



41010NE0014 2.13385 CUNNINGHAM

010

**2. 13385**

GEOPHYSICAL SURVEY  
property of  
COMINCO LIMITED  
SHUN CLAIM GROUP Project  
Cunningham township  
Ontario province  
April 1990

G. Lambert

R. Turcotte

*Qual 2.11295*



41010NE0014 2.13385 CUNNINGHAM

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-i-

TABLE OF CONTENTS

	<u>Page</u>
Table of contents.....	i
Introduction.....	1
Property, location and access.....	1
Geophysical work.....	1
Survey specification.....	2
Results and interpretation.....	3
Conclusion and recommendations.....	4
Certificates.....	5-6

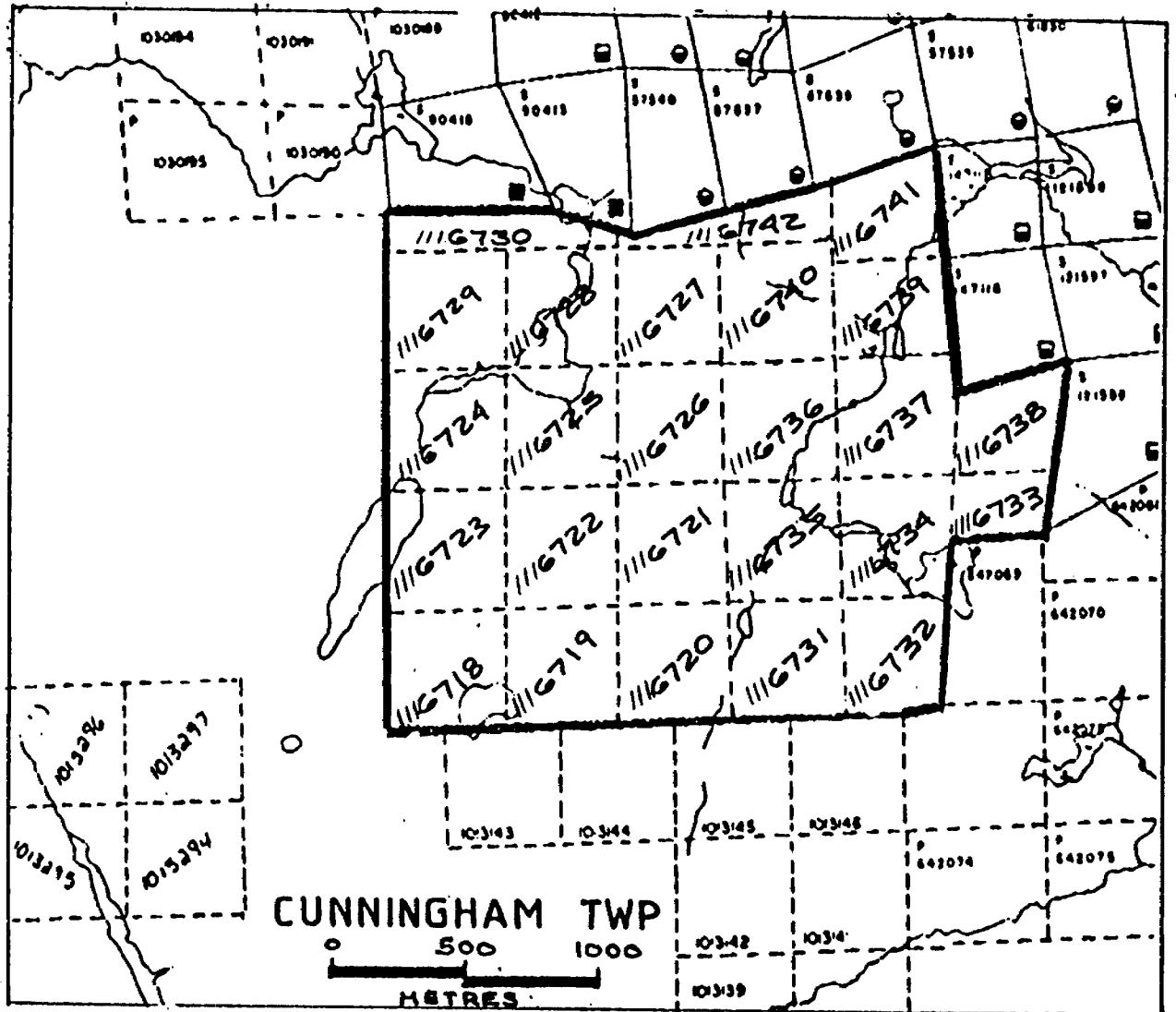
List of figures

Figure #1 : Index of claims.....	ii
Figure #2 : Area surveyed.....	iii

Liste of map

<u>MAPS NO.</u>	<u>MAGNETIC SURVEY</u>
1.1	Total field contours
1.2	Total field and gradient profiles
1.2-1	Total field and gradient profiles (Interpreted)
<u>MAPS NO.</u>	<u>H.E.M. SURVEY</u>
3.1	220 Hz
3.2	880 Hz
3.3	3520 Hz
3.3-1	3520 Hz (Corrected)





COMINCO LIMITED  
SHUN CLAIM GROUP Project  
Figure #1: Index of claims







## INTRODUCTION

In April 1990, a magnetic survey and electromagnetic H.E.M. survey were carried out on a property owned by COMINCO LIMITED, (SHUN CLAIM GROUP Project), in Cunningham township, Chapleau area, province of Ontario.

These surveys were designed to locate structures favorable for gold or base metal deposition.

## PROPERTY, LOCATION AND ACCESS

The property is located approximately 28 kms South-East of the town of Chapleau, in Cunningham township, Chapleau area, province of Ontario.

The property is easily accessible by logging roads which can be taken from the Chapleau - Sultan highway.

The property claims have been registered with the Ontario Department of Natural Resources and the numbers are presented on the fig. #1 of this report.

## GEOPHYSICAL WORK

A total magnetic field and gradient survey and electromagnetic H.E.M. were carried out on part of the property between April 1st to 4th, 1990.

A total of 15.3 kms was covered by the magnetic survey using the EDA OMNI-PLUS proton precession instruments. The H.E.M. survey was conducted over a total of 13.1 kms using an APEX PARAMETRICS MAXMIN I instrument, operating at three frequencies.



