

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

N.T.S. 92H/15E

GEOPHYSICAL REPORT

ON AN

INDUCED POLARIZATION SURVEY

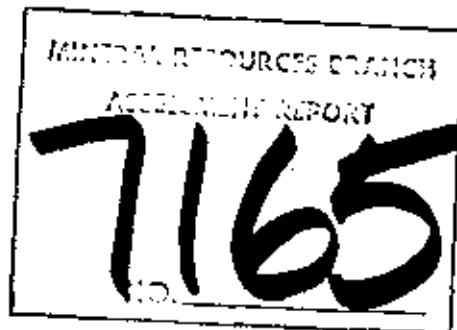
THALIA PROPERTY

Aspen Grove Area, B.C.; Nicola Mining Division

Latitude: 49°50'N; Longitude: 120°35'W

Work Performed: August 10-14, 1978

On Claims: Thalia 1, 4, 5



JANUARY 1979

Alan Scott

part 1 of 2

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ATTACHMENTS

Plate 147-78-1	Location Plan
147-78-2	Claims and Grid Map
147-78-3	Induced Polarization/Apparent Resistivity Pseudosections - West Grid
147-78-4 to 9	Induced Polarization/Apparent Resistivity Pseudosections - East Grid
Appendix I	Statement
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Appendix III	Certification

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APPENDIX II

THALIA CLAIMS

STATEMENT OF EXPENDITURES

(IP Survey)

SALARIES: (Field work done August 10-13, 1978)

A.R. Scott	3 days @ \$150/day	=	\$ 450	
G.J. Niemeyer	4 days @ \$120/day	=	\$ 480	
J. Reader	4 days @ \$ 82/day	=	\$ 328	
T. Maurer	4 days @ \$ 82/day	=	\$ 328	
B. Lum	3 days @ \$ 82/day	=	\$ 246	
I. Cummings	3 days @ \$ 82/day	=	\$ 246	
R. Grant	3 days @ \$ 82/day	=	\$ 246	
				<u>\$ 2,324.00</u>

MISCELLANEOUS:

Food, lodging, gas, consumables \$ 974.13

OPERATING CHARGES:

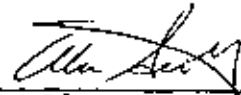
(Towards report and drafting)

3 days IP survey @ \$175/day \$ 525.00

GEOPHYSICAL EQUIPMENT & TRUCK RENTALS  
AND CHARGES:

3 days IP survey @ \$282/day \$ 846.00

TOTAL:.....\$ 4,669.13



Alan Scott  
Geophysicist

ARS/sn  
16 January 1979

## INTRODUCTION

The THALIA property is located some 12 kilometers south of Aspen Grove, B.C., as indicated on accompanying Plate 147-78-1. The lines surveyed, in relation to the claims, are shown on Plate 147-78-2.

During the period August 10-14, 1978, a Cominco geophysical crew completed some 5.6 line kilometers of multi separation induced polarization survey over portions of the THALIA claims. One line was surveyed on the "West Grid" and the remaining six lines were surveyed on the "East Grid".

This report describes this induced polarization work, presents the data, and discusses the results.

## LOCATION AND ACCESS

The THALIA claims are approximately centered at geographic coordinates 49°50'N latitude by 120°35'W longitude, and are situated immediately southwest of Bluey Lake.

Road access to the property is gained by turning east onto a good gravel road from highway number 5, some 12 kilometers south of Aspen Grove.

## GEOLOGY

The THALIA property is an alkaline porphyry copper prospect located in the Aspen Grove complex. It is underlain by a sequence of basaltic pyroclastic rocks intruded by small dioritic and monzonitic dykes and stocks. Chalcocite mineralization, associated with calcite, epidote and clay alteration in fractured diorites, has been identified in trenches on the "East Grid".

## INDUCED POLARIZATION SURVEY

The survey was conducted under the direction of A. Scott, geophysicist, and G. J. Niemeyer, geophysical technician.

The east grid was surveyed using a seven man crew with two receivers operating simultaneously. (Read n=1 and 3 then both move to read n=2 and 4). The single line surveyed on the west grid was surveyed with a four man crew.

Scintrex IPR-8 receivers, in combination with a Huntco 7.5 kw motor generator/transmitter were used on the survey. This equipment operates in the time domain, employing a 2 second current on/2 second current off alternating square wave. The chargeability (IP) values plotted are the  $M_{232}$  values, and the units are millivolts/volt. To convert to the more common millisecond value (such as would be obtained with the older model IPR-7), the numbers should be multiplied by 0.7, for a "typical" decay curve. For a more detailed discussion of this instrument, the reader is referred to the Scintrex manual for the IPR-8.

