962

REPORT ON INDUCED POLARIZATION AND RESISTIVITY SURVEY OF THE PORCUPINE CLAIM GROUP MERRITT AREA, B.C. FOR AMALGAMATED RESOURCES LTD.

92 I/2E

BY

ROBERT A. BELL, Ph.D.

AND

D.B. SUTHERLAND

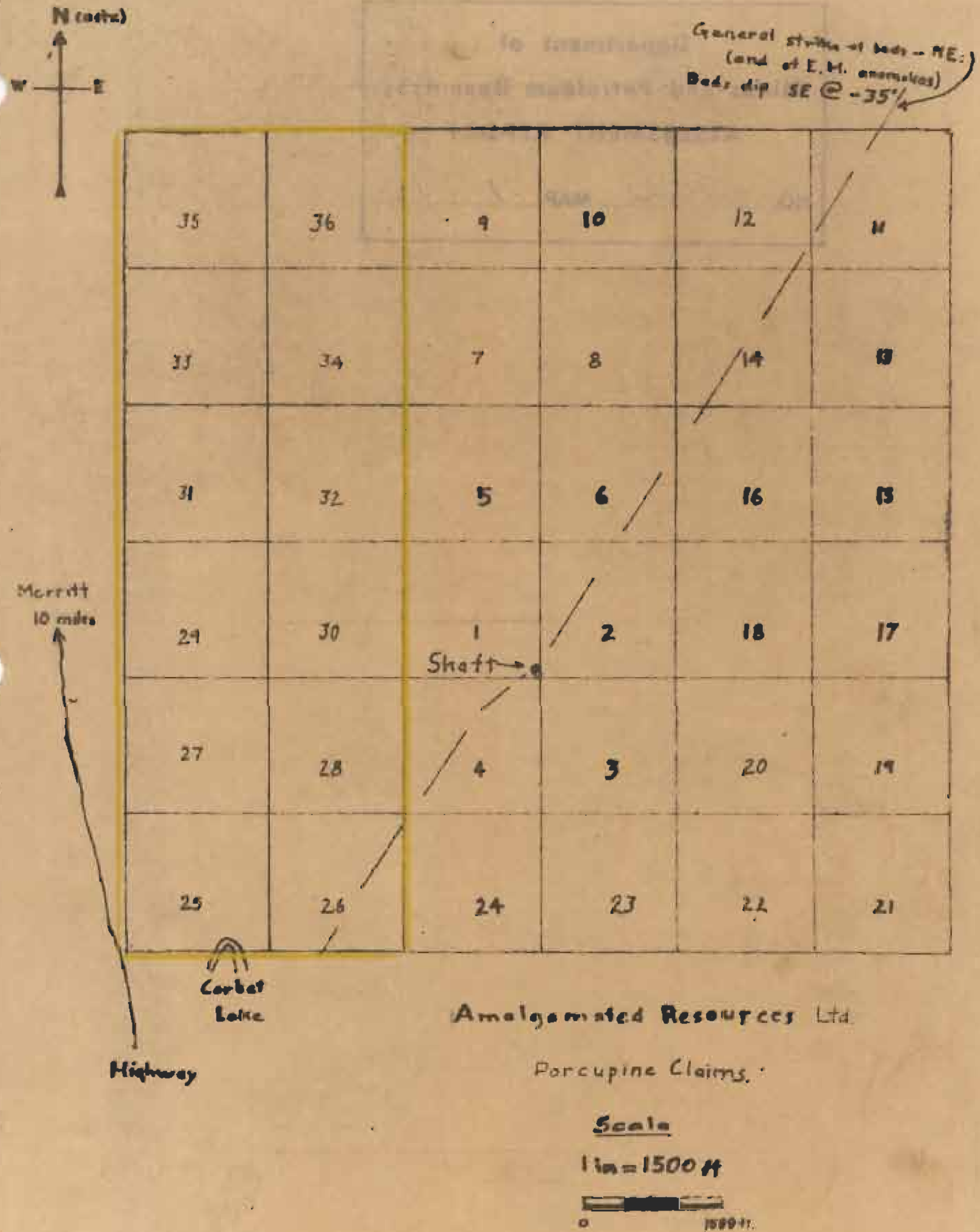
NAME AND LOCATION OF PROPERTY

PORCUPINE CLAIM GROUP, MERRITT AREA

NICOLA MINING DIVISION, B.C. 50°N, 120°W SE

DATE STARTED: OCTOBER 22, 1966

DATE FINISHED: DECEMBER 7, 1966



Sherwin F. Kelly

PHONE 682-6804

AMALGAMATED RESOURCES LTD. (N.P.L.)

REGISTERED OFFICE
850 W. HASTINGS ST.
VANCOUVER, B.C.

ALL CORRESPONDENCE:
814, 510 W. HASTINGS ST.
VANCOUVER 2, B.C.

21st April, 1967.

Mining Recorder,
Court House,
MERRITT, B.C.

Dear Sir:

Would you please apply one year's assessment work on Porcupine claims Nos. 25 to 36 inclusive, Record Nos. 20557 to 20568 as per the enclosed reports of the Induced Polarisation wok conducted on the whole of the Porcupine claims during the latter part of the year 1966. Of the total cost $13,509.92 we are applying $1,200.00 to cover assesment on the above 12 claims, the rest namely $12,000.00 odd will be applied at a later date on the Porcupine #1-24 and Porcupine #36-54.

We enclose certified cheque for $60.00 to cover recording. Thanking you for your co-operation.

Yours very truly,

Paul Poliszchuk

For AMALGAMATED RESOURCES LTD.

Encls:

INTERCONTINENTAL MINING DEVELOPMENT LTD.

IN AFFILIATION WITH MINE DEVELOPMENT ASSOCIATES

HEAD OFFICE
310 - 1390 ROBSON STREET
VANCOUVER 5, B.C.

TELEPHONE 684-5426
AREA CODE 604
CABLE: MINDEV, VANCOUVER

STATEMENT

January 1st, 1967

Reference: I.P. SURVEY
AMALGAMATED RESOURCES LTD.
Porcupine Claims,
Merritt, B.C.

P. Pelischuk
Amalgamated Resources Ltd., N.P.L.
918-510 West Hastings Street,
VANCOUVER 2, B.C.

PERIOD: October, November, December 1966	
49 Days Detail Surveying @ $250.00 per day	$12,250.00
5 Days Standby and Travel @ $80.00 per day	400.00
SUPPLIES:	67.08
Vehicle Rental	78.00
Telephone & Telegraph	265.10
Air Express (I.P. Reports)	10.24
2 Supervisory Trips: 4 days @ $100.00 per day	400.00
Freight & Brokerage	120.50
	$13,590.92

iMD INTERCONTINENTAL MINING DEVELOPMENT LTD.

IN AFFILIATION WITH MINE DEVELOPMENT ASSOCIATES

927-510 W. HASTINGS STREET,
VANCOUVER 2,
BRITISH COLUMBIA.

PHONE 684-5426
AREA CODE 604
CABLE: MINDEV, VANCOUVER

April 21st, 1967.

Mining Recorder,
Court House,
MERRITT, B.C.

Dear Sir:

In reference to the enclosed two geophysical reports and maps, you will also find attached to the report assessment details (page #8) and two Certificates relating to the qualifications of the interpreting personnel, namely Robert A. Bell Ph.D. and Don B. Sutherland, M.A.

Duly acting as President of Intercontinental Mining Development Ltd., I billed Amalgamated Resources Ltd. (N.P.L.) for a total of $13,509.92 to cover the cpsts of the IP. survey conducted on Amalgamated's Porcupine claim group, Merritt area, B.C.

Hoping that the above information meets with your requirements, I am

Yours very truly,
INTERCONTINENTAL MINING DEVELOPMENT LTD.

G.A. Brand
President.

GAB/d

REPORT ON

INDUCED POLARIZATION

AND RESISTIVITY SURVEY

OF THE

PORCUPINE CLAIM GROUP

MERRITT AREA, B. C.

FOR

AMALGAMATED RESOURCES LTD.

1. INTRODUCTION

At the request of Mr. Gordon Brand, Geological Consultant, we have carried out a combined induced polarization and resistivity survey of the Porcupine Claim Group, near Merritt, B. C., on behalf of Amalgamated Resources Limited. The property is in the Nicola Mining Division in the southwest quadrant of the one degree quadrilateral whose southeast corner is at 50° N, 120° W.

The property is largely or wholly underlain by rocks of the Nicola Group of Triassic age, consisting mainly of andesite flows with minor basalts, interbedded tuffs and flow breccias. The rocks have a general northeast strike and flat southeast dip (20° - 40°). Previous work has shown that several of the andesite flows are well mineralized with copper. Chalcopyrite is the most abundant mineral but native copper is also present in amygdules and thin fractures. Near the surface copper carbonates and secondary sulphides are also present. Pyrite may be absent or may occur as finely disseminated grains, but apparently is no more abundant than the copper minerals. The few short holes previously drilled near the inclined shaft suggest thicknesses of 5' - 15' averaging several per cent copper and possibly thicker zones of lower grade.

In view of the nature of the mineralization, a large volume of 2% - 4% metallic mineralization could be of economic importance and yet may give rise to relatively weak IP anomalies. The survey was carried out in November and early December of 1966 using a McPhar frequency-type IP system. Traverses were run at 300-foot intervals in a NW-SE direction, using 300-foot and 200-foot electrode separations.

2. PRESENTATION OF RESULTS

The induced polarization and resistivity results are shown on the following data plots in the manner described in the notes preceding this report.

