Geophysics Limited of Metropolitan Toronto, Ontario.

The system consists of basically three units: a receiver (Crone), a transmitter and a motor generator (Huntec). The transmitter which provides a maximum of 7.5 kw d.c. to the ground, obtains its power from a 7.5 kw 400 c.p.s. three phase alternator driven by a gasoline engine. The cycling rate of the transmitter is 2 seconds "current-on" and 2 seconds "current-off" with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurement of the current(I) in amperes flowing through electrodes C_1 and C_2, the primary voltage (V) appearing between the two potential electrodes, P_1 and P_2, during the "current-on" part of the cycle, and the apparent chargeability (M_a) presented as a direct readout (two samples of the decay curve M_a (0.45 - 0.90 seconds) and N_a (0.90 - 1.35 seconds) are taken for 3 current cycles, automatically averaged, adjusted to the ${}_{33}M_1$ standard and stored).

The apparent resistivity (P_a) in ohm metres is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

The survey was carried out using the "pole-dipole" method of surveying. In this method the current electrode C_1, and the two potential electrodes, P_1 and P_2, are moved in unison along the survey lines. The spacing "na" (n an integer) between C_1 and P_1 is kept constant for each traverse at a distance roughly equal to the depth to be explored by that traverse, while that of P_1 - P_2 (the dipole) is kept constant at "a". The second current electrode C_2 is kept constant at "infinity".

Thus usually on a "pole-dipole array" traverse with an electrode spacing of 100 metres a body lying at a depth of 50 metres will produce a strong response, whereas the same body lying at a depth of

SURVEY SPECIFICATIONS cont'd

100 metres will only just be detected. By running subsequent traverses at different electrode separations, more precise estimates can be made of depth, width, thickness and percentage of sulphides of causative bodies located by the I.P. method.

The survey was carried out using a dipole of 100 metres. First separation readings were obtained at 50 metre intervals, while second and third separation measurements were carried out at 100 metre intervals.

The magnetic survey was carried out using a McPhar M-700 fluxgate magnetometer. This instrument measures variations in the vertical component of the earth's magnetic field to an accuracy of $\pm$ 10 gammas. Corrections for diurnal variations were made by tying in to previously established base stations at intervals not exceeding two hours.

DISCUSSION OF RESULTS.

This section should be reviewed in conjunction with the report of T.E. Lisle P.Eng. with whom the writer has had several discussions re the results obtained on the property.

The Magnetic Survey.

The results of the magnetic survey (Map W-288-1) suggest that the area surveyed could be divided into three magnetically separate regions namely - (1) the region to the west of Dick Creek (2) the central region and (3) basically the area covered by the Copper Creek grid.

A major northeasterly trending fault down Dick Creek would appear to separate areas 1 and 2.

The intrusive hornblende diorite stock in the centre of the western region.would appear to exhibit a 200 to 300 gamma anomaly over the magnetic background though its expression is complicated by local magnetite occurrences on its perimeter and within in fractures.

Area 2 consists mostly of small local magnetic highs reflecting local magnetite conditions in the underlying volcanic - sedimentary assemblage. Although somewhat biased by station density these highs show a striking NW trend.

The third area does not exhibit the same magnetic relief of the other two. Its highs presumably represent the more basic phases of the underlying rocks as can be seen by correlation with the mapped geology.

The I.P. Survey.

On considering the n=3 chargeabitily responses on Maps W-288-3 to 5 there appears to be a sulphide - non sulphide demarkation line (figuratively speaking) trending west northwesterly between 3 SW on Line 0 and 2 NE on Line 4 NW in the volcanic sedimentary package.

This follows no apparent geologic nor magnetic pattern.

DISCUSSION OF RESULTS cont'd

The n=3 response suggests offsets between Lines 12 and 16 SE, Lines 32 and 36 SE and Lines 28 and 20 NW. The first and last of these appear to correspond with mapped or interpreted northeasterly trending faults.

A strong I.P. response on all three separations was obtained over the mapped mineralization and corresponding geochemical anomaly in and aroung the main intrusive on the Dick Creek grid centred about 2 NE, and presumably indicates a large pyritized complex. It is well defined on the chargeability contour plan of the first separation - Map W-288-6.

A weaker but as yet undelineated anomaly is also observed on the southwesterly ends of Lines 8 & 12 NW again associated with a somewhat weaker and smaller geochemical anomaly.

Another strong anomalous zone with relatively shallow causative source (s) was observed east of Dick Creek.

