#### PETER E. WALCOTT & ASSOC. LTD.

#### A PRELIMINARY REPORT

#### ON

## ELECTROMAGNETIC AND MAGNETIC SURVEYS

llixon Area, British Columbia
53° 20.5' N, 122° 23' W
N.T.S. 93G/8W 93C/7E

Cariboo Mining Division

FILMED

Claims surveyed: G-4,5,7,8,10,12,11,13,14,15,37, 43,48

Survey dates: October 3rd - November 16th, 1985

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Vananuman P.C.

GABRIEL RESOURCES

Owner/Operator:

VHM

FOI

Vancouver, B.C.

BY

PETER E. WALCOTT AND ASSOCIATES LIMITED

Vancouver, B.C.

FEBRUARY 1986

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## ACCOMPANYING MAPS

## MAP POCKET

		12.9 13	- Tom	& Terry Ci	eeks "		W-379-2	
11	n			rnment Cre		•••••	W-379-3	
CONTOURS	OF TO	TAL	FIELD	INTENSITY	- Yardley La	ke	W-379-4	to 6
11			11	11	- Tom Creek		W-379-7	
		11	11	n	- Terry Cree	k	W-379-8	
11	.11		11		- Government		W-379-9	
			Scale	1:2500				

SLECIKOMAGNEIIC	FRUTILES	- lafuley Lake, Scale	1.2000	M-379-10 10 12
tt	11	- Tom Creek,		W-379-13
0	11	- Terry Creek,	11	W-379-14
		- Government Creek,	tt	W-379-15

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#### INTRODUCTION.

Between October 3rd and November 16th, 1985, Peter E. Walcott & Associates Limited carried out Genie electromagnetic and magnetic surveys over parts of a large property, located in the Hixon area of British Columbia, for Gabriel Resources Inc.

The surveys were carried out over five grids along the strike of large airborne magnetic features on chain and compass lines established by the geophysical crew.

The lines were turned off by transit at right angles from and controlled by two nine kilometre cut and surveyed N  $35^{\circ}$  W picket lines, two kilometres apart in the case of the Yardley Lake grids (3) and from an eight hundred metre cut and surveyed N  $55^{\circ}$  W baseline in the case of the Government Creek grid. Due to high magnetic gradients in places backsighting on closely spaced flagging tied to tree limbs had to be employed to keep the lines in their planned positions.

Readings at three frequency pairs, 3037.5/112.5, 1012.5/112.5 and 337.5/112.5 were taken at 25 metre intervals along the lines using a Scintrex SE 88 electromagnetic unit with a coil separation of 100 metres.

Measurements of the total intensity of the earth's magnetic field were made every 25 metres along the survey lines using two GEM proton magnetometers. Corrections were applied for drift using an EDA base magnetometer.

The progress of the linecutting and surveys was severely hampered by the numerous occurrences of windfall - an old burn area and by the inclement weather - the snow was four feet deep at the higher elevations by the end of the project.

The surveys were discontinued when the monies of the fixed budget - the necessary assessment expenditures - were spent.

The E.M. data are presented in profile form on idealized plan maps of the line grids, whereas the magnetic data are presented in contour form on true plan maps of the same that accompany this report.

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#### PROPERTY, LOCATION AND ACCESS

The claims are located in the Cariboo Mining Division of British Columbia and consist of the following claims:

#### Yardley Lake

Name	of Claim	Units	Record No.	Expiry Date
G	South	20	3196	Mar. 12, 1986
G	1	20	3195	Mar. 12, 1986
G	3	20	3210	Mar. 13, 1986
G	4	20	3211	" 13, 1986
G	7	20	3214	" 16, 1986
G	2	20	3209	Mar. 13, 1986
	5	20	3212	Mar. 16, 1987
G	6	20	3213	Mar. 16, 1986
G	8	20	3215	Mar. 16, 1987
G	39	20	3853	Jul. 23, 1986
G	12	20	3219	Mar. 16, 1986
G	15	20	3222	Mar. 16, 1986
	17	10	3224	Mar. 16, 1986
	46	18	4020	Sept. 23, 1986
	9	20	3216	Mar. 16, 1987
	: 10	20	3217	Mar. 16, 1987
	36	14	3637	Jun. 15, 1986
	38	20	3852	Jul. 23, 1986
	; 11	20	3218	Mar. 16, 1986
	: 13	20	3220	Mar. 13, 1986
	: 14	20	3221	Mar. 16, 1986
	: 16	20	3223	Mar. 13, 1986
G	35	20	3636	Jun. 15, 1986
	Go	vernment Creek		
	37	20	3798	Jun. 29, 1986
	42	20	4081	Aug. 19, 1986
	÷ 43	20	4082	Aug. 19, 1986
	; 44	6	4083	Aug. 24, 1986
	; 47	2	4021	Sep. 23, 1986
	\$ 48	16	4022	Sep. 23, 1986
0	1.0	<i>r</i>	1070	10 1007

They are situated east of the Frazer River and the settlement of Hixon, and cover an area of some 150 square kilometres extending from 45 kilometres south of Prince George to 45 kilometres north of Quesnel.

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Aug. 19, 1987

Aug. 19, 1986

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Access was obtained by means of the numerous logging roads that take off eastwards from Hwy 97. GEOPHYSICAL SERVICES

#### PREVIOUS WORK.

Previous work on the property consisted of airborne electromagnetic (Input) and magnetic surveying, soil and rock geochemistry, geological mapping and VLF EM surveying. In addition in the late 1800' - early 1900's most of the major creeks in the area were worked by placer operations.

## PURPOSE.

The survey was designed to comply with the necessary assessment requirements of the claim groups, and also to investigate on the ground the E.M. responses associated with a series of northwesterly trending magnetic highs on the property - albeit these were of poorer conductivity in places in the northern portion on the airborne data - in an effort to locate possible sources for the previously worked placer deposits in the creeks.

## GEOLOGY.

The reader is referred to reports written and/or held by the staff of Gabriel Resources Inc.

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#### SURVEY SPECIFICATIONS.

The basic principle of any electromagnetic survey is that when conductors are subjected to primary alternating fields secondary magnetic fields are induced in them. Measurements of these secondary fields give indications as to the size, shape and conductivity of conductors. In the absence of conductors no secondary fields are obtained.

The electromagnetic survey was carried out using a SE 88 Genie electromagnetic system manufactured by Scintrex Limited of Metropolitan Toronto, Ontario. The operation of this system is based on the simultaneous transmission of two preselected, wellseparated frequencies from the transmitter, and the simultaneous reception and amplitude comparison of the resultant signals by that single receiver. There is no cable or radio link between the coils, and since there are effectively no coil geometry errors, the instrument is very effective in rugged topography and heavily forested areas. In the absence of atmospheric noise useful amplitude ratio changes may be made up to a transmitter-receiver separation of 200 metres.

On this survey measurements were made at three frequency pairs at a 100 metre coil separation.

The magnetic survey was carried out using two GSM-8 proton precession magnetometers manufactured by GEM Systems Inc. of Don Mills, Ontario. These instruments measure variations in the earth's magnetic field to an accuracy of <sup>±</sup> 1 gamma. Corrections for diurnal variations were made by comparison with readings obtained on a base magnetometer manufactured by EDA Instruments Ltd. of Metropolitan Toronto, Ontario.

Some 23.2 kilometres were cut and chained, and some 61.2 kilometres of electromagnetic and 68.0 kilometres of magnetic surveying were carried out.

#### PETER E. WALCOTT & ASSOC. LTD.

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#### DISCUSSION OF RESULTS.

As can be seen from Maps W-379-10 to 15 the E.M. results show the areas surveyed to be overlain by conductive overburden as evidenced by the positive levels on the measured ratios. Lateral variations on the same can be observed as shown by shifts in these levels.