Line	Electrode Intervals	Dwg. No.
1	200 Foot	IP 2620-1
2	200 Foot	IP 2620-2
0	300 Foot	IP 2620-3
4N	300 Foot	IP 2620-4
8N	300 Foot	IP 2620-5
12N	300 Foot	IP 2620-6
16N	300 Foot	IP 2620-7
20N	300 Foot	IP 2620-8
24N	300 Foot	IP 2620-9

Line	Electrode Intervals	Dwg. No.
24N; detail	300 Foot	IP 2620-10
28N	300 Foot	IP 2620-11
32N	300 Foot	IP 2620-12
36N	300 Foot	IP 2620-13
40N	300 Foot	IP 2620-14
40N; East part	200 Foot	IP 2620-15
40N; West part	200 Foot	IP 2620-16
43N	100 Foot	IP 2620-17
44N	300 Foot	IP 2620-18
44N; East part	200 Foot	IP 2620-19
44N; West part	200 Foot	IP 2620-20
48N	200 Foot	IP 2620-21
52N	200 Foot	IP 2620-22
56N	200 Foot	IP 2620-23
60N	200 Foot	IP 2620-24

Enclosed with this report is Dwg. Misc. 4280, a plan map of the grid at a scale of 1" = 500'. The definite and possible induced polarization anomalies are indicated by solid and broken bars respectively on this plan map as well as the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

Since the induced polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the spread length; i.e. when using 200 foot spreads the position of a narrow sulphide body can only be determined to lie between two stations 200 feet apart. In order to locate sources at some depth, larger spreads must be used, with a corresponding increase in the uncertainties of location. Therefore, while the center of the indicated anomaly probably corresponds fairly well with source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

3. DISCUSSION OF RESULTS

In general the IP results show several definite anomalies as well as a large number of weaker responses that are not as well-defined. The background effects are somewhat variable but are generally quite low, with Metal Factor values ranging from about 1 to 5 (see Line 60N) and resistivities of 200 to 500. On many traverses there are zones several hundred feet wide with M.F. values of 10 to 20. These have been shown on the data plots and plan as "possible" anomalies. Presumably they are caused by wide zones of weakly disseminated metallic mineralization, which may be magnetite in the basaltic flows or sulphides of possible economic importance.

Many of the anomalies appear to correlate into well defined zones and these have been indicated on the plan. However, the weak effects on the northwest section of the grid do not lend themselves to any simple grouping.

Zone A occurs several hundred feet east of the shaft, beyond the area of previous workings, and trends northeast from Line 36N to Line 60N. Previously a drill hole was recommended to test this zone on Line 43N, to be drilled NW along the line at -45° from 7+00E. This zone is stronger and deeper on Line 56N and should also be tested here, with the hole located to pass under 12+00E at a vertical depth of 200 feet.

Zone B is parallel to Zone A and a few hundred feet to the east. The best response was obtained on Line 60N near Station 20E; assuming an easterly dip a test hole should be drilled west along the line from 23+00E but from the IP data the source could be dipping west. If so, a second hole would be required, drilled east along the line from about 18+00E.

Zone C is on the eastern parts of Lines 36N to at least 52N. It is a more complex feature with a broad, weak extension to the east on Lines 40N and 44N. The initial data with 300-foot electrode intervals on Line 40N suggested a shallow, more concentrated source; using 200-foot intervals the source appears to be broader and more complex. Consequently, a drill test is recommended on Line 48N, drilling west along the line from 43+00E.

Zone D is 1500 to 2000 feet east of the Base Line, from 20N to at least 28N. It is broad and not as well defined as the preceding zones, but a test hole might be drilled on Line 24N from about 20+00W.

Zone E extends southwest from the shaft along the Base Line to at least Line 20N. Only very minor effects were measured near the shaft on Lines 43N and 44N but to the south the anomalies became stronger. The best results are at 0 to 3E on Line 24N and 3E to 6E on Line 20N. One or both of these should be tested with an angle hole to pass under the center of the anomaly at a depth of 150 - 200 feet.

Zone F strikes north-south from Line 0 to Line 8N and may extend much farther to the north but the correlation is uncertain. Definite anomalies were found at 18W, Line 4N and 21W to 24W, Line 8N; one or both should be drilled to determine the nature of the source.

Zone G is an indefinite feature trending northeasterly just west of the Base Line. For the most part it is weak but there are moderate anomalies at about 20W on Lines 40N, 44N and 48N. An angle hole should be drilled at 15W, Line 44N.

There are definite anomalies at 24W and 32W on Line 0 that are of interest but they appear to be isolated. In addition there are several moderate anomalies in the northwest section but these might be left until the more definite zones have been tested.

4. SUMMARY AND RECOMMENDATIONS

The induced polarization survey has indicated a large number of weak to moderate anomalies. Many of these have been correlated into throughgoing zones, as shown on the accompanying plan. In view of the nature of the known copper mineralization, even weak anomalies may be of considerable economic importance and consequently a thorough drill test is recommended. The initial test holes have been given in the preceding section, all to be drilled westerly along the traverse lines at -45° for about 300 feet.

It is interesting that only very weak IP effects were measured over the known copper zone on Lines 43N and 44N. Presumably many of the other anomalies must represent greater volumes of metallic mineralization and drilling is definitely warranted to evaluate them. In view of the large number of anomalies it would be beneficial to have supplementary information to assist in evaluating them. Detailed geologic mapping might be of assistance but consideration should also be given to running one or two geochemical profiles across each IP zone.

On completion of the test holes described in the preceding section, the results should be re-appraised in order to plan any additional drilling that might be warranted.

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

Robert A. Bell.

Robert A. Bell,
Consulting Geologist.

Don B. Sutherland Per. N.L.,

Don B. Sutherland,
Consulting Geophysicist.

Gordon A. Brand,
President.

Dated: December 21, 1966

ASSESSMENT DETAILS

PROPERTY: Porcupine Property

MINING DIVISION: Nicola

SPONSOR: Amalgamated Resources

PROVINCE: British Columbia

LOCATION: Merritt Area

TYPE OF SURVEY: Induced Polarization

OPERATING MAN DAYS:	190	DATE STARTED:	October 22, 1966
EQUIVALENT 8 HR. MAN DAYS:	285	DATE FINISHED:	December 7, 1966
CONSULTING MAN DAYS:	3	NUMBER OF STATIONS:	650
DRAUGHTING MAN DAYS:	7	NUMBER OF READINGS:	3548
TOTAL MAN DAYS:	295	MILES OF LINE SURVEYED:	28.5

CONSULTANTS:
R. A. Bell, 50 Hemford Crescent, Don Mills, Ontario.
D. B. Sutherland, Apt. 807, 43 Thorncliffe Park Drive, Toronto 17, Ontario.

FIELD TECHNICIANS:
P. Mark, 61 Borden Street, Toronto 4, Ontario.
G. Lang, 112 Langdon Avenue, Toronto 9, Ontario.

3 Helpers - supplied by client.

DRAUGHTSMEN:
K. Bingham, 78 Hubbard Blvd., Toronto 13, Ontario.
B. Marr, 19 Kenewen Court, Toronto 16, Ontario.
P. Coulson, 6 Paradise Avenue, Markham, Ontario.
N. Lade, Apt. 503, 35 Esterbrooke Ave., Willowdale, Ontario.

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

Robert A. Bell

Robert A. Bell,
Consulting Geologist.

Dated: December 21, 1966

CERTIFICATE

I, Robert Alan Bell, of the City of Toronto, Province of Ontario, do hereby certify that:

1. I am a geologist residing at 50 Hemford Crescent, Don Mills, (Toronto) Ontario.

2. I am a graduate of the University of Toronto in Physics and Geology with the degree of Bachelor of Arts (1949); and a graduate of the University of Wisconsin in Economic Geology with the degree of Ph.D. (1953).

3. I am a member of the Society of Economic Geologists and a fellow of the Geological Association of Canada.

4. I have been practising my profession for over fifteen years.

5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Amalgamated Resources Ltd.

6. The statements made in this report are based on a study of published geological literature and unpublished private reports.

Dated at Toronto

This 21st day of December, 1966

Robert A. Bell.

Robert A. Bell, Ph.D.

CERTIFICATE

I, Don Benjamin Sutherland of the City of Toronto, Province of Ontario, do hereby certify that:

1. I am a geophysicist residing at Apartment 807, 43 Thorncliffe Park Drive, Toronto 17, Ontario.

2. I am a graduate of the University of Toronto in Physics and Geology with the degree of Bachelor of Arts (1954); and a graduate of the University of Toronto in Physics with the degree of Master of Arts (1955).

3. I am a member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.

4. I have been practising my profession for over seven years.

5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Amalgamated Resources Ltd.

6. The statements made in this report are based on a study of published geological literature and unpublished private reports.

Dated at Toronto

This 21st day of December, 1966

Don B. Sutherland per N.Y.

Don B. Sutherland, M.A.

McPHAR GEOPHYSICS LIMITED

NOTES ON THE THEORY OF INDUCED POLARIZATION AND THE METHOD OF FIELD OPERATION

Induced Polarization as a geophysical measurement refers to the blocking action or polarization of metallic or electronic conductors in a medium of ionic solution conduction.

This electro-chemical phenomenon occurs wherever electrical current is passed through an area which contains metallic minerals such as base metal sulphides. Normally, when current is passed through the ground, as in resistivity measurements, all of the conduction takes place through ions present in the water content of the rock, or soil, i.e. by ionic conduction. This is because almost all minerals have a much higher specific resistivity than ground water. The group of minerals commonly described as "metallic", however, have specific resistivities much lower than ground waters. The induced polarization effect takes place at those interfaces where the mode of conduction changes from ionic in the solutions filling the interstices of the rock to electronic in the metallic minerals present in the rock.

The blocking action or induced polarization mentioned above, which depends upon the chemical energies necessary to allow the ions to give up or receive electrons from the metallic surface, increases with the time that a d.c. current is allowed to flow through the rock; i. e. as ions pile up against the metallic interface the resistance to current flow increases. Eventually, there is enough polarization in the form of excess ions at the interfaces to effectively stop all current flow through the metallic particle. This polarization takes place at each of the infinite number of solution-metal interfaces in a mineralized rock.

When the d. c. voltage used to create this d. c. current flow is cut off, the Coulomb forces between the charged ions forming the polarization cause them to return to their normal position. This movement of charge creates a small current flow which can be measured on the surface of the ground as a decaying potential difference.

From an alternate viewpoint it can be seen that if the direction of the current through the system is reversed repeatedly before the polarization occurs, the effective resistivity of the system as a whole will change as the frequency of the switching is changed. This is a consequence of the fact that the amount of current flowing through each metallic interface depends upon the length of time that current has been passing through it in one direction.

The values of the "metal factor" or "M. F." are a measure of the amount of polarization present in the rock mass being surveyed. This parameter has been found to be very successful in mapping areas of sulphide mineralization, even those in which all other geophysical methods have been unsuccessful. The induced polarization measurement is more sensitive to sulphide content than other electrical measurements because it is much more dependent upon the sulphide content. As the sulphide content of a rock is increased, the "metal factor" of the rock increases much more rapidly than the resistivity decreases.

Because of this increased sensitivity, it is possible to locate and outline zones of less than 10% sulphides that can't be located by E. M. Methods. The method has been successful in locating the disseminated "porphyry copper" type mineralization in the South-western United States.

Measurements and experiments also indicate that it should be possible to locate most massive sulphide bodies at a greater depth with induced polarization than with E. M.

