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Report #1 - Geophysical Report on Property of Rolling Hills Copper Mines Ltd. (N.P.L.)

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Report #2 - Supplementary Geophysical Report on the Property of Rolling Hills Copper Mines Ltd. (N.P.L.)

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Certificate

REPORT ON

GEOPHYSICAL SURVEYS

1

ROLLING HILLS COPPER MINES LTD. (N.P.L.)

The survey was conducted over the property of Rolling Hills Copper Mines Ltd. (N.P.L.) whose claims are as follows: Python #3 to 8 incl., 15 and 16 Cub #3 to 6 incl., 9 and 10 Dot #2, 3, and 5 Nan, Nat, Net Static, Coon and Cub Fractionals Pye #1 Fr Pye #3 to 8 inclusive Jet #1 to 6 incl., 8 to 13 incl., 15, 17, and 19 Jet #7 Fr, 14 Fr, 16 Fr, and 18 Fr Troogh #1 Fr to 3 Fr incl. Line #1 to 4 incl. Queen #1 Fr **Top** #1 92I/9W Top #2 Fr and 3 Fr Colt #1 to 5 incl. Guerin #1 and #2 RH #1 to 6 incl. Kam #1 Fr Patricia #1 X 1 to 10 incl., 12, 15 to 34 incl. B 1 to 15 incl. and 19 to 33 incl. Satan 7 to 29 incl. Ken 1, 2, 3, and 5 Pam 1 to 37 incl. Wada 1 to 18 incl. Lobo 1 to 18 incl. Fox 1 to 7 incl., 7 to 10 incl., 11 Fr, 12 and 13 C.G. Mineral Claims Lots 2565, 2564, 2563, 2562 and 2561 which are located 10 miles southwest of Kamloops, 50°37'N, 120°25'f The survey was conducted during the period March 15 to August 5, 1965. The field work was under the supervision of Mr. R. Pild, Geophysicist. The report was written by Mr. E. B. Nicholls, Geophysicist.

Maps accompanying Reports:

Legend

;

I.P. & Mag. Profiles # 2 Line No. 4W # 2 Line No. 16W # 3 Line No. 24W # 4/Line No. 28W # 5 Line No. 32W # 6 Line No. 48W # 7 Line No. 52W

Claim Map #Sheet 1 (Makaoo Claims) #1Sheet 2 ##OSheet 3 #//Sheet 4

Induced Polarization Survey

Chargeability#/2Sheet 1 (Makaoo Claims) #/3Sheet 2 #/4 Sheet 3

Resistivity #/5Sheet 1 (Makaoo Claims) #/6Sheet 2 #/7Sheet 3

Magnetometer Survey#18 Sheet 1 (Makaoo Claims) #/9Sheet 2 #20 Sheet 3 #21 Sheet 4

GEOPHYSICAL REPORT

ON PROPERTY OF

ROLLING MILLS COPPER MINES LTD. (N.P.L.)

THE REAL PROPERTY OF

Station in state

KAMLOOPS MINING DIVISION

KANLOOPS, B. C.

SULMAC EXPLORATION SERVICES LIMITED

JULY 12, 1965

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GEOPHYSICAL REPORT

ON PROPERTY OF

ROLLING HILLS COPPER MINES LTD. (N.P.L.)

KAMLOOPS MINING DIVISION

KAMLOOPS, B. C.

1. Introduction

During the period March 15th to July 1st, 1965, magnetometer and Induced Polarization surveys were carried out by Sulmac Exploration Services Limited over part of the claims owned by Rolling Hills Copper Mines Ltd. (N.P.L.). As the Induced Polarization survey is still in progress, this report will discuss the results obtained to date. Further reports covering the future work will be submitted later.

The mineral claims are located a few miles west of Kamloops, British Columbia. The surveys covered a large portion of the claim group; the picket lines were cut and chained prior to the geophysical survey. The relative locations and orientations of the lines are shown on the maps accompanying this report. The basic coverage of the survey consisted of readings at B0 foot intervals along lines 400 feet apart using an electrode spacing of 200 feet. Results of the surveys completed to date are shown on the maps and profiles accompanying this report. The completed survey will require four map sheets. This report discusses the results of sheets 1 and 3 only.

2. Summary and Recommendations

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A magnetometer and an Induced Polarization survey is being carried out over the property owned by Rolling Hills Copper Mines Ltd. (N.F.L.), near Kamloops, British Columbia. This report discusses the results obtained to date. The magnetometer survey has not indicated any major anomalous zone, however interpretation of the data has given light to the geological pattern of the property. It is possible to indicate the contacts between the various underlying rock types. A number of faults are indicated by the magnetics, as is the extensive fracturing in the Iron Mask Batholith. The formations indicated are known to be host rocks for one occurrences in the immediate area.

The I.P. survey, a reconnaissance type based on 400 foot lines and using a 200 foot electrode spacing, indicated eight anomalous areas which may contain varying quantities of mineralization. Four of these areas, 2, 3, 5, and 6, are

- 2 -

associated with magnetic high values, which suggests magnetite could be the cause of the I.P. anomaly, however detail work is required to define the cause of the anomaly. Two other zones, #7 and #8, were not completely outlined as the anomalies passed over the property boundaries into the C.M. & S. property. Anomaly #4 consists of two zones, each approximately 800 feet in length, located at the north end of lines 24W to 32W. The main zone located to date is some 8000 feet in length and is designated on the accompanying map as Area #1. This zone varies in intensity along its length, indicating varying concentrations of mineralization. For the most part the zone is associated with magnetic lows, however towards the eastern end it appears to trend in with a sories of magnetic highs. The zone is still open to the east where it crosses the property boundary. A limited amount of detail work has been carried out along this anomaly in the area of the magnetic 'lows'. This work indicated the zone to be caused by a narrow body of 200 - 300 feet in width which comes to bedrock surface and is probably due to 1-3% sulphides by volume. The dip appears to be to the south. Due to the nature of the topography investigation by diamond drilling may be complicated. In order to investigate by drilling it will be necessary to cross-section

- 3 -

the anomaly in a number of places following the detailed work. To date one diamond drill hole has been put down to investigate the cause of this anomaly. This hole was located so as to intersect the peak of the anomaly on Line 24W at a depth of 250 feet. Mineralization was intersected as expected in sufficient quantities so as to explain the anomaly. Further drilling is, of course, necessary to thoroughly investigate the anomaly.

The reconnaissance survey has indicated all areas of possible mineralization, and the limited amount of detail work has shown that it is possible to evaluate these zones more thoroughly than with the reconnaissance work along. It is, therefore, recommended that more detail work be carried out on Area #1 prior to a further drilling programme and that the other anomalous area be checked with a limited amount of detail work. Supplementary reports will be forthcoming as the survey progresses.

3. Property, Location and Access

The property of Rolling Hills Copper Mines Ltd. (N.P.L.) consists of a group of some 257 claims and five Crown Granted mineral claims. The Crown Granted land and 67 of the

mineral claims are under option from Makaoo Development Company Limited. These are shown on an accompanying map and are listed as follows:

C.G. Mineral Claims Lots 2565, 2564, 2563, 2562 and 2561

Mineral Claims:

Python #3 to 8 incl., 15 and 16 Cub #3 to 6 incl, 9 and 10 Dot \$2, 3, and 5 Nan, Nat, Nat Static, Coon and Cub Fractionals Pye #1 Fr Pye #3 to 8 inclusive Jet #1 to 6 incl., 8 to 13 incl., 15, 17, and 19 Jet #7 Fr, 14 Fr, 16 Fr, and 18 Fr Troogh #1 Fr to 3 Fr incl. Line #1 to 4 incl. Queen #1 Fr Top #1 Top #2 Fr and 3 Fr Colt #1 to 5 incl. Guerin \$1 and \$2 RH #1 to 6 incl. Kam #1 Fr Patricia 11 X 1 to 10 incl., 12, 15 to 34 incl. B 1 to 15 incl. and 19 to 33 incl. Satan 7 to 29 incl. Ren 1, 2, 3, and 5 Pam 1 to 37 incl. Wade 1 to 18 incl. Lobo 1 to 18 incl. Fox 1 to 7 incl., 7 to 10 incl., 11 Fr, 12 and 13

The property is located some 10 miles by road southwest of Kamloops. Access to the claims is good, being

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by the main Trans-Canada Highway west from Kamloops for about 7 miles to the junction of the Lac Le Jeune road and thence south for approximately 2 miles. ilde h<mark>urren madas vakadita virantera asinisten nemolati katiletaki udi virana trabio intersi katisi seteki</mark>

4. Method of Survey and Instrument Data

4.1 I.P. Electrode Arrays

The data were obtained using the "three-electrode array". This array consists of one current (C_1) , two potential electrodes $(P_1 \text{ and } P_2)$, and the second current electrode (C_2) being fixed at "infinity".

The data were obtained using basic electrode spacings of 200 feet over the surveyed area. Additional detail information was obtained over the anomalous area with electrode spacings of 50, 100, and 400 feet. The basic station interval was 100 feet.

4.2 I.P. Instrument

The instrument used was of the pulse-type and is similar in design and operation to that described by R. W. Baldwin in "A Decade of Development in Overvoltage Survey", A.I.M.E. Transactions, Vol. 214, 1959. Power for the unit is obtained from a Briggs and Stratton 4 H.P. motor coupled to a 400 c.p.s. generator which provides a maximum of 1500 watts d.c. to the ground. The cycling rate is 1.5 seconds current on and 0.5

- 6 --

seconds current off, the pulses reversing continuously in polarity. The data collected consists of measurement of the current (I) flowing through C_1 and C_2 and of the primary voltage (Vp) between P_1 and P_2 during the 'current on' period. During the 'current off' period the overvoltage appearing between P_1 and P_2 is measured. This gives a measurement of the polarisation (Vg) in milliseconds. The "apparent chargeability" in milliseconds is calculated by dividing the polarization (Vg) by the primary voltage (Vp). The "apparent resistivity" in ohm-meters is obtained by dividing the primary voltage Vp by the current I, and multiplying by a proportionality factor which depends on the geometry of the array used. 4.3 I.F. Data

The results of the survey are shown as contour maps of "apparent chargeability" and "apparent resistivity" for the basic 200 foot electrode spacing. These maps are located in the pocket at the rear of the report.

The results obtained during the detail work are shown as profiles. These profiles have a horizontal scale of one inch to one hundred feet. The "apparent chargeability" is plotted at a vertical scale of 2 milliseconds per inch. The

- 7 --

"apparent resistivity" is plotted to a vertical scale of 500 ohm-meters per inch.

A total of 76.5 miles of line has been surveyed by this method.

4.4 Magnetometer Survey

The magnetometer survey carried out over the claim group discussed in this report was based on a grid system of 400 foot lines and 100 foot stations.

The survey was conducted using a Sharpe MF-1 Fluxgate magnetometer. The sensitivity of the instrument was 20 gammas per division on 1000 gamma scale. A total of 117.9 miles of line was surveyed by this method. The results obtained were plotted on a map at a scale of 400 feet to the inch and contoured. The maps accompany this report. 5. Discussion of the Results

5.1 Magnetometer Survey

The magnetometer survey indicates considerable magnetic relief throughout the property, however no major anomalous zone was found. The magnetite concentration within the area surveyed appears to be very erratic. Contacts between the various rock types have been inferred from the magnetic data and are shown on the accompanying maps. From the nature of the results obtained it appears that the area is covered by

shallow overburden.

- 8 -

The zones of magnetic 'highs' are, probably indicative of the presence of the Iron Mask Batholith as the underlying rock type. The areas of relative low magnetics are probably due to the presence of volcanic rocks. To the north and east is an area having negative readings and is interpreted as reversely magnetized volcanics, probably of the Ramloops Group. The magnetometer survey has, therefore, been of great help in distinguishing the various rock types that are underlying the property. A number of faults are indicated by the magnetics and are shown on the accompanying map. The magnetic data over the batholith areas indicates the batholith to have extensive fracturing. On completion of the geological mapping a more thorough review can be made for a better understanding of the geology of the area.

5.2 Induced Polarization Survey

The interpretation of this survey data consists of a careful analysis of the individual profiles. The variations in the resistivity obtained may be ascribed to changes in the overburden thickness and in the overburden and bedrock resistivities. The overburden appears to have

- 9 -

resistivity varying between 40 and 300 ohm-meters, whereas the bedrock resistivity may be as high as 1000 ohm-meters or more.

A reconnaissance I.P. survey was carried out over lines 400 feet apart using an electrode spacing of 200 feet. The data obtained during this survey is shown on the 'chargeability' and 'resistivity' maps accompanying this report. The I.P. data indicates that the background values for the area are approximately 2 milliseconds. Areas which are shown as anomalous, that is having 'chargeability' values of twice background or better, will be selected for detail surveying. These anomalous areas are designated on the accompanying 'chargeability' maps by the numbers 1 to 8 inclusive. In addition to these zones a number of smaller anomalous zones have been indicated, but these are not designated on the maps. However, as the reconnaissance survey of the claim group has not been completed, it is expected that other anomalous zones will be located as the work progresses. Detail work has been kept to a minimum; as a result only five lines over anomalous area \$1 have been surveyed using different electrode spacings.

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Anomalous areas 2 and 3 are located in the northwest section of the Rolling Hills property and are associated with magnetic 'highs'. The magnetic data obtained in this portion of the property indicate the underlying rocks to be those of the Iron Mask Batholith in which magnetite is often found. Further detail work would be necessary before any final conclusions could be formed, however it is possible that the I.P. anomaly is due to the magnetite content of the batholith although other mineralization may be present. The conductors indicated in Area \$4 are located in a region of low magnetic relief which is probably associated with underlying rocks of the Kamloops Group. It is also an area of low resistivity. To the west these conductors are lost under the lake located on line 36%. Mineralization has been reported, by a local prospector, to have been found in the general area of this anomaly. Further work is, therefore, warranted over these conductors prior to any drilling.

Anomalous areas 5 and 6 are located in the general area of Line 28E to 60E, just north of the '0' base line. Both areas are associated with low resistivity values whilst the magnetics data indicates the underlying rocks to

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be diorite or part of the Iron Mask Batholith. Again, detail work would be required before any definite conclusions could be drawn regarding the potential of the two zones.

