82-216 -10283

PETER E. WALCOTT & ASSOC. LTD.

A REPORT

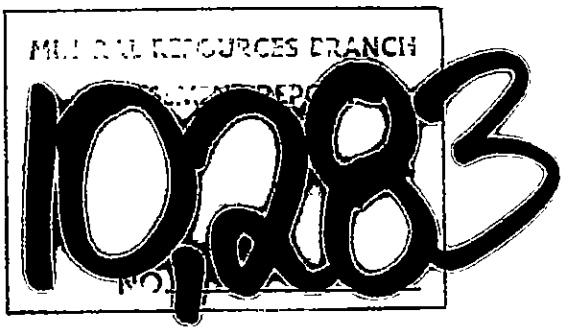
ON

AN INDUCED POLARIZATION SURVEY

Sawmill Claims, Cariboo M.D., B.C.

(52° 30' N, 122° 15' W)

N.T.S. 93 A/5



FOR

GIBRALTAR MINES LIMITED

McLeese Lake, B.C.

BY

PETER E. WALCOTT AND ASSOCIATES LIMITED

Vancouver, British Columbia

FEBRUARY 1982

GEOPHYSICAL SERVICES

TABLE OF CONTENTS

APPENDIX

ACCOMPANYING MAPS Scale 1" = 400' — MAP POCKET

INTRODUCTION.

Between October 21st and 30th, Peter E. Walcott & Associates Limited carried out an induced polarization survey over part of a property, located in the Cariboo Area of British Columbia, held by Gibraltar Mines Ltd.

The survey was carried out over N 45° lines that were turned off at right angles from a N 45° W baseline.

Measurements (first to third separation) of apparent resistivity and frequency effect (the I.P. response parameter) were made using the "dipole-dipole" method of surveying with a 200 foot dipole and frequencies of 0.3 and 5.0 Hz.

The data are presented in contour form on pseudo-sections that are contained in this report.

PROPERTY, LOCATION & ACCESS.

The property is located in the Cariboo Mining District of British Columbia.

It is situated about 3 miles northeast of the settlement of McLeese Lake, B.C., and some 4 1/2 miles south of the Gibraltar Mine site.

Access was obtained from McLeese Lake via the Likely road.

SURVEY SPECIFICATIONS.

The induced polarization (I.P.) survey was carried out using a system manufactured by McPhar Geophysics Limited of Don Mills, Ontario. Measurements with this system are made in the frequency domain.

The system basically consists of three units; a receiver, a transmitter and a motor generator. The transmitter, which obtains its power from the 2.5 kw 400 cycle generator driven by a gasoline engine, injects current into the ground at two electrodes, C_1 and C_2, at two preselected frequencies, while the receiver, a very stable and sensitive potentiometer tuned to the frequency selected, makes measurements of observed voltages across the potential electrodes P_1 and P_2.

The data recorded in the field consists of careful measurements of the current (I) flowing through electrodes C_1 and C_2, the voltage (V) appearing between the potential electrodes P_1 and P_2 on the low frequency, and the "percentage apparent frequency effect" appearing between P_1 and P_2 (the receiver is designed to measure directly):

$$\text{the \%age F.E.} = \frac{(P_a \text{ low} - P_a \text{ high}) \times 100}{P_a \text{ high}}$$

The apparent resistivity (P_a) in ohm-feet is proportional to the ratio of the measured voltage and current, the proportionality factor depending on the geometry of the array used. In practise P_a is plotted.

$\overline{2\ II}$

A third parameter termed the "metal factor" is also calculated by dividing the apparent frequency effect by P_a and multiplying by 1000.

$\overline{2\ II}$

The survey was carried out using the "dipole-dipole" electrode array. This electrode configuration and the methods of presenting the results are illustrated in the appendix. Depth penetration with this array is increased or decreased by increasing or decreasing "a" and/or "n".

In practise, the equipment is set up at a particular station of the line to be surveyed: three transmitting dipoles are laid out to the rear, measurements are made for all possible combinations of transmitting and receiving dipoles, the latter consisting of two porous pots filled with an electrolyte copper sulphate solution "a" feet apart, up to the fourth separation, i.e. n = 4; the equipment is then moved 3 "a" feet along the line to the next set-up.

SURVEY SPECIFICATIONS cont'd

A 200 foot dipole was used on the survey but only first to third separation measurements were made.

In all some 10.7 miles or 17.2 kilometres were covered using the above method.

DISCUSSION OF RESULTS.

The results of the I.P. survey, showed the property to exhibit a low frequency effect background above which three distinct anomalous zones are clearly discernible as can be seen on the contour plot of the second separation data - Map W-309-2.

The results are in good agreement with previously done work to the west where similar backgrounds and anomaly responses were obtained.

The survey area is dominated by the strongest and greatest in extent anomalous zone stretching from Line 200 to Line 255 E in a reverse Z pattern and open on its extremities. This zone lies on the contact between the quartz diorite and rocks of the Cache Creek group, as depicted on the geological maps of Gibraltar Mines.

The nature of its reponse is generally that of a narrow (with respect to the electrode separation) shallow causative source, exhibiting typical "pant-leg" effects on some lines, except where it broadens on changes in its strike direction.

It is accompanied by a coincidental resistivity low indicative of moderate to good conductivity. This resistivity low is also observed on Line 260 W where no I.P. effects are obtained suggesting that maybe only part of the conductivity high is attributable to polarizable material.

On first consideration its predicted causative source should be one of graphitic nature. However in view of the fact that (1) the location of the contact is nowhere so precisely known as shown - personal communication - and (2) similar patterns and responses are observed on the old survey to the west with causative sulphide sources, it should not be written off as due to graphite but should be investigated by drilling in its broadest parts.

The other two anomalous zones are smaller both in extent and response. They are only undefined to the east as they were not located by the previous survey on adjoining lines to the west.

The resistivity responses, particularly on Line 195 E are not nearly as pronounced as those over the main anomaly but improve to the east - could be partially due to the swamp.

DISCUSSION OF RESULTS cont'd

Unfortunately the more southerly anomaly of some 1500 feet strike length could not be extended onto Line 215 E and beyond due to a prevailing swamp. It would have been interesting to observe if the zone is terminated or offset by the same trend as the southerly one thereby increasing the evidence for the presence of a northerly trending fault.

Consideration should be given to completing the above in the winter months when the swamp would be more amenable to passage.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

Between October 21st and 20th, 1981, Peter E. Walcott & Associates Limited carried out an induced polarization survey for Gibraltar Mines Ltd. over their Sawmill property.

This property is located some 4 1/2 miles south of the minesite and some 3 miles northeast of the settlement of McLeese Lake on Highway 97.

The survey was carried out using the frequency method of I.P. surveying using a dipole - dipole array and a 200 foot dipole.

The data located the presence of three anomalous zones above a low frequency effect background.

Although the main anomalous zone is most probably attributable to the presence of graphitic material for reasons previously discussed it should be investigated by drilling to determine its causative nature.

Further work - geophysical and/or geological should be done to properly delineate and/or identify the other two zones before committing to borehole investigation. Lines should be extended to the north and covered on a one-at- a-time basis instead of committing to complete I.P. coverage.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

Peter E. Walcott, P.Eng.
Geophysicist

Vancouver,
British Columbia

February 1982

A P P E N D I X

COST OF SURVEY.

Peter E. Walcott & Associates Limited undertook the survey on the Miocene & Sawmill grids on a daily basis. Mobilization costs were extra so that the total cost of services provided was $20,398.59. Of this $13,238.55 was apportioned to the Miocene area and $7,160.04 to the Sawmill area.

PERSONNEL EMPLOYED ON SURVEY

Name	Occupation	Address	Dates
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court Coquitlam, B.C. V3J 3T8	Feb. 24, 25, 82
G. MacMillan	Geophysical Operator	"	Oct. 21 - 30th, 81
S. Gibbons	"	"	"
D. Sloan	Helper	"	"
D. Dawson	"	"	"
J. Walcott	Typing	"	Feb. 25th, 1982
R. Rolling	Draughting	"	Feb. 24th & 25th, 82

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 19 years.