Since there is no I. P. effect from any conductor unless it is metallic, the method is useful in checking E. M. anomalies that are suspected of being due to water filled shear zones or other ionic conductors. There is also no effect from conductive overburden, which frequently confuses E. M. results. It would appear from scale model experiments and calculations that the apparent metal factors measured over a mineralized zone are larger if the material overlying the zone is of low resistivity.

Apropos of this, it should be stated that the induced polarization measurements indicate the total amount of metallic constituents in the rock. Thus all of the metallic minerals in the rock, such as pyrite, as well as the ore minerals chalcopyrite, chalcocite, galena, etc. are responsible for the induced polarization effect. Some oxides such as magnetite, pyrolusite, chromite, and some forms of hematite also conduct by electrons and are metallic. All of the metallic minerals in the rock will contribute to the induced polarization effect measured on the surface.

In the field procedure, measurements on the surface are made in a way that allows the effects of lateral changes in the properties of the ground to be separated from the effects of vertical changes in the properties. Current is applied to the ground at two points a distance (X) apart. The potentials are measured at two other points (X) feet apart, in line with the current electrodes. The distance between the nearest current and potential electrodes is an integer number (N) times the basic distance (X).

The measurements are made along a surveyed line, with a constant distance (NX) between the nearest current and potential electrodes. In most surveys, several traverses are made with various values of (N); i. e. (N) = 1, 2, 3, 4, etc. The kind of survey required (detailed or reconnaissance) decides the number of values of (N) used.

In plotting the results, the values of the apparent resistivity and the apparent metal factor measured for each set of electrode positions are plotted at the intersection of grid lines, one from the center point of the current electrodes and the other from the center point of the potential electrodes. The resistivity values are plotted above the line and the metal factor values below. The lateral displacement of a given value is determined by the location along the survey line of the center point between the current and potential electrodes. The distance of the value from the line is determined by the distance (NX) between the current and potential electrodes when the measurement was made.

The separation between sender and receiver electrodes is only one factor which determines the depth to which the ground is being sampled in any particular measurement. These plots then, when contoured, are not section maps of the electrical properties of the ground under the survey line. The interpretation of the results from any given survey must be carried out using the combined experience gained from field, model and theoretical investigations. The position of the electrodes when anomalous values are measured must be used in the interpretation.

In the field procedure, the interval over which the potential differences are measured is the same as the interval over which the electrodes are moved after a series of potential readings has been made. One of the advantages of the induced polarization method is that the same equipment can be used for both detailed and reconnaissance surveys merely by changing the distance (X) over which the electrodes are moved each time. In the past, intervals have been used ranging from 100 feet to 1000 feet for (X). In each case, the decision as to the distance (X) and the values of (N) is largely determined by the expected size of the mineral deposit being sought, the size of the expected anomaly and the speed with which it is desired to progress.

The diagram in Figure 1 below demonstrates the method used in plotting the results. Each value of the apparent resistivity and the apparent "Metal factor" is plotted and identified by the position of the four electrodes when the measurement was made. It can be seen that the values measured for the larger values of (n) are plotted farther from the line indicating that the thickness of the layer of the earth that is being tested is greater than for the smaller values of (n); i. e. the depth of the measurement is increased.

METHOD USED IN PLOTTING DIPOLE-DIPOLE
INDUCED POLARIZATION AND RESISTIVITY RESULTS

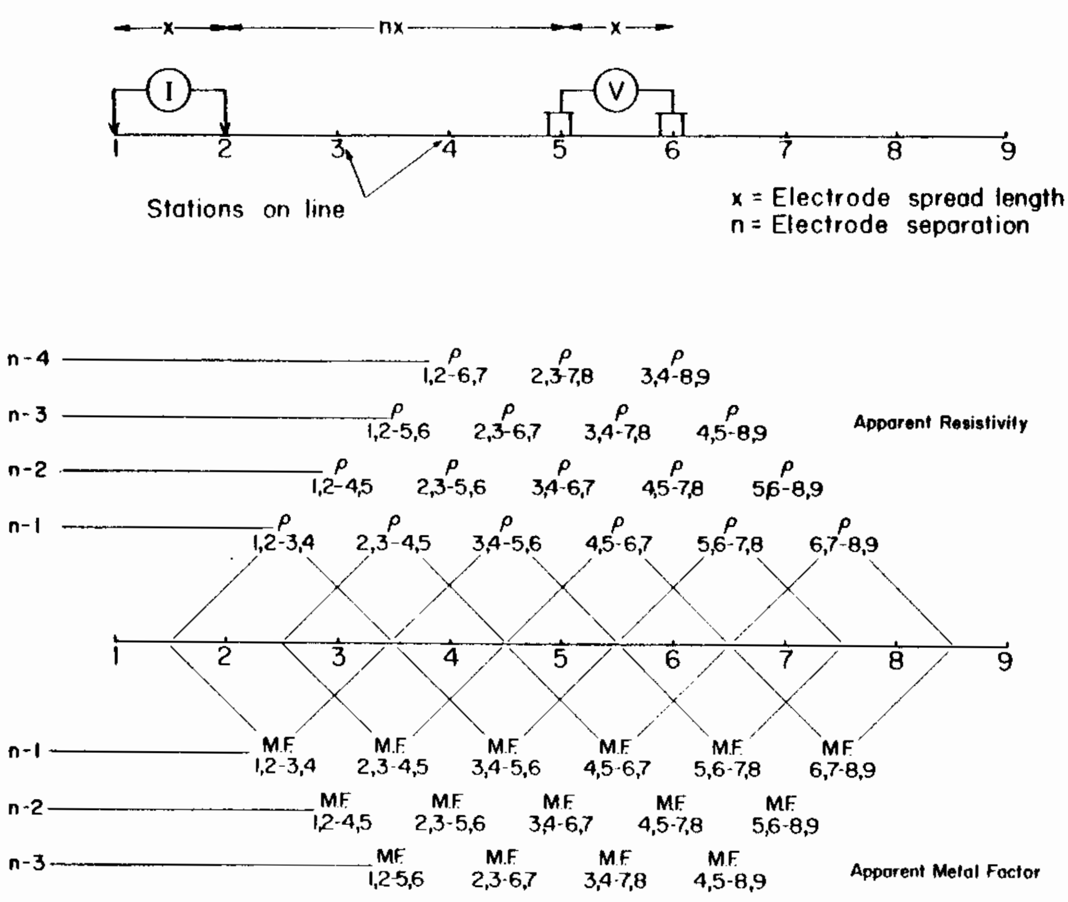
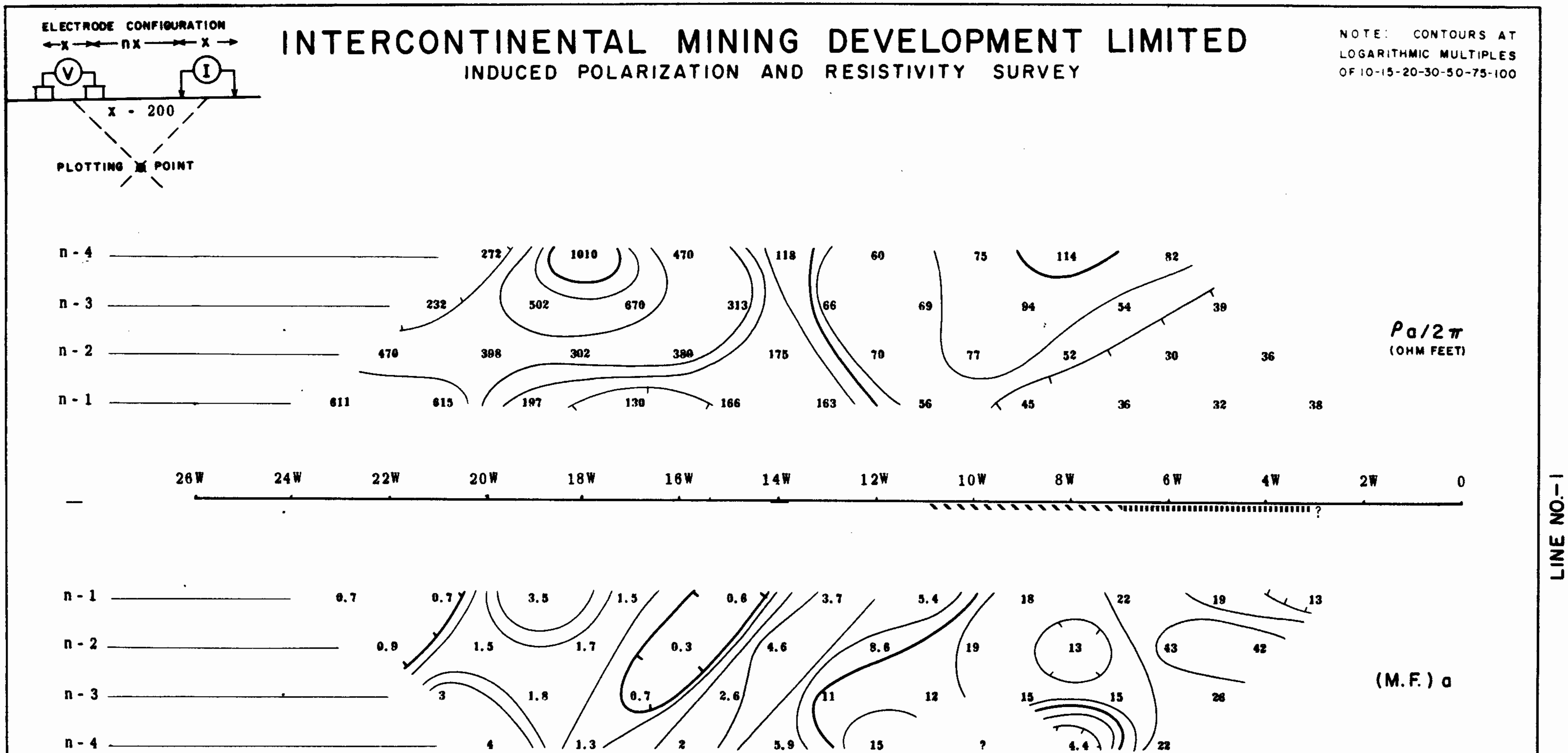


FIG. I

DWG. NO.–I.P.–2620–I



INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

AMALGAMATED RESOURCES LTD. (N.P.L.)

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PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. – B. C.