Zones 7 and 8 shown on sheet 3 of the accompanying maps are only outlined in part as they both cross on to the ground held by C.M. & S. The magnetic data shows that the zones appear to be centred within the batholith. However, as the property boundary was reached before the zones were outlined, it is possible that the major portion of the anomaly is contained within the C.M. & S. property where an orebody is known to exist. Further study of these zones should be carried out in conjunction with work on the C.M. & S. property in order to correctly evaluate their potential. The main zone located to date is designated Area #1 and covers a length of some 8000 feet with widths of up to 400 feet. This zone is located between Line 44% to 40E at 65N. Indications are that the zone is still open to the east where it crosses the property boundary. Faults appear to intersect the zone in a number of places and to offset it.

A limited amount of detail work was carried out on this zone covering Lines 4W, 16W, 24W, 28W, and 32W

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only. The results of this work are shown as profiles at the end of the report. Besides the profiles of the chargeability, the profiles of the resistivity and magnetics are also incorporated.

In general, the zone appears to follow the contact between the low magnetics and the high magnetics for the most part, which is a favourable region for finding mineralisation. However, between Line 8E and 28E the main portion of the sone appears to be associated more with rocks of high magnetite concentration. The flanks of the I.P. anomaly in this region are associated with low magnetics. The main portion of the some as it crosses the property boundary is again associated with magnetic 'lows'. More detail work is warranted on this zone prior to any further drilling that may be undertaken. As a 200 foot electrode spacing was used for the reconnaissance survey, the detail work was carried out using 50 foot and 100 foot electrode spacings in order to give better resolution of the data. In addition, Line 24W was also covered using an electrode spacing of 400 feet. From the results obtained by the datail work the causative body appears to be dipping to the south. Calculations carried out on the data

- 13 -

obtained show that the true chargeability is 10 milliseconds, indicating the presence of 1-3% of sulphides by volume as the cause of the anomaly. The data also indicates that the body extends to depth. Line 4W shows an anomalous zone between stations 57 N to 60N and 62N to 54N. The zone centered at 63N was detected by the 50' spacing showing it to be fairly shallow. Both the zones appear to be associated with increases in the magnetic values. It is possible that the magnetite is partly responsible for the increase in the chargeability, however calculations do not indicate that it is the only cause.

Line 16W shows a broad I.P. response on the 200 foot spacings, with the detail work showing two definite somes centered at 61N and 67N respectively. Neither of these somes are associated with magnetics. Both zones appear to be fairly shallow and narrow.

Datail work carried out on Line 24W confirmed the anomaly indicated by the reconnaissance survey. A 400 foot electrode spacing was used, and this indicated the body extended to depth. No magnetics are associated with the anomaly.

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On line 28W the detail survey shows that the zone is fairly narrow and probably reaches to bedrock surface.

The anomaly on line 32% centers at 67N and is indicated on both the 100 foot and 200 foot electrode spacing. The zone appears to be fairly narrow.

The detail work carried out to date does not indicate the presence of any concentrations of massive mineralization, but rather of disseminated sones averaging up to 400 feet in width and averaging 1-3% sulphides by volume. Within this zone more massive sections are probably present. To the east, as indicated by Line 4W, magnetite may be present, however to the west the zone is in a region of low magnetics.

The anomaly is situated on a hillside and the indications are that the cause of the anomaly dips into the hill. This complicates the drilling problem. From the work carried out to date it appears that the drilling should be carried out from the south side of the zone. One drill target has been spotted already, that is the anomaly peak on Line 26N. This was spotted on the south side of the zone and drilled to intersect the zone at 250 feet below the peak of the anomaly.

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Mineralization was encountered in this hole as expected and the total sulphide content was in accordance with calculations. Assays are not presently available.

Further detail work along this anomaly and on the other anomalous zones is recommended prior to any further drilling. This will allow the selection of the best possible targets.

As the surveys are still progressing, supplementary reports will be submitted as and when required.

Respectfully submitted,

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SULMAC EXPLORATION SERVICES LIMITED

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Icholis, B.Sc., P.Eng. Geophysicist.

July 12, 1965

SUPPLEMENTARY

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GEOPHYSICAL REPORT

ON THE PROPERTY OF

ROLLING HILLS COPPER MINES LIMITED (N.P.L.)

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KAMLOOPS MINING DIVISION KAMLOOPS, BRITISH COLUMBIA

SULMAC EXPLORATION SERVICES LIMITED

OCTOBER 12, 1965

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Appendix - Personnel employed on survey Certificate

SUPPLEMENTARY

GEOPHYSICAL REPORT

ON THE PROPERTY OF

ROLLING HILLS COPPER MINES LIMITED (N.P.L.)

KAMLOOPS MINING DIVISION KAMLOOPS, BRITISH COLUMBIA

1. Introduction

This report discusses the additional work carried out on the property of Rolling Hills Copper Mines Limited (N.P.L.) located in the Kamloops area of British Columbia. The report covering the initial and major portion of the survey was submitted on July 12, 1965, and discussed the results of the surveys completed between the period March 15 to July 1, 1965. Since then the Induced Polarization survey was extended by another 33.5 miles and the magnetometer survey by 41.6 miles. This additional survey was completed on August 5, 1965. The surveys did not cover the whole claim group, however the magnetometer survey was carried out over all the lines that had been established.

The accompanying maps and plans show the results obtained for the complete surveys.

2. Summary and Recommendations

The magnetometer and Induced Polarization surveys were extended over the property of Rolling Hills Copper Mines Limited. A total of 160 line miles of magnetometer survey has been completed on the property. From the results of this survey it is possible to identify the contacts between the various rock types, which will be of value when geologically mapping the property. A number of faults have been inferred from the magnetics and these are shown on the accompanying maps.

An additional 33.5 miles of I.P. survey were completed, bringing the total to 110 line miles. This extra survey indicated two more anomalous zones, designated 9 and 10 on the accompanying maps. Neither of these zones were completely delineated as they extended beyond the property boundaries. Anomaly #9 was found to be associated with magnetic 'highs'; it is, therefore, possible that the magnetite present in this area may account for the anomaly. However, the limited amount of detail work carried out indicated that small percentages of sulphides (1-2% by volume) may be present. The other anomaly was not detailed and there is no magnetic anomaly associated with it. A previous report described the other anomalous zones and these are, therefore, not discussed in this report.

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Evaluation of the anomalous zones by diamond drilling is recommended in order to determine their economic value. As the zones are fairly extensive, cross section drilling should be undertaken.

In order to assess the true merits of the property, it is recommended that a study be made of the geophysical results and the geological survey of the Rolling Hills claim group in conjunction with those of the adjoining properties. By this means a more detailed analysis of the data could be made which would be of benefit to all companies concerned.

3. Property, Location & Access

The property of Rolling Hills Copper Mines Ltd. (N.P.L.) consists of a group of some 257 claims and five Crown Granted mineral claims. The Crown Granted land and 67 of the mineral claims are under option from Makaoo Development Company Limited. These are shown on an accompanying map and are listed as follows:

C.G. Mineral Claims Lots 2565, 2564, 2563, 2562 and 2561 Mineral Claims:

Python #3 to 8 incl., 15 and 16 Cub #3 to 6 incl., 9 and 10 Dot #2, 3, and 5

- 3 -

Mineral Claims (Cont'd)

Nan, Nat, Net Static, Coon and Cub Fractionals Pye #1 Fr Pye #3 to 8 inclusive Jet #1 to 6 incl., 8 to 13 incl., 15, 17, and 19 Jet #7 Fr, 14 Fr, 16 Fr, and 18 Fr Troogh #1 Fr to 3 Fr incl. Line #1 to 4 incl. Queen #1 Fr Top #1 Top #2 Fr and 3 Fr Colt #1 to 5 incl. Guerin #1 and #2 RH #1 to 6 incl. Kam #1 Fr Patricia #1 X 1 to 10 incl., 12, 15 to 34 incl. B I to 15 incl. and 19 to 33 incl. Satan 7 to 29 incl. Ken 1, 2, 3, and 5 Pam 1 to 37 incl. Wade 1 to 18 incl. Lobo 1 to 18 incl. Fox 1 to 7 incl., 7 to 10 incl., 11 Fr, 12 and 13

The property is located some 10 miles by road southwest of Kamloops. Access to the claims is good, being by the main Trans-Canada Highway west from Kamloops for about 7 miles to the junction of the Lac Le Jeune road and thence south for approximately 2 miles.

- 4 -

4. Method of Survey and Instrument Data

4.1 I.P. Electrode Arrays

The data were obtained using the "three-electrode array". This array consists of one current (C_1) , two potential electrodes $(P_1 \text{ and } P_2)$, and the second current electrode (C_2) being fixed at "infinity".

The data were obtained using basic electrode spacings of 200 feet over the surveyed area. Additional detail information was obtained over the anomalous area with electrode spacings of 50 and 100 feet. The basic station interval was 100 feet.

4.2 I.P. Instrument

The instrument used was of the pulse-type and is similar in design and operation to that described by R.W. Baldwin in "A Decade of Development in Overvoltage Survey", A.I.M.E. Transactions, Vol. 214, 1959. Power for the unit is obtained from a Briggs and Stratton 4 H.P. motor coupled to a 400 c.p.s. generator which provides a maximum of 1500 watts d.c. to the ground. The cycling rate is 1.5 seconds current on and 0.5 seconds current off, the pulses reversing continuously in polarity. The data collected consists of measurement of the current (I) flowing through C_1 and C_2 and of the primary voltage (Vp) between

- 5 -

 P_1 and P_2 during the 'current on' period. During the current off' period the overvoltage appearing between P_1 and P_2 is measured. This gives a measurement of the polarization (Vs) in milliseconds. The "apparent chargeability" in milliseconds is calculated by dividing the polarization (Vs) by the primary voltage (Vp). The "apparent resistivity" in ohm-meters is obtained by dividing the primary voltage Vp by the current I, and multiplying by a proportionality factor which depends on the geometry of the array used.

4.3 I.P. Data

The results of the survey are shown as contour maps of "apparent chargeability" and "apparent resistivity" for the basic 200 foot electrode spacing. These maps are located in the pocket at the rear of the report.

The results obtained during the detail work are shown as profiles. These profiles have a horizontal scale of one inch to one hundred feet. The "apparent chargeability" is plotted at a vertical scale of 2 milliseconds per inch. The "apparent resistivity" is plotted to a vertical scale of 500 ohm-meters per inch.

- 6 -

A total of 33.5 miles of line have been surveyed since the first report. This extra mileage brings the total to 110 miles of I.P. survey. All the lines laid out were not covered.

4.4 Magnetometer Survey

The magnetometer survey carried out over the claim group discussed in this report was based on a grid system of 400 foot lines and 100 foot stations.

The survey was conducted using a Sharpe MF-1 Fluxgate magnetometer. The sensitivity of the instrument was 20 gammas per division on 1000 gamma scale. An extra 42.1 miles were surveyed, bringing the total mileage to 160. All the lines laid out were surveyed by the magnetometer. The lines shown on Sheet 3 without readings were not picketed in the field. The results obtained were plotted on a map at a scale of 400 feet to the inch and contoured. The maps accompany this report.

5. Discussion of the Results

5.1 Magnetometer Survey

The additional magnetometer survey carried out indicated the same magnetic relief as the previous survey. The magnetite concentration appears to be very erratic. Again,

- 7 -

contacts between the various rock types have been inferred from the data obtained. Zones of magnetic 'highs' are indicative of the presence of the Iron Mask Batholith, whereas the areas of relatively low magnetics are probably underlain by volcanics. A number of faults are indicated by the magnetics.

Used in conjunction with the geological study of the property, the magnetics can be used to identify the formations that are overlain by the overburden.

5.2 Induced Polarization Survey

The interpretation of this survey consists of a careful analysis of the individual profiles. The variations in resistivity obtained may be ascribed to changes in the overburden thickness and in the overburden and bedrock resistivities.

A number of anomalous zones have been indicated by the survey and these are designated on the accompanying maps by the numbers 1 to 10. Eight anomalous zones, numbers 1 to 8, were identified in the original report. The two anomalies, #9 and #10, located on Sheet 2, are not completely delineated as they both extend across the property boundaries onto the ground owned by Galaxy Copper Limited. Anomaly #9 is located within an area of magnetic 'highs', and is thought, therefore, to be due in part, at least, to the magnetite content. Detail survey at 50' and 100' spacings

- 8 -

was carried out over lines 48W and 52W. Calculations carried out do not indicate that the magnetite is the only cause, however its presence does obscure the effect of any sulphide mineralization that may be present. The near surface effects may be due to the magnetite. Any mineralization is probably below it.

Anomalous zone #10 is situated in an area of relatively 'low' magnetic relief indicating the underlying rocks are probably volcanics. No detail work was carried out over the zone, but should be prior to any drilling that may be contemplated.

The other 8 anomalous zones located by the I.P. survey were described in the previous report. A number of small anomalous zones are to be found throughout the surveyed area, however as these zones are small in area they would only warrant further investigation if the larger anomalous zones prove to be of economic interest.