The pole dipole electrode array was used on the survey with an "a" spacing of 50 m and "n" separations of 1, 2, 3, and 4. The current electrode was kept to the west of the potential dipole.

The apparent resistivity data is given in units of ohm meters. The values were calculated from the relation:

$$\text{apparent resistivity} = (V/I) \cdot K$$

where V is the voltage across the potential measuring dipole due to a transmitted current I, and K is a geometric factor dependent upon the "a" spacing and "n" separation.

## DESCRIPTION OF RESULTS

The induced polarization (chargeability) and apparent resistivity data is presented in standard pseudo section format as Plates 147-78-3 to 9 inclusive.

Plate 147-78-3 gives the results of the line surveyed on the west grid. A weak anomaly is located at station 125E. The  $n=1$  value is 6.0 millivolts per volt, and readings increase at this setup to 9.0 mv/v at  $n=4$ . As this anomaly is associated with a low apparent resistivity anomaly, it is considered more significant than the higher readings obtained at the east end of the line. Survey lines should be run on either side of this anomaly.

The results over the east grid are presented on the remaining plates (4 to 9 inclusive). A broad zone of weak chargeability highs, on the order of from 6 to 10 millivolts per volt, trends across the eastern portion of the grid. It is generally spatially coincident with an apparent resistivity low, which may be indicative of fracturing or increased porosity of the underlying rock. Other weak chargeability highs are present, but are associated with high apparent resistivities and are considered to be of less interest. The "coincident zone" is located approximately as follows (as defined by the  $n=1$  and  $n=2$  separations):

- Line 2+00S; baseline to 250E; anomaly open to east
- Line 0+00 ; baseline to 200E; very low resistivity at 225E; anomaly open to east
- Line 2+00N; baseline to 200E; anomaly open to east
- Line 4+00N; not surveyed
- Line 6+00N; 200W to 50E; but high resistivity at 75W
- Line 8+00N; 200W to 100W; high chargeabilities at  $n=3$  and  $n=4$  associated with high resistivity
- Line 10+00N; 350W to 100W; anomaly open to east

This zone is a very weak geophysical anomaly. However, geological information indicates that little or no pyrite mineralization is present, whereas chalcocite has been identified in trenches just west of the baseline on line 0+00. Further work to determine the source of this anomaly is therefore warranted.

CONCLUSIONS

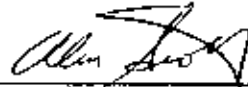
Portions of the THALIA mineral claims were surveyed with time domain IP in the summer of 1978. One line was surveyed on the "west grid", and six lines were surveyed on the "east grid".

A weak anomaly was detected on the line surveyed on the west grid. Response was strongest at the further separations, and further IP work is required to determine the extent of this anomaly.

A broad zone of coincident, weakly anomalous chargeability response and low apparent resistivities, extends along the eastern portion of the east grid.

Subject to a more detailed geological and geochemical appraisal of the property, further work is recommended to determine the source of these anomalies.

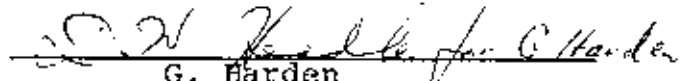
Respectfully submitted by:



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Alan Scott  
Geophysicist

Endorsed for  
Release by:



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G. Harden  
Manager, Exploration  
Western District

ARS/sn  
16 January 1979  
Distribution:

Mining Recorder (2)  
Western District (1)  
Geophysics File (1)

APPENDIX I

IN THE MATTER OF THE B.C. MINERAL ACT  
AND IN THE MATTER OF A GEOPHYSICAL PROGRAMME  
CARRIED OUT ON PORTIONS OF THE THALIA MINERAL CLAIMS  
ON THE THALIA PROPERTY  
LOCATED 12 KM SOUTH OF ASPEN GROVE IN THE NICOLA MINING DIVISION  
OF THE PROVINCE OF BRITISH COLUMBIA, MORE PARTICULARLY  
N.T.S.: 92H/15E

S T A T E M E N T

I, ALAN SCOTT, OF THE CITY OF VANCOUVER IN THE PROVINCE OF  
BRITISH COLUMBIA, MAKE OATH AND SAY:

1. THAT I AM EMPLOYED AS A GEOPHYSICIST BY COMINCO LTD.  
AND, AS SUCH, HAVE A PERSONAL KNOWLEDGE OF THE FACTS  
TO WHICH I HEREINAFTER DEPOSE:
2. THAT ANNEXED HERETO AND MARKED AS "APPENDIX II" TO  
THIS STATEMENT IS A TRUE COPY OF EXPENDITURES INCURRED  
ON GEOPHYSICAL SURVEY ON THE THALIA MINERAL CLAIMS:
3. THAT THE SAID EXPENDITURES WERE INCURRED FOR THE PURPOSE  
OF MINERAL EXPLORATION OF THE ABOVE NOTED CLAIMS BETWEEN  
THE 10TH OF AUGUST AND 14TH OF AUGUST, 1978.