Scale – One inch = 200 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

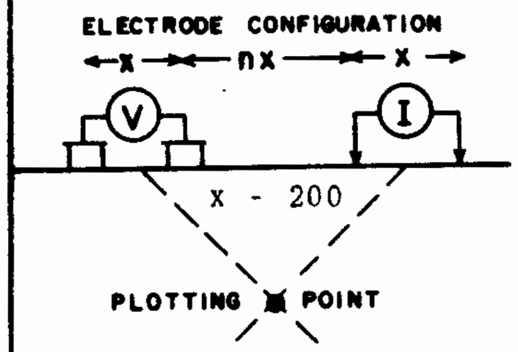
FREQUENCY 0.3 – 5.0 C.P.S.

DATE SURVEYED NOV. 66

APPROVED RAB

DATE 12/20/66

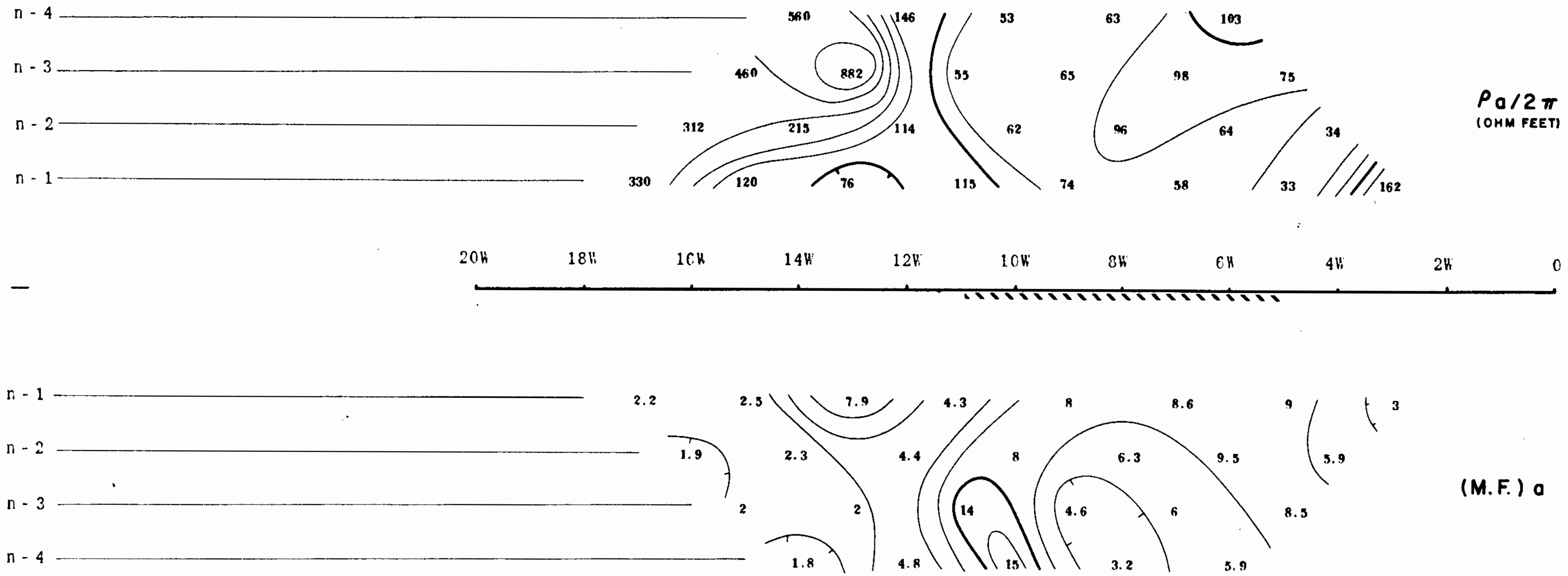
DWG. NO.-I.P.-2620-2



INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



LINE NO.- 2

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale - One inch = 200 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

962

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

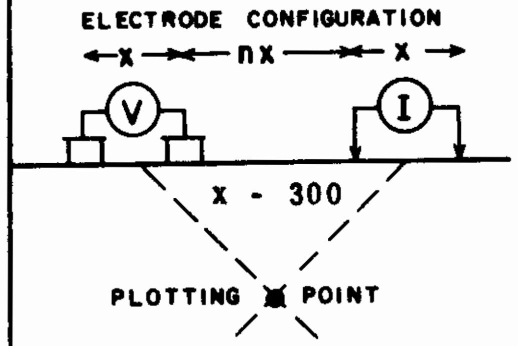
FREQUENCY 0.3 - 5.0 C. P. S.

DATE SURVEYED NOV. 66

APPROVED RRB

DATE 12/20/66

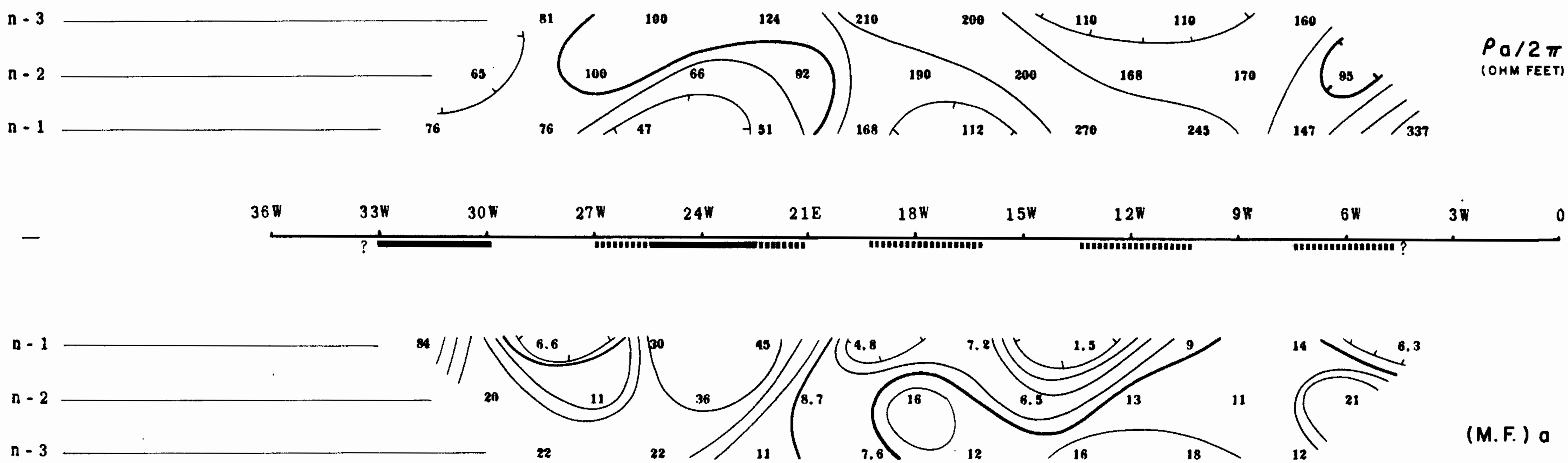
DWG. NO.-I.P.-2620-3



INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



LINE NO.- O

AMALGAMATED RESOURCES LTD. (N.P.L.)

962

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale - One inch = 300 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCY 0.3 - 5.0 C. P. S.

DATE SURVEYED NOV. 66

APPROVED RAB

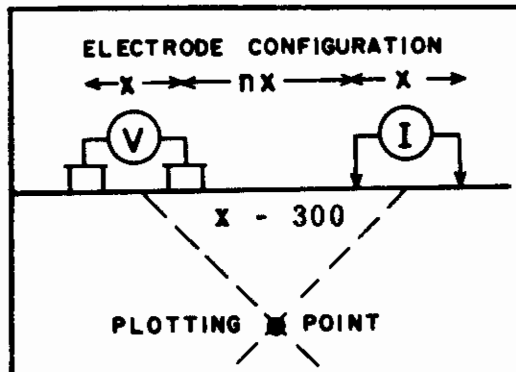
DATE 12/20/66

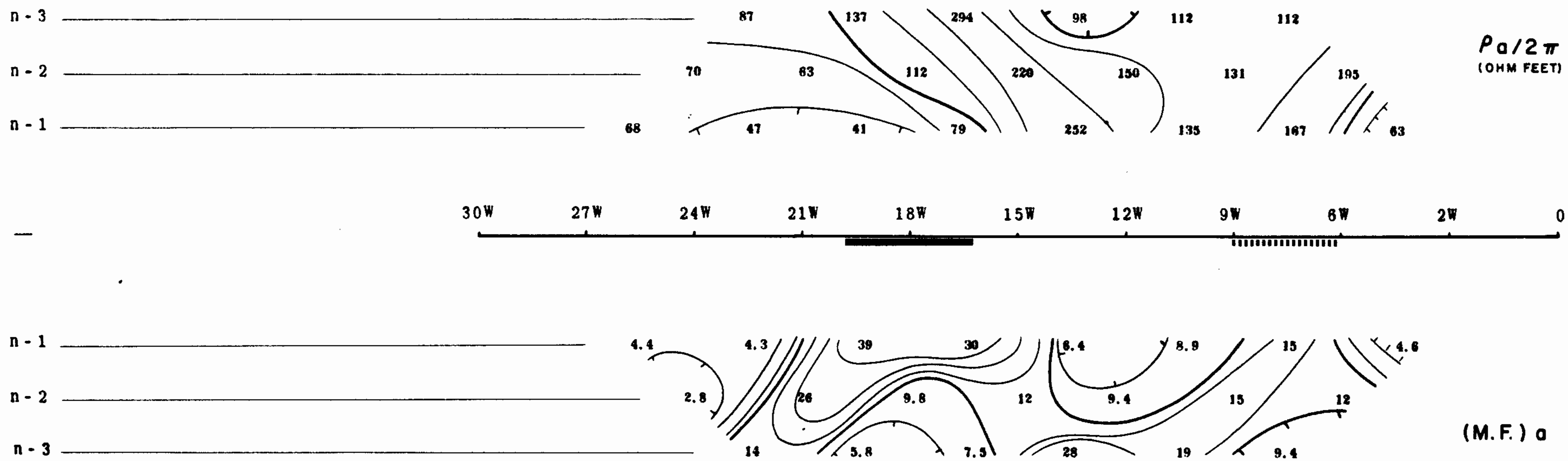
DWG. NO.–I.P.–2620–4

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100





LINE NO.– 4 N

AMALGAMATED RESOURCES LTD. (N.P.L.) 962

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. – B. C.

Scale – One inch = 300 Feet

* NOTE LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCY 0·3 – 5·0 C. P. S.