Respectfully submitted,

E. B. Nicholls, B.Sc., P.Eng., Geophysicist.

October 12, 1965

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APPENDIX

The following personnel were employed on the survey:

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E.	B. Nicholls	Chief Geophysicist	Feb. 16, May 1, 13, 18-20, July 6,14,22,27, Aug. 3, 4, 5, Octo 4 to 8, 1965
R.	Pild	Geophysicist	March 15 - Aug. 3/65
R.	McLeod	Geophysical Operator	March 15 - May 1/65
K,.	Kerslake	f\$ 77	May 16 - June 7, July 20 - Aug. 7/65
D.	Thorburn	8 5 52	March 15 - June 1/65
E.	Adams	" Assistant	March 15 - April 10/65
J.	Nicklin	\$3 EF	March 15 - Aug. 3/65
R.	Clark	17 1	March 15 - April 10/65
D.	Gray	th	April 11 - June 9/65
	Sypher	11 14	April 11 - June 9/65
	Waterman	† 17	June 1 - Aug. 3/65
R.	Burns	E\$ 64	June 9 - Aug. 3/65
R.	Nicholls	t) (1	June 9 - Aug. 3/65
D.	Grant	Draftsman	April 20, 21, July 5 - 7, 20, 21, May 18 - 21, Sept. 14,15,23,24 & 30/65
P.	Tapson	. 19	April 14, 15, June 14-18, May 10, 12/65
K.	Schulte	Linecutter	Jan. 3-14, Feb. 1-March 28
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CERTIFICATE

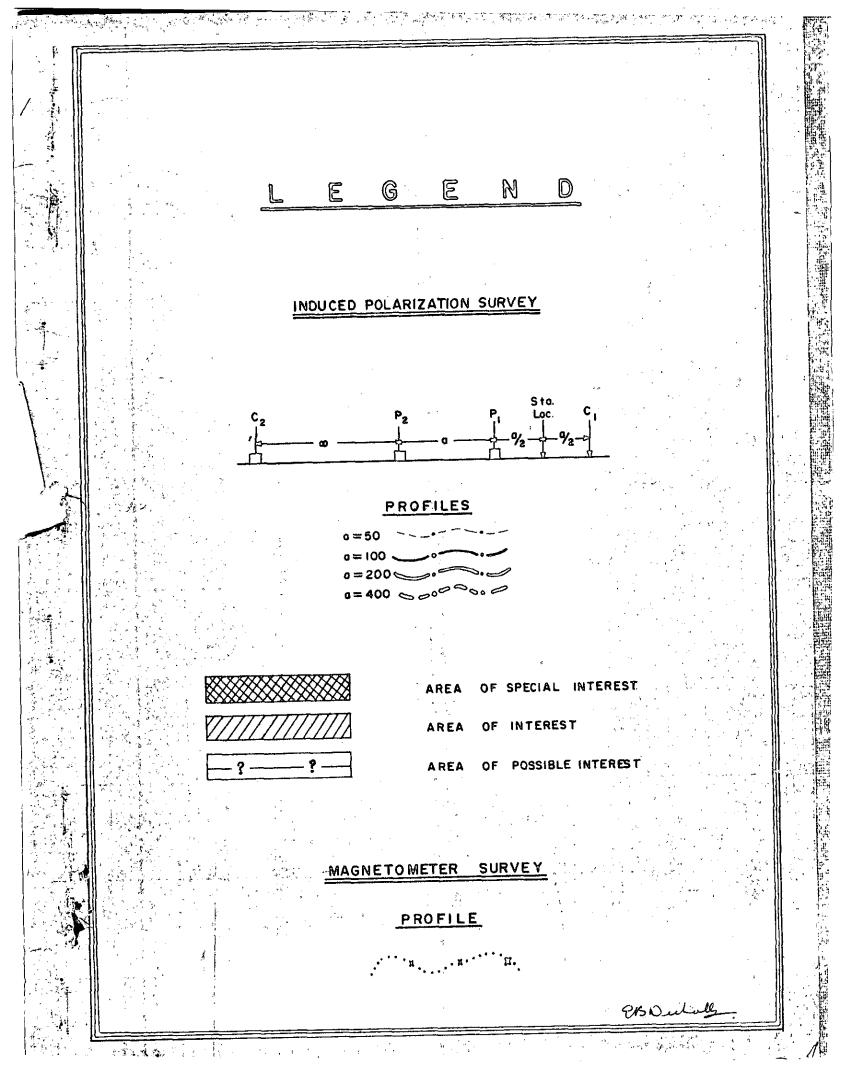
TO WHOM IT MAY CONCERN:

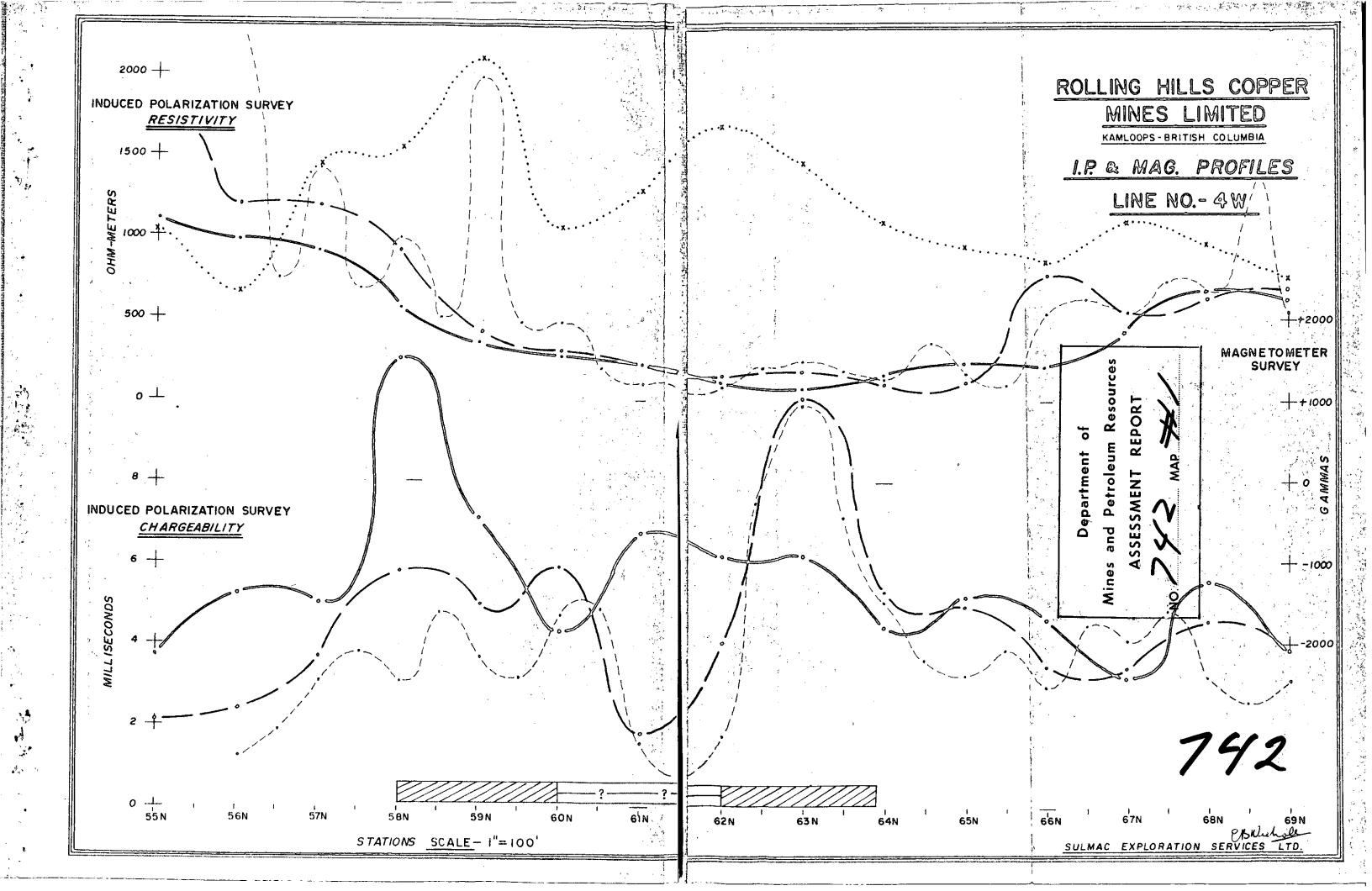
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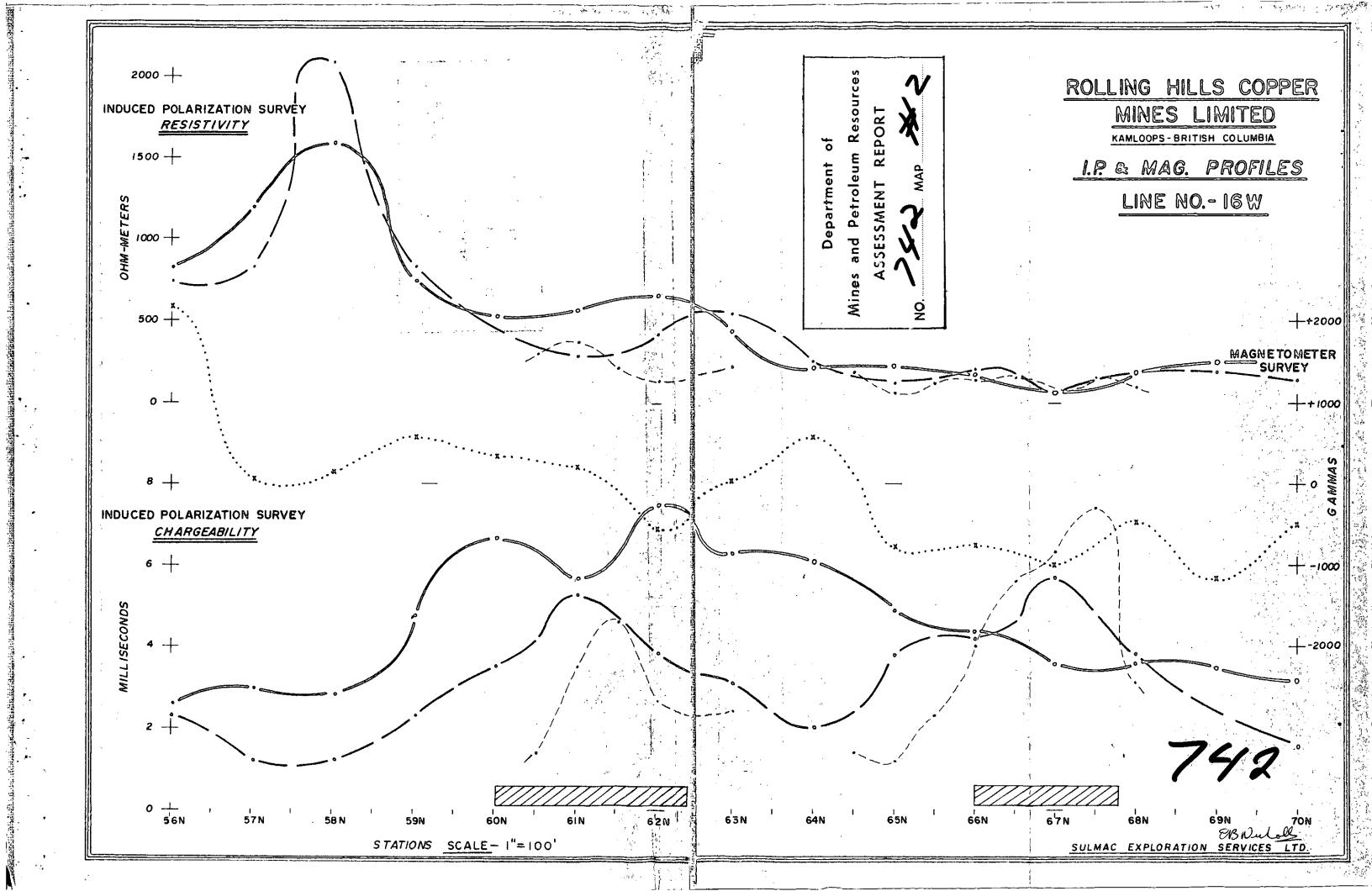
- I, the undersigned, do hereby certify:
- That I am a geophysicist residing at 75 Romulus Drive, Scarborough, Ontario.
- 2. That I have been practicing my profession for 18 years.
- That I graduated from London University, England, with a B.Sc. degree in 1947.
- 4. That I have carried out all types of geophysical surveys throughout Canada, England, Europe.
- 5. That I have carried out interpretation for all phases of geophysics, including reports for assessment work.
- 6. That I am a member of the Association of Professional Engineers of Ontario.
- 7. That I am a member of the Society of Exploration Geophysicists. European Geophysical Association, Canadian Exploration Geophysicists.
- 8. That I am a member of the Institute of Physics, London, England.