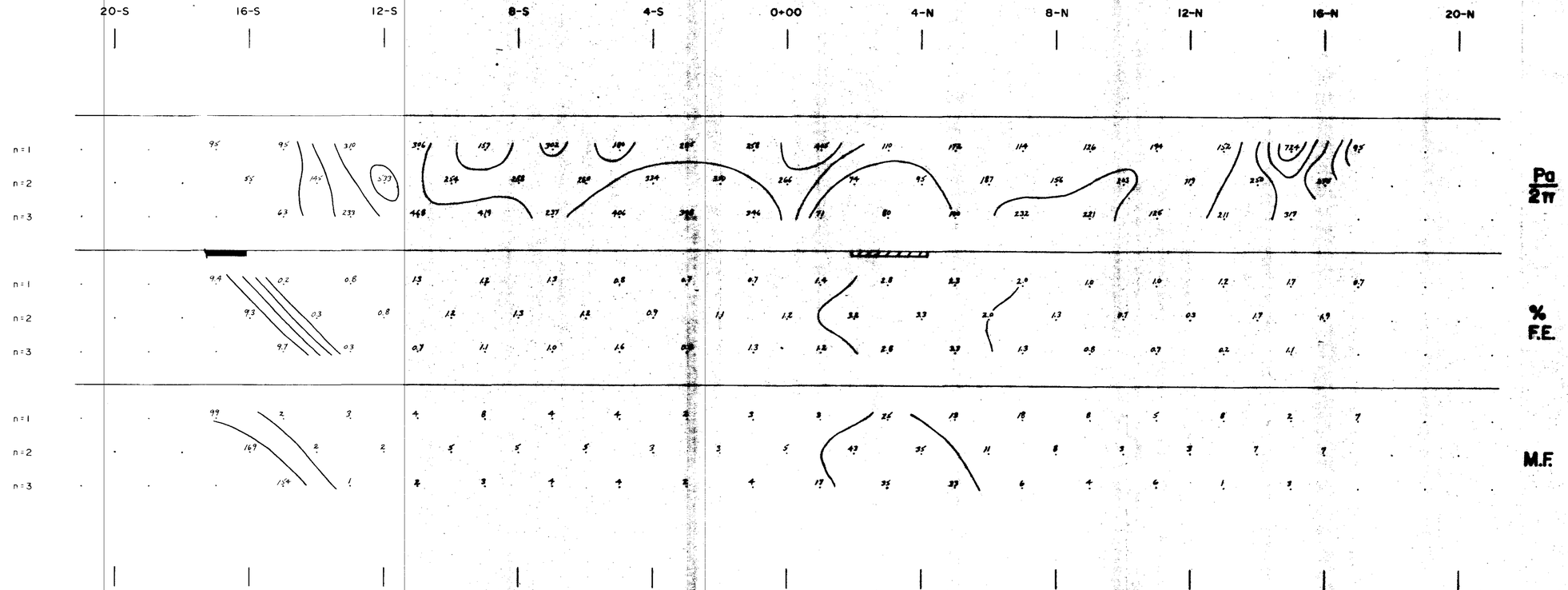
3. I am a member of the Association of Professional Engineers of British Columbia and Ontario.

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

Peter E. Walcott, P.Eng.

Vancouver,
British Columbia

February 1982



GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

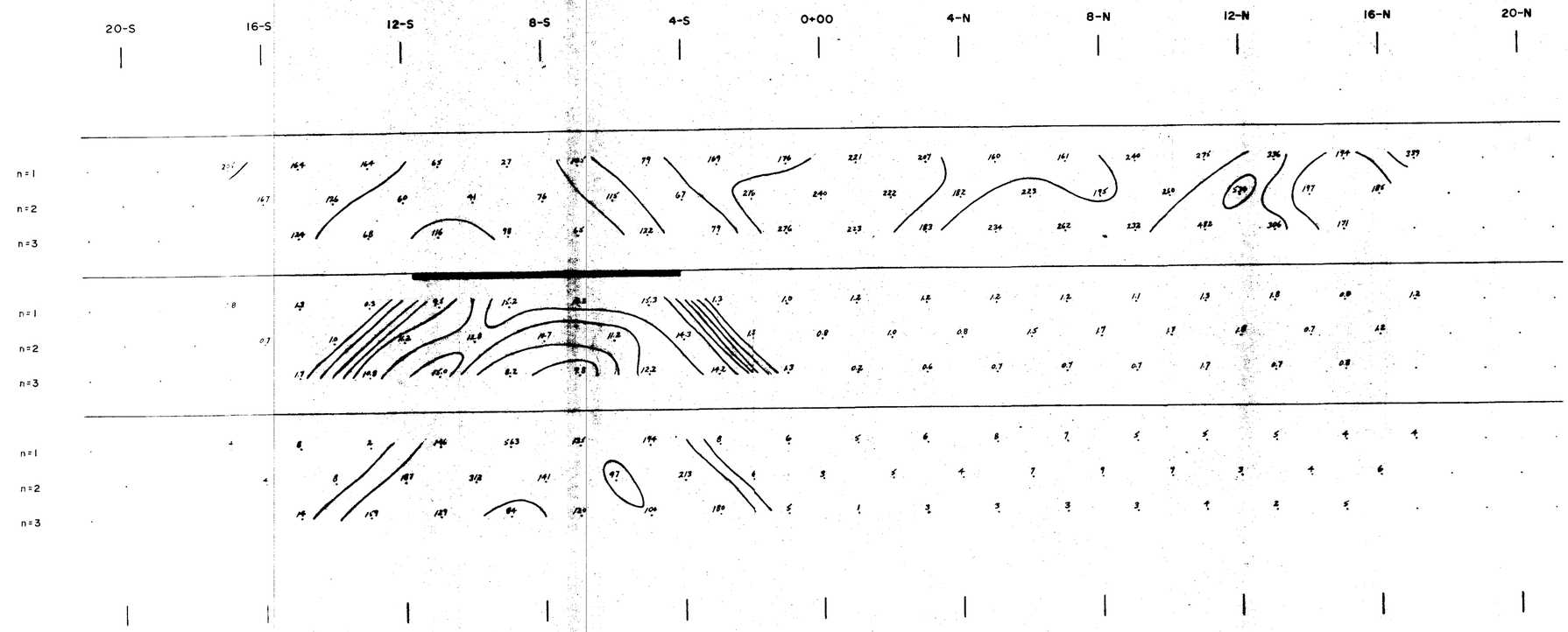
L 200 E

DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'

Scale 1" = 200'

OCT. 1981



GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 240 E

DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'

Scale 1" = 200'

OCT. 1981

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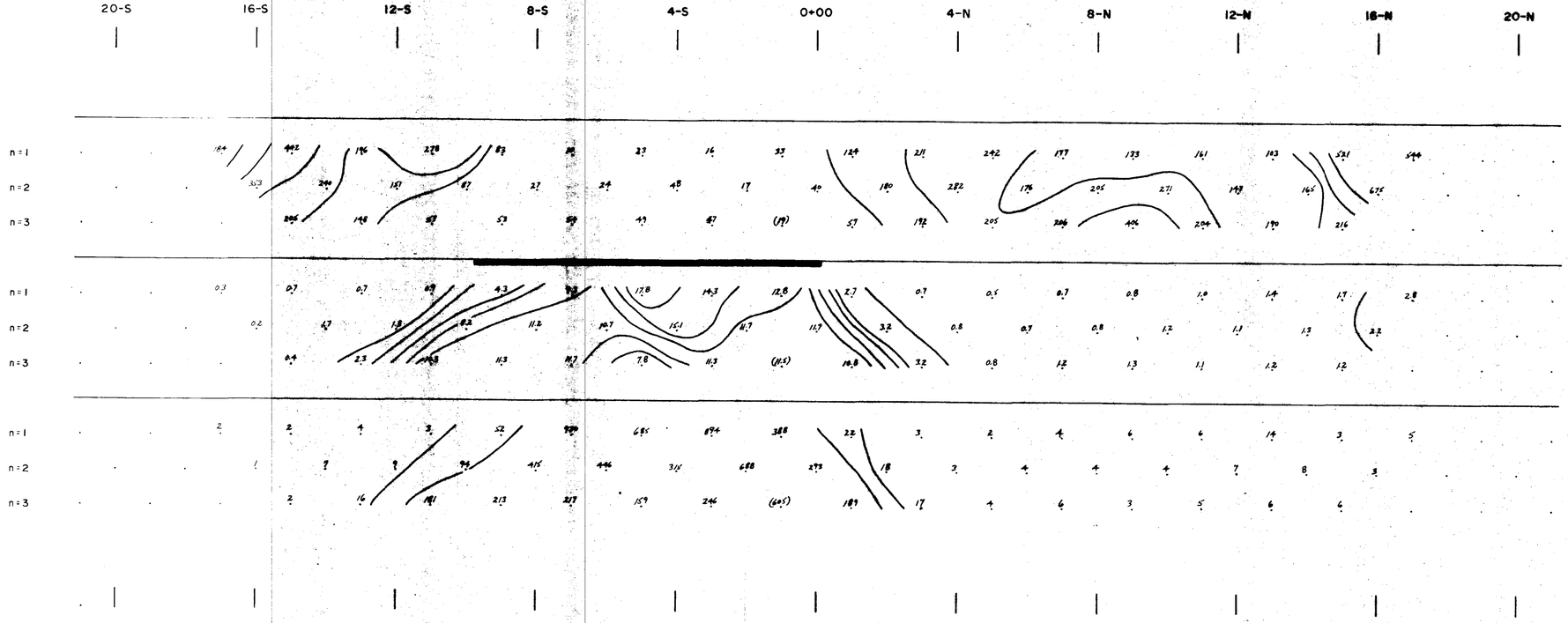


GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

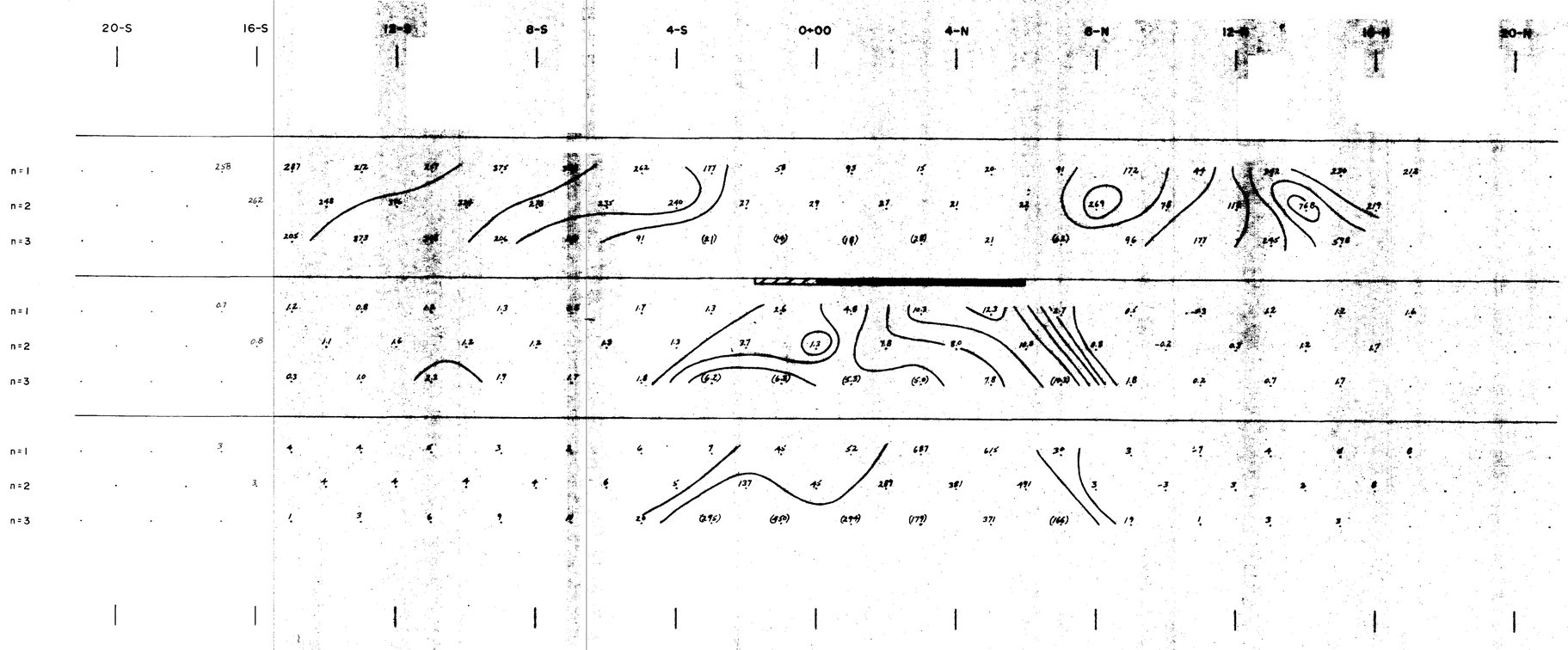
L 245 E

DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'
Scale 1" = 200'

OCT. 1981

10,283



GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 250 E

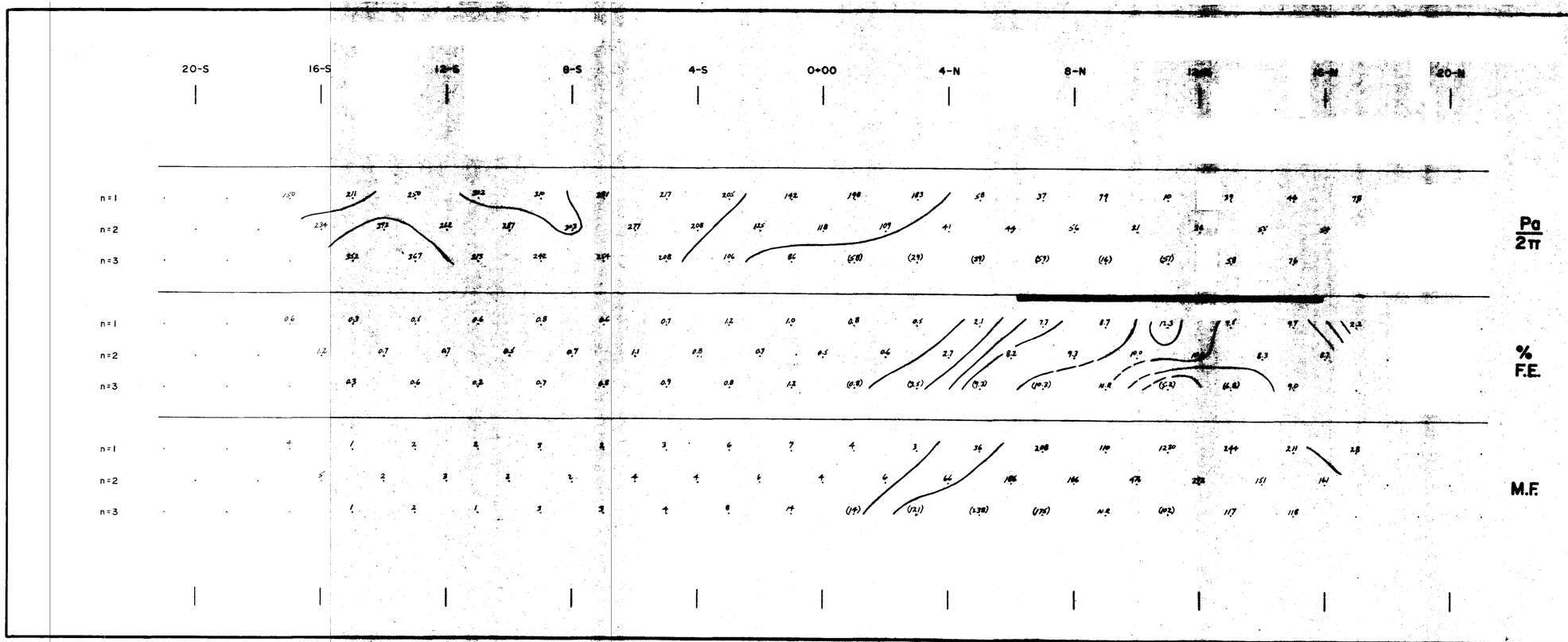
DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'

Scale 1" = 200'