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Alan Scott  
Geophysicist

ARS/sn  
16 January 1979

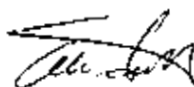


APPENDIX III

C E R T I F I C A T I O N

I, Alan Scott, of 4013 West 14th Avenue, in the City of Vancouver, in the Province of British Columbia, do hereby certify that:

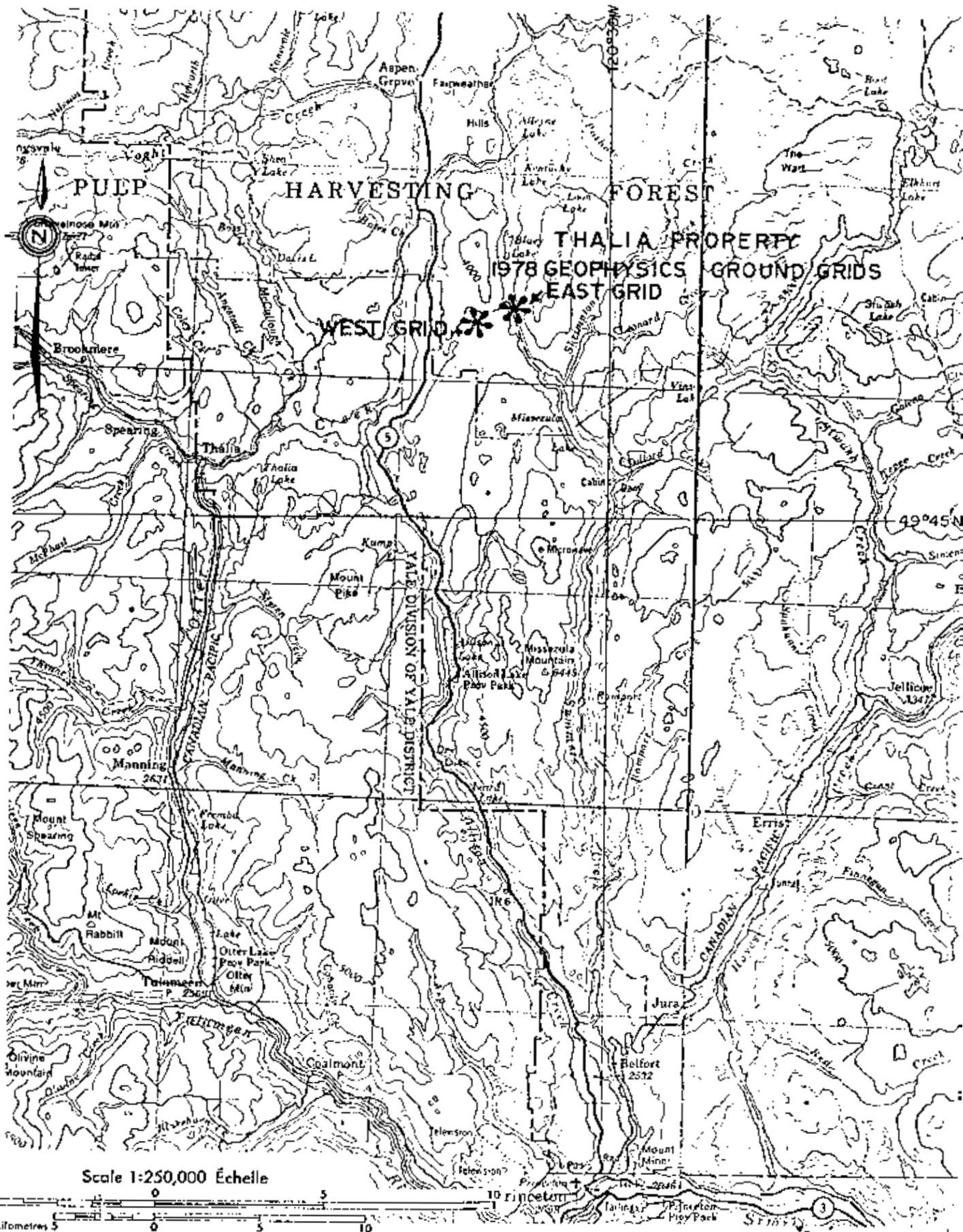
1. I graduated from the University of British Columbia in 1970 with a B.Sc. in Geophysics.
2. I am a member of the Association of Professional Engineers of the Province of Saskatchewan, the Society of Exploration Geophysicists of America, and the British Columbia Geophysical Society.
3. I have been practising my profession for the past nine years.