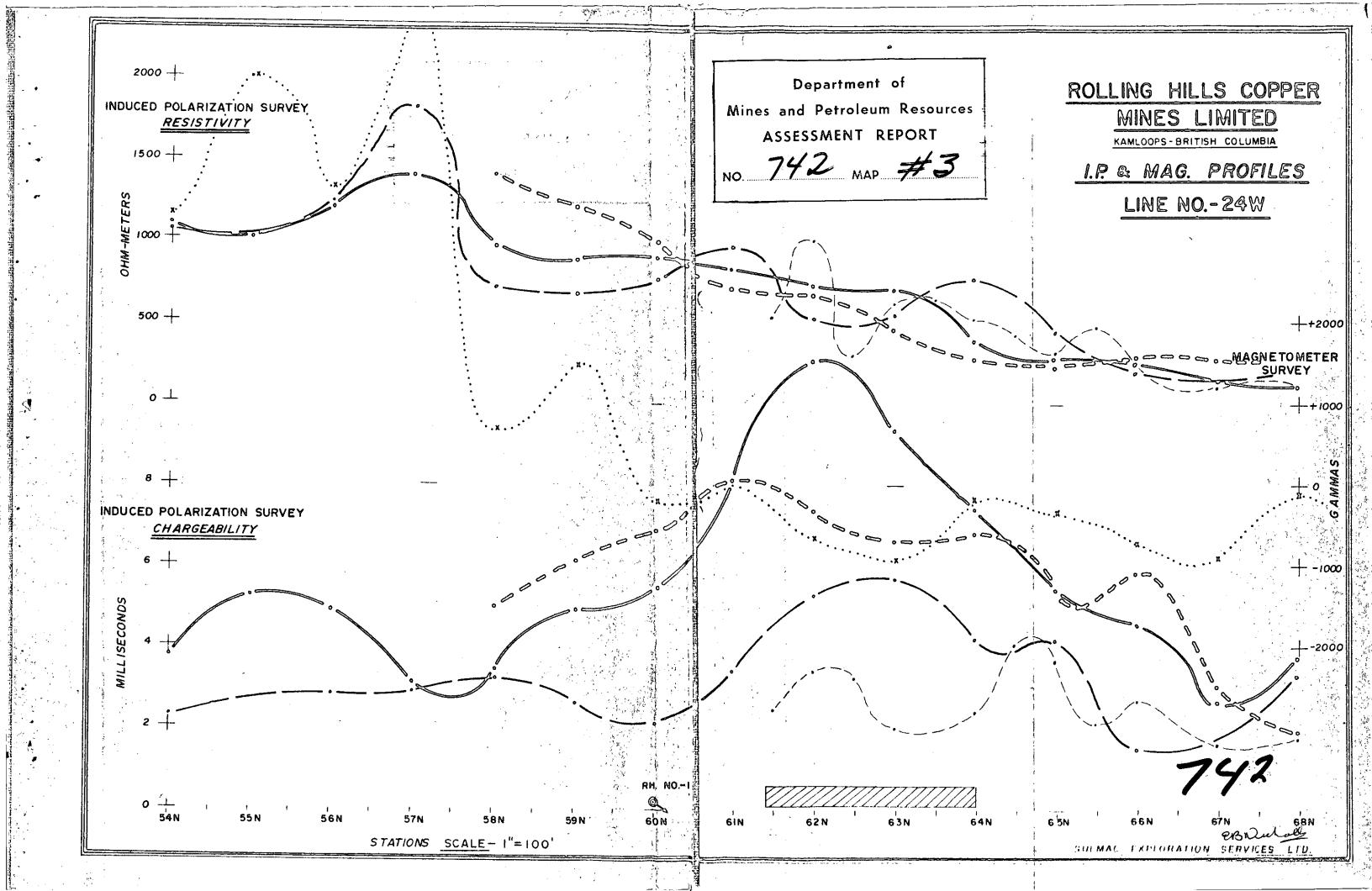
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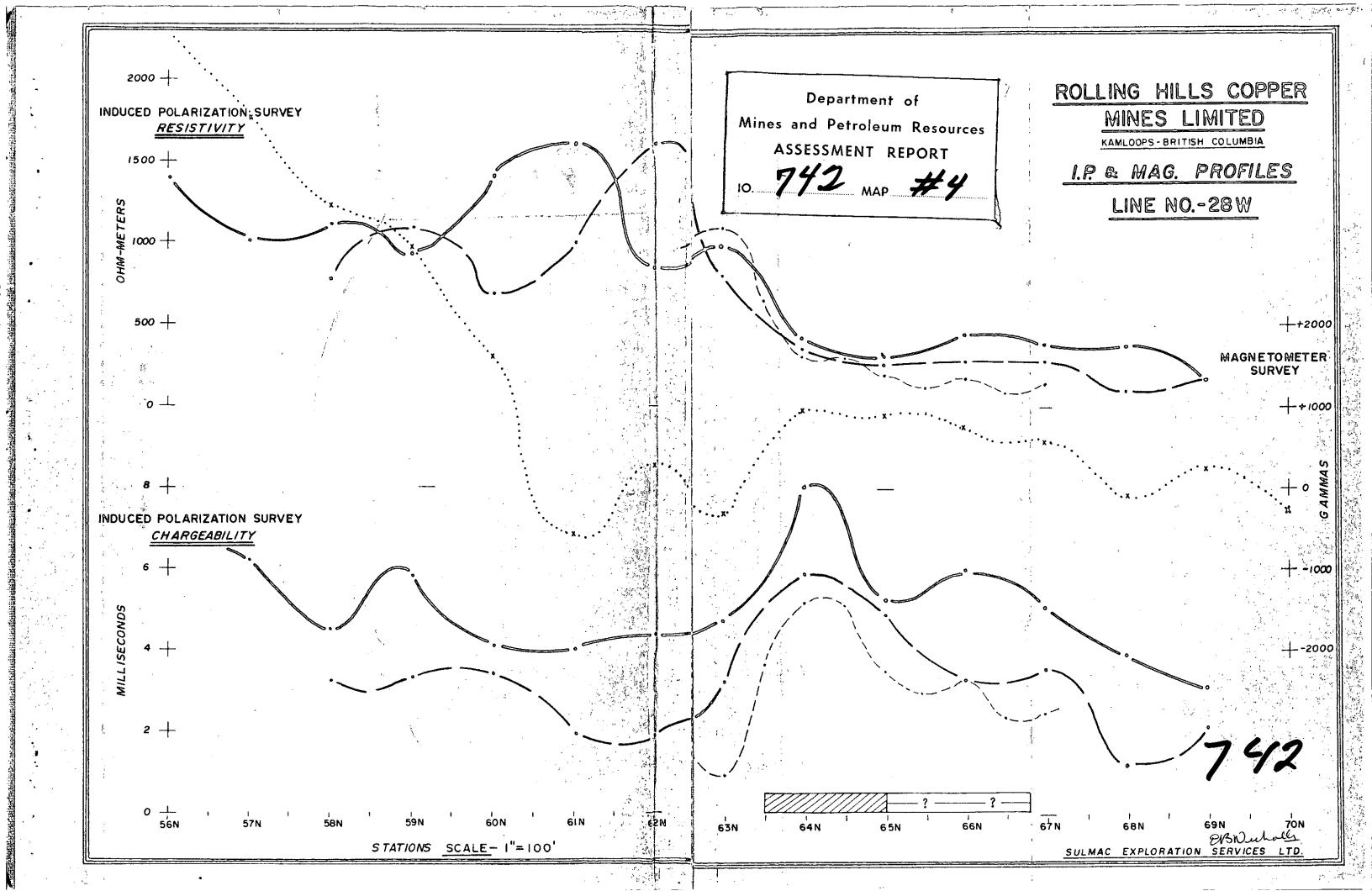
E. B. Nicholls,B.Sc.,P.Eng., Geophysicist.