DATE SURVEYED NOV. 66

APPROVED RAB

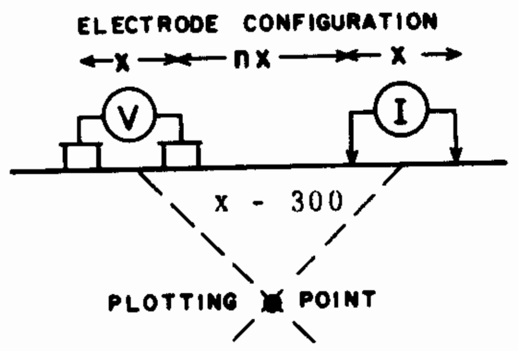
DATE 12/20/66

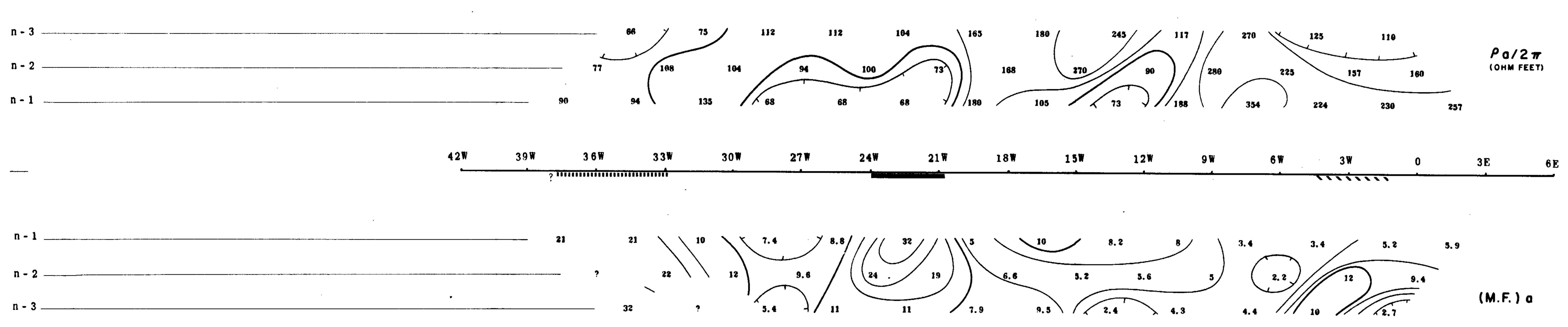
DWG. NO.-I.P.-2620-5

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100





LINE NO.- 8 N

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale - One inch = 300 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

962

FREQUENCY 0.3 - 5.0 C. P. S.

DATE SURVEYED NOV. 66

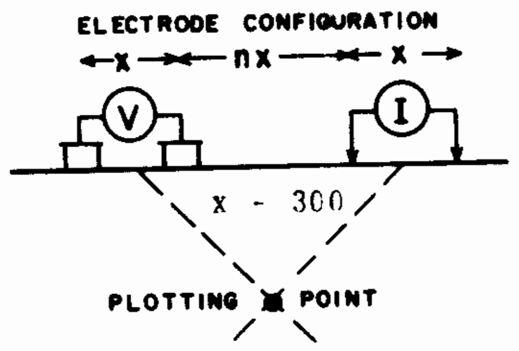
APPROVED RGB

DATE 12/30/66

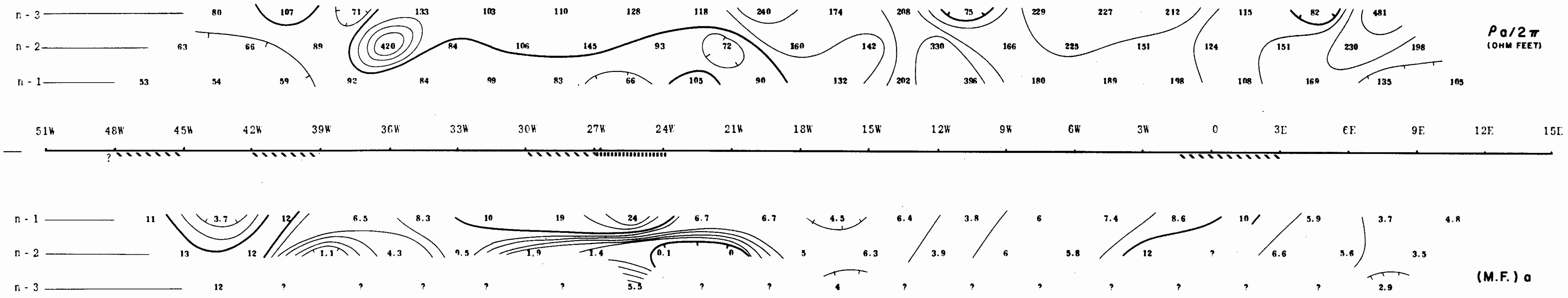
DWG. NO.–I.P.–2620–6

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



LINE NO.–12 N

SURFACE PROJECTION OF ANOMALOUS ZONES

- DEFINITE
- PROBABLE
- POSSIBLE

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.–B. C.

Scale–One inch = 300 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

962

FREQUENCY 0.3–5.0 C. P. S.

DATE SURVEYED NOV. 66

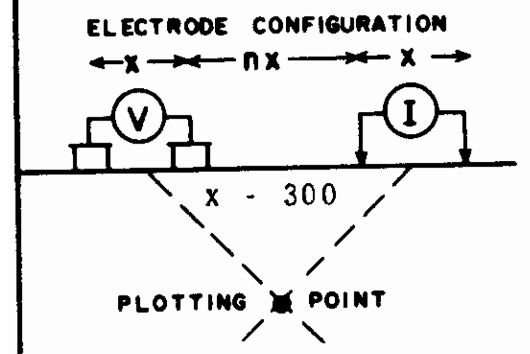
APPROVED RAB

DATE 12/20/66

DWG. NO.–I.P.–2620-7

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

LINE NO.–16 N

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.– B. C.

Scale–One inch= 300 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

962

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

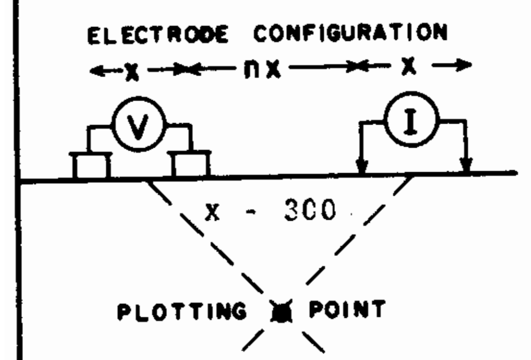
FREQUENCY 0.3–5 C. P. S.

DATE SURVEYED NOV 66

APPROVED KAB

DATE 12/20/66

DWG. NO.-I.P.-2620-8



INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE. CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

LINE NO.-20N

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.-B. C.

Scale-One inch= 300 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

96L

FREQUENCY 0.3-5 C.P.S.

DATE SURVEYED NOV 66

APPROVED RAB

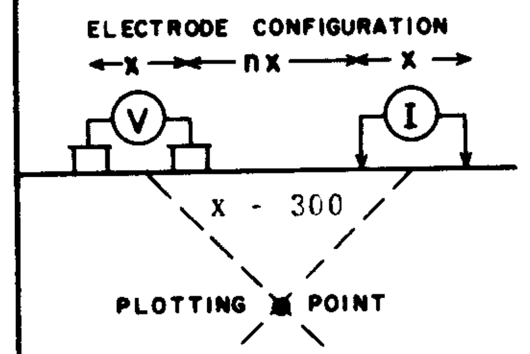
DATE 12/20/66

DWG. NO.–I.P.–2620–9

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



LINE NO.–24 N

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.– B. C.

Scale–One inch= 300 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

962

FREQUENCY 0.3–5 C. P. S.
DATE SURVEYED NOV 66
APPROVED RAB
DATE 12/20/66

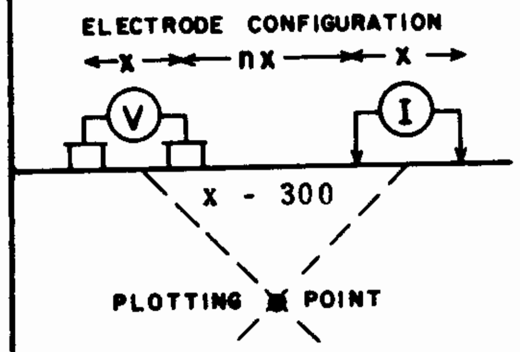
DWG. NO.-I.P.-2620-10

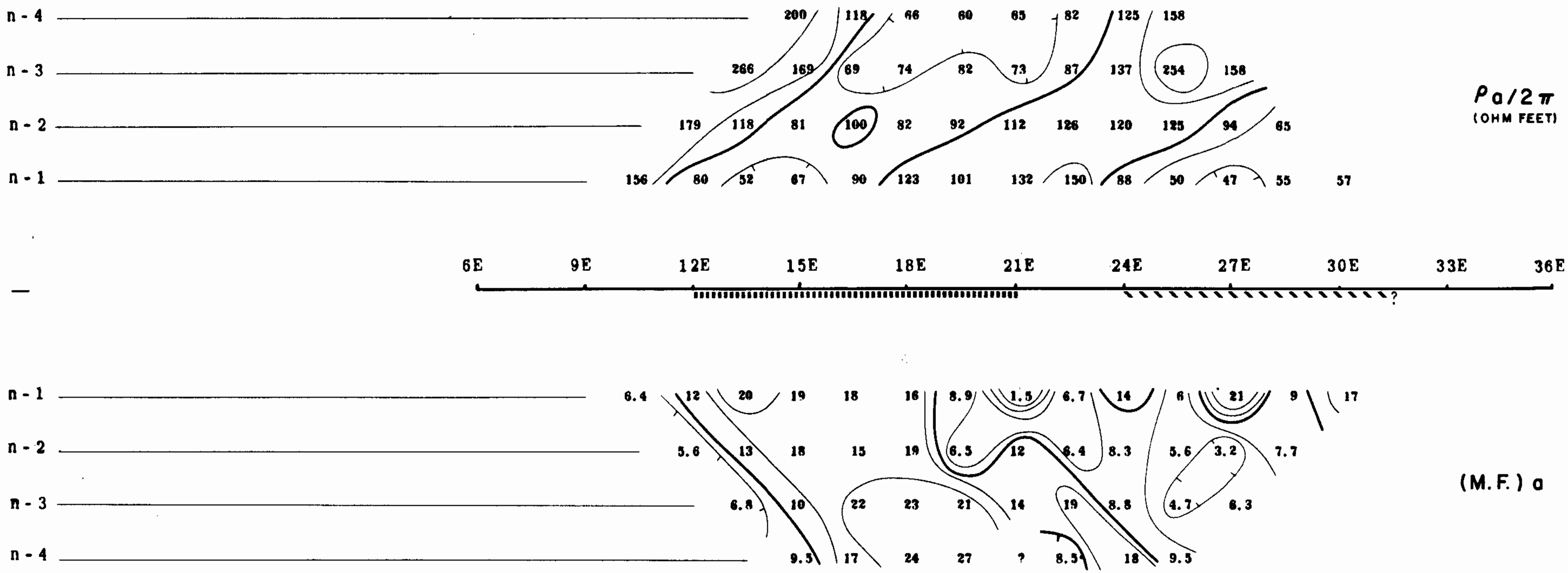
INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

ELECTRODE CONFIGURATION





LINE NO.- 24 N

AMALGAMATED RESOURCES LTD. (N.P.L.)