### SURVEY SPECIFICATIONS

The geophysical surveys were carried out along a network of North - South picket line cut at 100 metres intervals. The lines were chained and stations marked at 25 metres intervals.

The magnetic readings were taken with a proton precession magnetometer recording simultaneously the value of the total magnetic field and the measurement of the vertical gradient, with a precision of 0.1 gamma and 0.1 gamma/metre respectively. The separation between the sensors was 0.5 metre and the height of the upper sensor was 3.2 metres above the ground. The readings were taken systematically every 12.5 metres with detail every 6.25 metres in the anomalous areas.

A base station magnetometer measuring the variation of the total magnetic field at 20 seconds intervals was used as a reference for correction of the diurnal variation.

The electromagnetic survey was carried out using a MAXMIN I, which was used in the horizontal loop mode with a 100 metres separations between the transmitting and receiving coils. Readings were taken at 25 metres intervals along the lines.

The instrument is capable of operating on nine different frequencies of which 220, 880 and 3520 Hz were selected. In this type of survey, both in phase and out of phase components of the secondary field are measured and are recorded as percentages of the primary field.



## RESULTS AND INTERPRETATION

The magnetic relief indicates a background level of about 59,200  $\pm$ 100 gammas. This background is disrupted by two strongly magnetic (up to 12,000 gammas above background) units in the northern sector of the grid. Probably caused by magnetite Iron Formations along a WNW-ESE strike, these magnetic units appear to dip to the South at 70°.

There are also a number of less prominent magnetic horizons in the southern half. These units are more or less discontinuous, vary in strike direction and in thickness. Their distribution suggests a structural pattern dominated by folding along NW-SE and E-W fold axes.