Beneath this overburden several formational bedrock conductors in the underlying Talka volcanics and associated rocks are readily discernible as expected from the airborne survey results. These are best discussed on an individual grid basis.

It should be mentioned here that some of the anomalies are complex and would bear further work at different coil separations to determine (a) whether they be two narrow parallel conductors or a single wide conductive zone and (b) how they be connected from line to line.

Conductivity - thickness products - in siemens - have been estimated for some conductors assuming a shallow depth of burial and are shown on the profile plans by the numbers next to the individual line conductor axes.

#### Yardley Lake - Grids 1 & 2

These grids with little or no conductive overburden, as seen from the nearly flat background 1012.5/112.5 and 337.5/112.5 ratios, yielded the most bedrock conductors - albeit the most EM coverage.

Conductors A, B and C - Map W-379-12 are the ground equivalents of airborne conductors 56K and M. The first two are associated with a magnetic response of some 500 to 700 gammas anomaly "a" on Map W-379-6.

Conductors D, E and F, Maps W-379-11 & 12, are similarly correlatable to the airborne formational response N. No associated magnetic response was observed coincident with this conductive zone.

Conductors G and Q - Maps W-379-10 & 11 - appear to be the same conductor though separated by a 300 metre gap in the coverage. This conductor is an isolated conductor of limited strike length and is coincident with a magnetic response of some 400 to 600 gammas anomalies "c" and "b." on Maps W-379-4 & 5.

Conductors H, I & J - Map W-379-11 -, the ground expression of the airborne formational conductor Q, are located on the flanks of

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#### DISCUSSION OF RESULTS cont'd

areas of high magnetic intensity - Map W-379-5 - but do not appear to have any direct correlation with the latter.

Conductors K, L & M - Map W-379-10 - presumably are related to conductors H, I & J and are associated with an area of high magnetic response. Conductor M is coincident with magnetic anomaly "d" on Line 100S and "e" on Line 102S - Map W-379-4. Conductor N on Line 105S is also coincident with this latter magnetic anomaly - no EM coverage exists to date on Lines 103 and 104S where the strongest magnetic expression is observed.

Conductors O and P - single line conductors to date as per Map W-379-10 appear to be coincident with the extremities of narrow magnetic features that extend to the southeast - anomaly "f" on Map W-379-4.

Conductor R - Map W-379-10 - is an as yet undefined conductor associated with a broader lower intensity magnetic response.

#### Tom Creek - Grid 3

No bedrock conductors were observed over the four lines traversed here. The negative anomalous ratios observed in the middle of the grid reflect the edge effect of the more conductove overburden layer to the west as illustrated by the positive shift in background levels of the respective ratios - Map W-379-13.

#### Terry Creek - Grid 4

No bedrock conductors - Map W-379-14 - were observed over the large complex magnetic high - Map W-379-8- in the centre of the grid where some weaker isolated airborne responses were obtained.

Only one bedrock conductor - S - was observed in an area of essentially flat magnetic response.

Again edge effect response can be noted with the change in overburden conductivity on the western side.

#### Government Creek - Grid 5

No bedrock conductors were detected beneath the conductive overburden cover on this grid - Map W-379-15 - as shown by the positive offsets on the measured ratios.

### DISCUSSION OF RESULTS cont'd

Minima on the observed ratios, most particularly on the high one, are observed trending across the grid coincident with the creeks, presumably edge effects from the thicker conductive overburden to the south. - 10 -

#### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Between October 3rd and November 16th, 1985, Peter E. Walcott & Associates Limited undertook a linecutting, electromagnetic and magnetic survey programme over parts of a large property in the Hixon area of British Columbia for Gabriel Resources Inc.

Although the purpose of the survey was ground follow-up of a previously flown 1984 airborne survey, coverage could not be confined to the most interesting airborne anomalies but had to be spread out to meet assessment requirements.

Nonetheless as expected a number of complex conductors of moderate to good conductivity were located, most of which are found in the Yardley Lake area. These were mostly undefined in strike extent as expected of formational conductors, the causative sources of which are most probably graphitic argillites.

However four of these conductive zones - namely multiple conductors, A & B, G & Q, K, L, M & N, and O & P - are coincident with zones of higher magnetic intensity, for the most part well defined and of apparent limited extent suggesting that the causative source of the former could well be massive sulphide mineralization.

To date these conductive zones have not been properly defined but appear to strike obliquely across the existing grid at some 30°.

As a result the writer recommends the following be undertaken to properly assess these zones prior to investigation by diamond drilling:

- (1) Anomalies A, B & C and magnetic anomaly "a" be fully defined.
- (2) EM and magnetic coverage be completed on Lines 95 and 99S.
- (3) EM coverage be completed on Lines 103, 104, 106 & 107S respectively to properly define anomalies K, L, M, N, O and P, and extended along with magnetic readings to the south if necessary.
- (4) The defined anomalies then be covered by four small cut grids using N 65°W baselines - subject to slight modification as a result of the detailed above completed coverage-and detailed using a Max-Min II horizontal loop electromagnetic system.

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#### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS cont'd

(5) Magnetic coverage and soil geochemistry also be undertaken on the grids.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

Peter E. Walcott, P.Eng. Geophysicist

Vancouver, B.C. February 1986

## APPENDIX

#### PETER E. WALCOTT & ASSOC. LTD.

COST OF SURVEY.

Peter E. Walcott & Associates Limited undertook the programme on a contract basist, a breakdown of which is as follows:

Mobilization	\$2,300.00
Linecutting 23.4 kms at \$545.00 per km	12,750.00
Genie E.M. surveying 61.2 kms at 500.00 per km	30,600.00
Magnetic surveying 68 kms at \$100.00 per km	6,800.00
Draughting & report preparation	2,427.58
Discussions & report writing	1,250.00

TOTAL COST

\$56,127.58

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## PERSONNEL EMPLOYED ON SURVEY

NAME	OCCUPATION	ADDRESS	DATES					
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court,	Nov. 12th, Dec. 10th, 1985					
		Coquitlam, B.C. V3J 3T8	Feb. 10th - 14th, 86					
G. MacMillan	Geophysical	"	Oct. 3rd - Nov. 16h,					
	Operator		Dec. 7th - 20th, 85					
			Feb. 2nd - 8th, 1986					
V. Pashniak	11	U	Oct. 8th - Nov. 16th 1985					
P. Charlie			Oct. 3rd - Nov. 16th 1985					
R. Summerfield			u					
G. Mandryk			Oct. 25th - 31st,					
			Nov. 12th, 1985					
D. Sloan		n						
D. Jensen		n	Nov. 9th - 16th, 85					
B. Newman.		u.	11					
F. Von Flotow		п	Nov. 12th, 1985					
J. Walcott	Typing	11	Feb. 14th, 1986					

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#### CERTIFICATION

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

- I am a Graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.
- I have been practising my profession for the last twenty four years.
- I am a member of the Association of Professional Engineers of British Columbia and Ontario.
- 4. I hold no interests, direct or indirect in the properties of Gabriel Resources Inc. nor do I expect to receive any.

Peter E. Walcott, P.Eng.