962

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M.D.-B.C.

Scale-One inch = 300 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCY 0.3-5.0 C.P.S.

DATE SURVEYED NOV. 66

APPROVED RAB

DATE 12/20/66

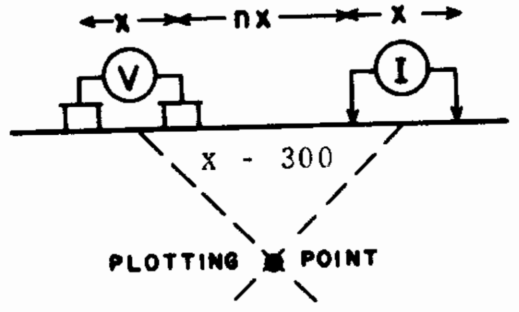
DWG. NO.-I.P.-2620-11

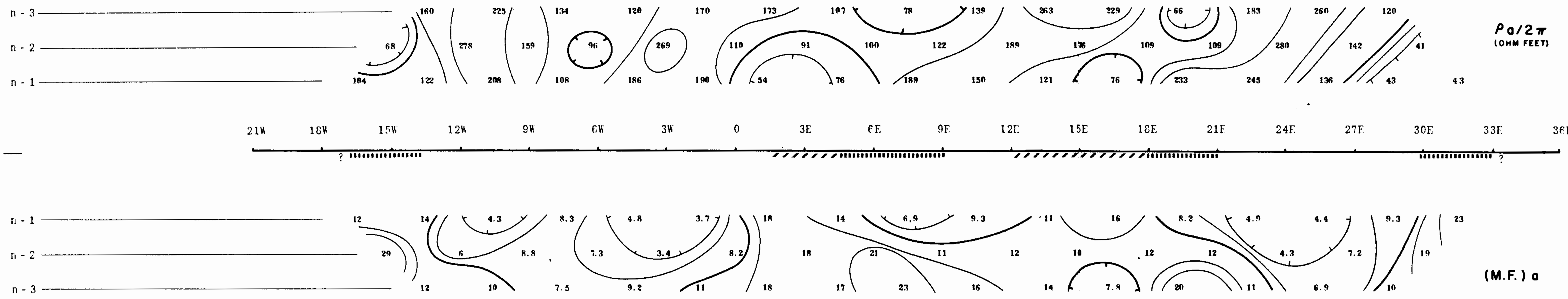
INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

ELECTRODE CONFIGURATION





LINE NO.- 28 N

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale - One inch = 300 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

962

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCY 0.3 - 5.0 C. P. S.

DATE SURVEYED NOV. 66

APPROVED RGB

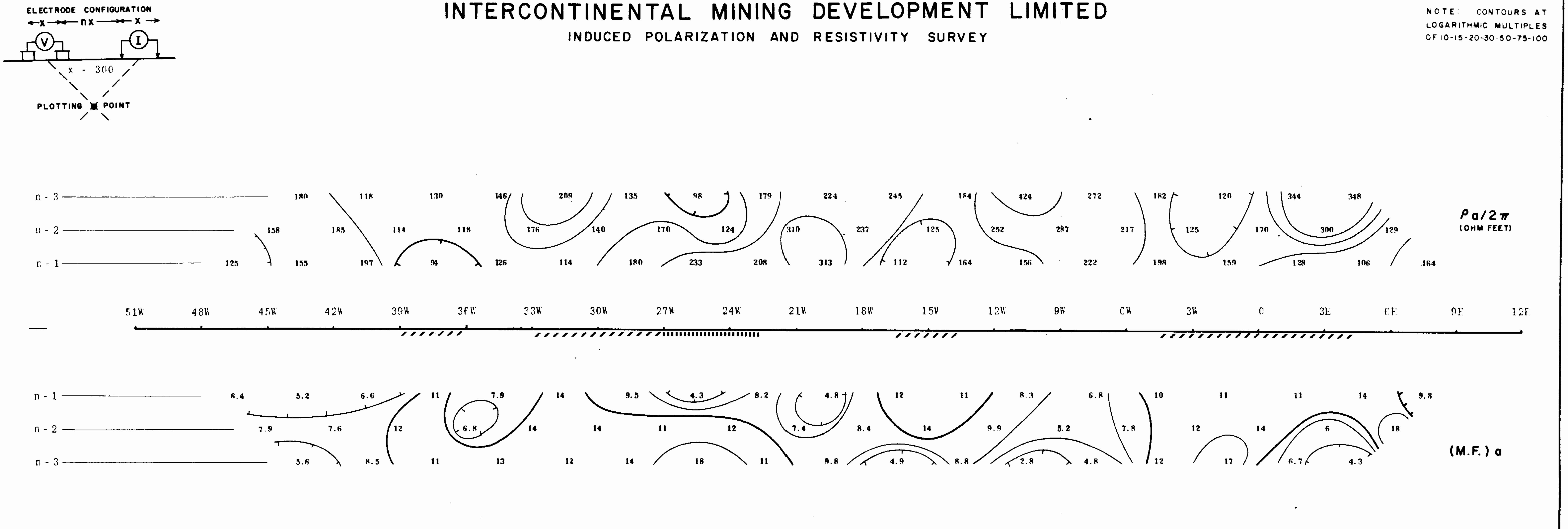
DATE 12/20/66

DWG. NO.-I.P.-2620-12

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale—One inch = 300 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

962

FREQUENCY 0.3-5.0 C.P.S.

DATE SURVEYED NOV. 66

APPROVED RAB

DATE 12/20/66

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.– B. C.

Scale–One inch= 300 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

962

FREQUENCY 0.3–5 C.P.S.

DATE SURVEYED NOV 66

APPROVED

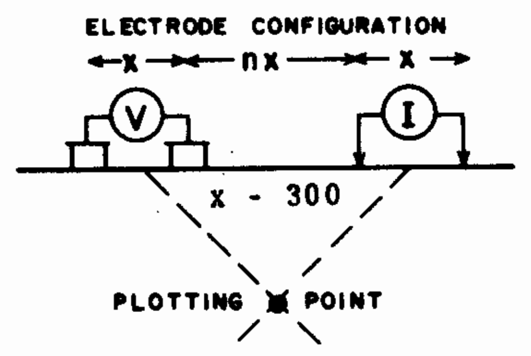
DATE 12/20/66

DWG. NO.—I.P.—2620—14

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



LINE NO.— 40N

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.— B. C.

Scale—One inch= 300 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

962

FREQUENCY 0.3-5.0 C.P.S.

DATE SURVEYED NOV. 66

APPROVED [signature]

DATE 12/20/66

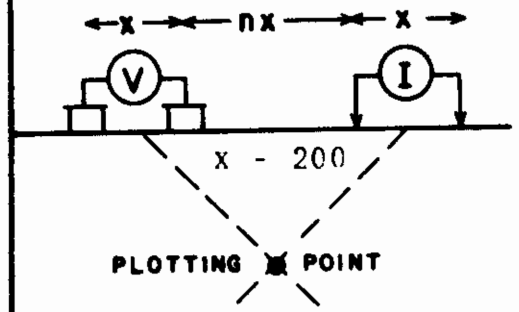
DWG. NO.-I.P.-2620-15

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

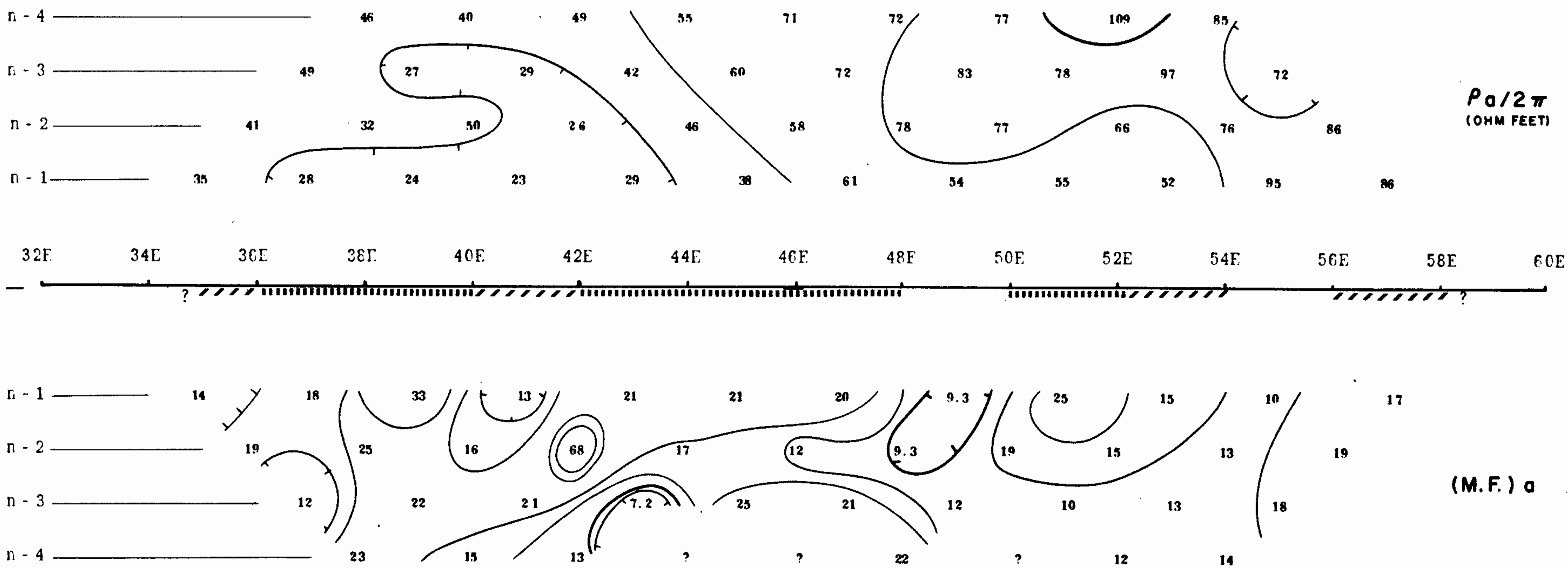
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

ELECTRODE CONFIGURATION



LINE NO.- 40N



AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale - One inch = 200 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

962

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCY 0.3 - 5.0 C. P. S.