OCT. 1981

10,283



GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

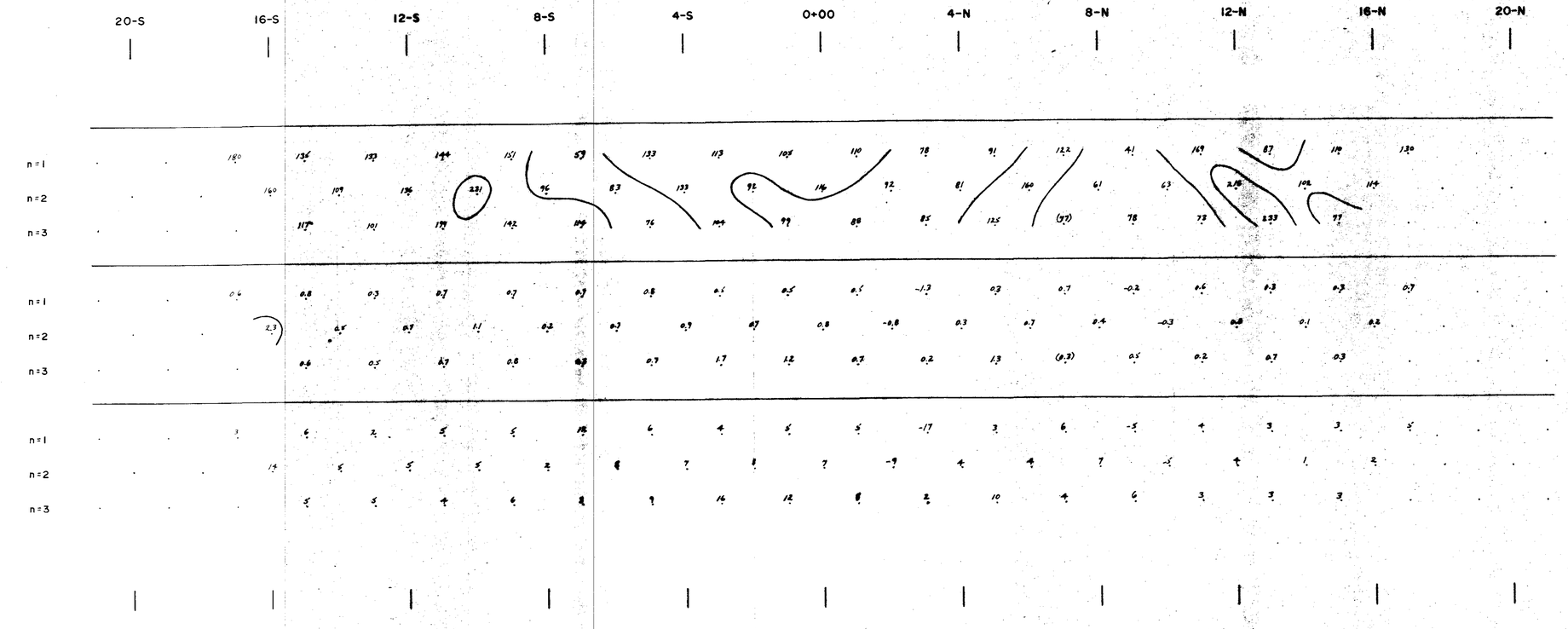
L 255 E

DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'
Scale 1" = 200'

OCT. 1981

10,283



GIBRALTAR MINES LIMITED

RAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

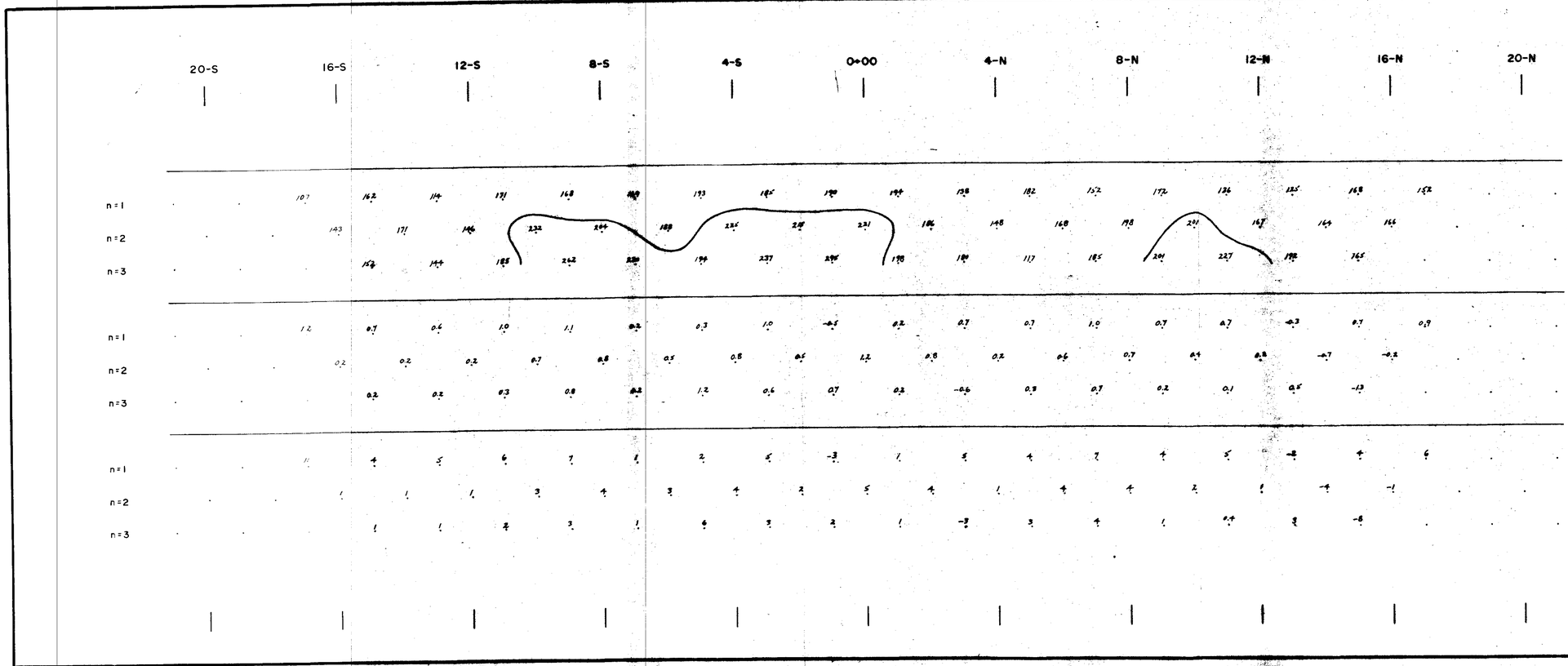
L 260 E

DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'
Scale 1" = 200'

OCT. 1981

10,283



GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 265 E

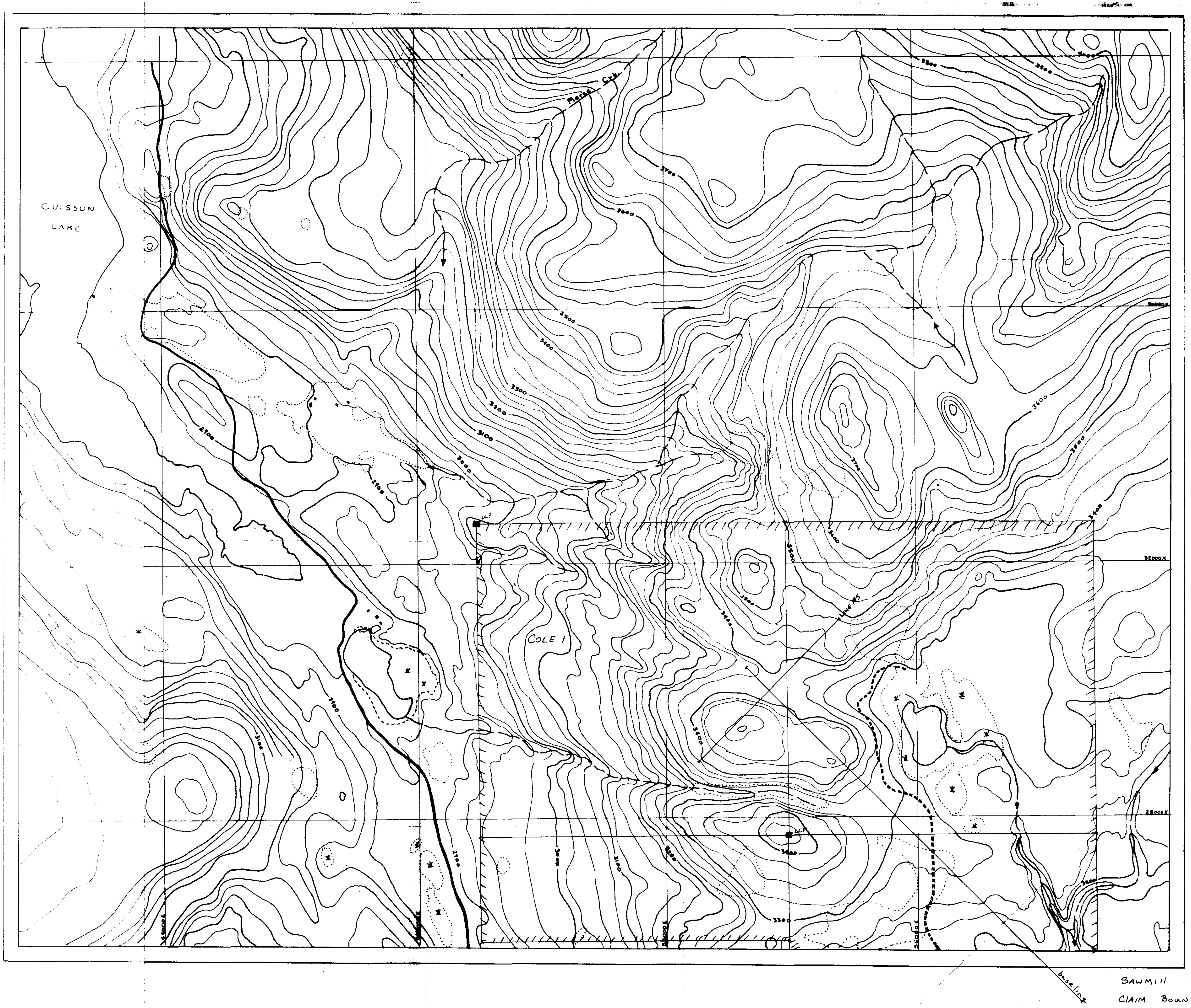
DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'