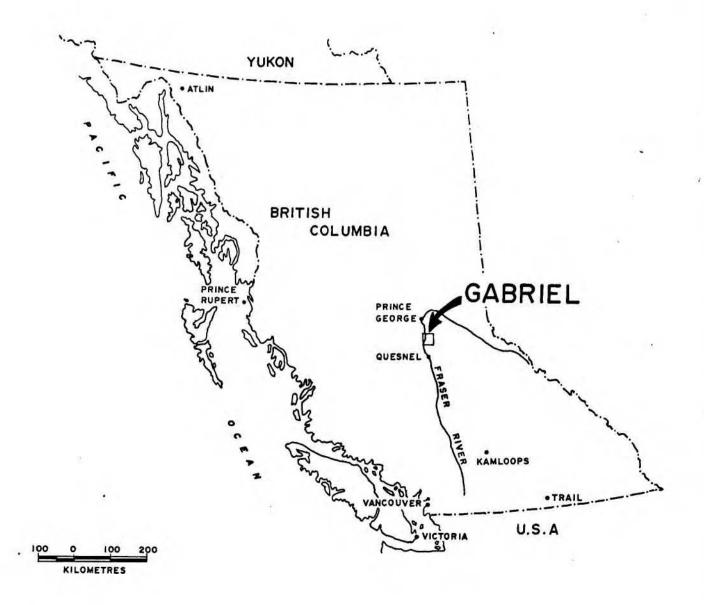
Vancouver, B.C.