DATE SURVEYED NOV. 66

APPROVED RGB

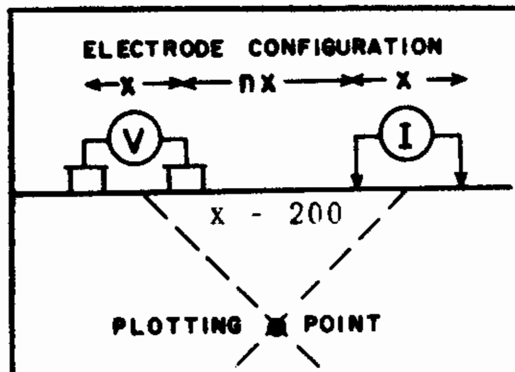
DATE 12/20/66

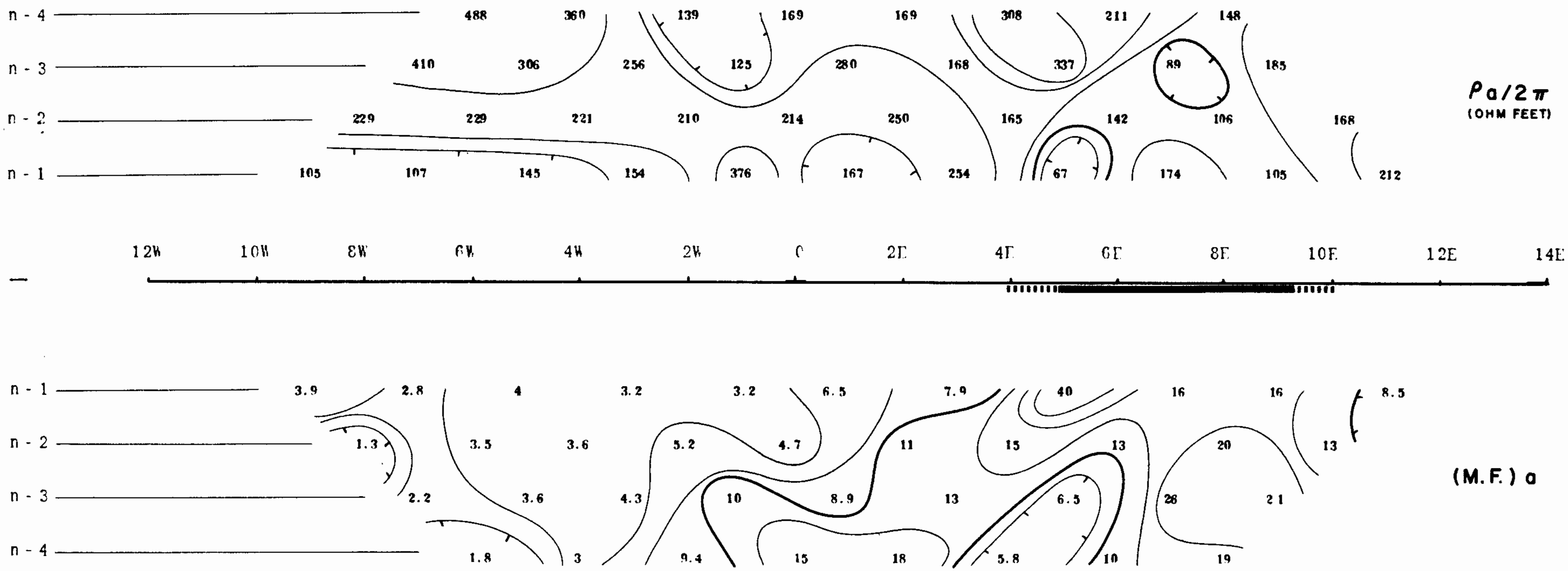
DWG. NO.-I.P.-2620-16

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100





LINE NO.- 40 N

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale - One inch = 200 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

962

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

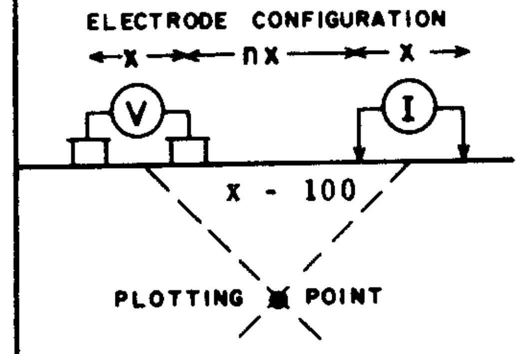
FREQUENCY 0.3 - 5.0 C.P.S.

DATE SURVEYED NOV. 66

APPROVED [signature]

DATE 12/20/66

DWG. NO.–I.P.–2620–17



INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

LINE NO.– 43 N

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.– B. C.

Scale—One inch= 100 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

962

FREQUENCY 0.3–5 C.P.S.

DATE SURVEYED NOV 66

APPROVED

DATE 12/20/66

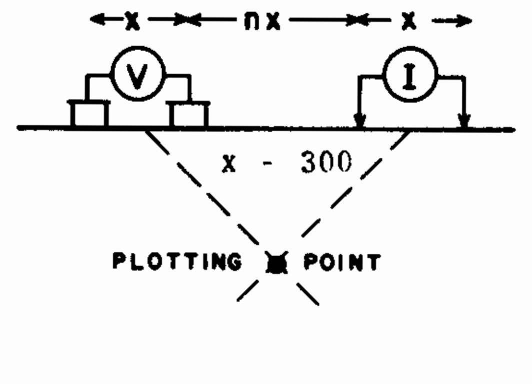
DWG. NO.—I.P.—2620—18

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

ELECTRODE CONFIGURATION



LINE NO.—44 N

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.—B. C.

Scale—One inch= 300 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

962

FREQUENCY 0.3-5.0 C.P.S.

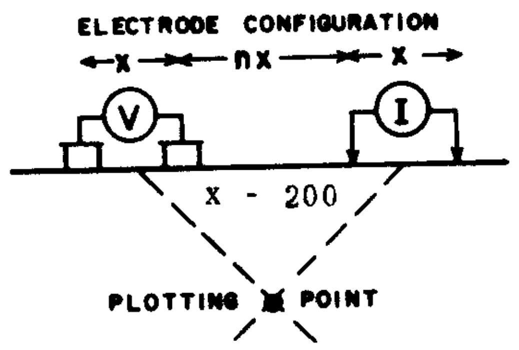
DATE SURVEYED NOV. 66

APPROVED [signature]

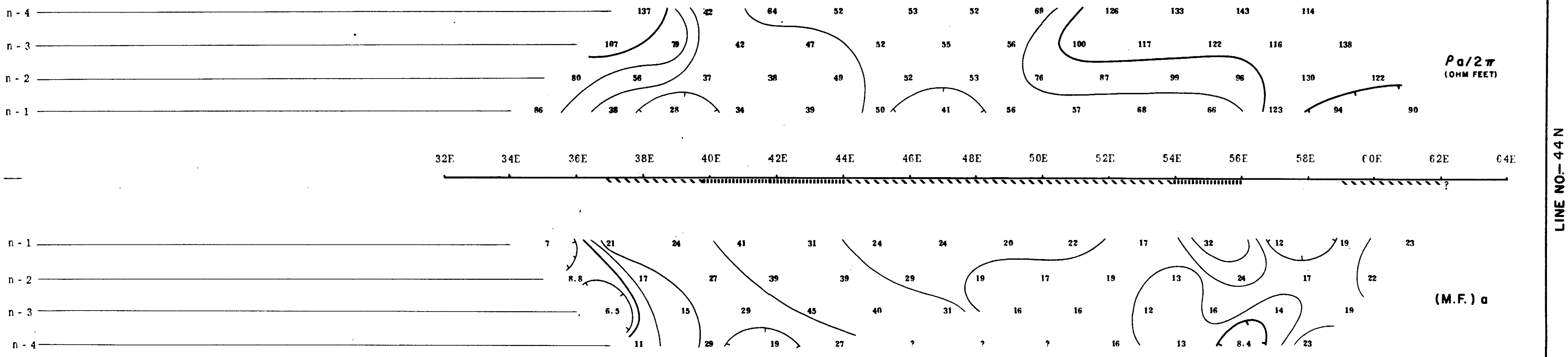
DATE 12/20/66

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale—One inch = 200 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES
DEFINITE
PROBABLE
POSSIBLE