This zone exhibits a stronger response on the first separation than that around the intrusive and may be due to a large mineralized package within the sedimentary fragmented rocks underlying the northern portion of the grid.

This zone presumably extends over to at least Line 4 NW, the gap in the I.P. coverage not withstanding.

No I.P. response was obtained over a similar rock assemblage with similar magnetic characteristics occurring southwest of the baseline.

Weak responses were observed on Line 4 NW (Copper Creek grid) between 2 and 5 SW corresponding with weak geochemical responses in areas of interpreted hornblende diorite.

No anomalous conditions were observed over and around the main Copper Creek showing on Line 16 SW. This is not surprising in the writer's opinion as holes No. 1 and 2-drilled from the same location - failed to intersect the same mineralized zone leaving the writer to believe that the mineralization probably consists of small narrow zones of no great extent.

The resistivity survey did little except indicate bedrock

DISCUSSION OF RESULTS cont'd

conductivity and overburden thickness with somewhat lower values in drift covered areas.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Between September 10th and October 14th, 1980, Peter E. Walcott & Associates Limited carried out ground magnetic and I.P. surveys for United Cambridge Mines over its Sheslay property.

The property, i.e. the Star Claims, is located astride the Hackett River northwest of Telegraph Creek.

The magnetic survey suggested the area was best divided into three magnetic regions on the strength of the magnetic patterns obtained.

The I.P. survey showed two strong zones exhibiting high anomalous responses. These are due to sulphide mineralization - presumably pyrite and other metallic sulphides as suggested by the favourable geochemical response.

As a result on the basis of the above and the favourable geology the writer recommends that the property be subjected to diamond drilling investigation - the focus of which has already been fingered by T.E. Lisle, P.Eng.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

Peter E. Walcott, P.Eng.
Geophysicist

Vancouver,
British Columbia

December 1980

A P P E N D I X

COST OF SURVEY.

Peter E. Walcott & Associates Limited undertook the magnetic survey on a production basis, and the I.P. survey on a daily basis. Mobilization and draughting costs were extra so that the total cost of services provided was $19,592.61.

PERSONNEL EMPLOYED ON SURVEY

Name	Occupation	Address	Dates
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. Ltd. 605 Rutland Court, Coquitlam, B.C.	Oct. 21, 28, Nov. 27-30, 80
Gary MacMillan	Geophysical Operator	" "	Sept. 10 - Oct. 14, 80 Nov. 5 - 13th, 8
L. Perreault	"	" "	Sept. 12th - 26th, 1980
D. Mason	"	" "	Oct. 4th - 14th, 80
P. Carswell	Helper	" "	Sept. 29th - Oct. 14th, 80
J. Walcott	Typing	" "	Dec. 5th, 80

CERTIFICATION.

I, Peter E. Walcott, of the Municipality of Coquitlam, British Columbia, hereby certify that:

1. I am a Graduate of the University of Toronto with a B.A.Sc. in Engineering Physics, Geophysics Option, in 1962.

2. I have been practising my profession for the last 18 years.

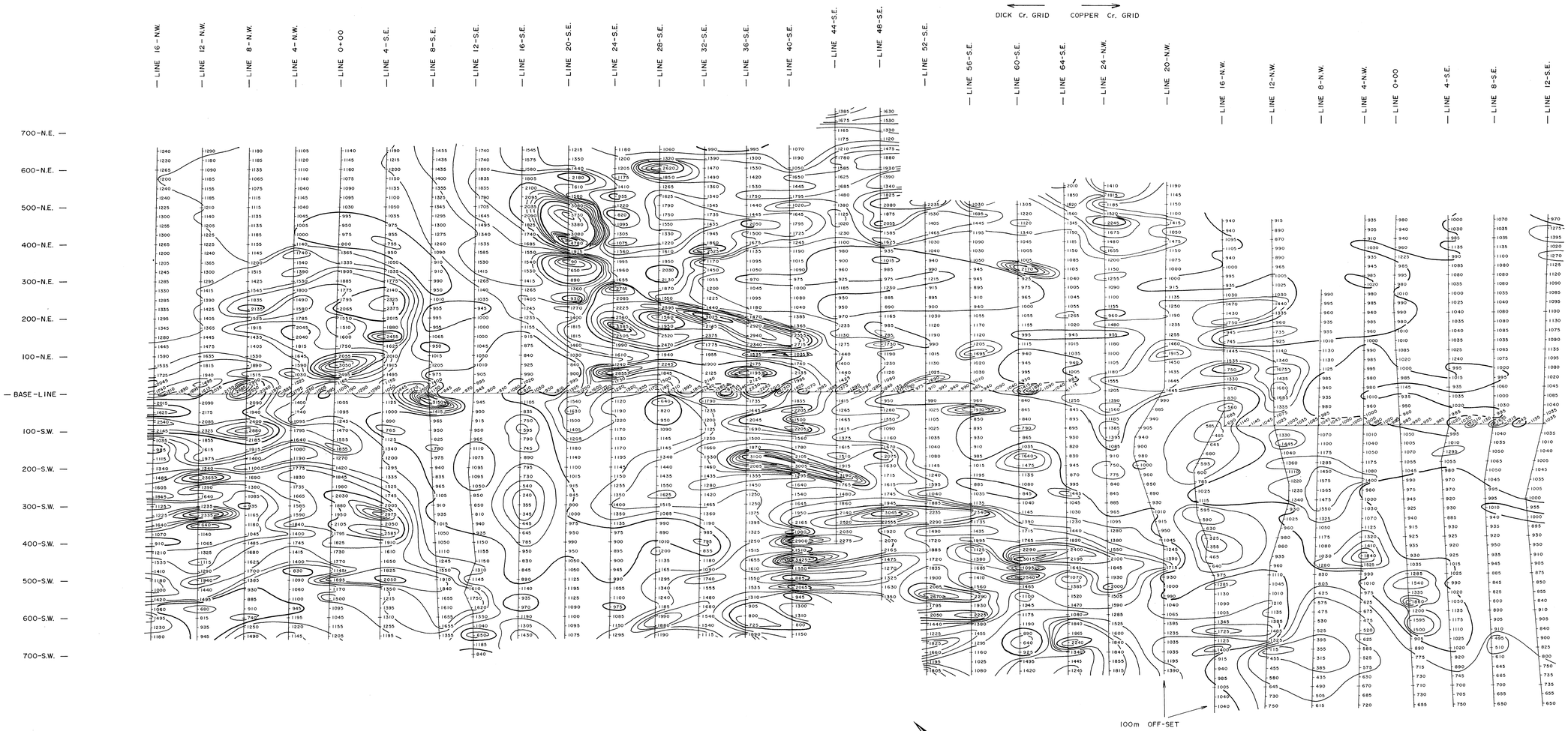
3. I am a member of the Association of Professional Engineers of British Columbia and Ontario.

4. I hold no interest, direct or indirect in the securities or properties of United Cambridge Mines Ltd., nor do I expect to receive any.

Peter E. Walcott, P.Eng.

Vancouver,
British Columbia

December 1980



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STAR MINERAL CLAIMS, ATLIN M.D., B.C.

MAGNETOMETER SURVEY

CONTOURS OF RELATIVE VERTICAL INTENSITY
(IN GAMMAS)

SCALE 1:5,000

MAP No. W-288-1
TO ACCOMPANY A REPORT BY
PETER E. WALCOTT, P. Eng.