Scale 1" = 200'

OCT. 1981

10,283



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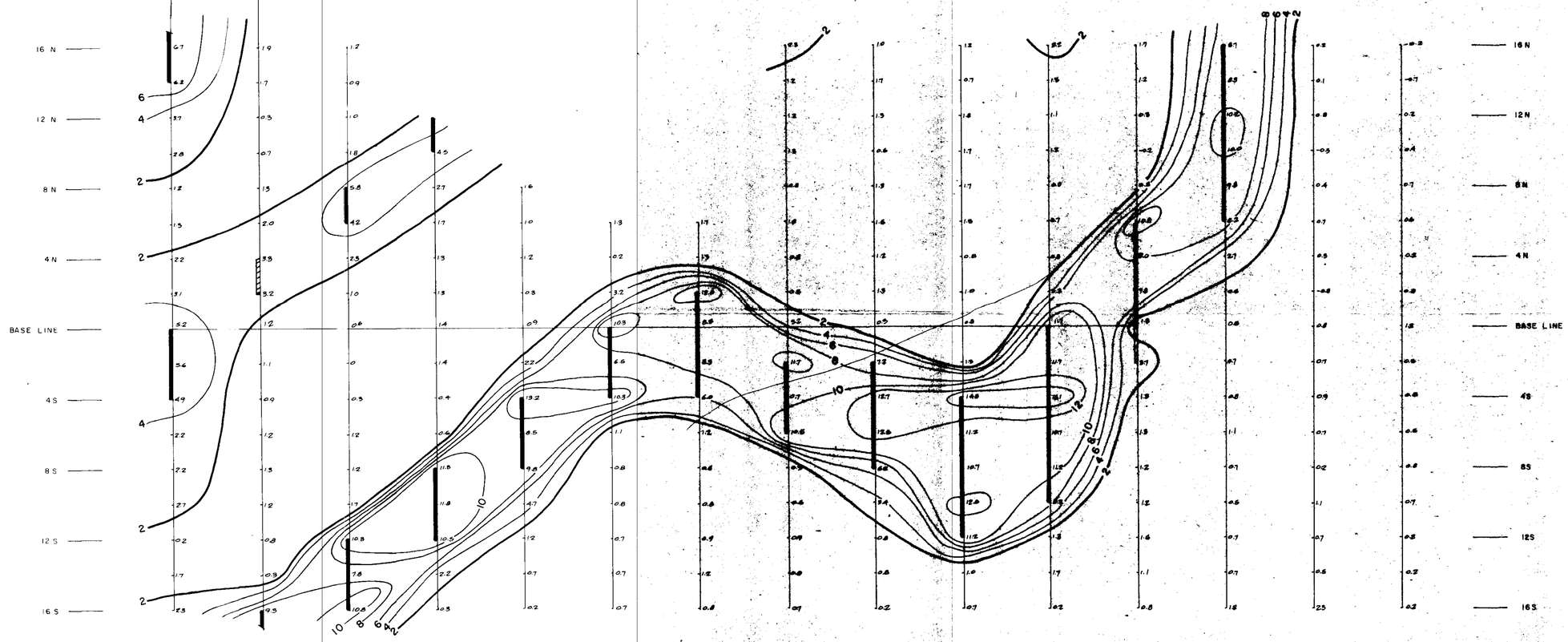
N

SAWMILL IP GRID
CLAIM BOUNDARIES.
Scale 1" = 1000'

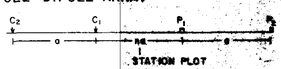
1:12 000

L 195E L 200E L 205E L 210E L 215E L 220E L 225E L 230E L 235E L 240E L 245E L 250E L 255E L 260E L 265E

20 N
16 N
12 N
8 N
4 N
BASE LINE
4 S
8 S
12 S
16 S



DIPOLE-DIPOLE ARRAY



C_2 to South

ANOMALOUS ZONE FROM PSEUDOSECTION PLOT

POSSIBLE ANOMALOUS ZONE FROM PSEUDOSECTION PLOT

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA PETER E. WALCOTT

10283

GIBRALTAR MINES LIMITED
SAWMILL GRID - CARIBOO M.D. - B.C.

INDUCED POLARIZATION SURVEY
CONTOURS OF APPARENT FREQUENCY EFFECT

a = 200' n = 2

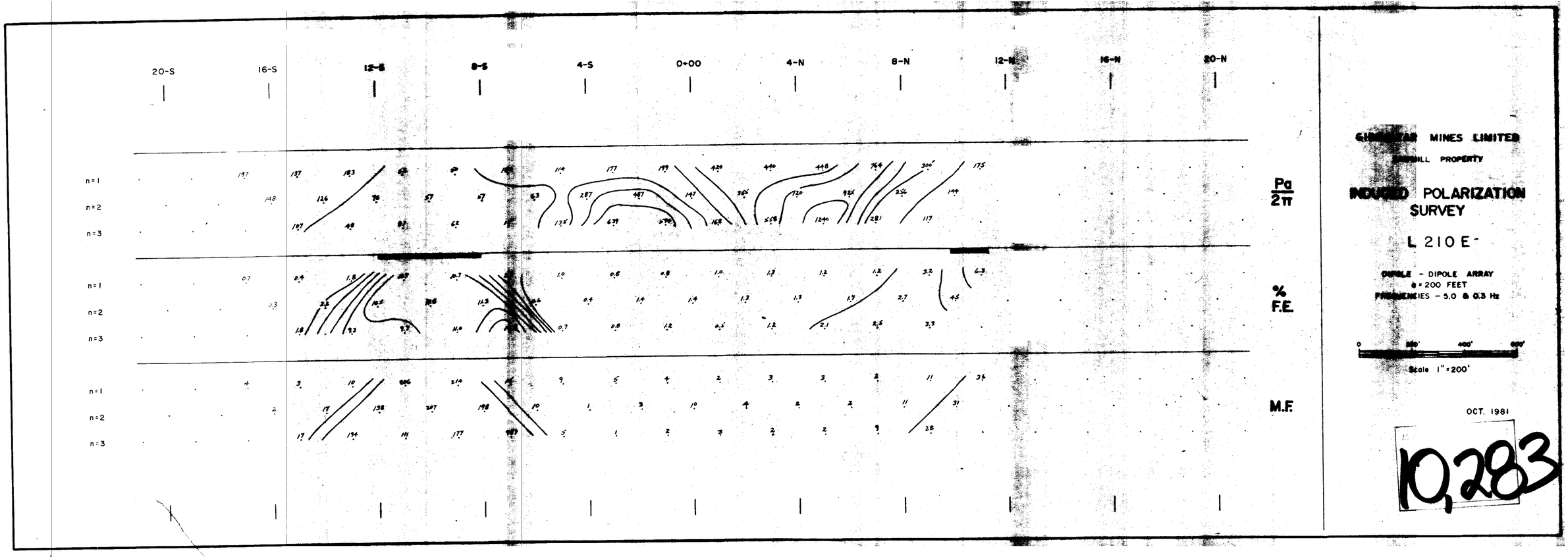
SCALE 1"=400' 1:4800 0 — 48 m

MAP No. W-309-2

To accompany a report by PETER E. WALCOTT, P.Eng.

PETER E. WALCOTT & ASSOCIATES LTD.