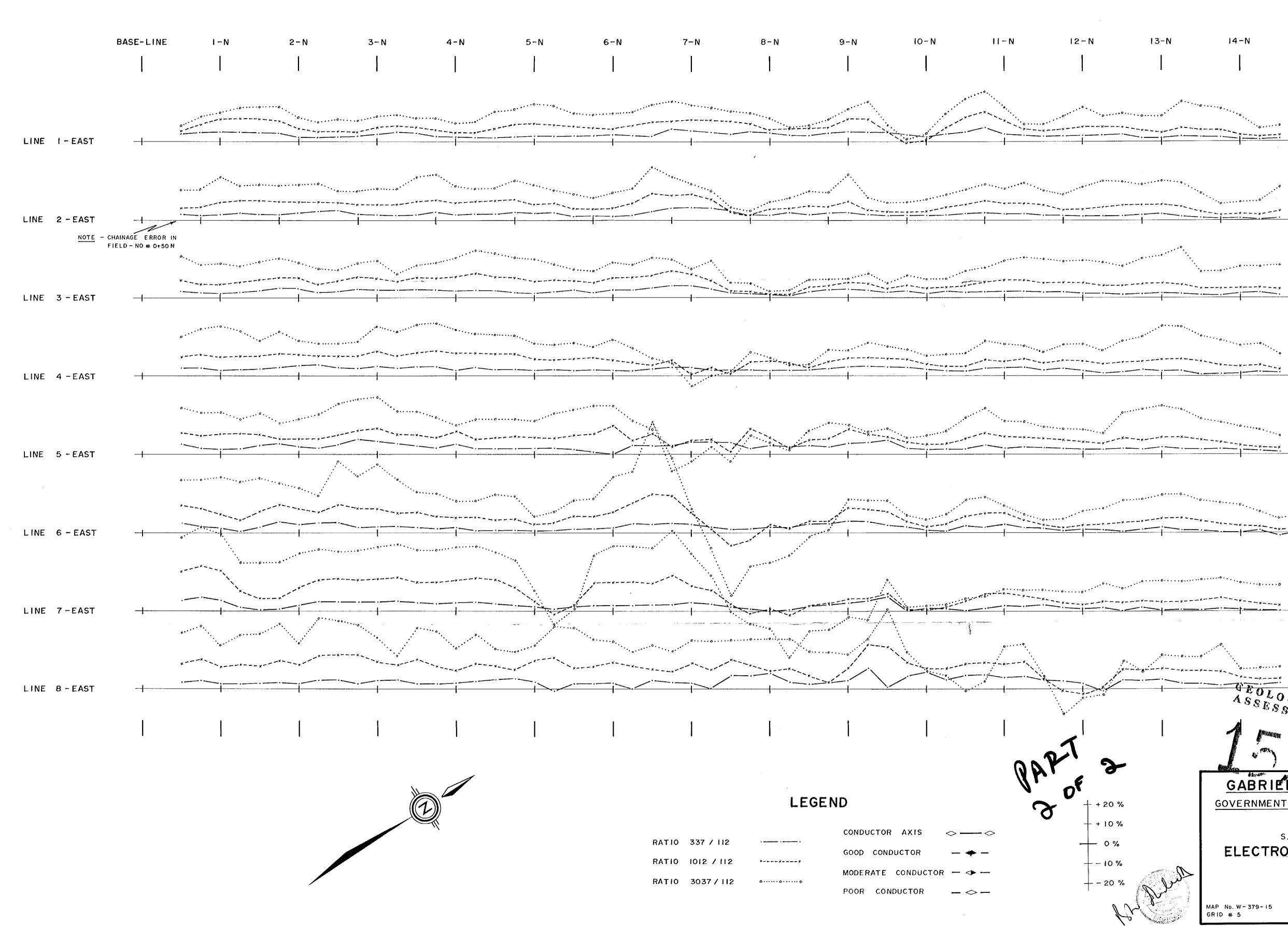
February 1986

# GABRIEL RESOURCES INC.

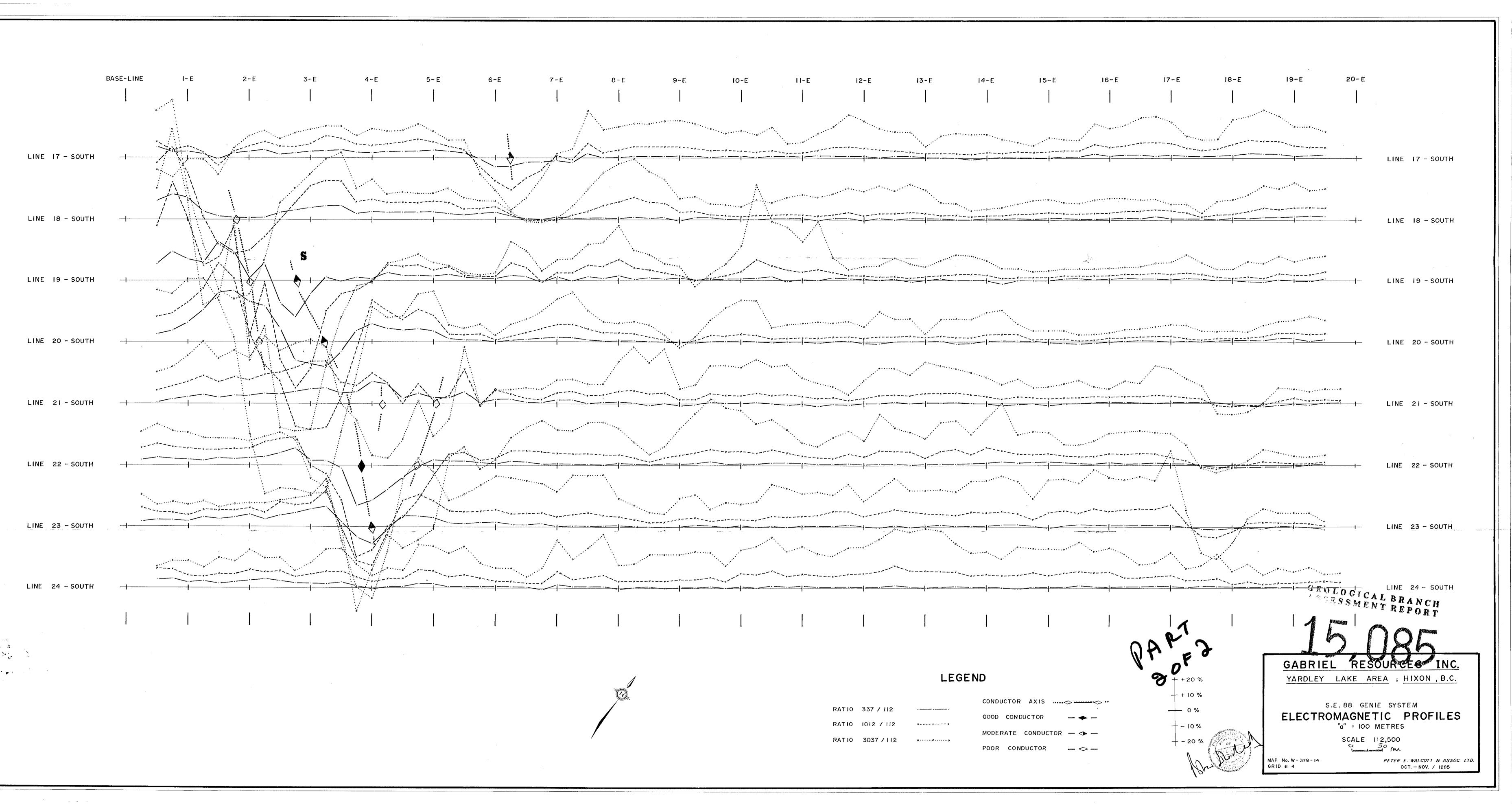
## LOCATION MAP

YARDLEY LAKE , GOVERNMENT CREEK , & AHBAU PROPERTIES

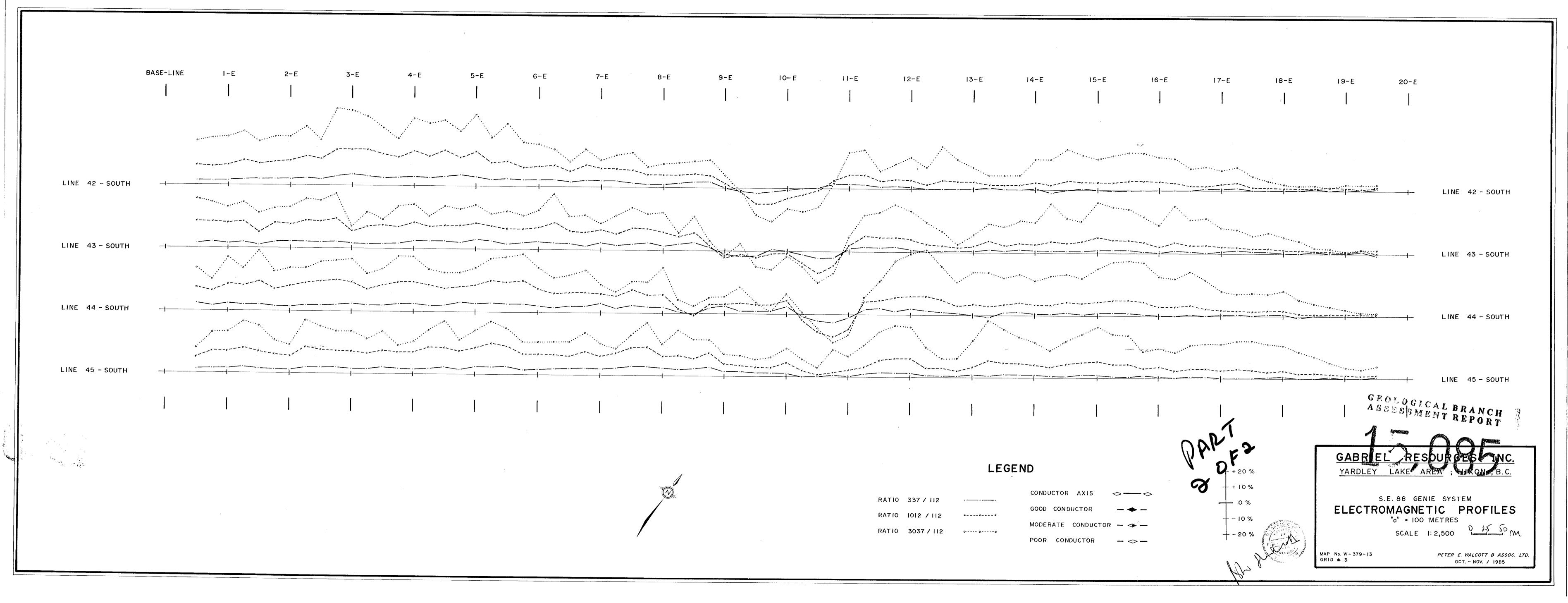


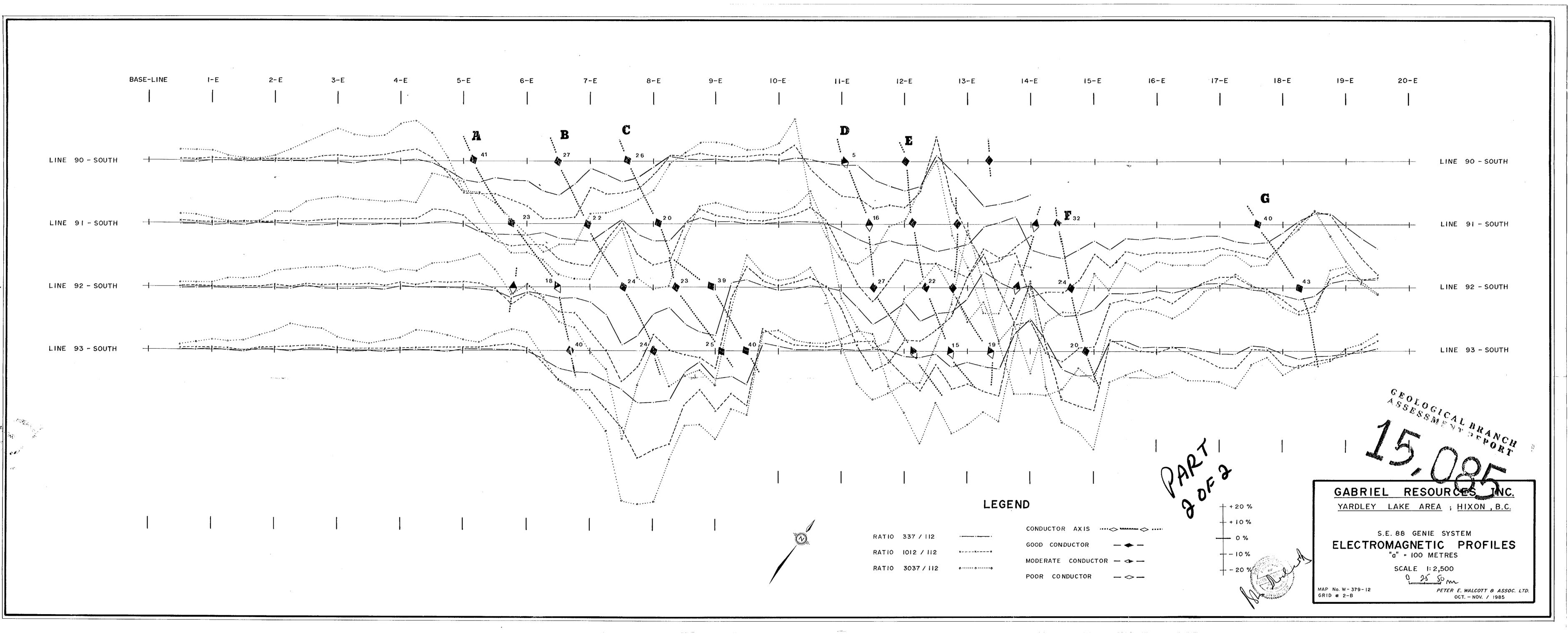


15-N 14-N LINE I-EAST LINE 2-EAST .............. • • • • • • • • <sup>•</sup> LINE 3-EAST LINE 4-EAST LINE 5-EAST ······· LINE 6-EAST LINE 7-EAST GEOLOGICAL BRANCH ASSESSMENT REPORT ·~×---×---× LINE 8-EAST GABRIEL RESOURCES INC. GOVERNMENT CREEK AREA ; HIXON , B.C. S.E. 88 GENIE SYSTEM ELECTROMAGNETIC PROFILES "a" = 100 METRES 25 50 m SCALE 1:2,500 MAP No. W- 379-15 PETER E. WALCOTT & ASSOC. LTD. GRID # 5 OCT. - NOV. / 1985