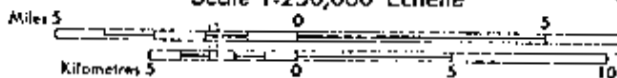
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Alan Scott  
Geophysicist

ARS/sn  
16 January 1979



Scale 1:250,000 Échelle



THALIA PROPERTY

NTS 92 H

Drawn by:		Traced by:	
Revised By	Date	Revised by	Date

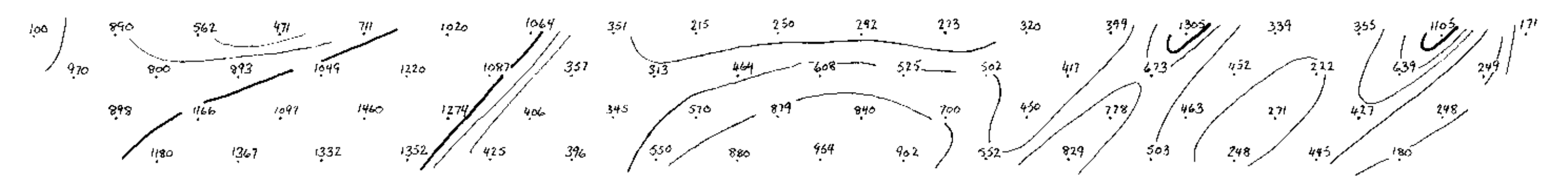
LOCATION MAP

NICOLA M. D. B. C.



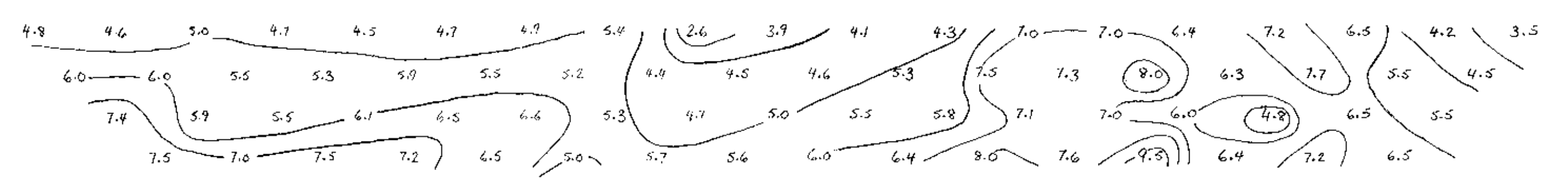
Apparent Resistivity  $\rho_a$

800W 750W 700W 650W 600W 550W 500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E

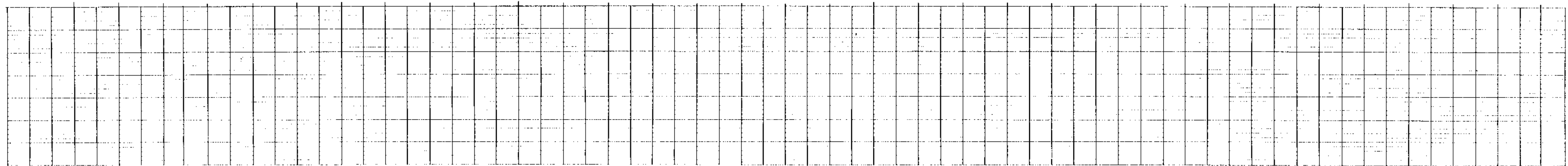


Apparent Chargeability  $M_a$

800W 750W 700W 650W 600W 550W 500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E



800W 750W 700W 650W 600W 550W 500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E



N.T.S 92 H-15E

DWG NO 147-78-7

COMINCO LTD.  
THALIA PROPERTY  
EAST GRID  
NICOLA M.D., B.C.