PETER E. WALCOTT & ASSOC. LTD.
SEPT.-OCT. -1980

inches
0 1 2
0 1 2 3 4 5
centimetres

BRITISH COLUMBIA GEOLOGICAL SURVEY

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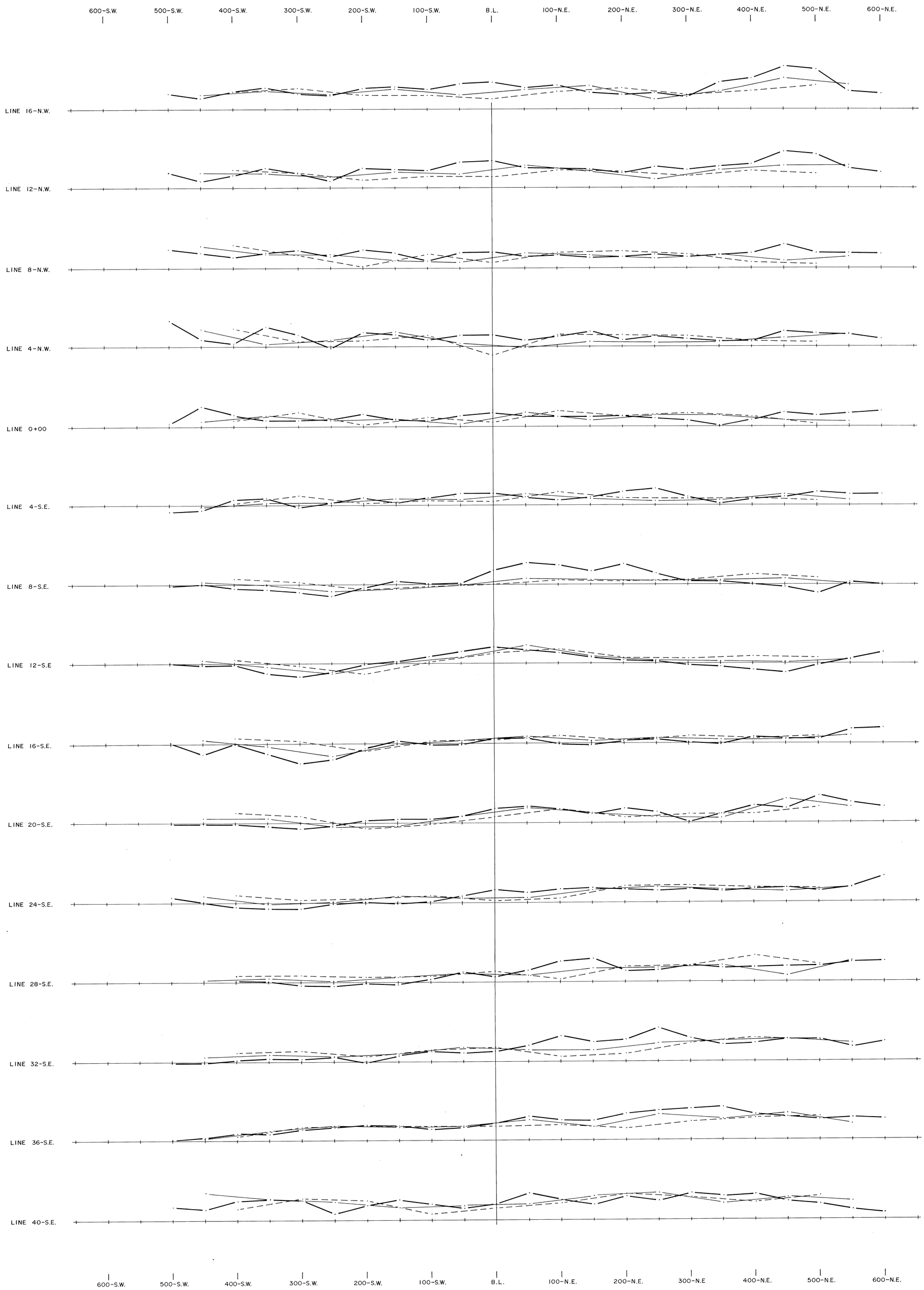

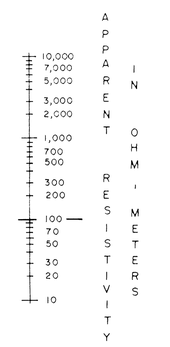

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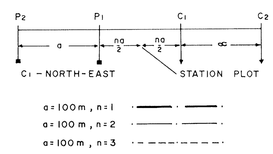

inches 0 1 2
0 1 2 3 4 5 centimetres

BRITISH COLUMBIA GEOLOGICAL SURVEY

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STAR MINERAL CLAIMS , DICK Cr. GRID , ATLIN M.D. , B.C.