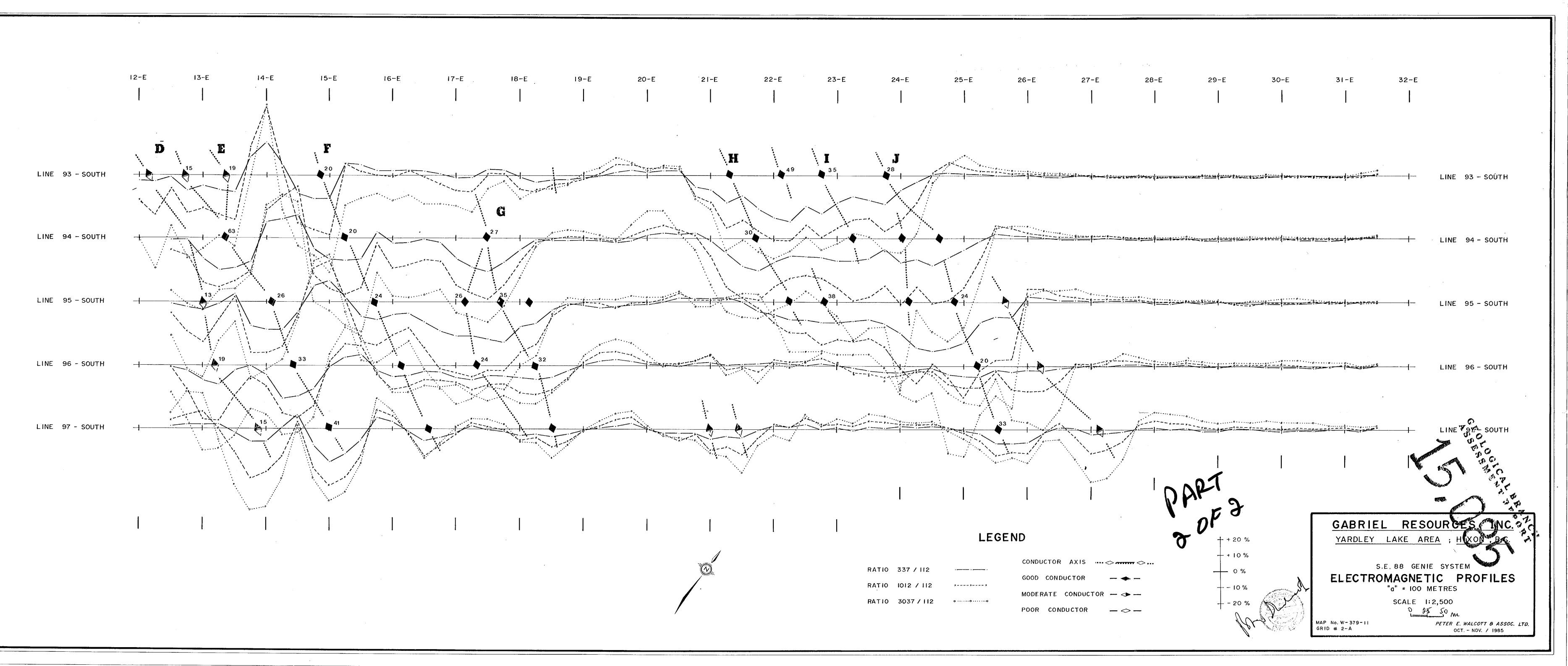








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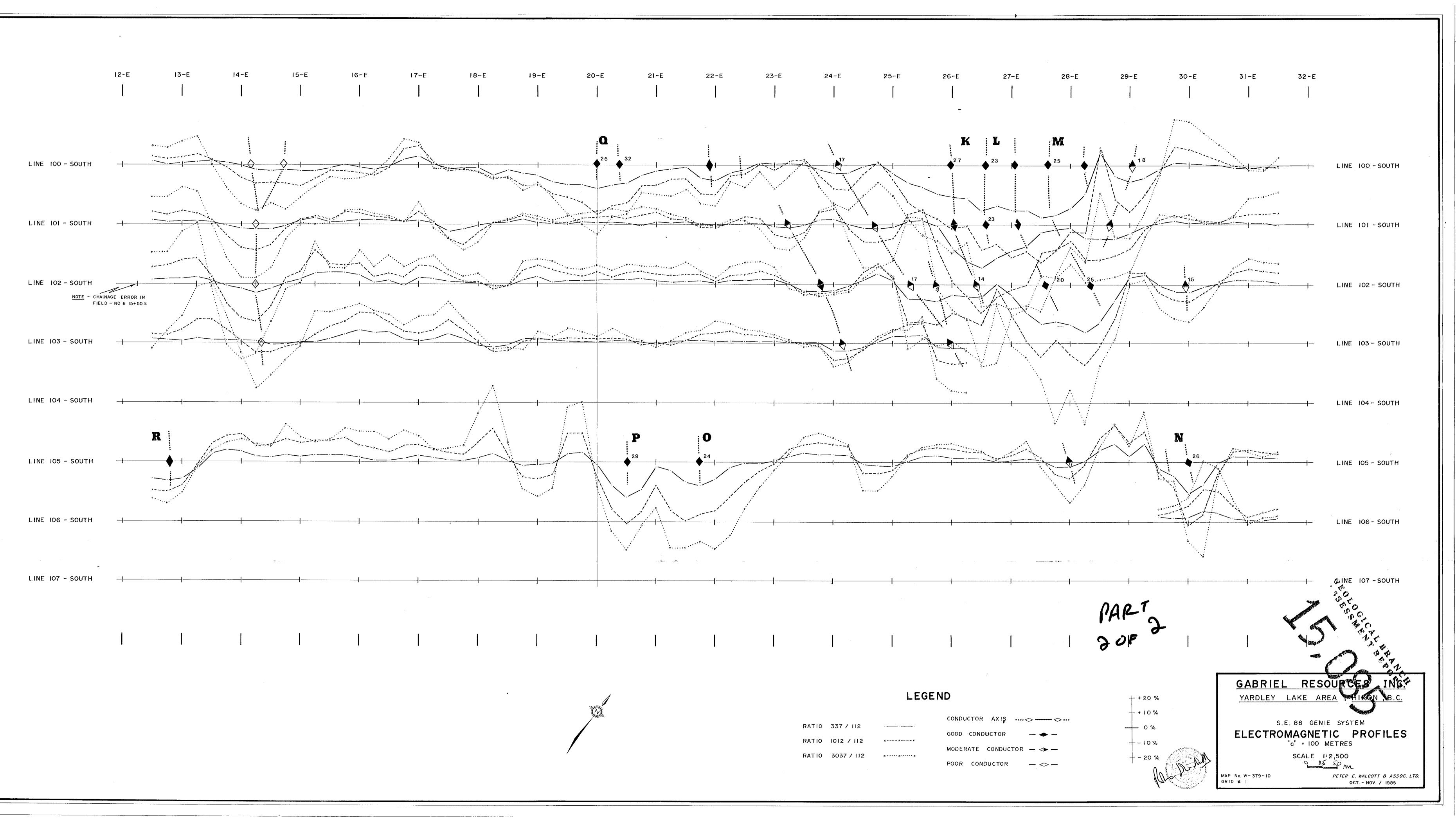