LINE NO 16+00N

SCALE 1:500  
ELECTRIC INFRASTRUCTURE  
EXPLORATION DIVISION  
NORTH 16+00N  
1:50m

DATE SURVEYED AUGUST 12, 1978  
CONTRAP INFERVA  
APP. RES. 1,1.5,2,3,5,7,5,10 ohm meters  
APP. CHARGE 1M/V

TRANSMITTER 7.5 Kw HUNTEC  
RECEIVER IPR-8  
part 1 of 2  
7165  
INDUCED POLARIZATION AND RESISTIVITY SURVEY  
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

NORTH 16+00N

# COMINCO LTD. THALIA PROPERTY EAST GRID NICOLA M.D., B.C.

LINE NO. 8+00N

50m

REVISED AUGUST 12, 1978

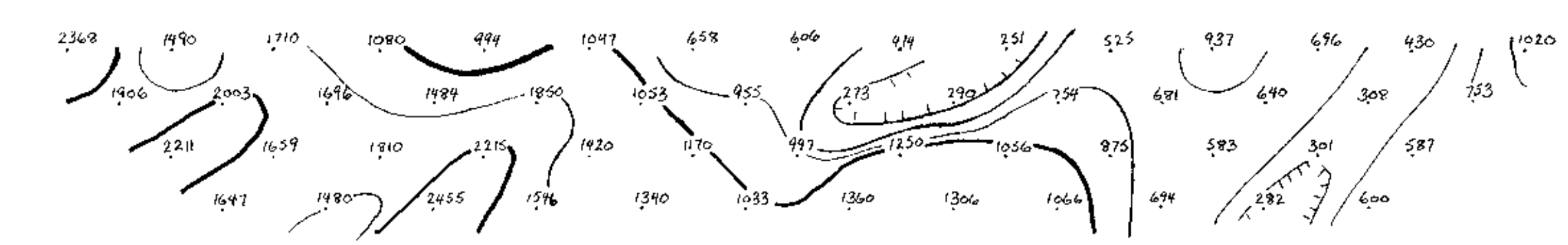
CONDUCTIVITY  
APP. RES. 1, 1.5, 2, 3, 5, 7.5, 10 ohm meters  
APP. CHARGE 1Mv/V

POWER SUPPLY 7.5 Kw HUNTEC  
RECEIVER IPR-8

part 1082 **7165**  
NEEDED FOR AREA IN AND RESISTIVITY SURVEY  
PERFORMED BY COMINCO LTD. EXPLORATION

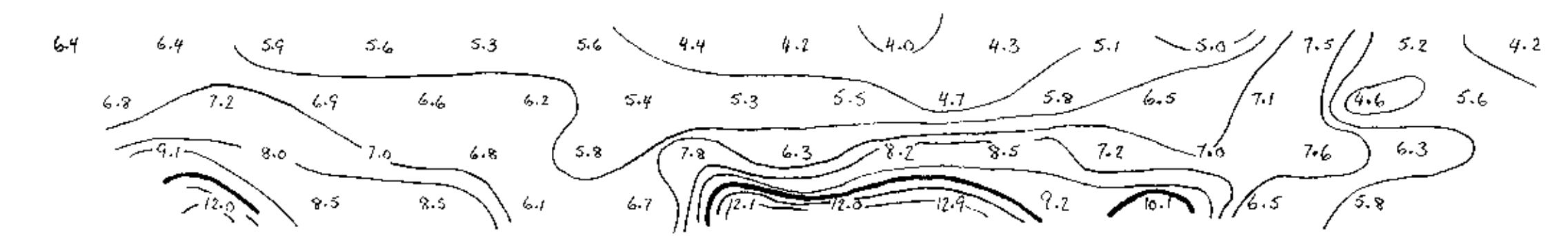
Apparent Resistivity  $\rho_a$

800W 750W 700W 650W 600W 550W 500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL

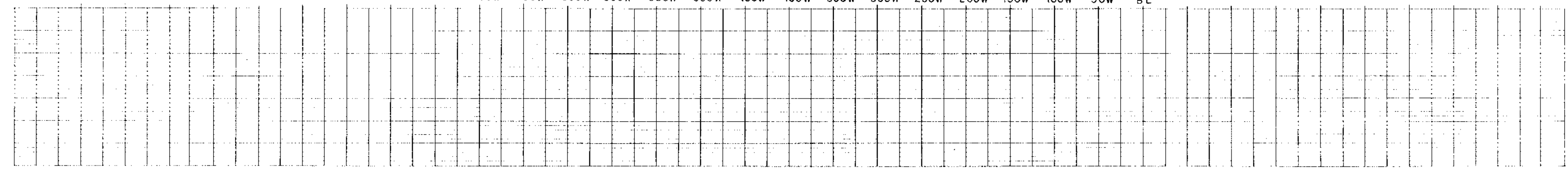


Apparent Chargeability  $M_a$

800W 750W 700W 650W 600W 550W 500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL



800W 750W 700W 650W 600W 550W 500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL



LINE 8+00N



# COMINCO LTD. THALIA PROPERTY EAST GRID NICOLA M.D., B.C.

LINE NO. 2+0.0N.