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT RESISTIVITY

SCALE 1 : 2,500

MAP No. W-288-2
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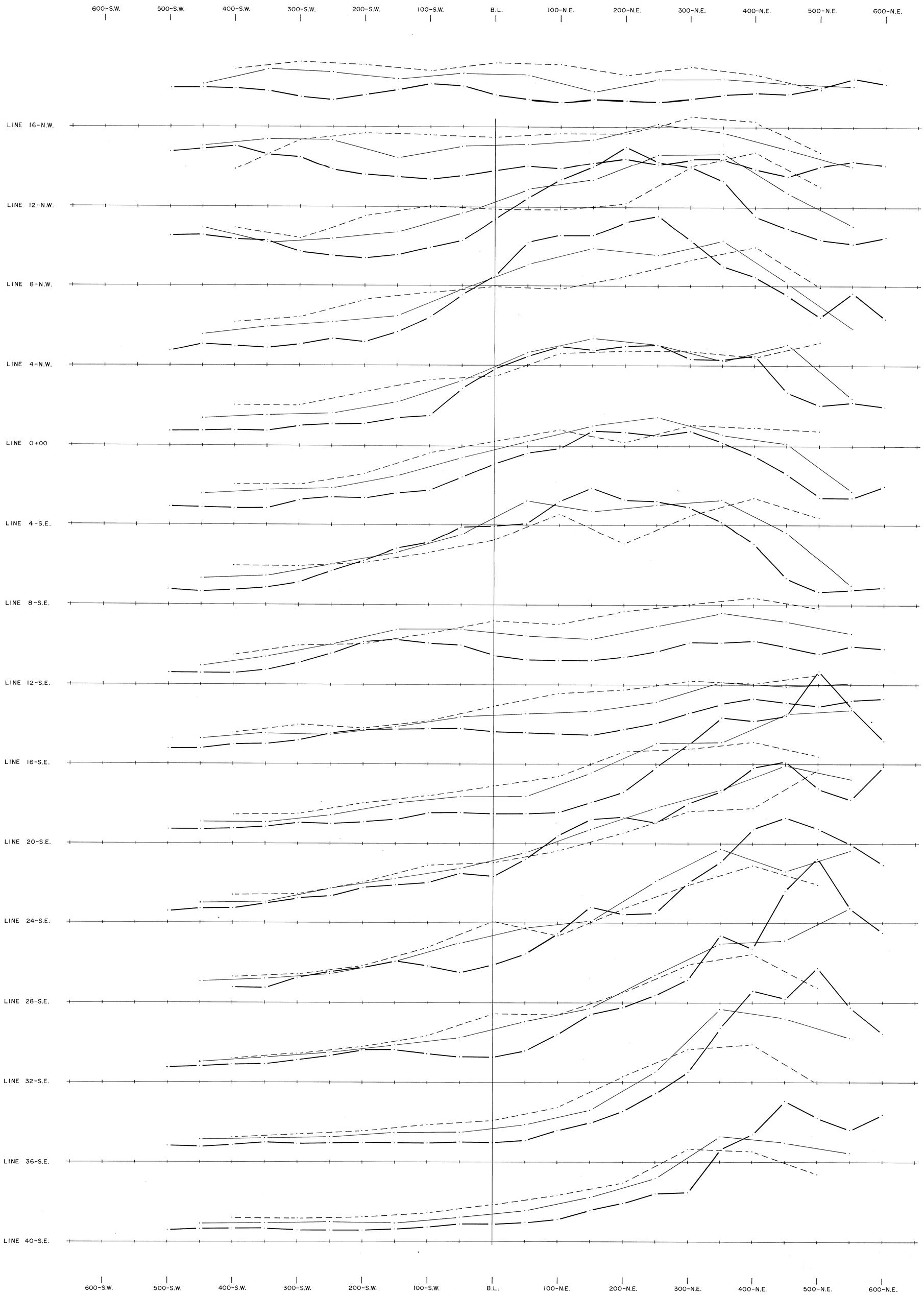

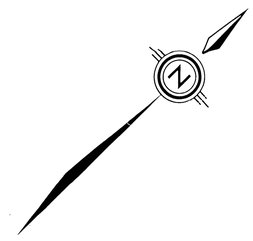

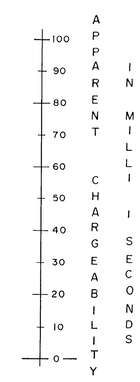

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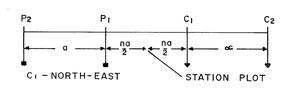
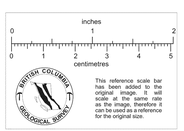


a = 100 m , n = 1
a = 100 m , n = 2
a = 100 m , n = 3



UNITED CAMBRIDGE MINES LTD.

STAR MINERAL CLAIMS , DICK Cr. GRID , ATLIN M.D. , B.C.