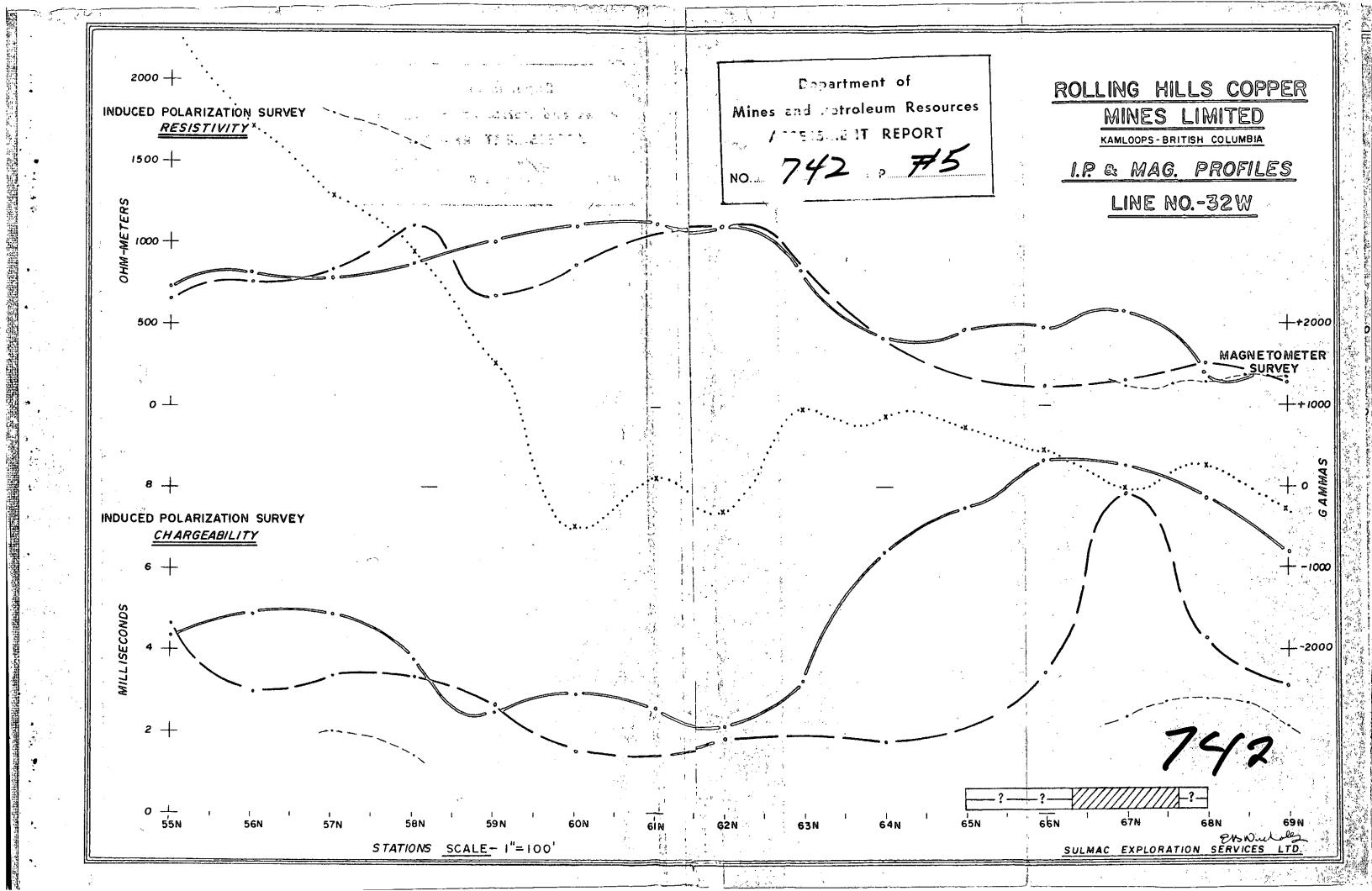


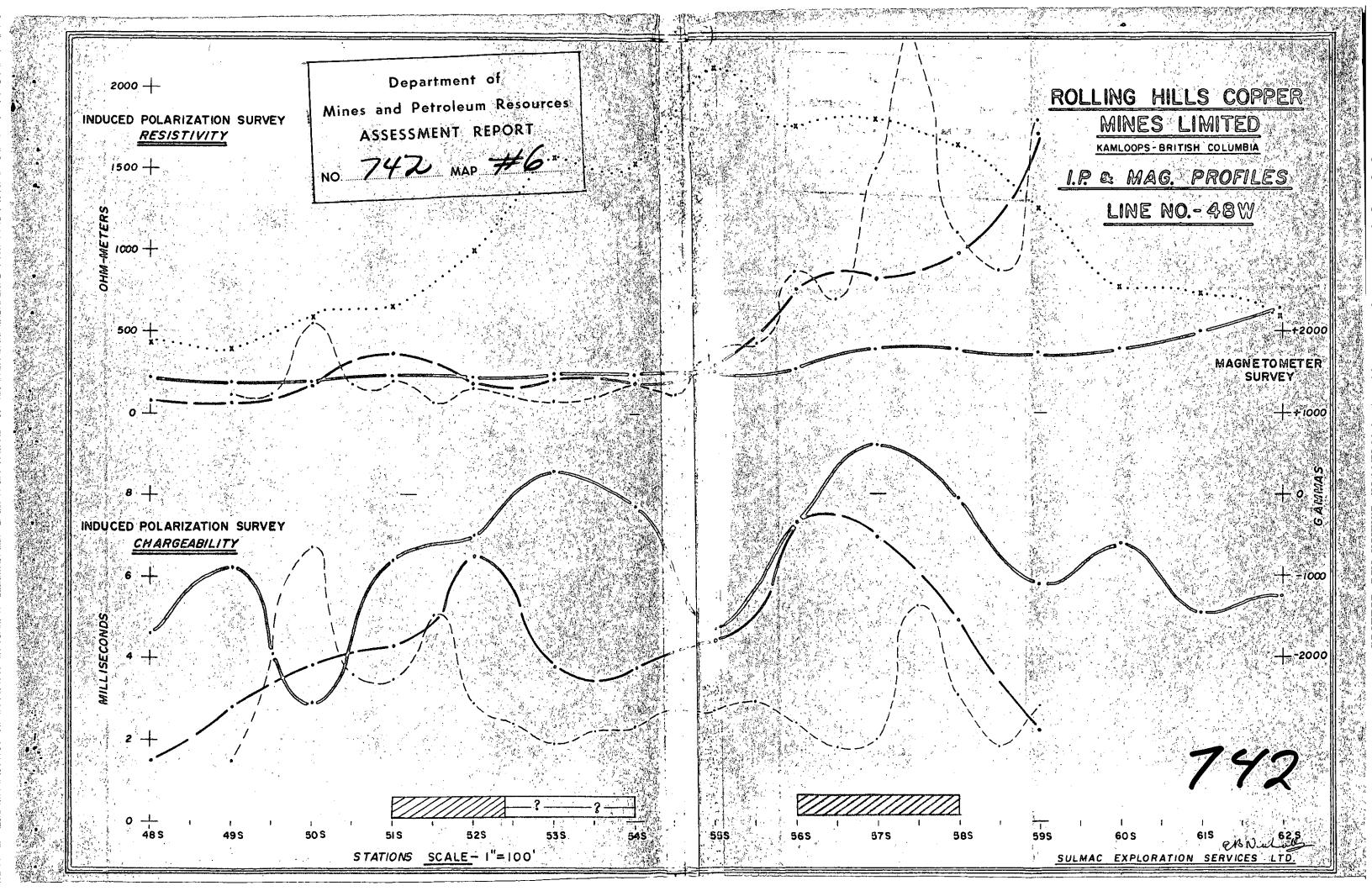


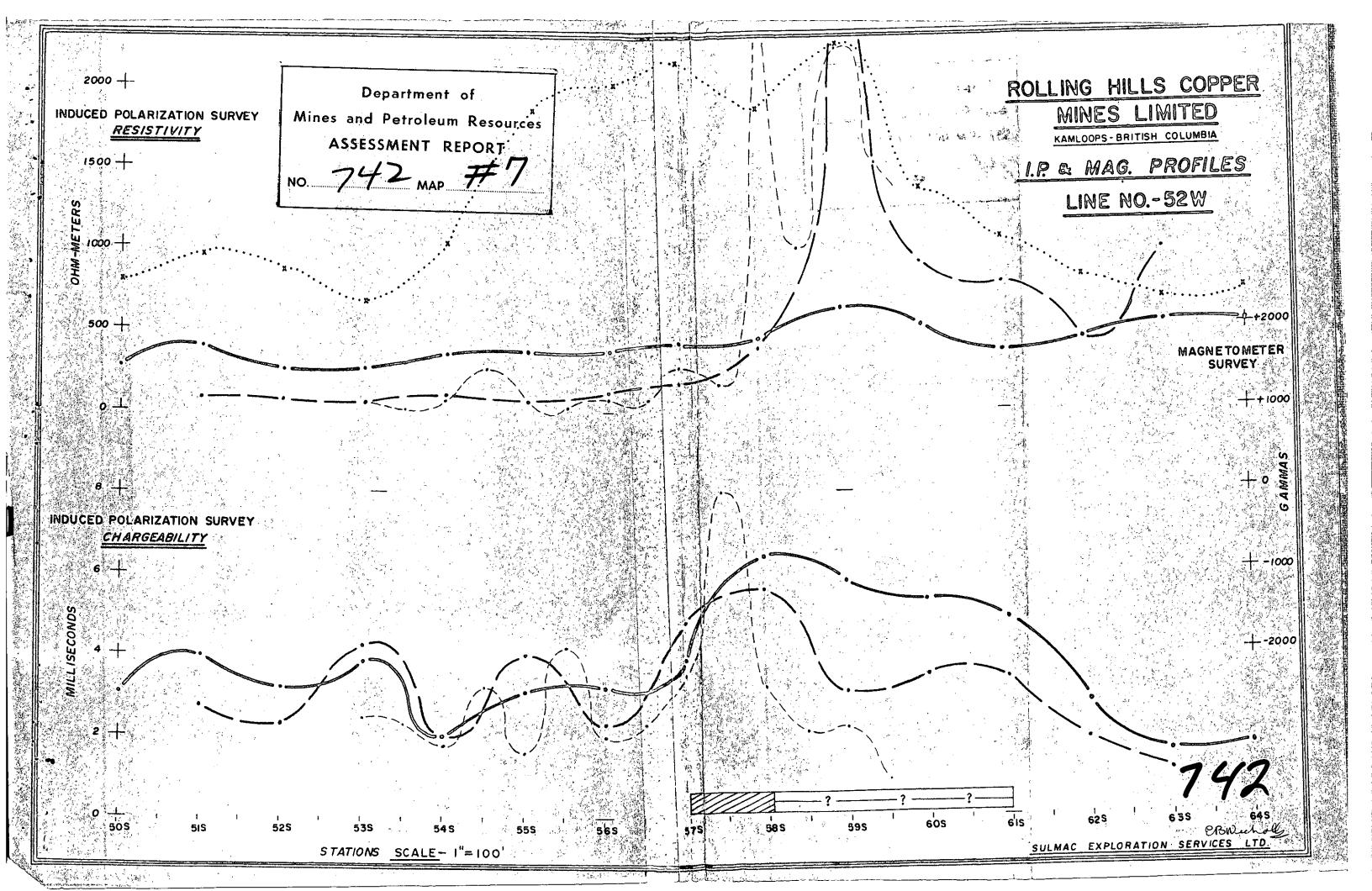


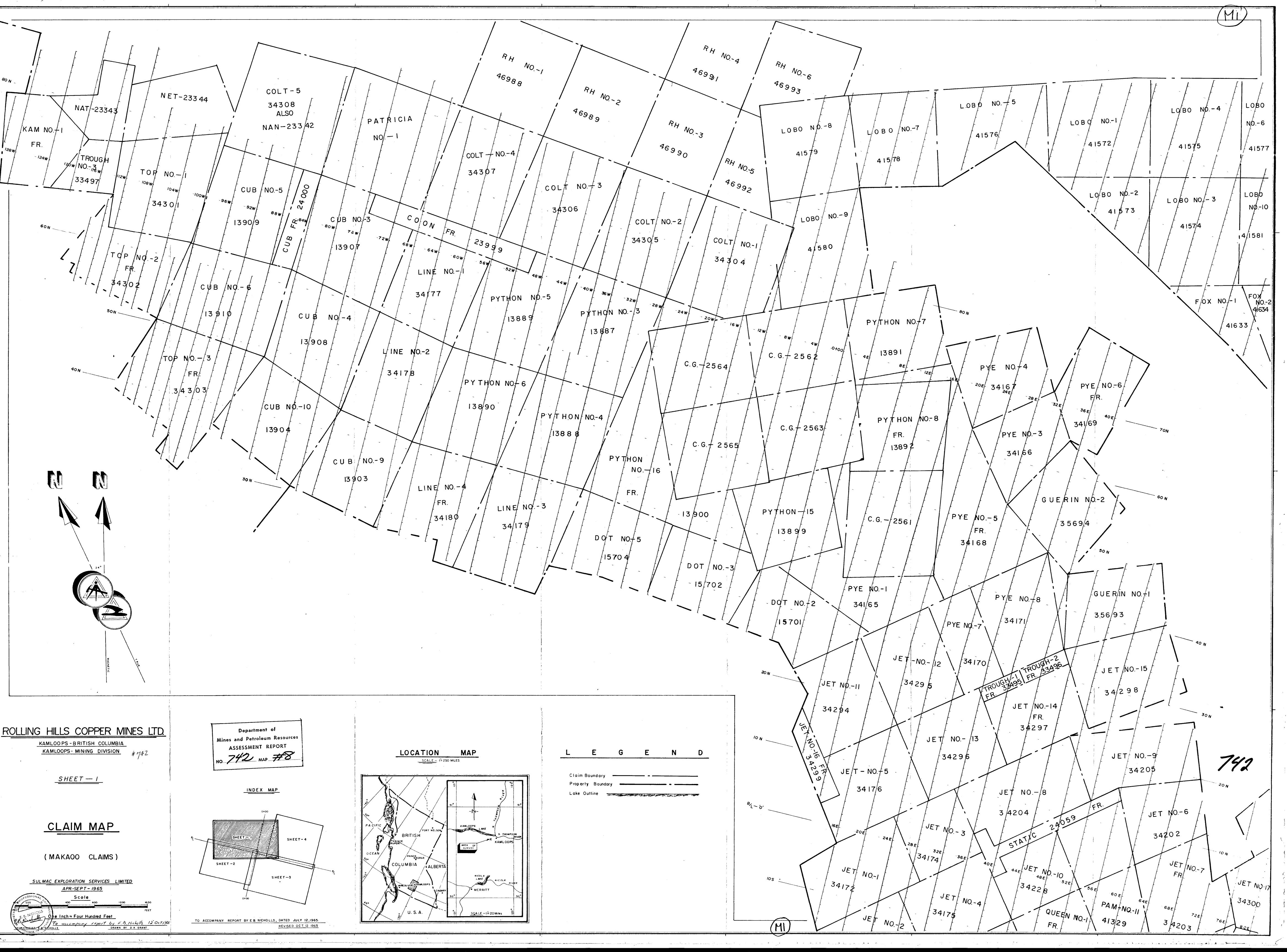


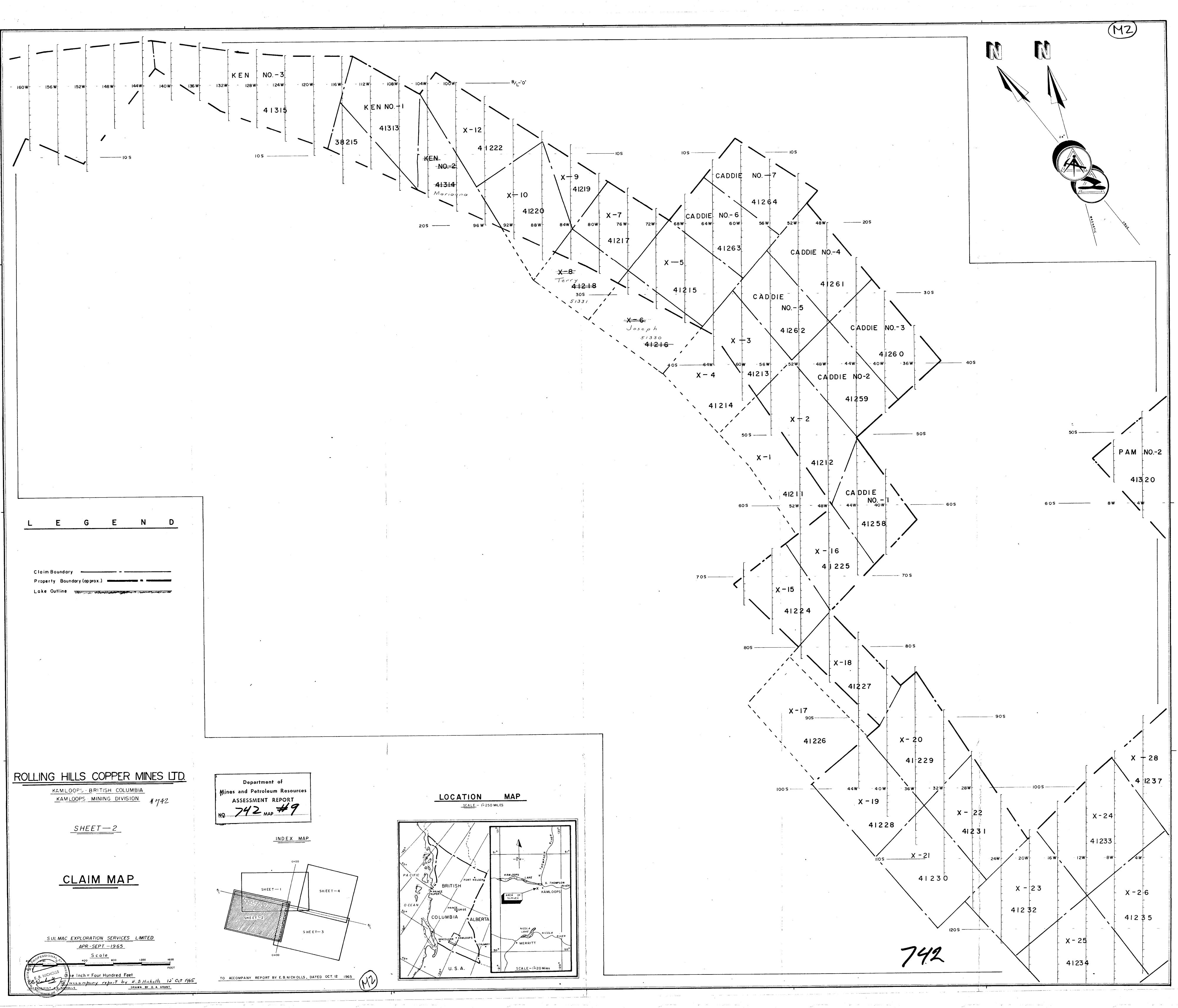










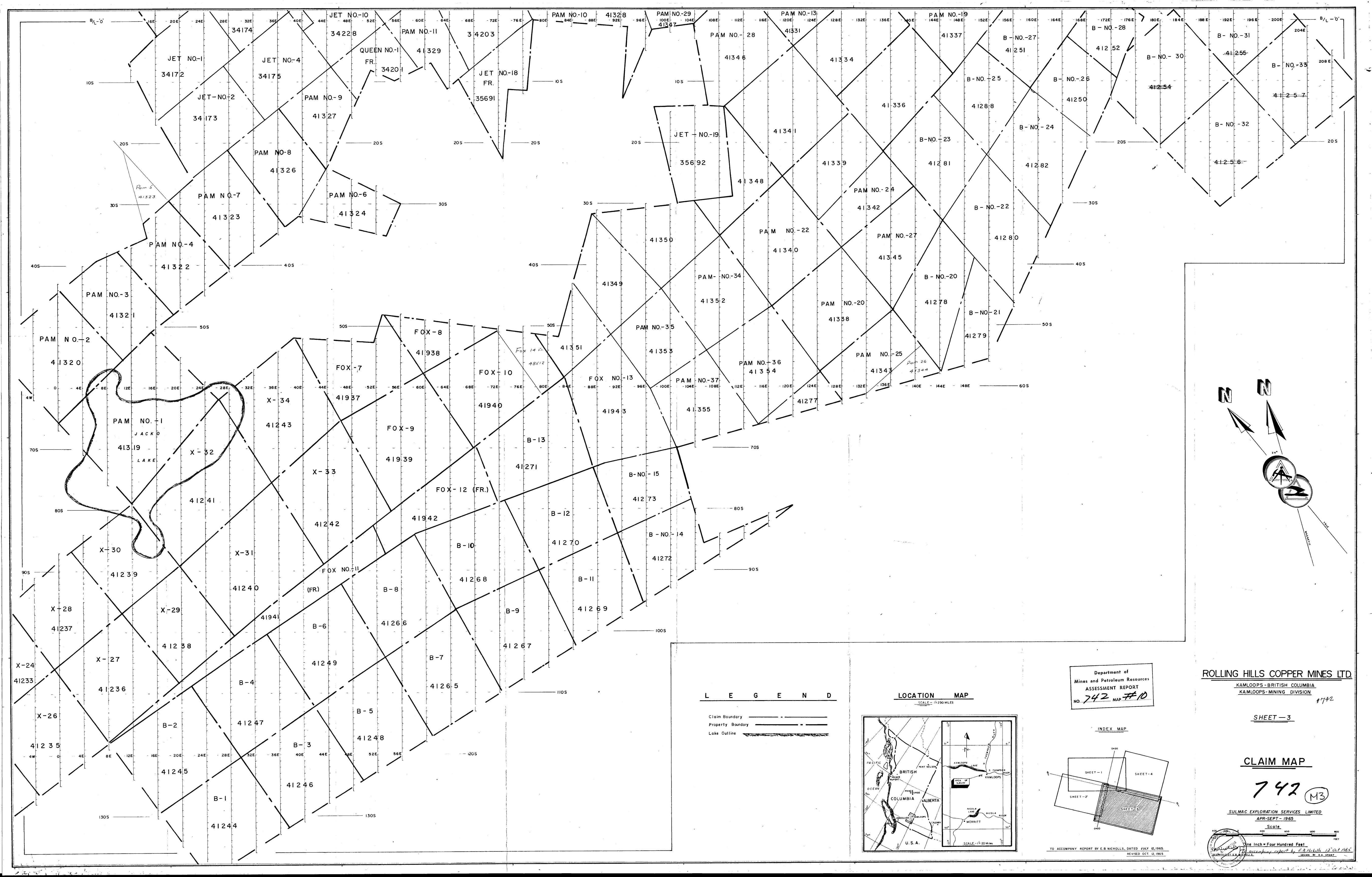


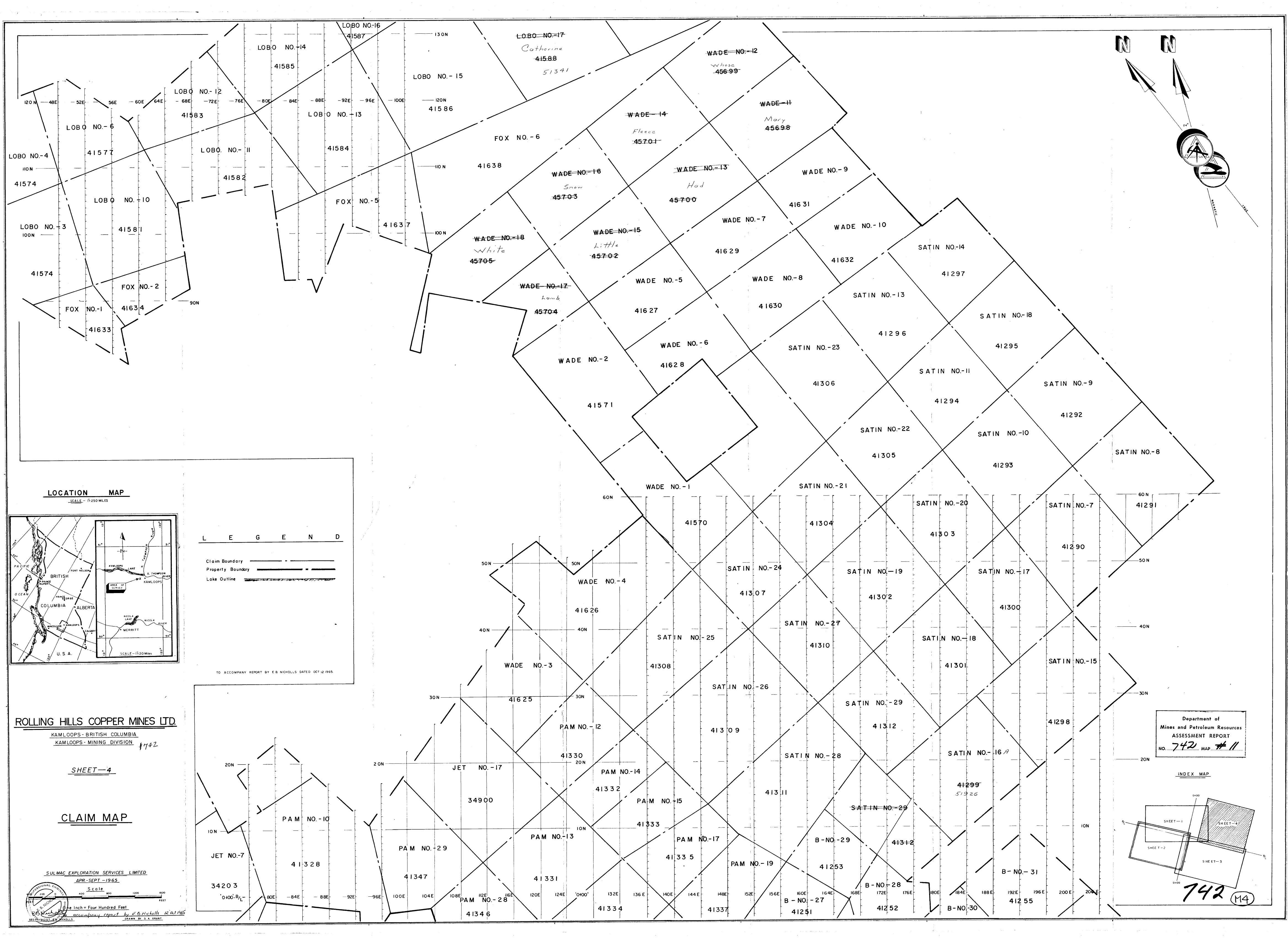