NO. 1 & 2 POLES  
ELECTRODE CONFIGURATION  
EX-21, EX-22, EX-23  
CURRENT ELECTRODE WEST  
POTENTIAL ELECTRODE EAST  
SCALE 1:50m

PLACING POINT  
EAST 2, 3, 4  
CURRENT ELECTRODE WEST  
POTENTIAL ELECTRODE EAST

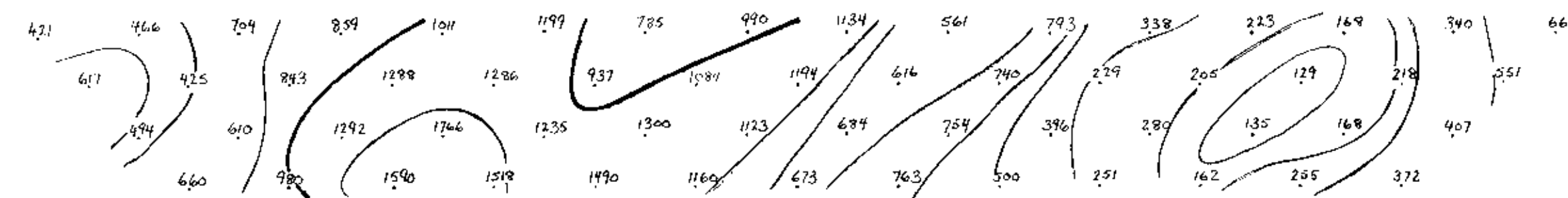
DATE SURVEYED AUGUST 11, 1978

COURTNEY INTERVALS  
APPROX. 1, 1.5, 2, 3, 5, 7.5, 10 Ohm meters  
APPROX. 1 MV/V

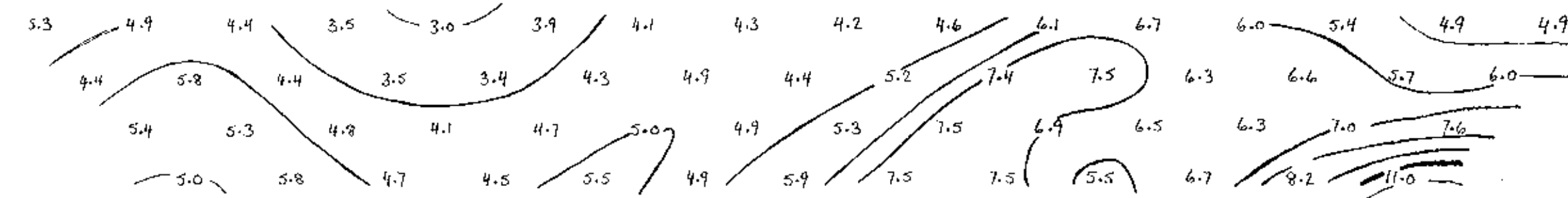
TRANSMITTER 7.5 Kw HUNTEC  
RECEIVER IPR-8

part 1 of 2 **7165**  
INDUCED POLARIZATION AND RESISTIVITY SURVEY  
CONDUCTED BY COMINCO LTD. EXP. GEOL. DIVISION

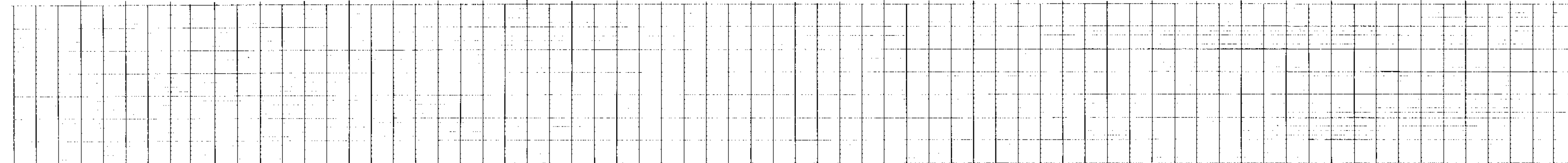
500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E 200E 250E 300E



500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E 200E 250E 300E



500W 450W 400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E 200E 250E 300E



LINE 2+0.0N







# COMINCO LTD. THALIA PROPERTY EAST GRID NICOLA M.D., B.C.

LINE NO. 2+00S

POTENTIAL ELECTRODE  
ELECTRODE FOR GRADATION  
EXPOSED TO AIR  
SURFACE OF GROUND  
SURFACE OF GROUND  
SURFACE OF GROUND