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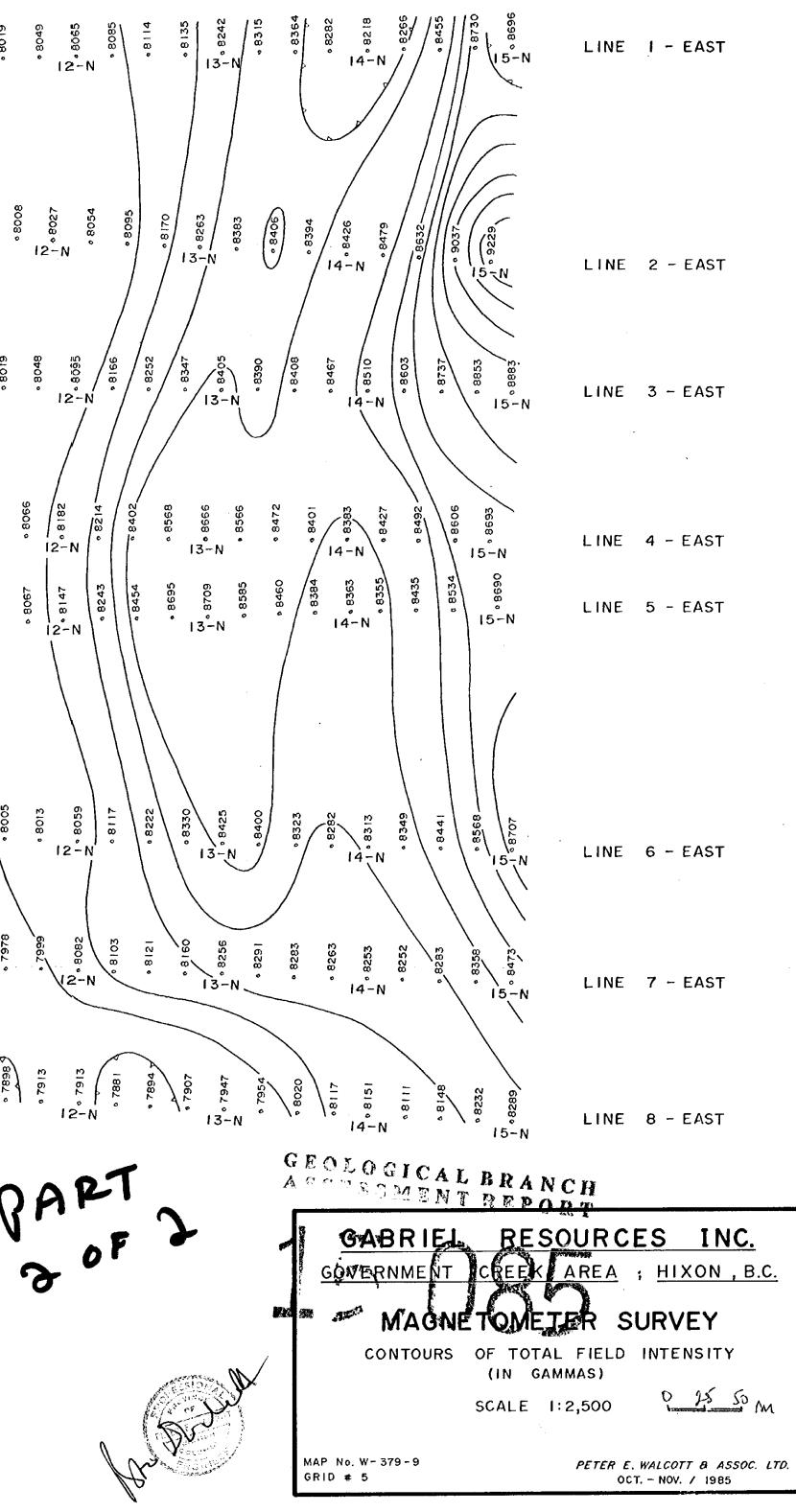
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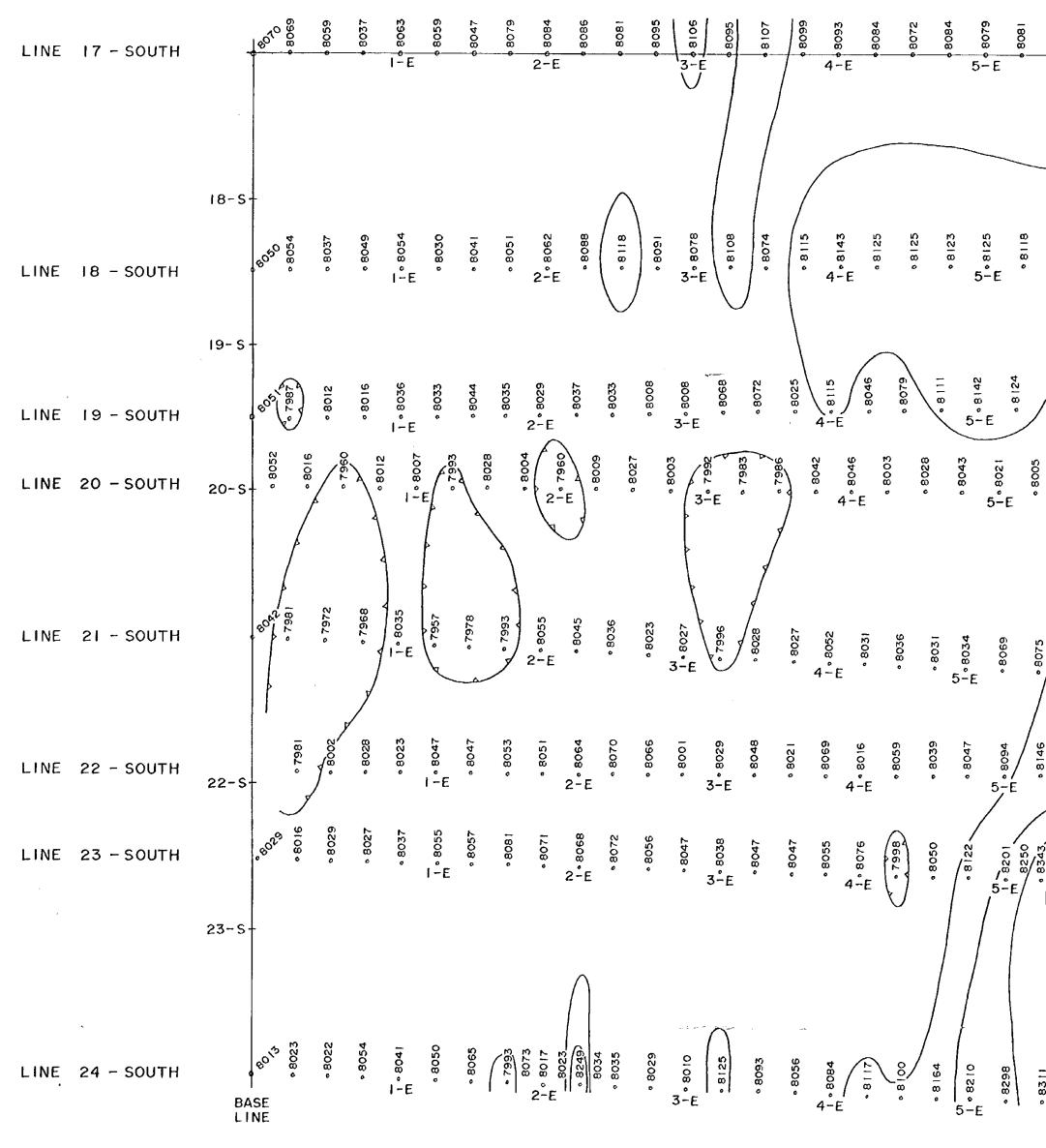
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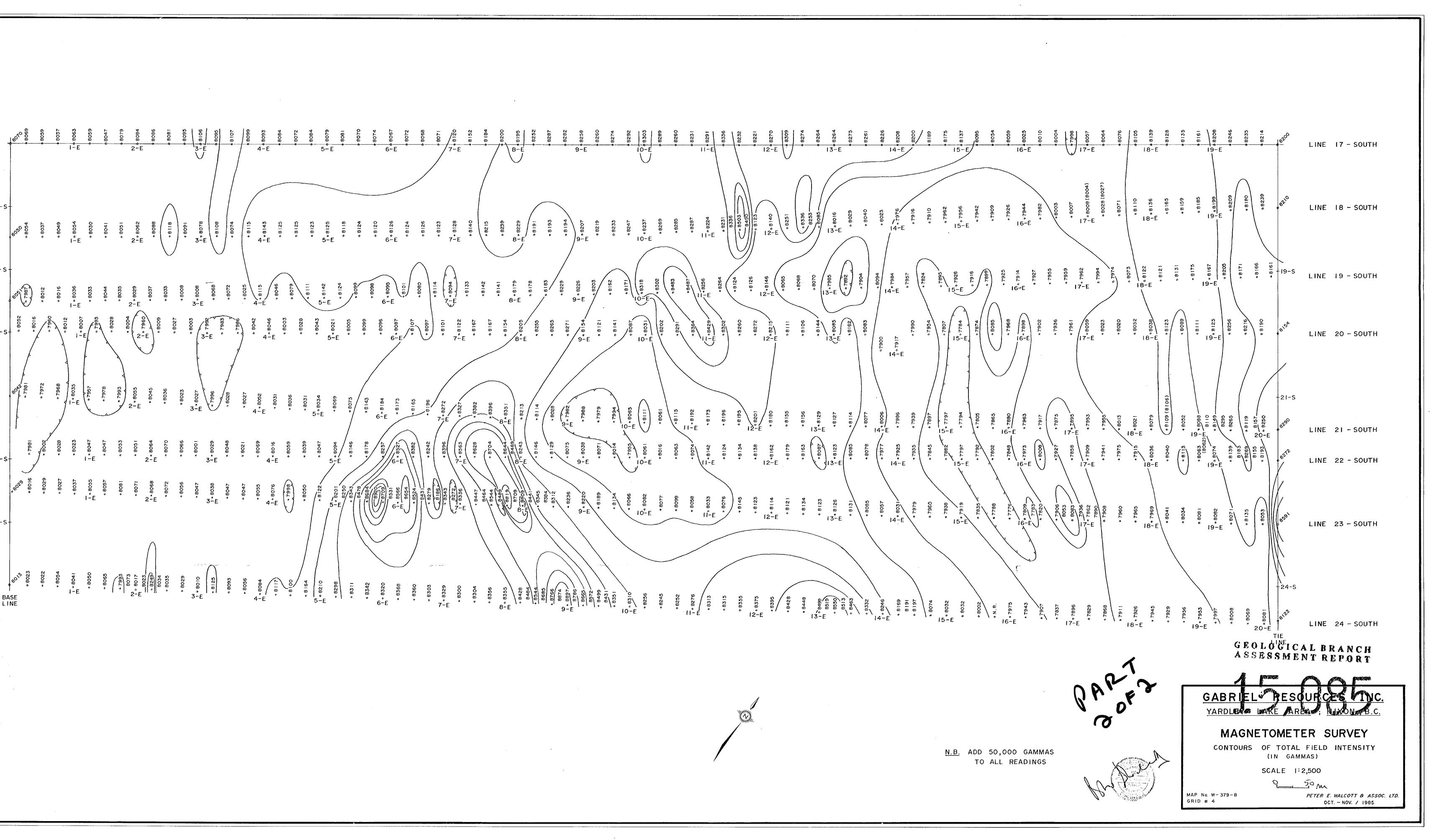
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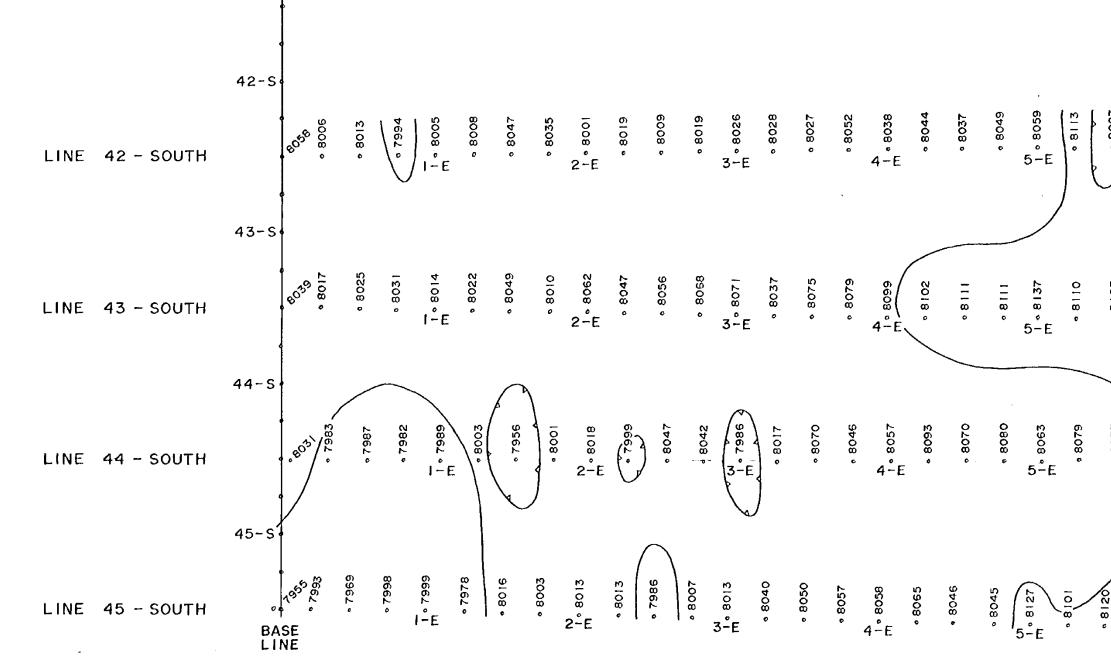
<u>N.B.</u> ADD 50,000 GAMMAS TO ALL READINGS