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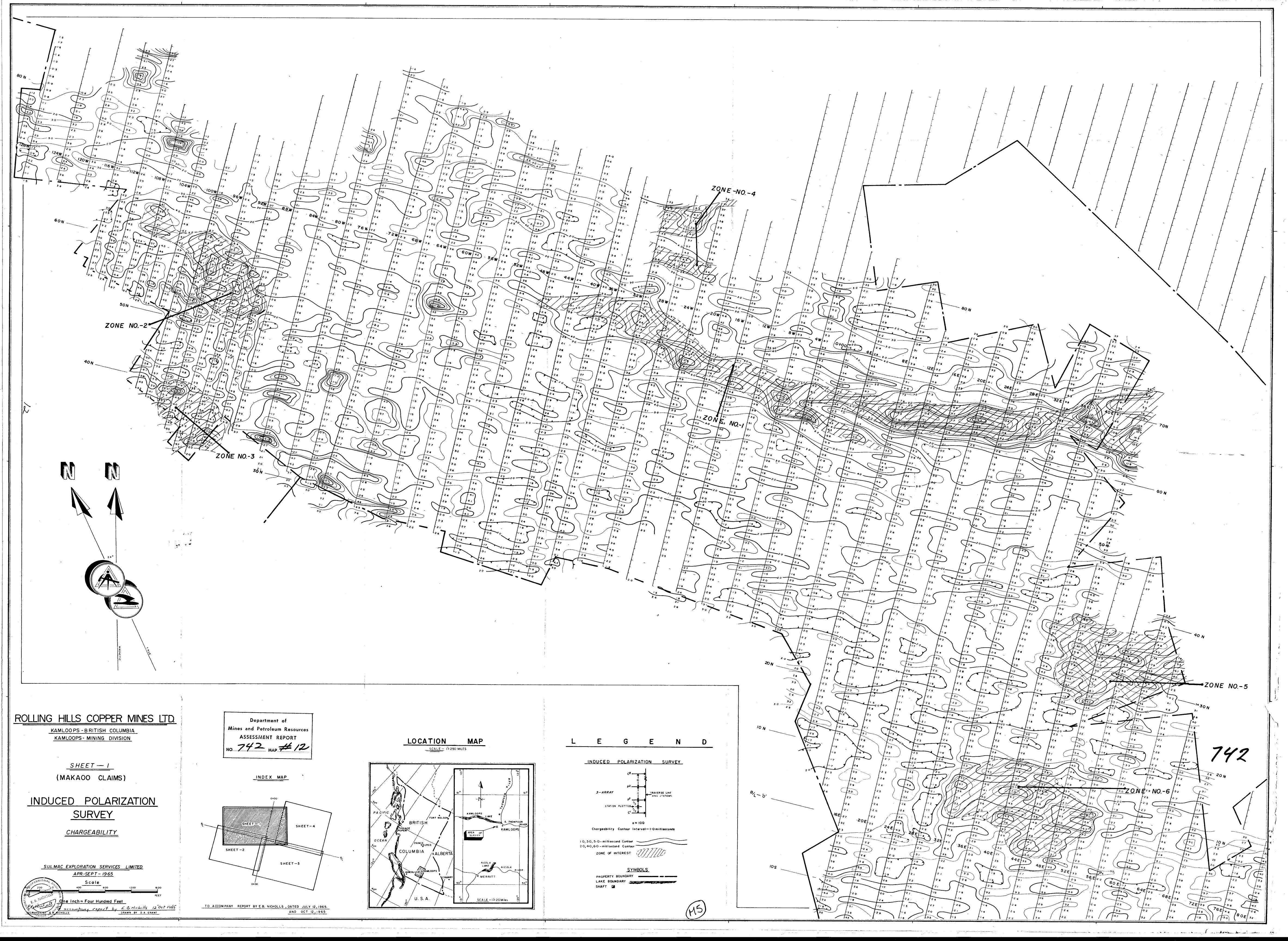
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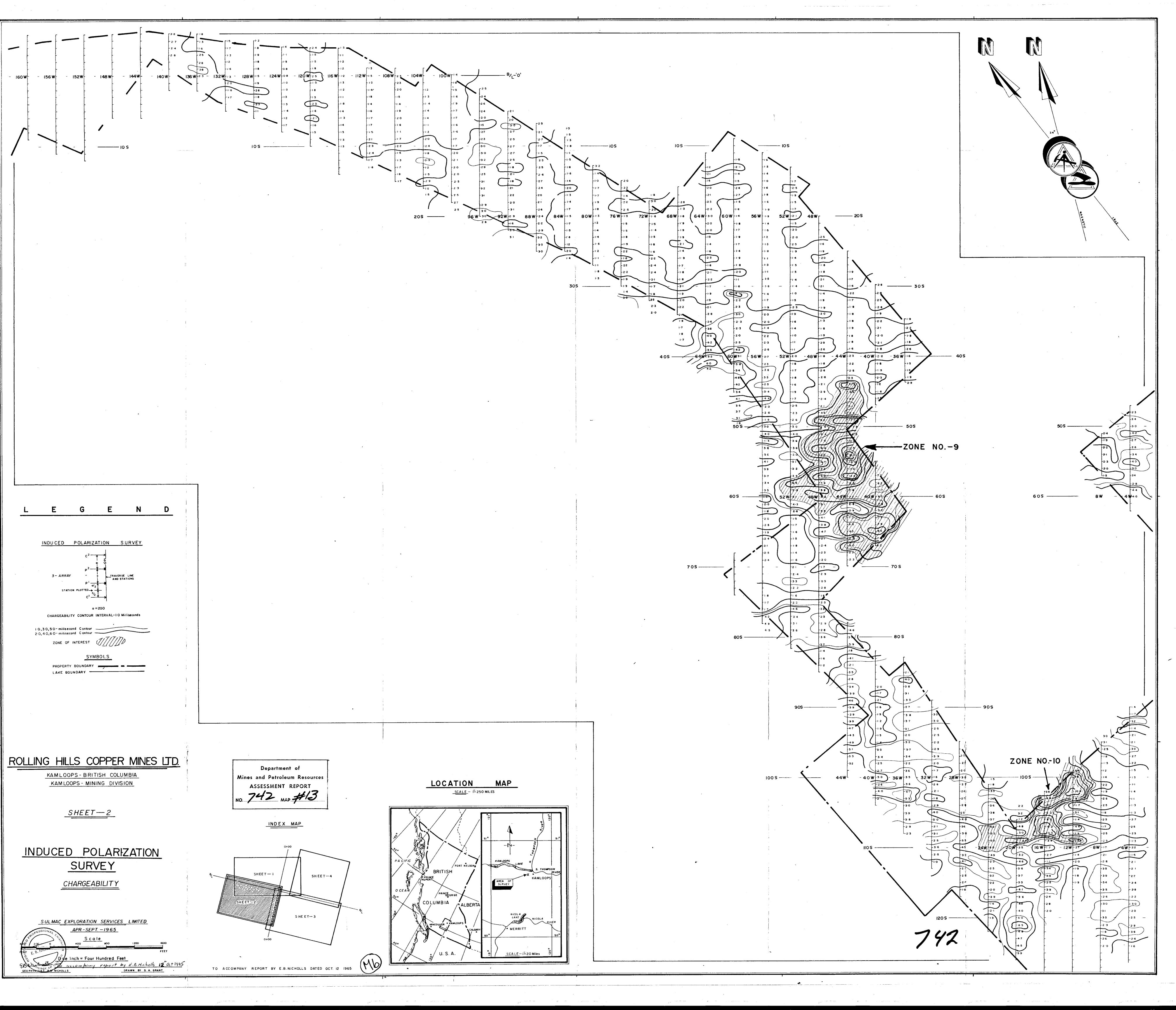
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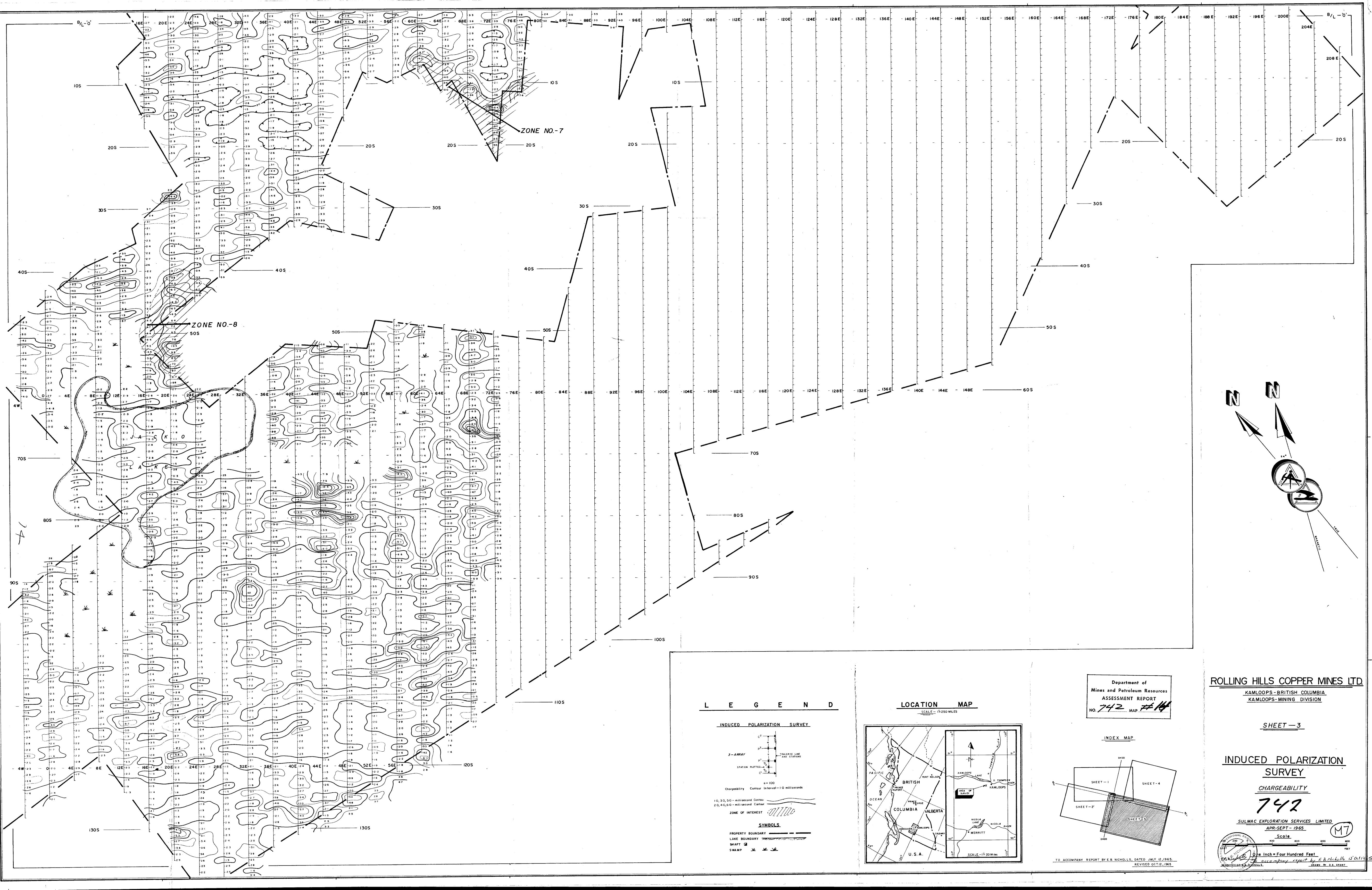