> 50m

PLOTTING POINT  
1, 2, 3, 4, 5, 8, 6

CURRENT ELECTRODE WEST OF POTENTIAL ELECTRODE

SCALE 1:10000 DATE SURVEYED AUGUST 8, 1978

CONTOUR INTERVALS -

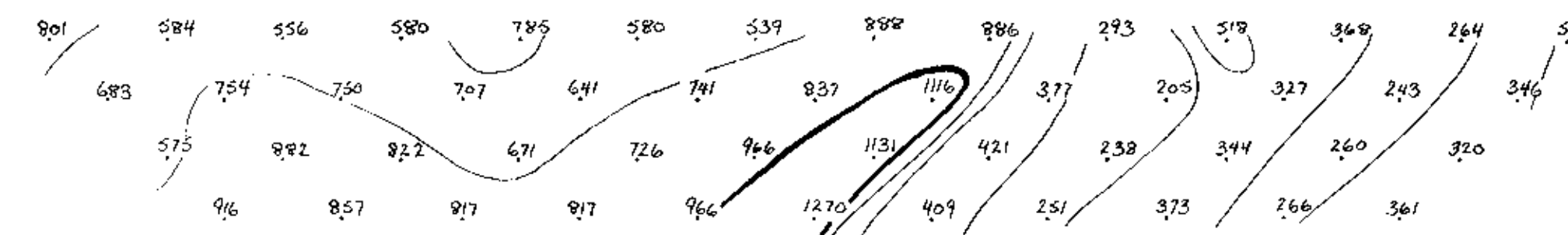
APP. RES. 1, 1.5, 2, 3, 5, 7.5, 10 ohm meters APPROVED  
APP. CHARG. 1 MV/V

TRANSMITTER 75 Kw HUNTEC  
RECEIVER IPR-8

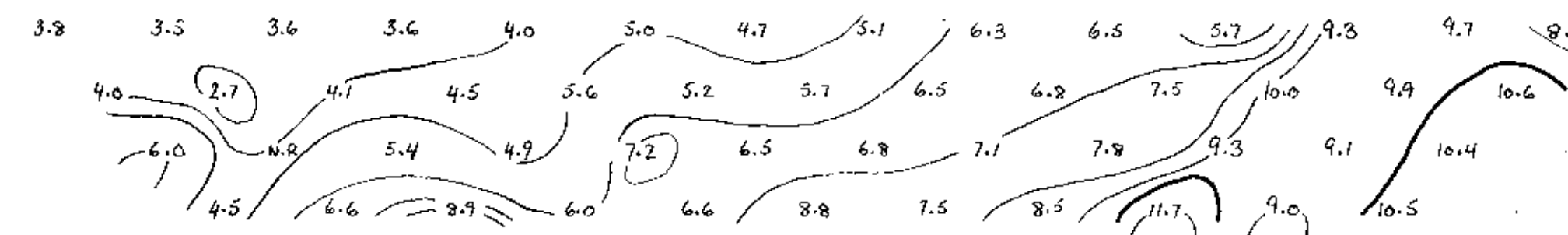
part 1 of 2 **7165**

INDUCED POLARIZATION AND RESISTIVITY SURVEY  
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

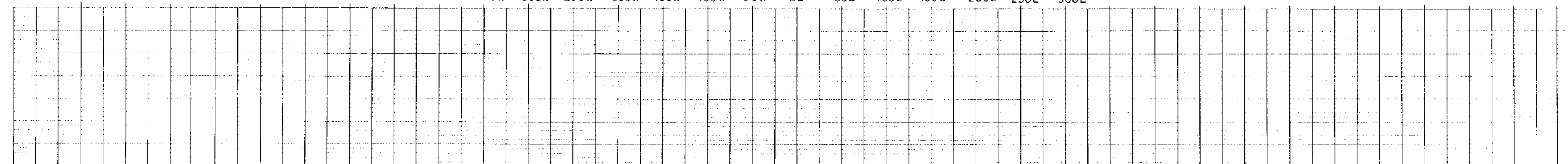
400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E 200E 250E 300E