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT CHARGEABILITY

SCALE 1 : 2,500

MAP No. W-288-3
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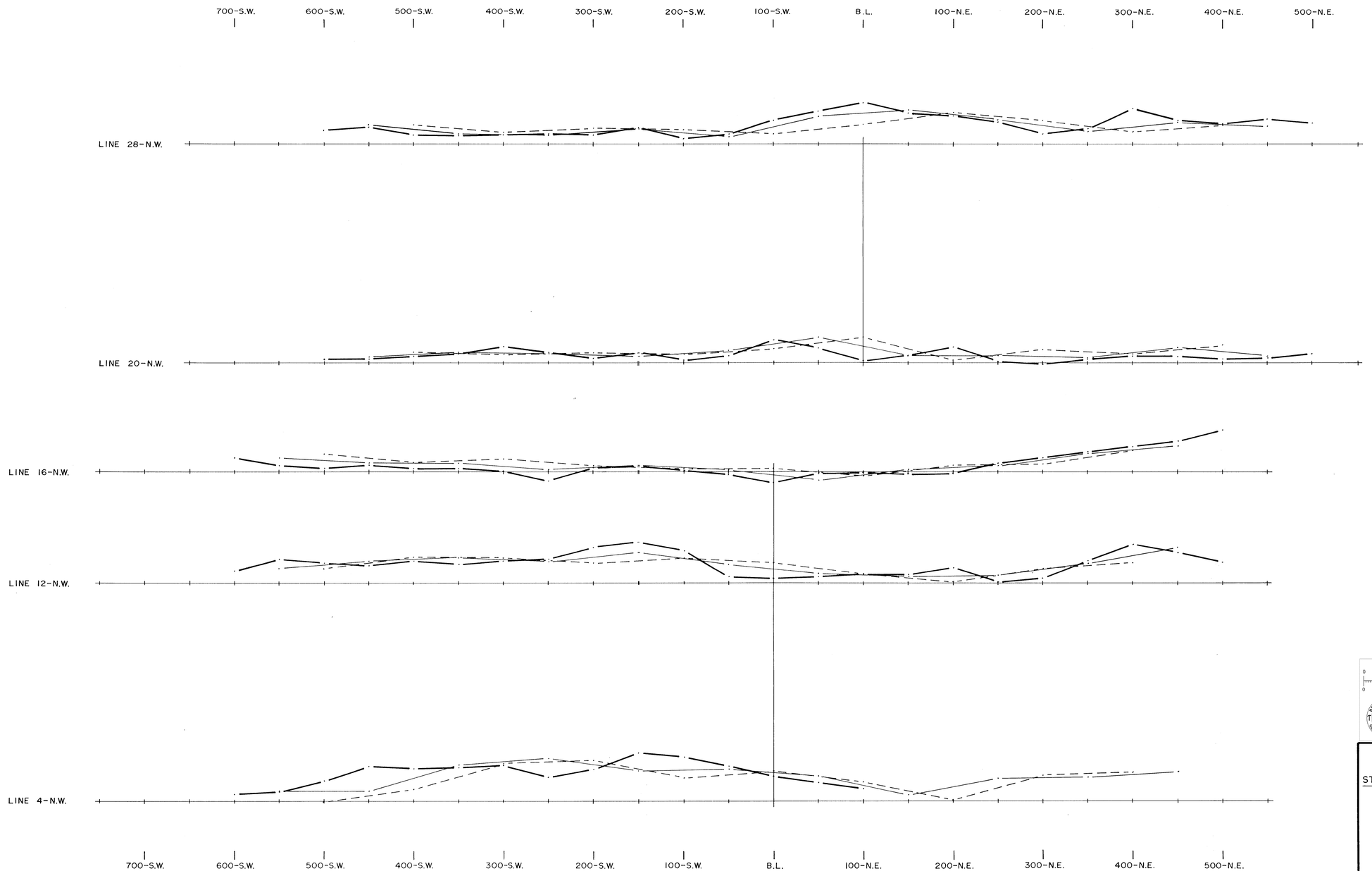

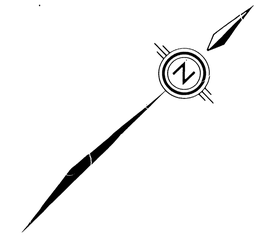

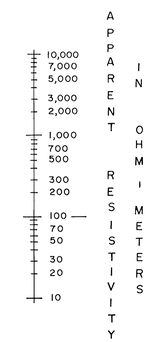

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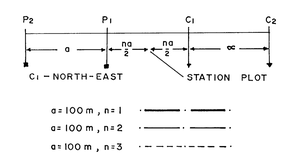

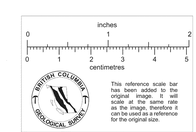

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STAR MINERAL CLAIMS, COPPER Cr. GRID, ATLIN M.D., B.C.