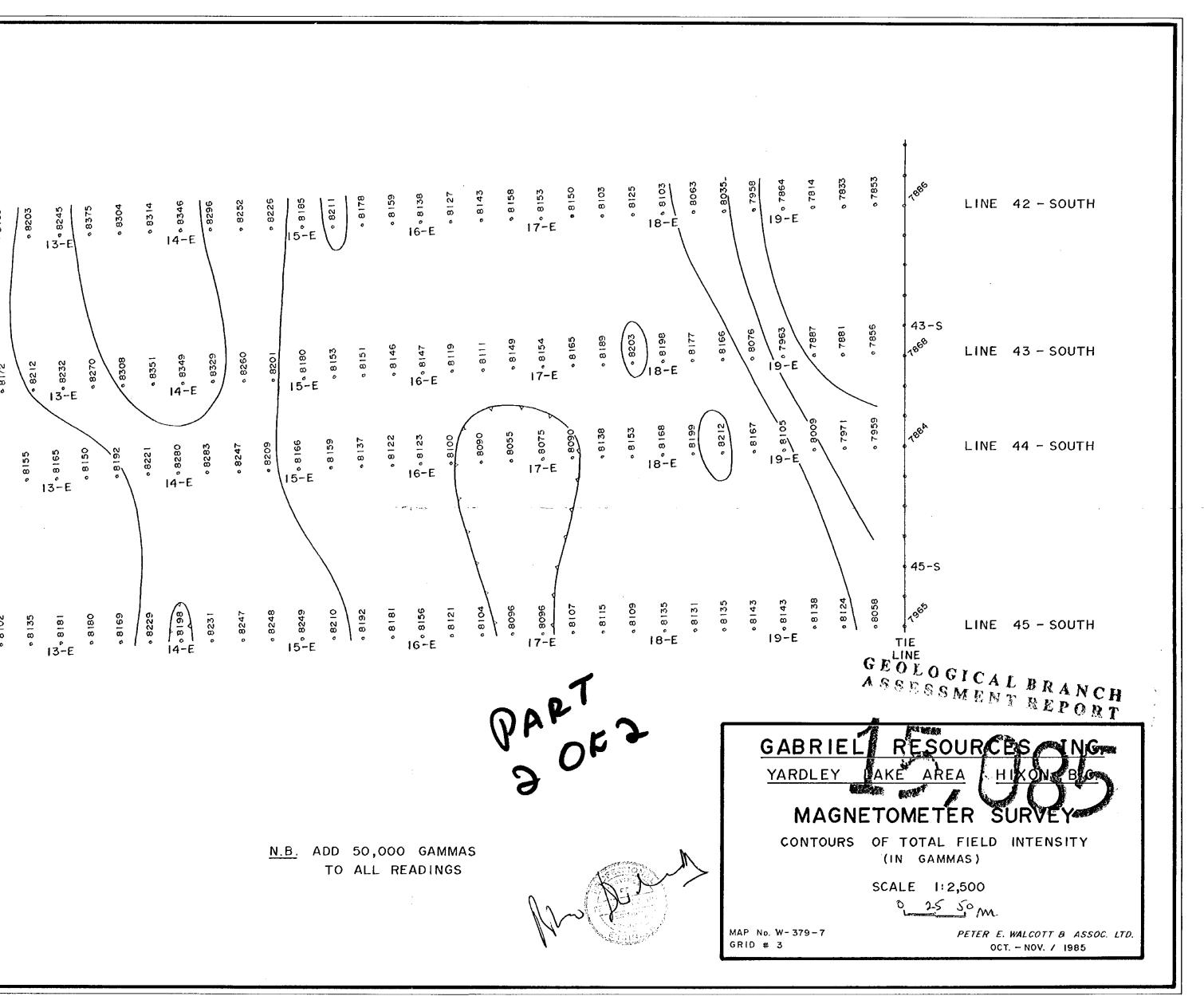
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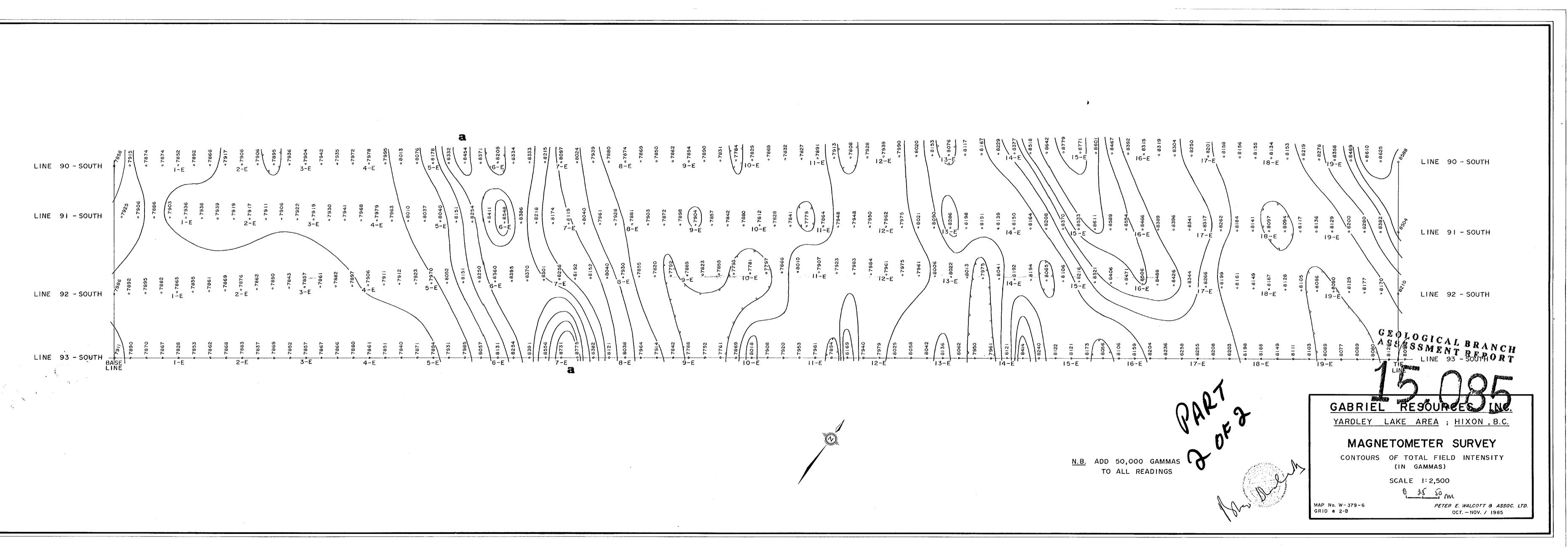