OCTOBER 1968



GIBRALTAR MINES LIMITED

[illegible] HILL PROPERTY

INDUCED POLARIZATION SURVEY

L 210 E

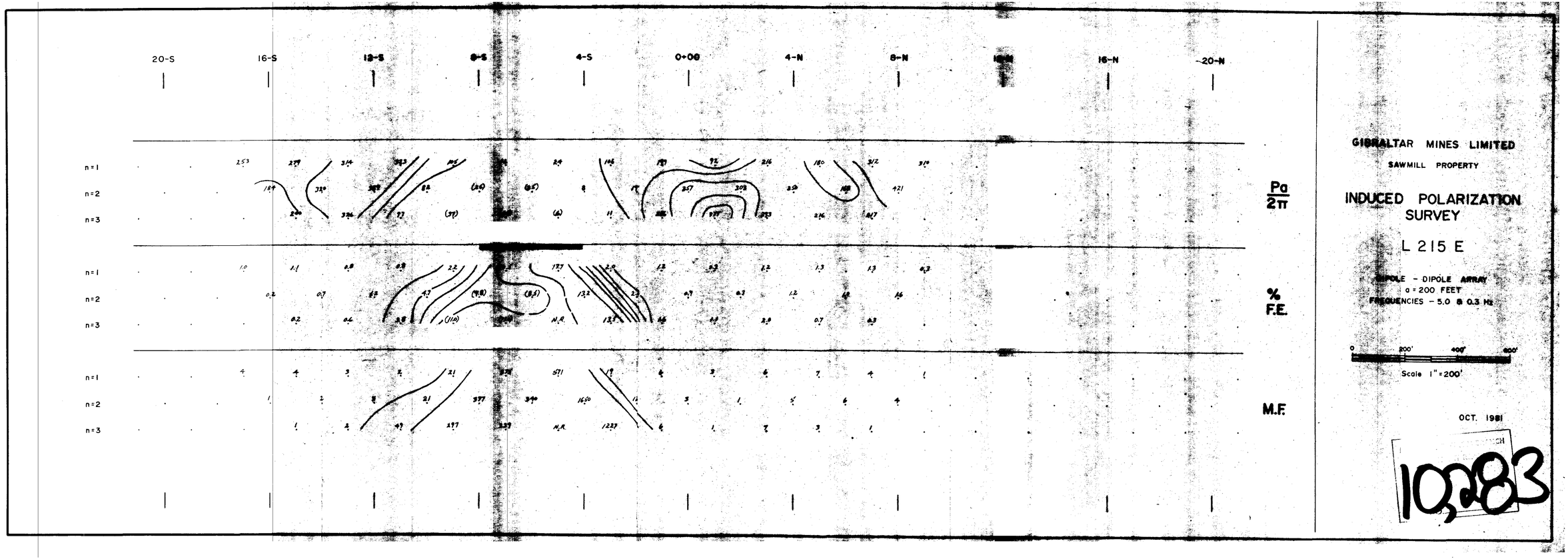
DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'

Scale 1" = 200'

OCT. 1981

10,283



GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

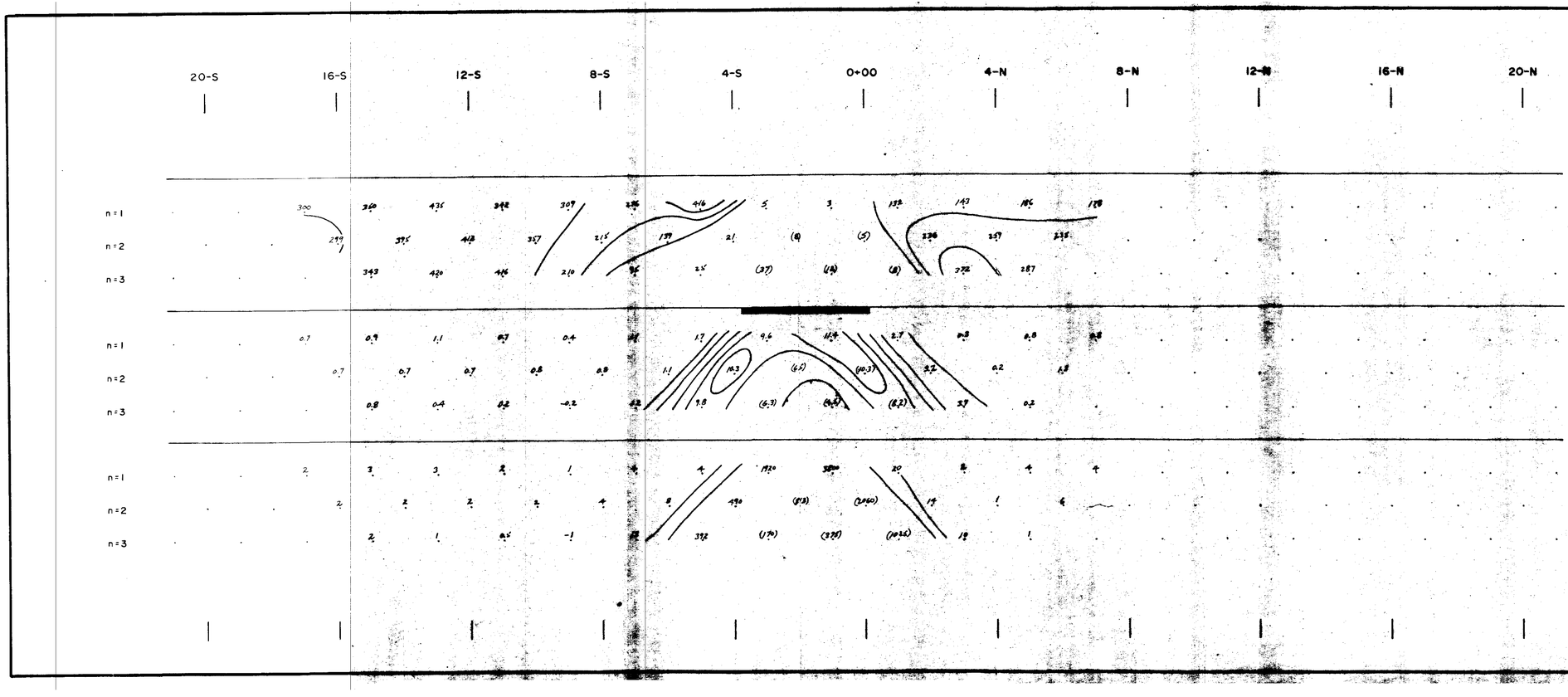
L 215 E

DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 600'

Scale 1" = 200'

OCT. 1981



GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 220 E

DIPOLE - DIPOLE ARRAY
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FREQUENCIES - 5.0 & 0.3 Hz

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OCT. 1981

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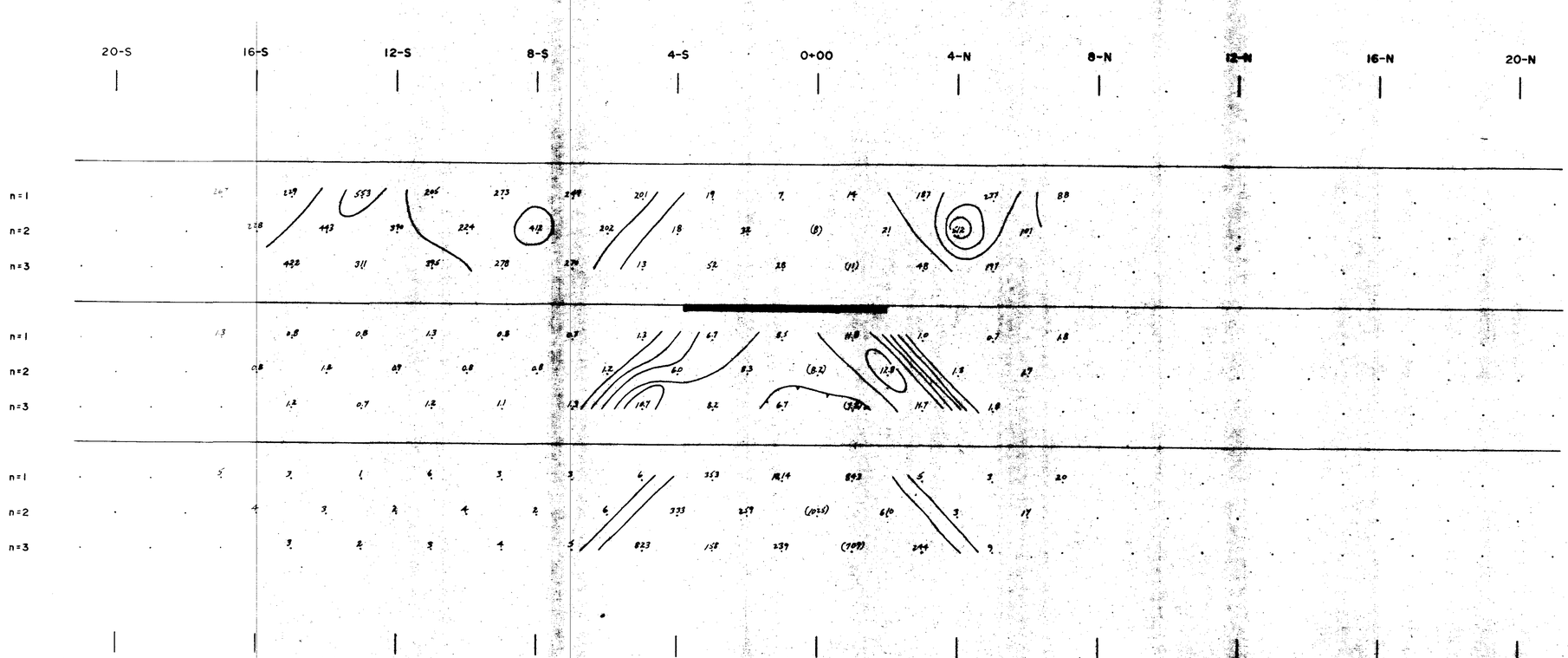

GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 225 E

DIPOLE - DIPOLE ARRAY
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FREQUENCIES - 5.0 & 0.3 Hz

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Scale 1" = 200'

OCT. 1981

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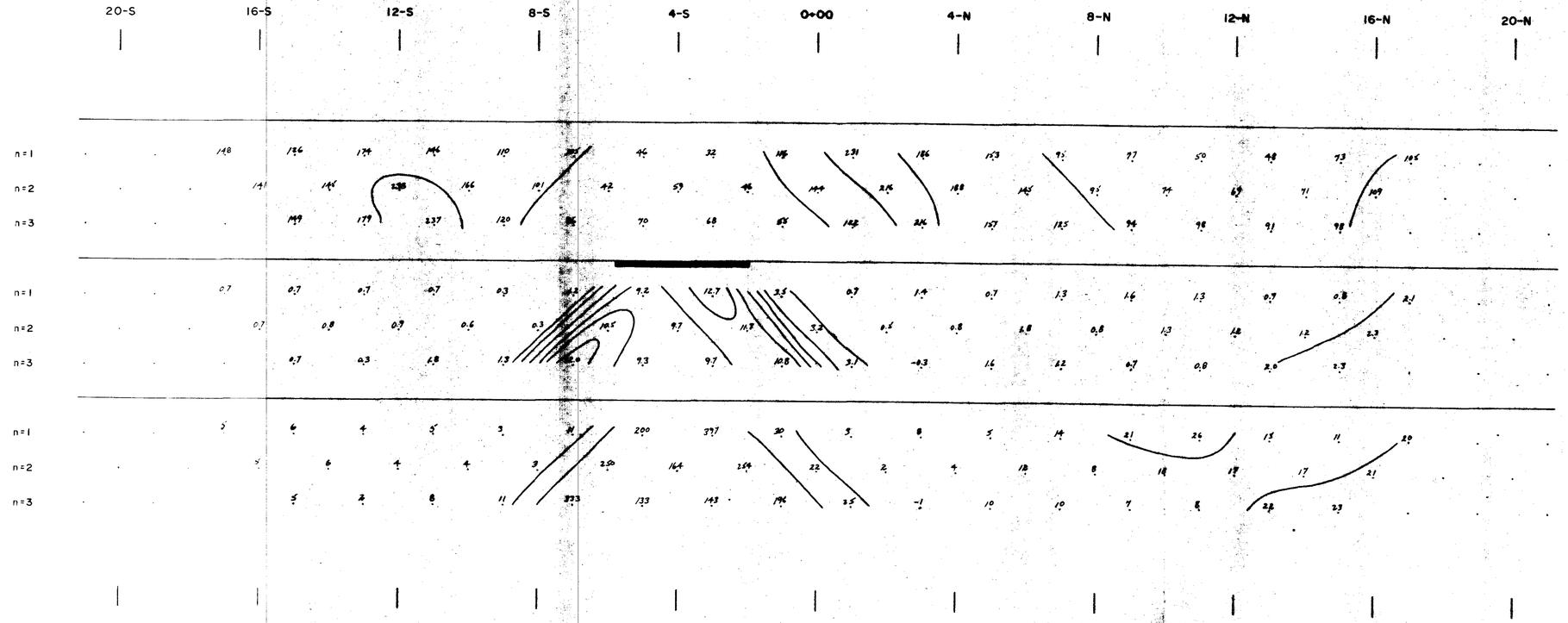

GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 230 E

DIPOLE - DIPOLE ARRAY
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FREQUENCIES - 5.0 & 0.3 Hz

0 200' 400' 800'
Scale 1" = 200'

OCT. 1981

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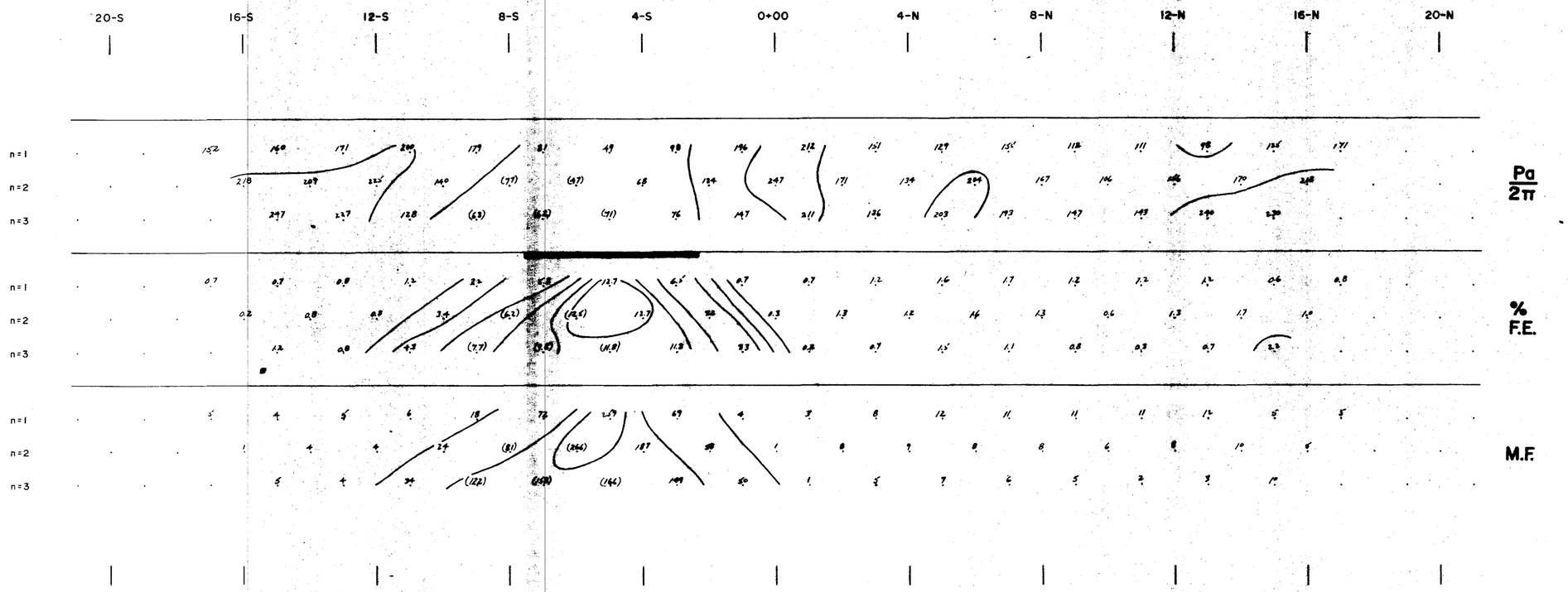

GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 235 E

DIPOLE - DIPOLE ARRAY
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FREQUENCIES - 5.0 & 0.3 Hz

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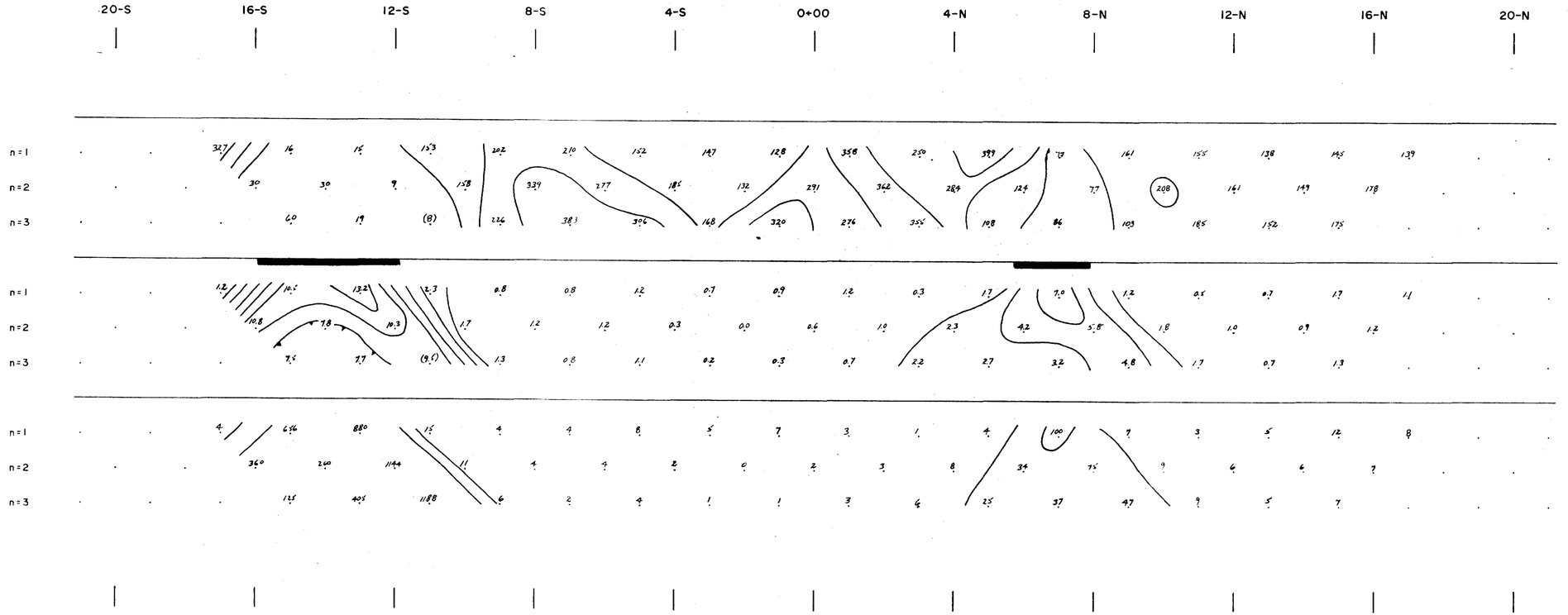

GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 205 E

DIPOLE - DIPOLE ARRAY
a = 200 FEET
FREQUENCIES - 5.0 & 0.3 Hz

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OCT. 1981

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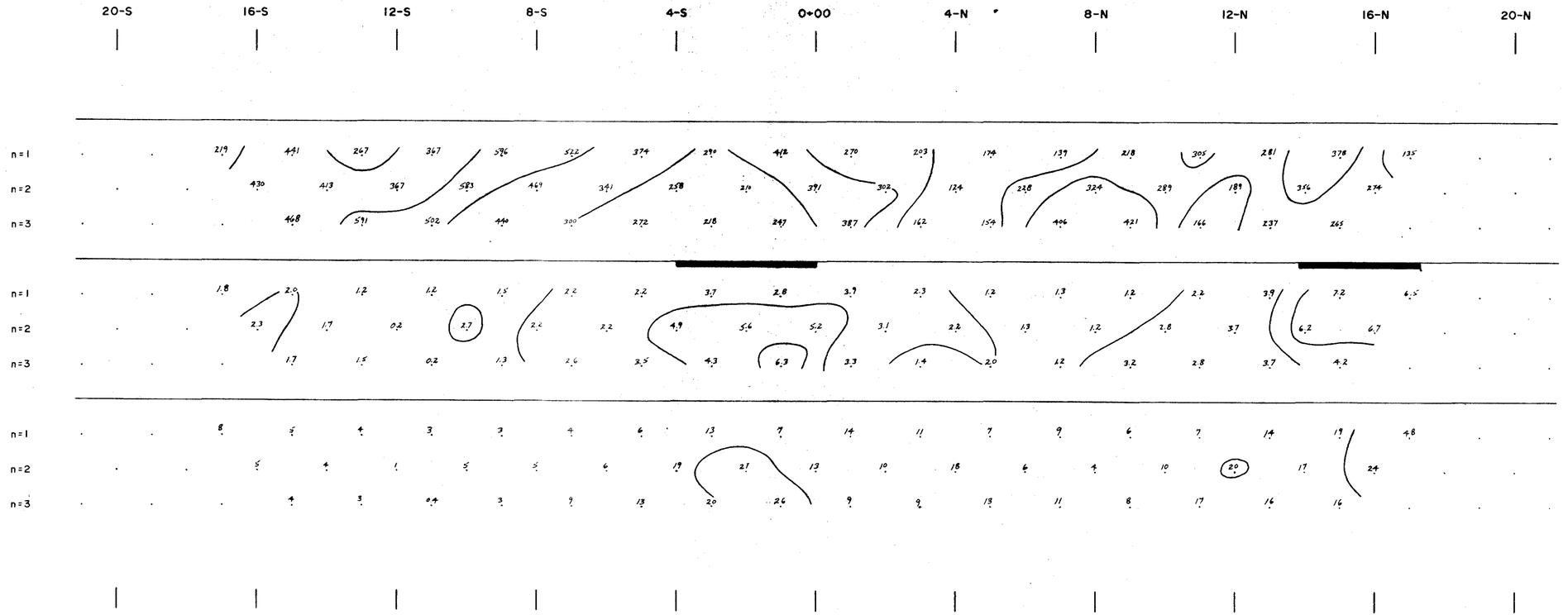

GIBRALTAR MINES LIMITED

SAWMILL PROPERTY

INDUCED POLARIZATION SURVEY

L 195 E

DIPOLE - DIPOLE ARRAY
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OCT. 1981

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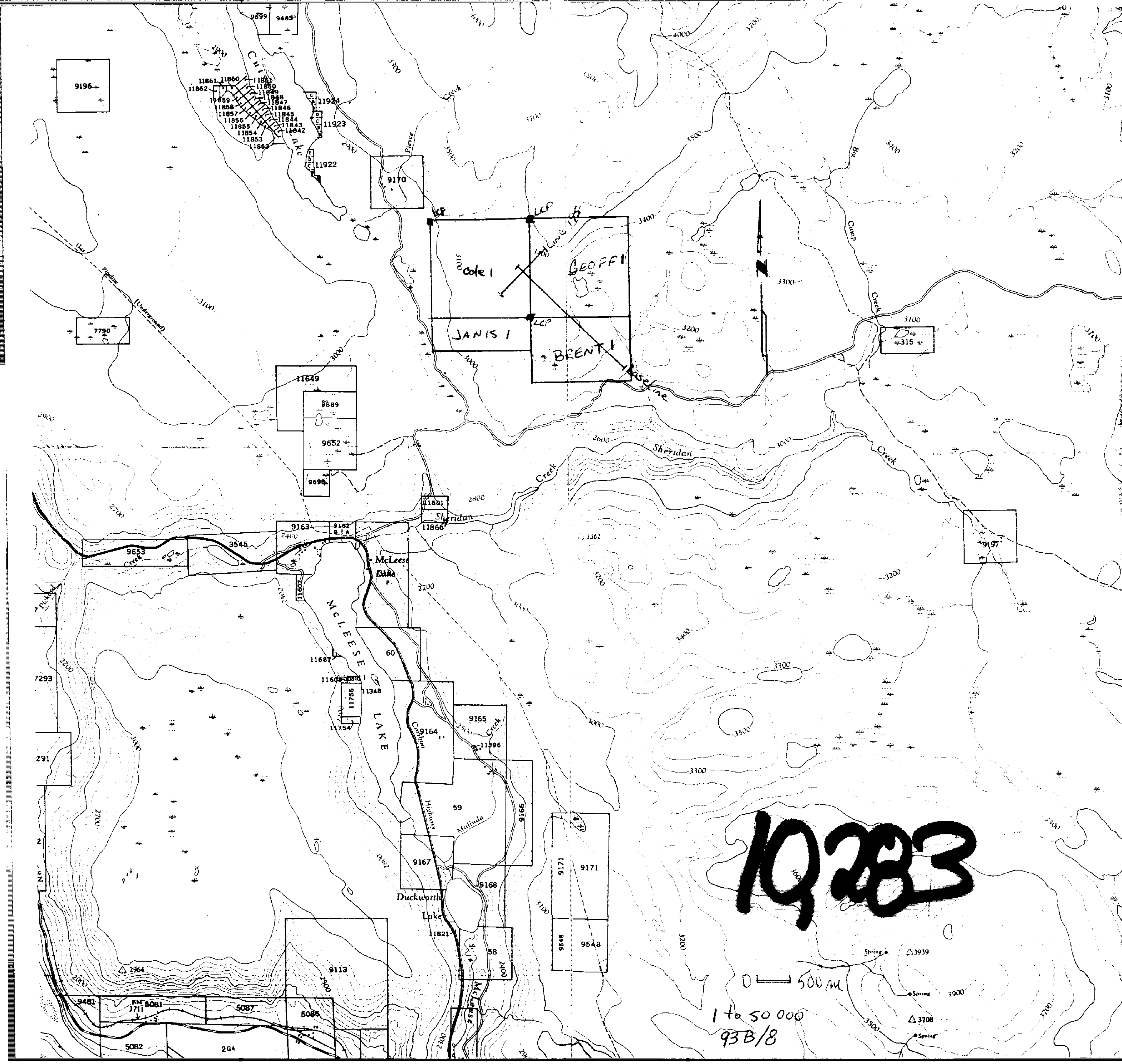
Cole 1
GEOFF 1
JANIS 1
BRENT 1
LCP
Baseline
10283
0 500 m
1 to 50 000
93B/8
McLEESE LAKE
McLeese Lake
Sheridan Creek
Pierce Creek
Camp Creek
Duckworth Lake
Malinda
Gas Pipeline (Underground)
Spring
△3939
△3708
△2964