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT RESISTIVITY

SCALE 1 : 2,500

MAP No. W-288-4
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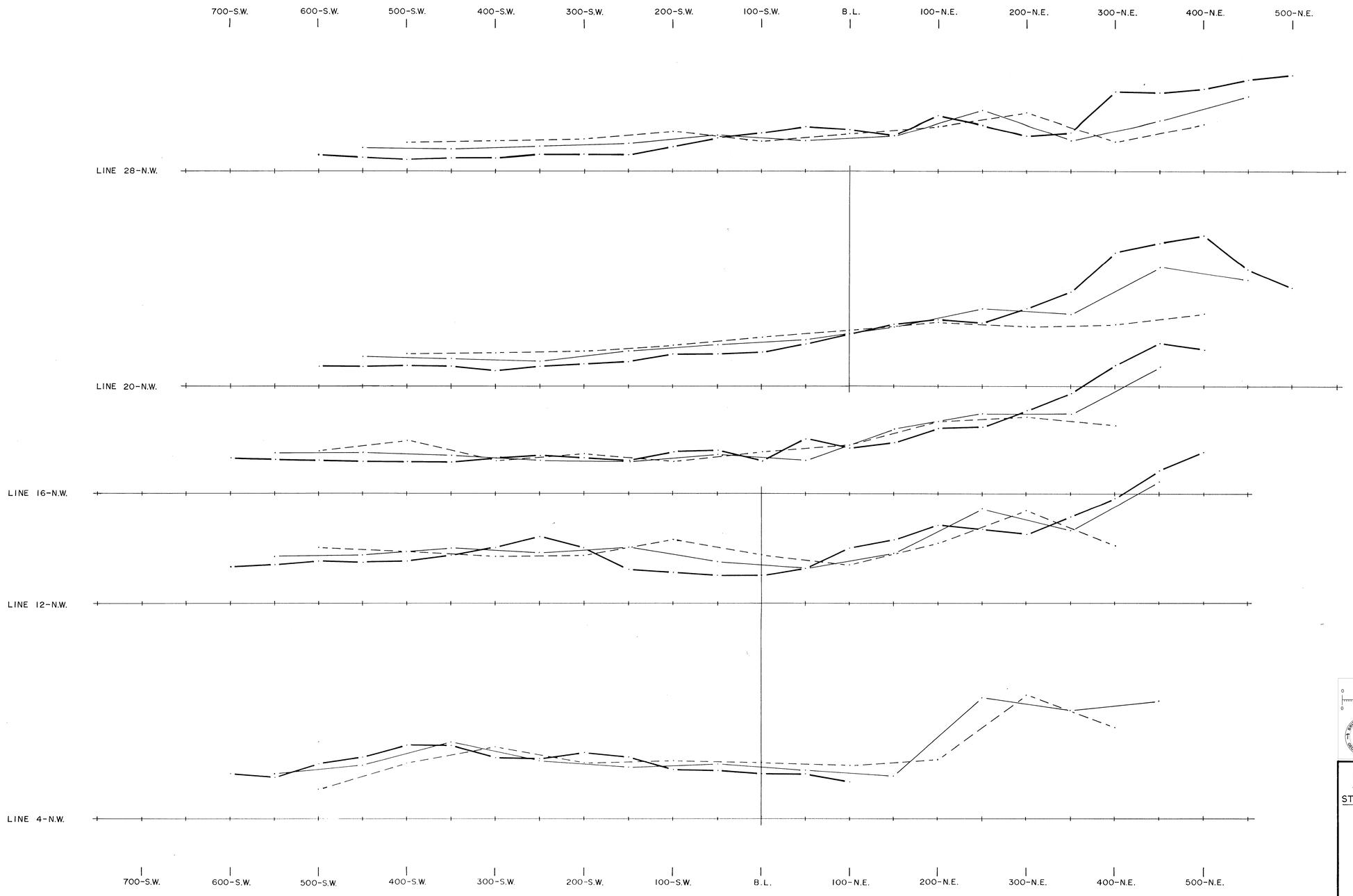

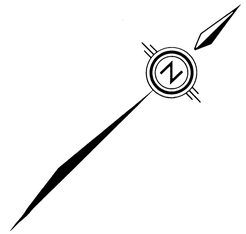

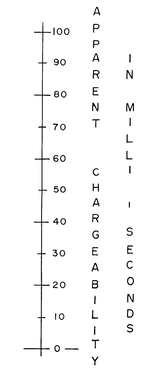

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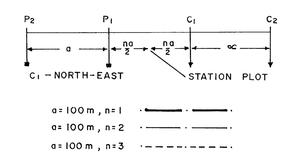

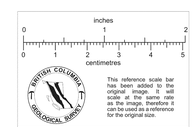

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STAR MINERAL CLAIMS, COPPER Cr. GRID, ATLIN M.D., B.C.