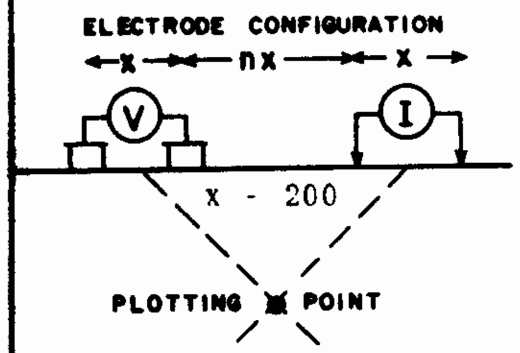
962

FREQUENCY 0.3 - 5.0 C. P. S.
DATE SURVEYED NOV. 66
APPROVED RBB
DATE 12/20/66

DWG. NO.-I.P.-2620-20

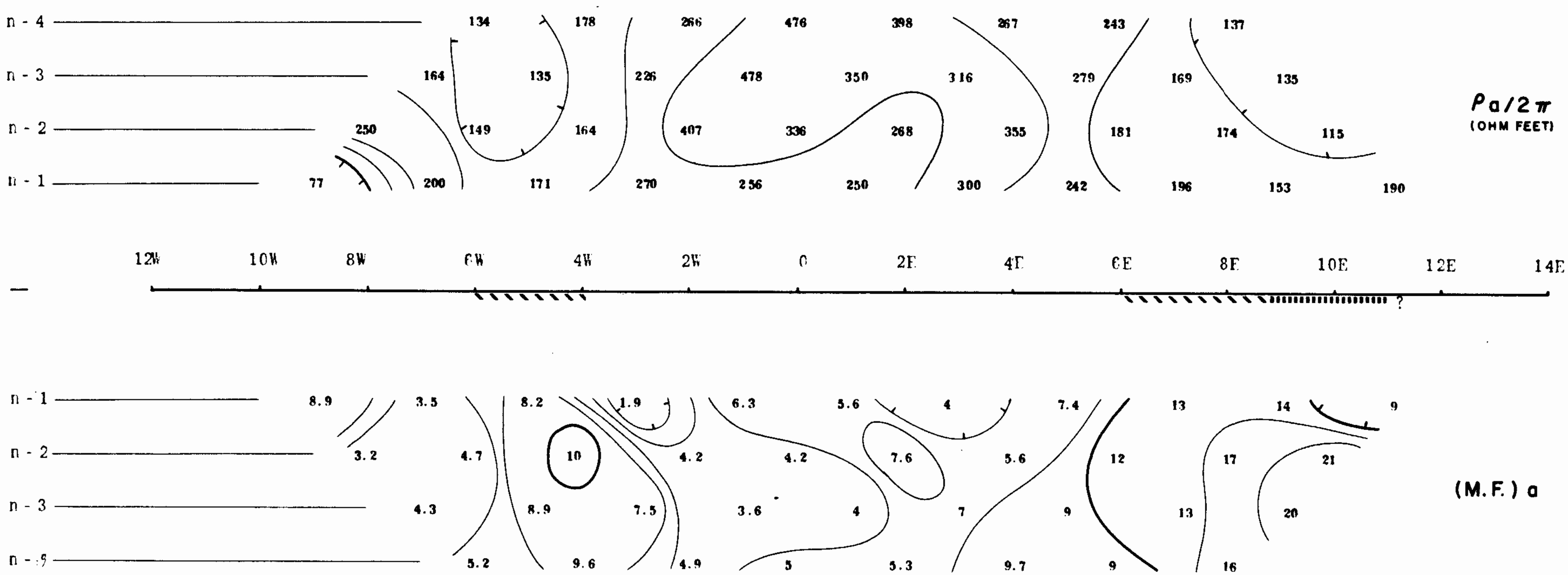
INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

LINE NO.- 44 N



AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D. - B. C.

Scale - One inch = 200 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

962

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCY 0·3 - 5·0 C.P.S.

DATE SURVEYED NOV. 66

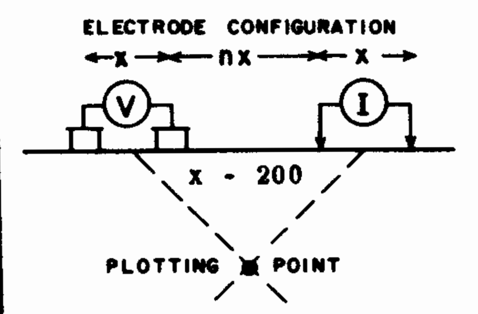
APPROVED RRB

DATE 12/20/66

DWG. NO.–I.P.–2620–21

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



NOTE CONTOURS AT LOGARITHMIC MULTIPLES OF 10 15 20 30 50 75 100

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.– B. C.

Scale—One inch= 200 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

962

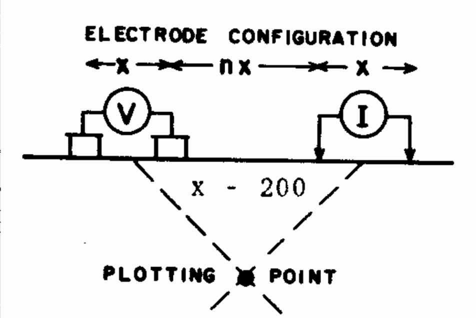
FREQUENCY 0·3–5·0 C.P.S.

DATE SURVEYED NOV. 66

APPROVED RBG

DATE 12/20/66

DWG. NO.—I.P.—2620—22



INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

LINE NO.— 52 N

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.— B. C.

Scale—One inch= 200 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

962

FREQUENCY 0·3—5·0 C. P. S.

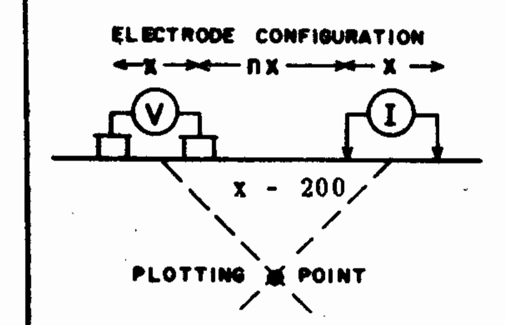
DATE SURVEYED NOV. 66

APPROVED RAB

DATE 12/20/66

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M. D.—B. C.

Scale—One inch= 200 Feet

NOTE LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

962

FREQUENCY 0·3—5·0 C. P. S.

DATE SURVEYED NOV. 66

APPROVED RAB

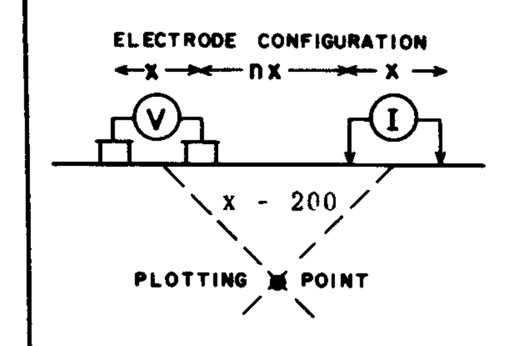
DATE 12/20/66

DWG. NO.–I.P.–2620–24

INTERCONTINENTAL MINING DEVELOPMENT LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M.D.–B.C.

Scale–One inch= 200 Feet

NOTE: LOGARITHMIC CONTOUR INTERVAL

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

962

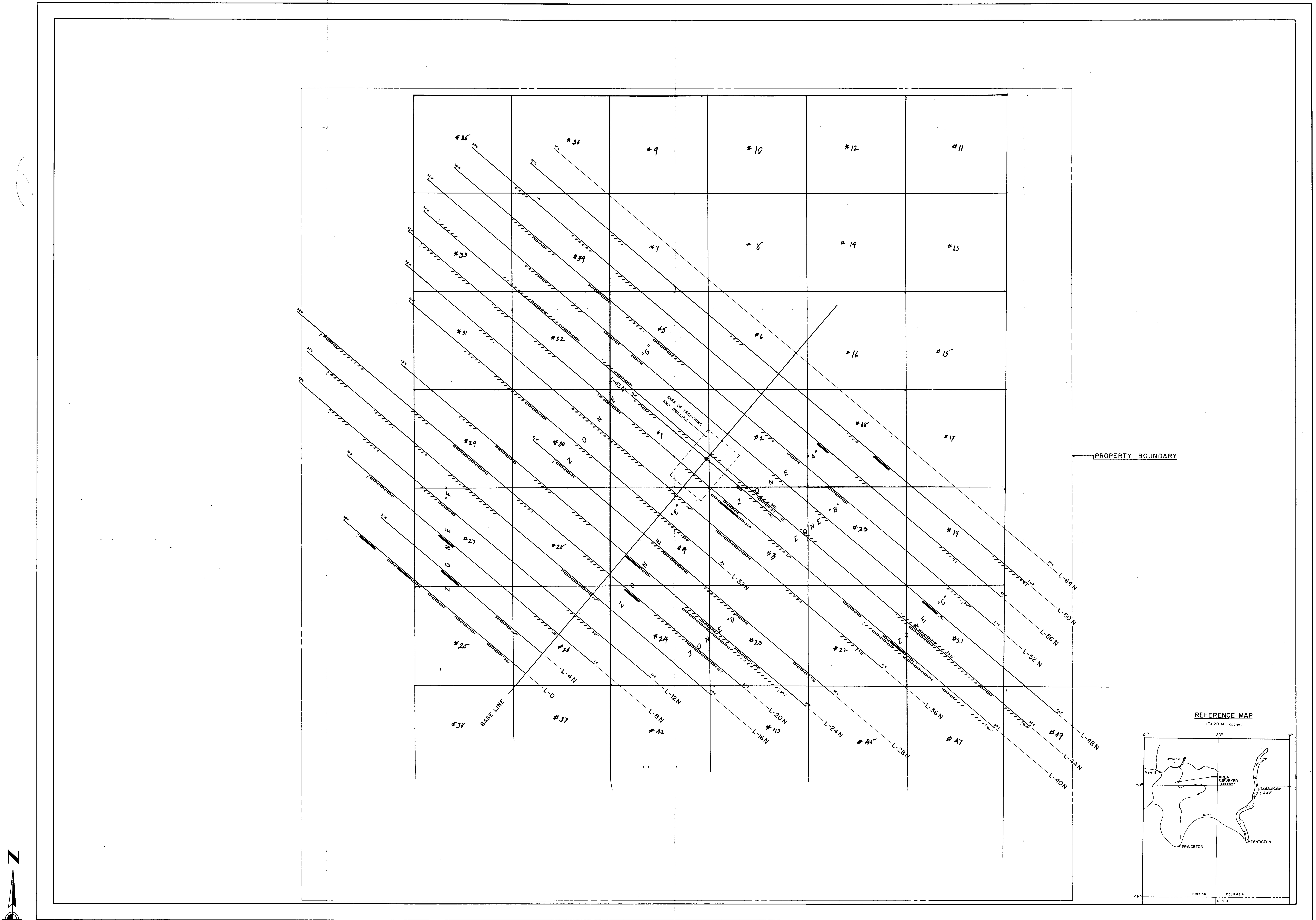
FREQUENCY 0·3–5·0 C.P.S.

DATE SURVEYED NOV. 66

APPROVED RAB

DATE 12/20/66

INTERCONTINENTAL MINING DEVELOPMENT LIMITED
INDUCED POLARIZATION AND RESISTIVITY SURVEY
PLAN MAP



SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

Number at the end of anomaly indicates spread used.

AMALGAMATED RESOURCES LTD. (N.P.L.)

PORCUPINE PROPERTY, MERRITT AREA, NICOLA M.D. - B.C.

SCALE

ONE INCH EQUALS FIVE HUNDRED FEET

962

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 962 MAP ✓

DRAWN: K.B.
DATE: DEC 1966
APPROVED: RAB
DATE: Dec 20/66.

DWG. MISC. 4280