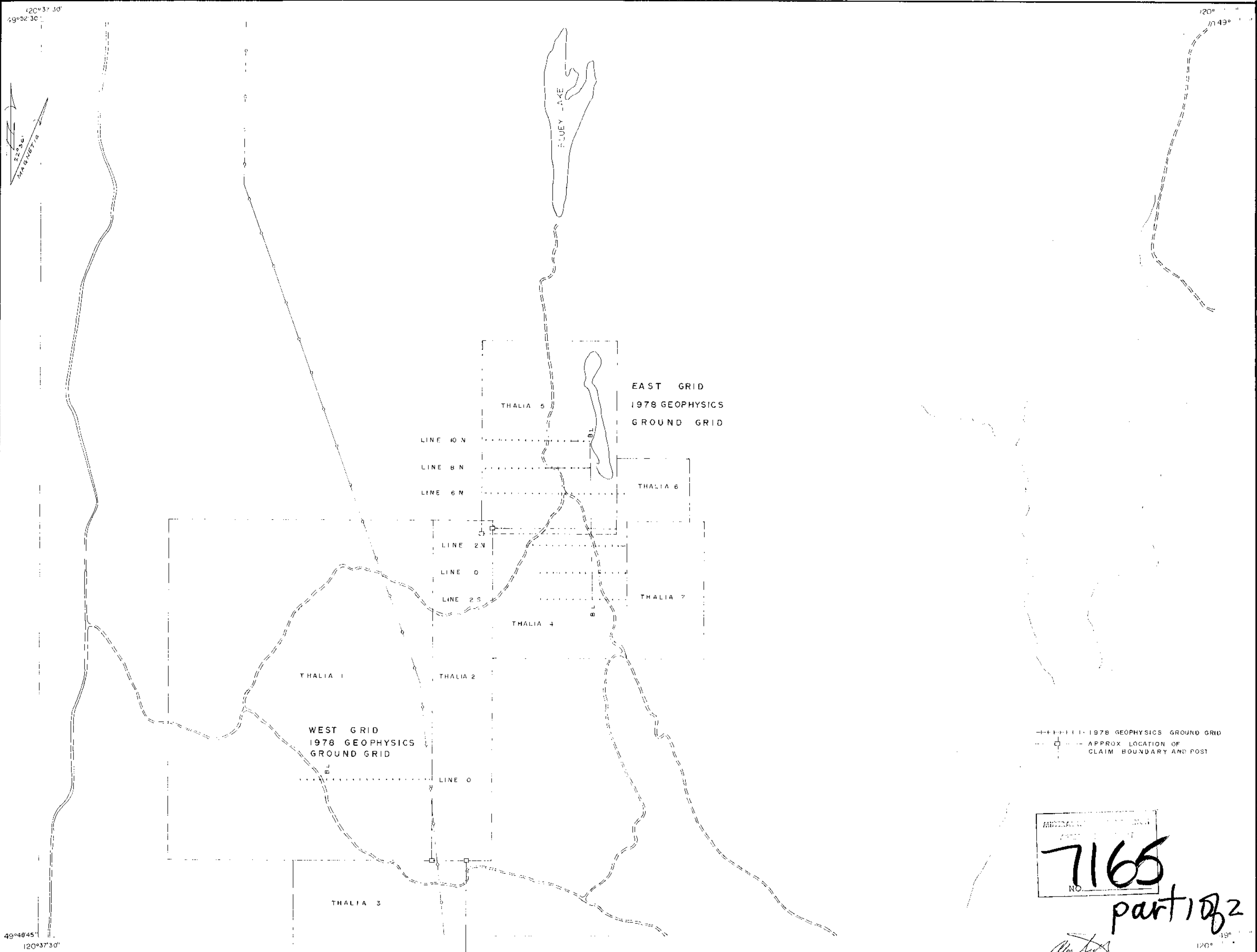
400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E 200E 250E 300E



400W 350W 300W 250W 200W 150W 100W 50W BL 50E 100E 150E 200E 250E 300E



LINE 2+00S



120° 37' 30"

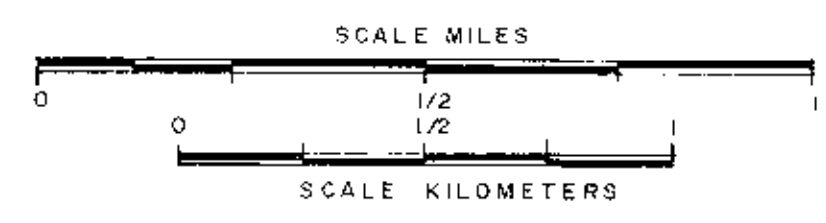
49° 48' 45"

120° 43'

----- 1978 GEOPHYSICS GROUND GRID  
 - - - - - APPROX LOCATION OF CLAIM BOUNDARY AND POST

MINERAL RIGHTS  
 7165  
 NO.

part 1 of 2



THALIA PROPERTY - EAST & WEST GRID		NTS 92H	
Drawn by:	Traced by:	CLAIM MAP	
Revised by:	Date:	NICOLA M.D., B.C.	
Revised by:	Date:	Scale: 1:15,840	Date: FEB 1979
Revised by:	Date:	Plate: 147-78-2	