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT CHARGEABILITY

SCALE 1 : 2,500

MAP No. W-288-5
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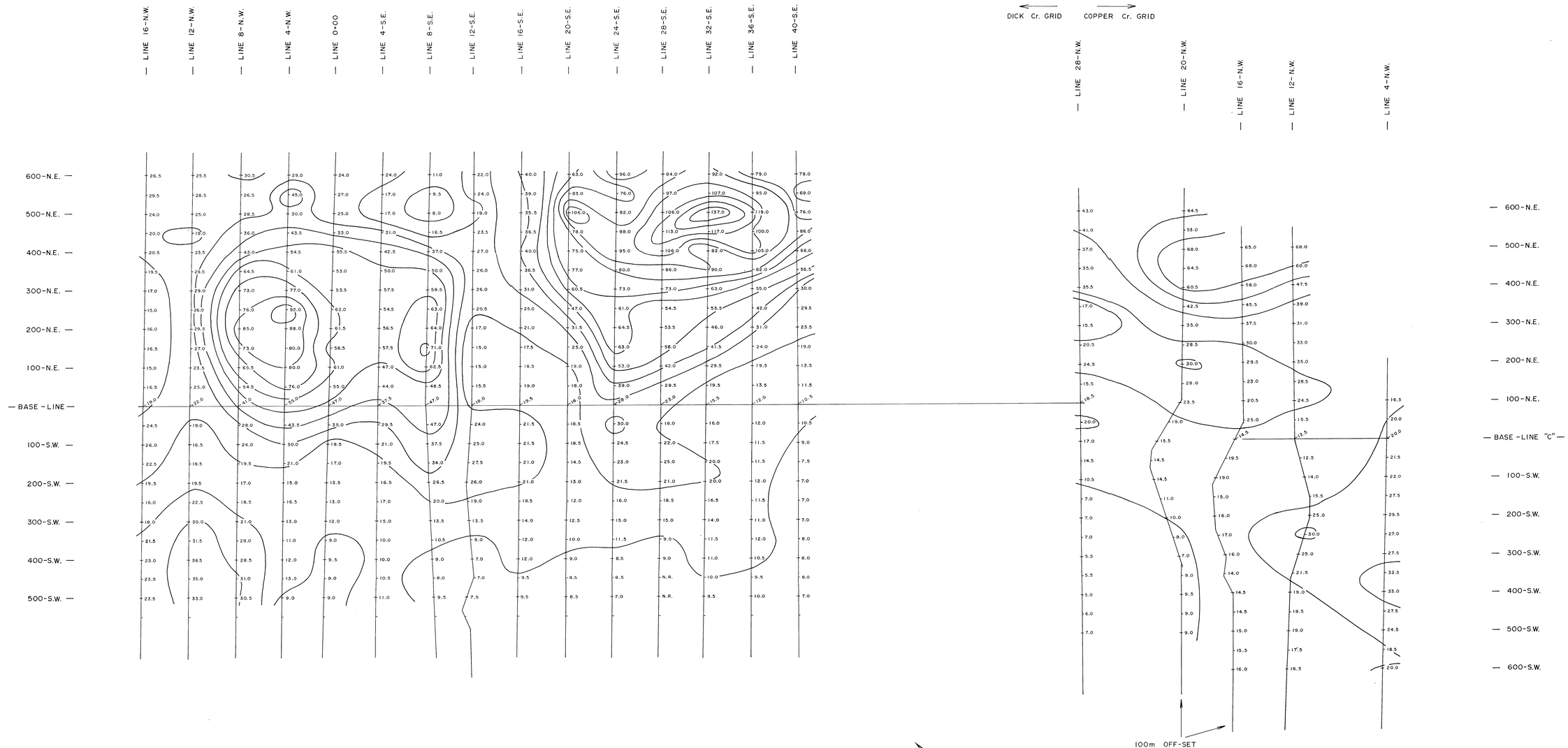

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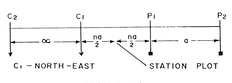

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STAR MINERAL CLAIMS, ATLIN M.D., B.C.

INDUCED POLARIZATION SURVEY

CONTOURS OF APPARENT CHARGEABILITY

SCALE 1 : 5,000

MAP No. W-288-6
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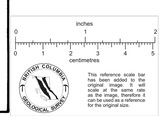

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