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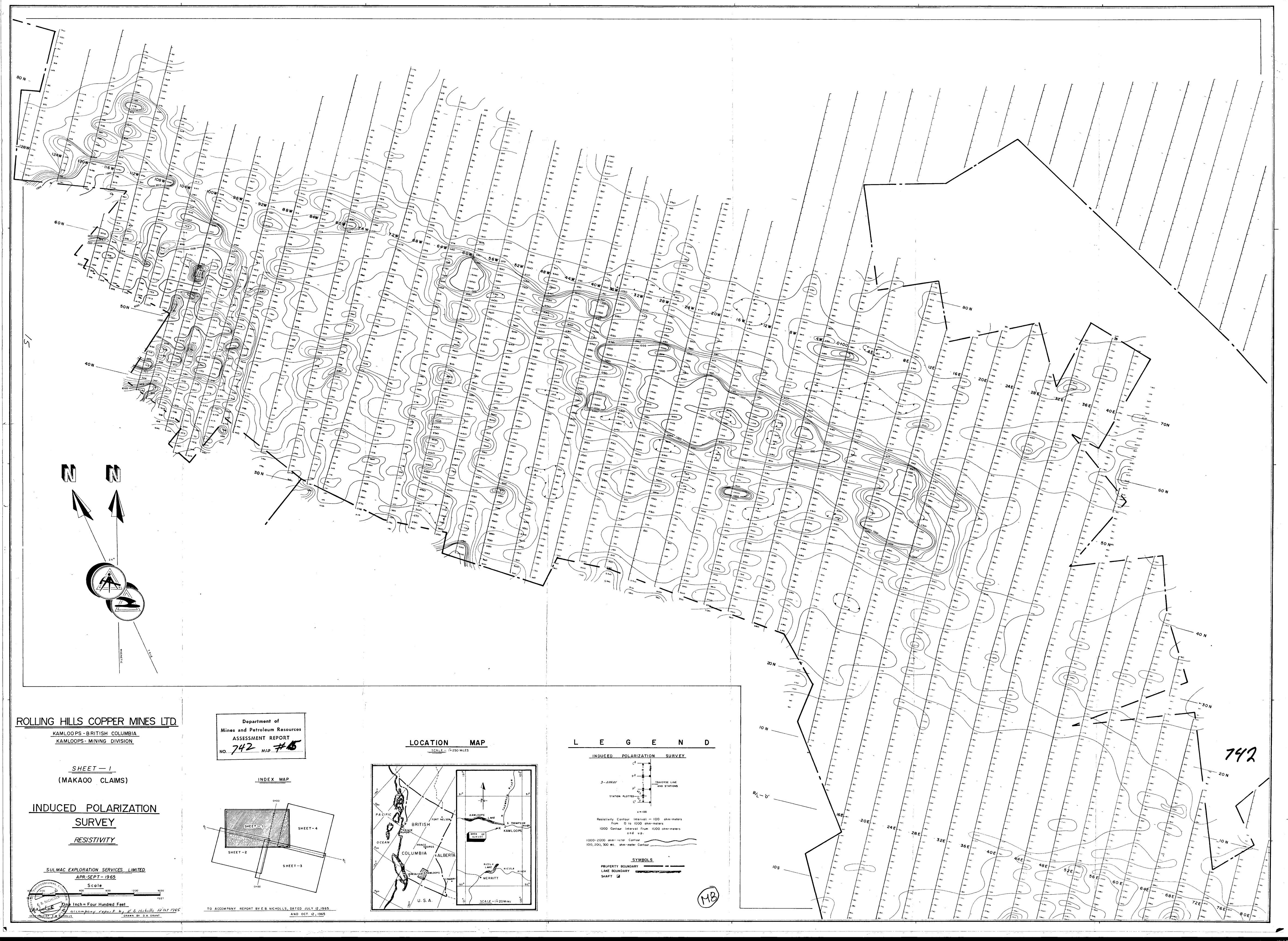
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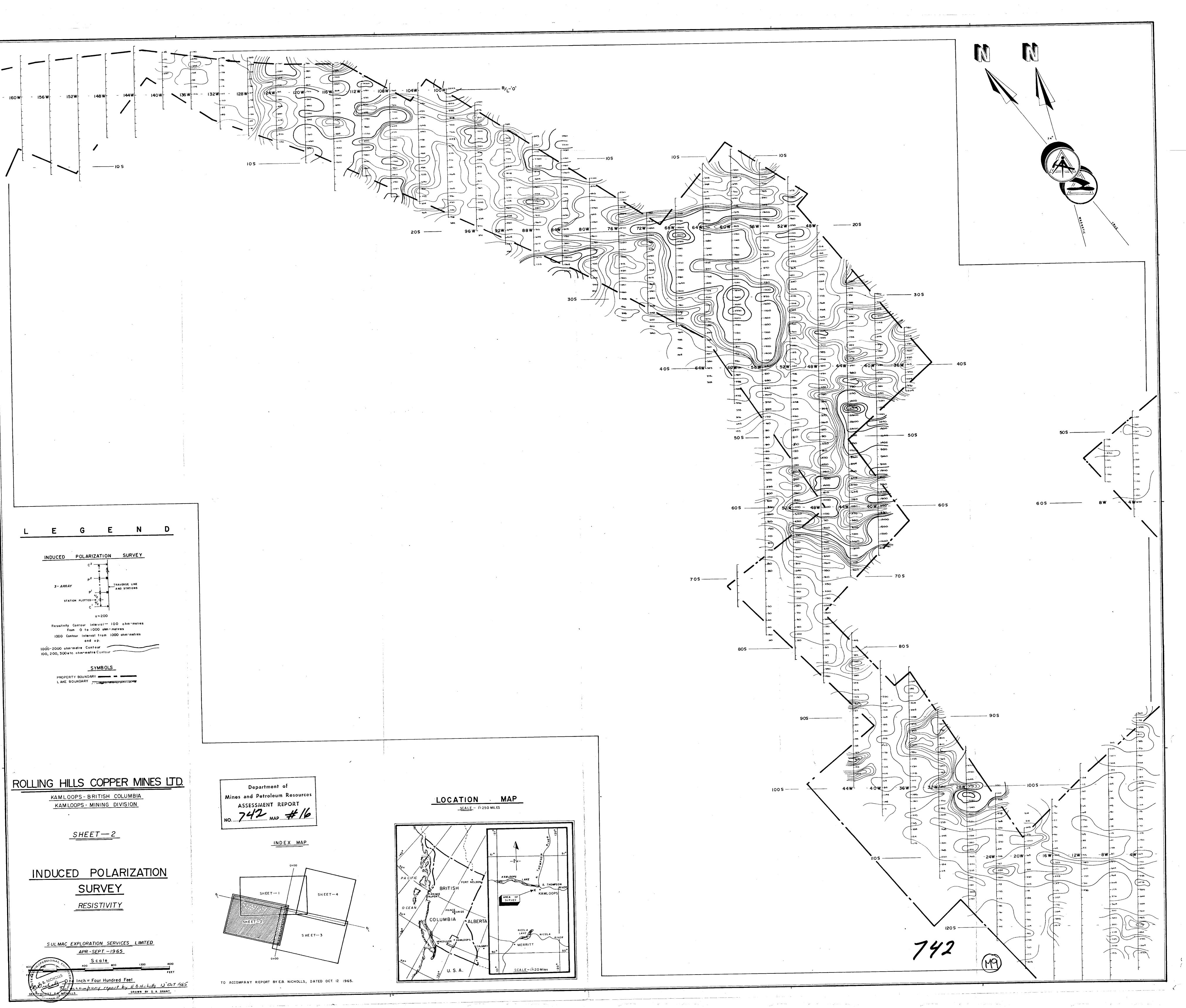
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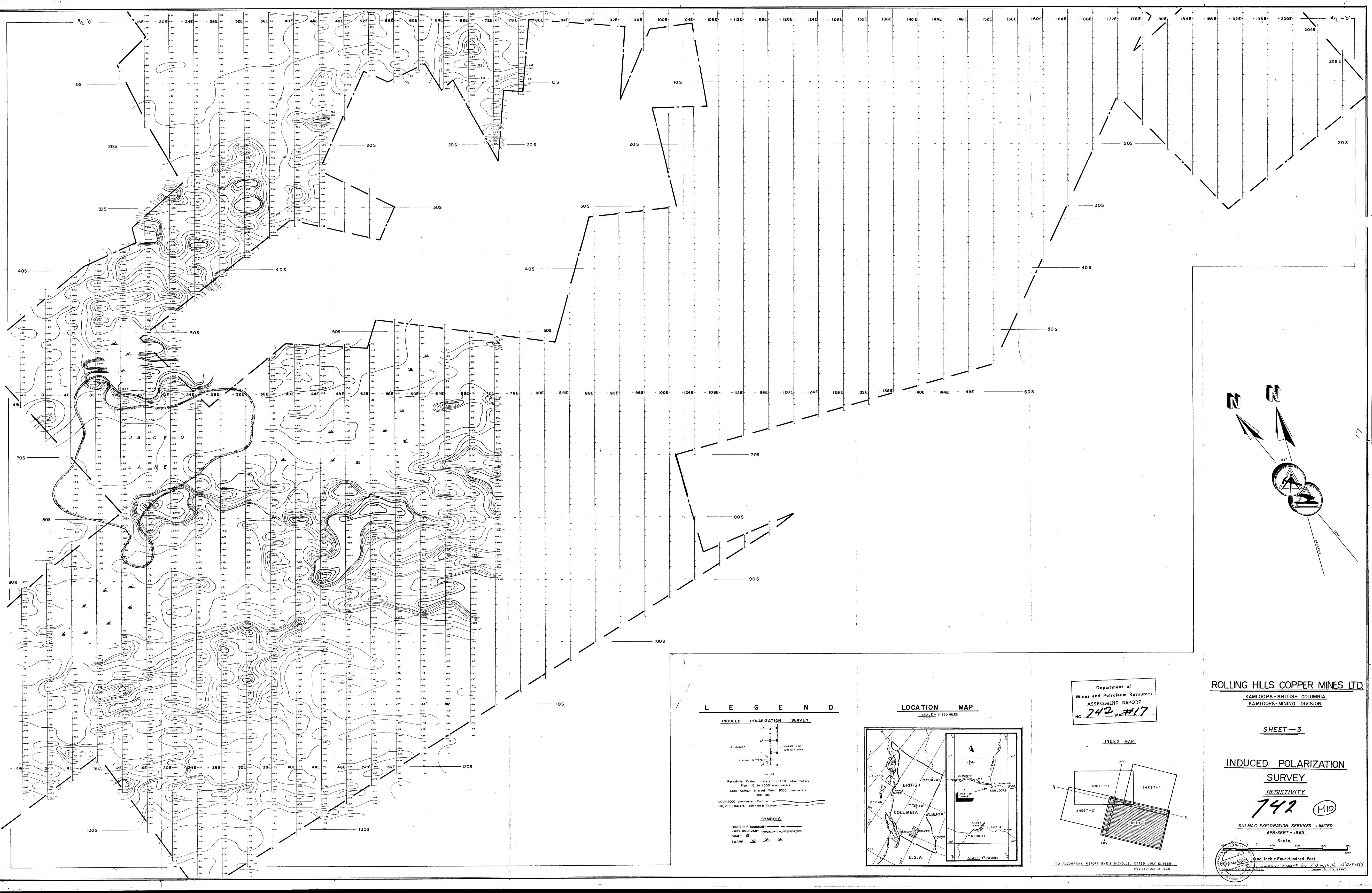