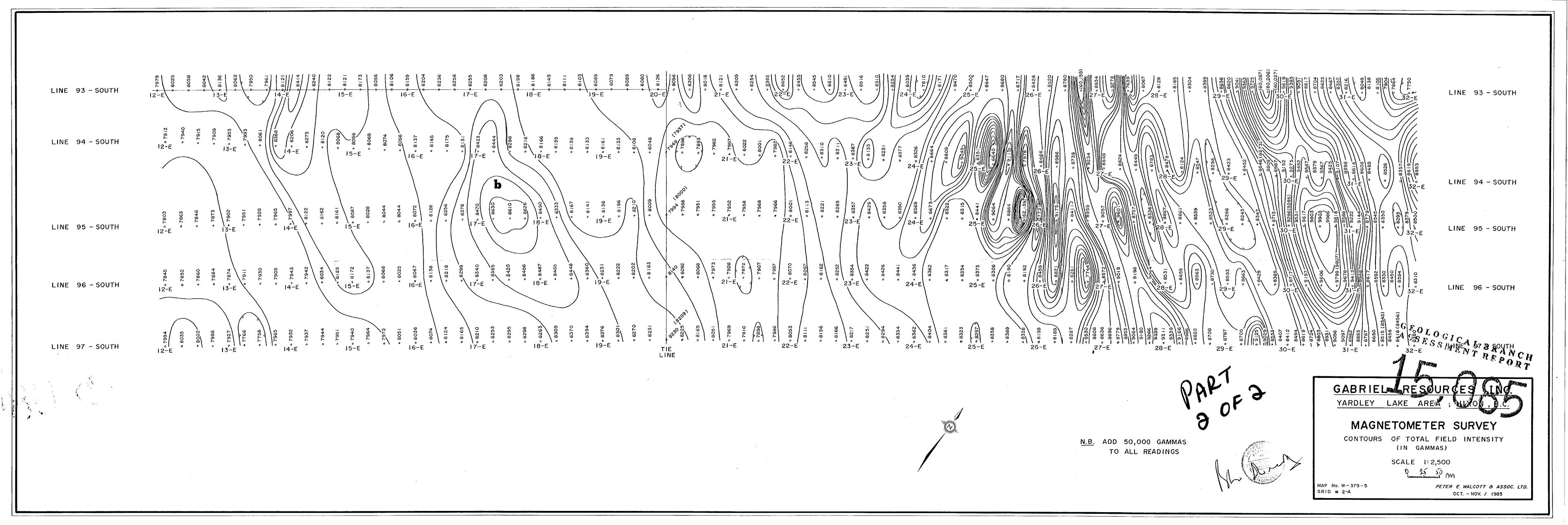


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