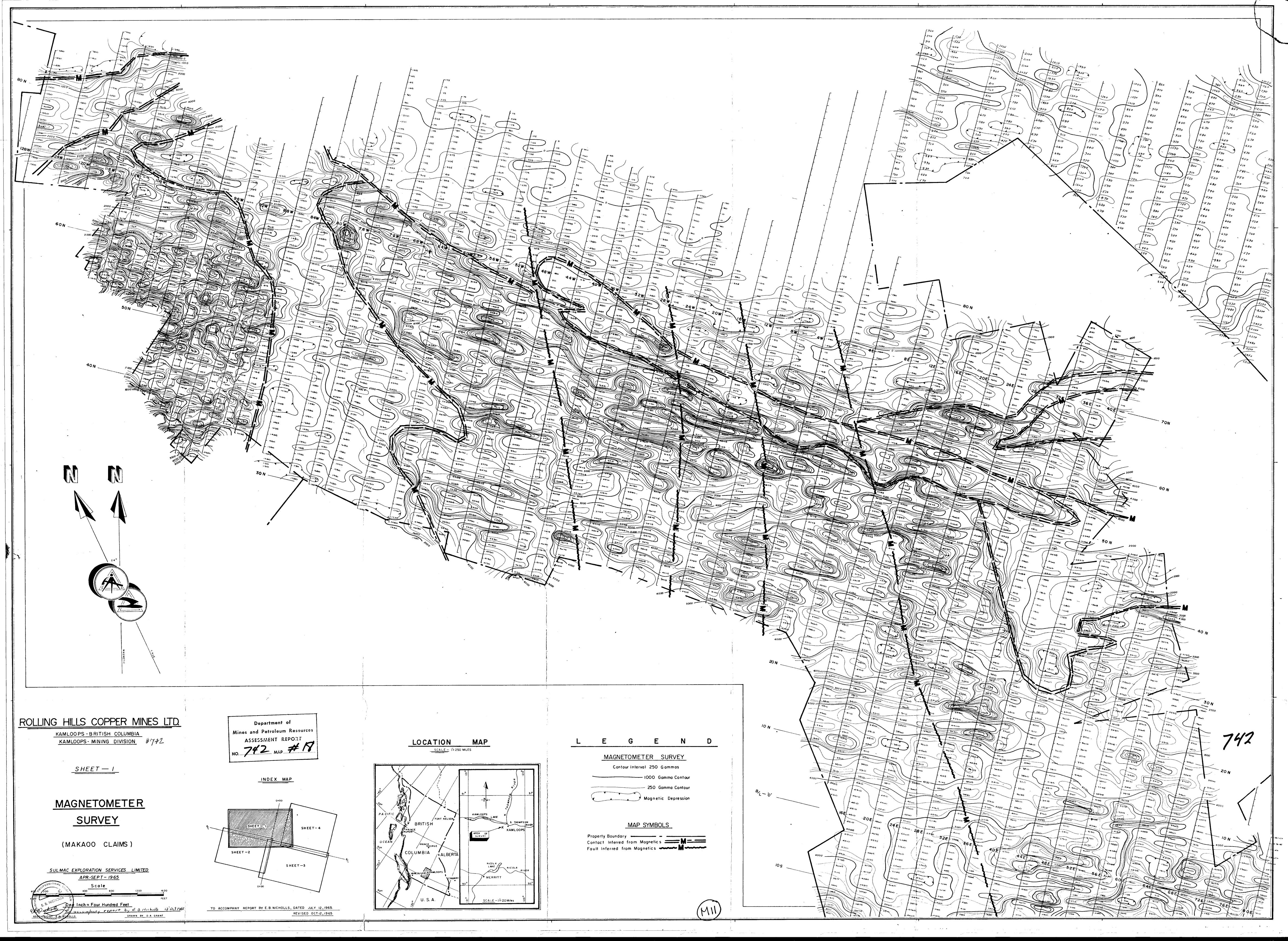


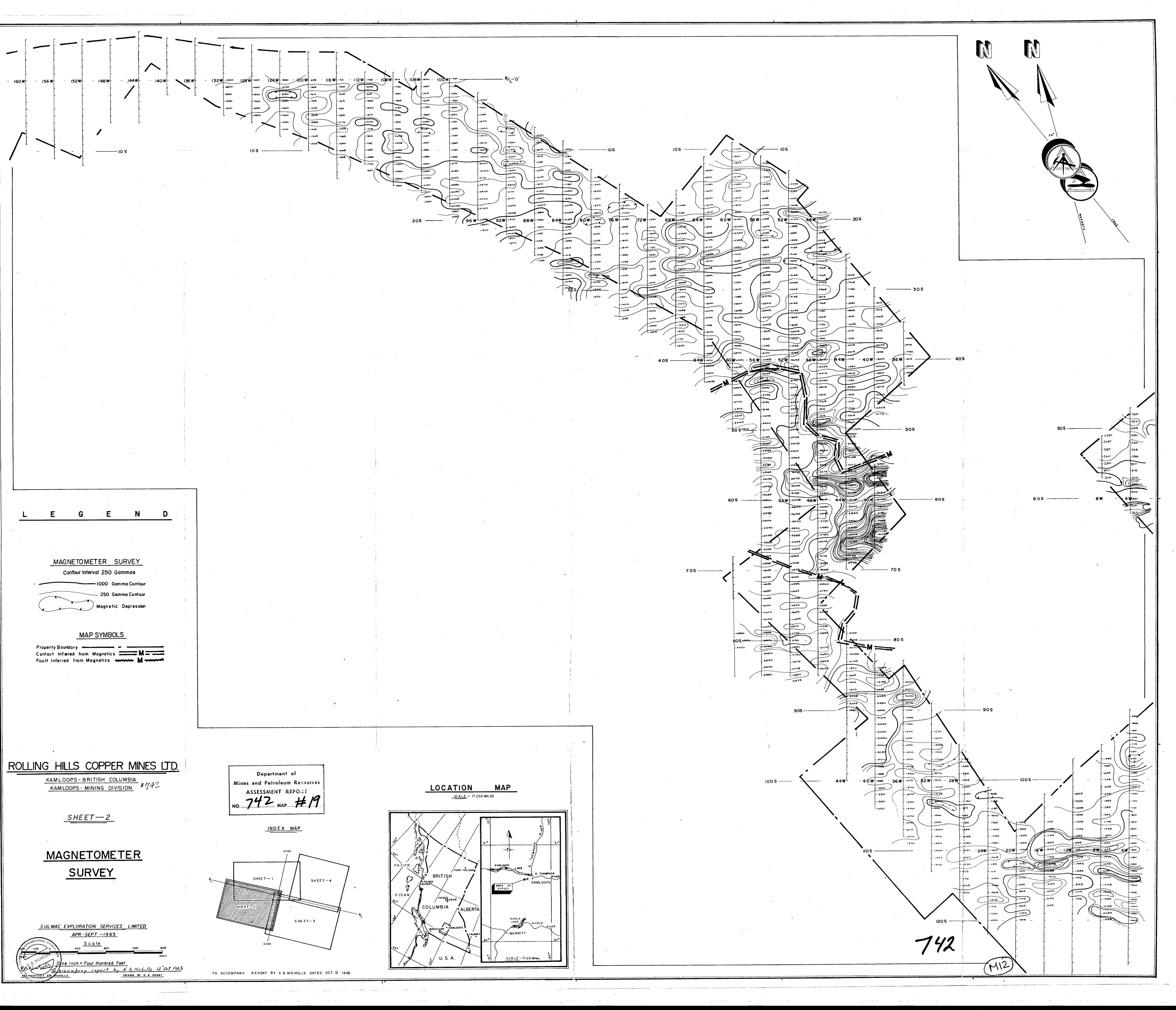


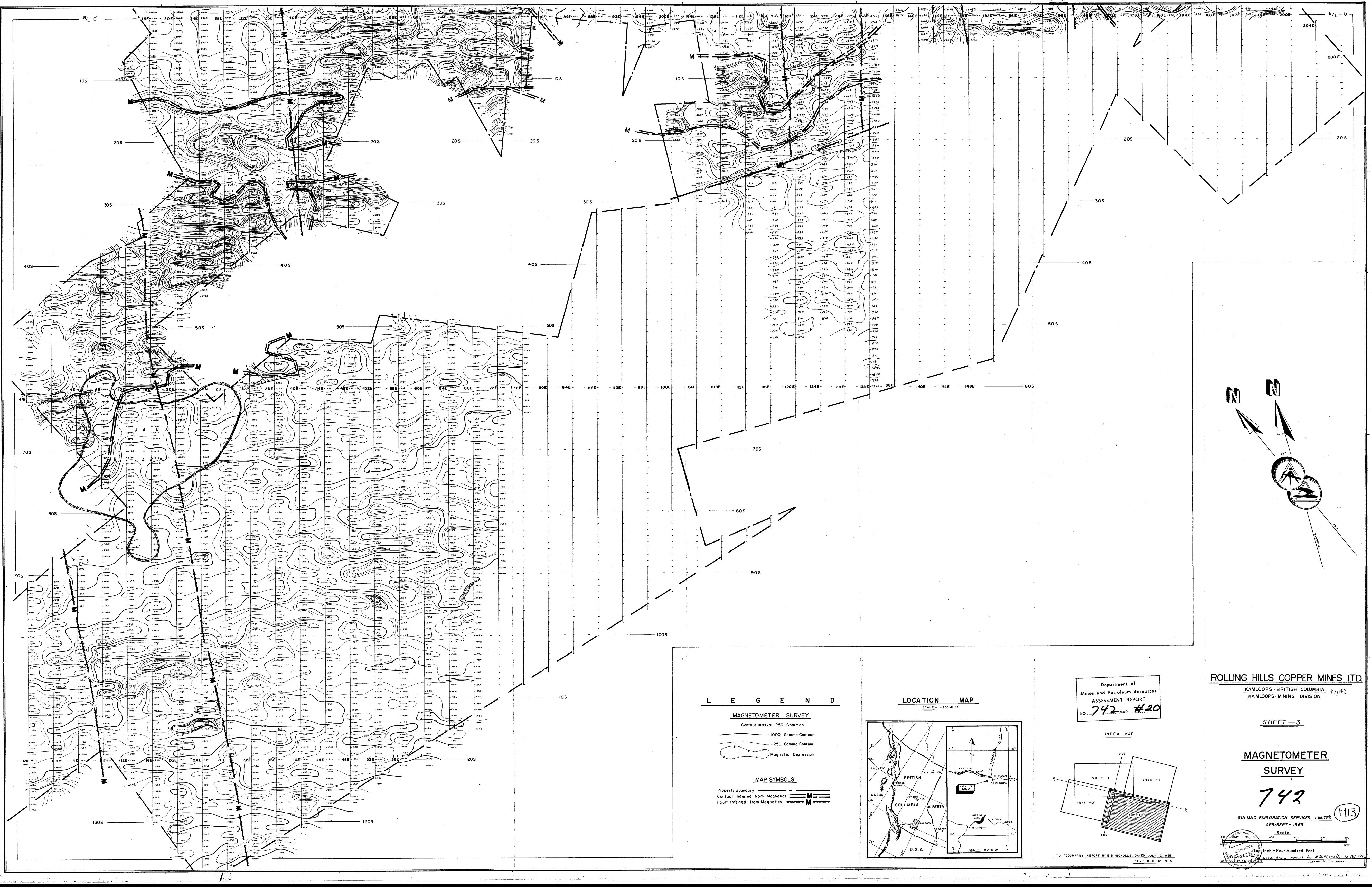


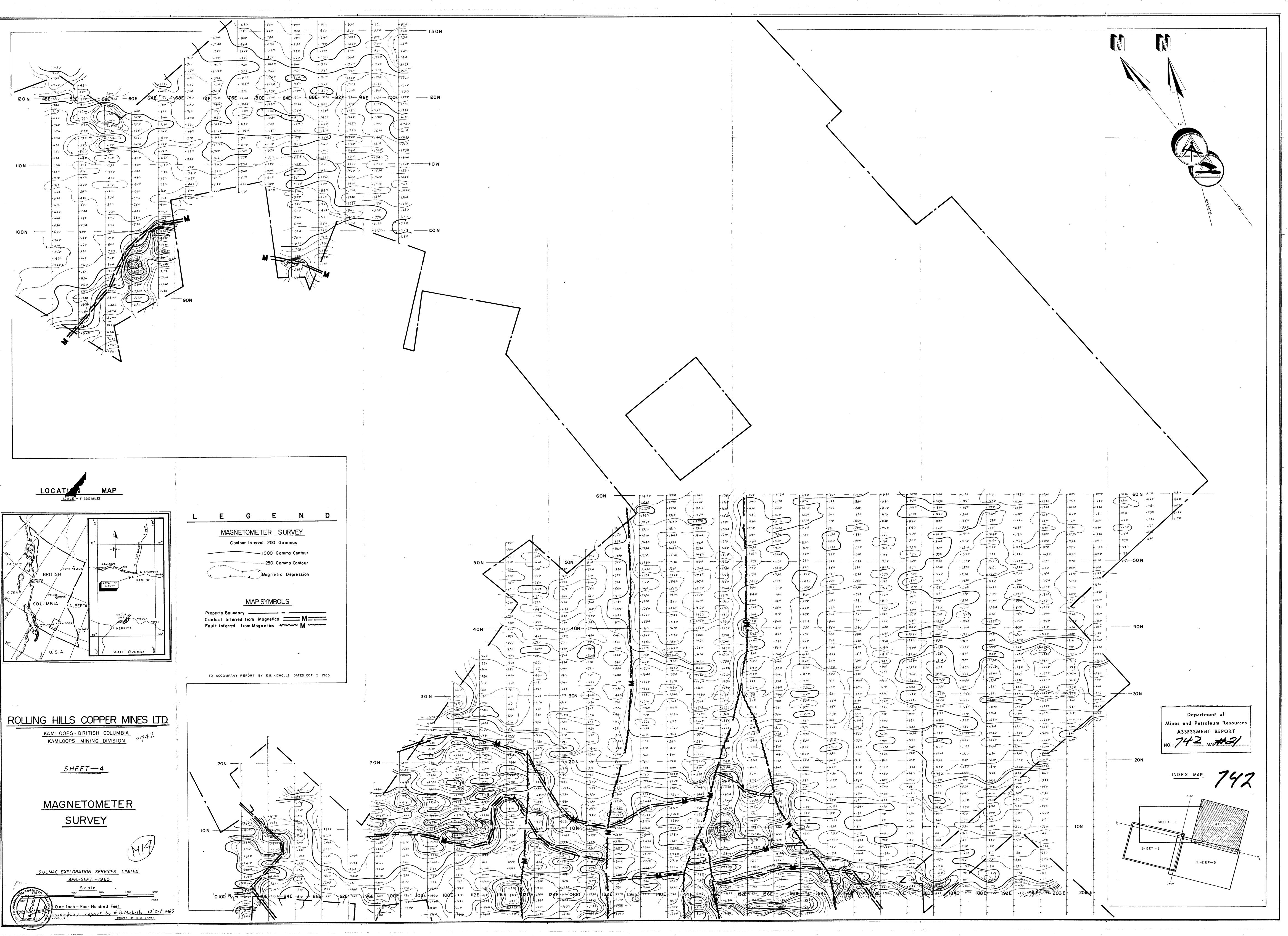












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