Depths to tops are in the range 0 to 10-15 meters, but the generally short wavelengths indicate shallow sources, thus providing good evidence for subcropping or outcropping bedrock.

The MaxMin H.E.M. survey has mapped the presence of three main conductive corridors. The first coincides roughly with the presence of the postulated Iron Formation. It is a metallic conductor, probably composed of sulphides or graphite and is particularly wide on line 500E.

A second conductor extends in the central sector. It strikes roughly at 045° and appears to be locally folded. It is widest on line 400E. Its metallic composition makes no doubt. This conductor dips to the North at angles between 30° and 60°.

Thirdly, a NW-SE striking conductor occurs in the South. Its signature is diagnostic of a wide, flat-lying tabular body. All three metallic conductors occur at shallow depths (<10m).





A minor conductor exists near 700S on lines 700E and 800E. It could be structural (shear zone?).

CONCLUSION AND RECOMMENDATIONS

The geophysical investigations which were carried out on the SHUN project have mapped the presence of two strongly magnetic horizons interpreted to be due to magnetite Iron Formations.

A complex structural pattern is suggested by the magnetic relief.

Three bedrock conductors of metallic nature were outlined. They are probably due to metallic sulphides or graphite along shallow-dipping tabular planes. A good agreement exists between the magnetic pattern and the conductors.

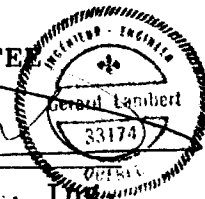
Considering the generally shallow depth to the top of both the magnetic and conductive units, we believe that a field visit will provide a good opportunity to map and sample the bedrock. We feel that with a reasonable amount of efforts, through stripping and trenching, adequate explanations for the source of the anomalous magnetism and conductivity should be found.

If not, diamond drilling should be done on the conductors in order to explain the nature of their cause. Generally short (<50m) holes should be sufficient. Care should be exercised because of the shallow dips involved.

Respectfully submitted,  
VAL D'OR GEOPHYSIQUE LTEE

By :

*Gérard Lambert*  
Gérard Lambert, B.Sc.A., Ing.  
Consulting Geophysicist



And by :

*Robert Turcotte*  
Robert Turcotte, B.Sc.A.





-5-

CERTIFICATE

I, undersigned, Gérard Lambert, P. Eng., certify that:

I reside at 679 Murdoch ave, Rouyn-Noranda, Quebec, since 1983.

I am a graduate of Université Laval, Quebec where I have obtained a B.Sc.A. in Geological engineering in 1978.

I have been engaged in Exploration Geophysics since 1972 and have been practicing as a professional engineer since 1978.

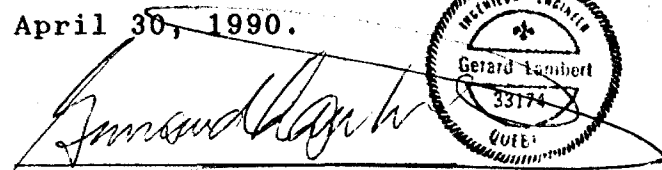
I am a member of the Ordre des Ingénieur du Québec since 1978.

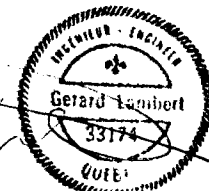
I am a member of the Quebec Prospector Association, the Prospector & Developers Association of Canada, the Society of Exploration Geophysicist, the European Association of Exploration Geophysicists and the Canadian Institute of Mining & Metallurgy.

This report is based on the information contained in the survey described. The interpretation of the data was made using methods known in the literature and based on my personal experience.

I have not received, nor do I expect to receive directly or indirectly any interest in the claims that belong to COMINCO LIMITED.

Rouyn-Noranda, this April 30, 1990.

  
Gérard Lambert, P. Eng.  
Consulting Geophysicist



CERTIFICATE

THIS IS TO CERTIFY THAT:

I am a resident of Val d'Or, province de Quebec, since 1977.

I am a technologist graduated from "Collège du Nord-Ouest", Rouyn, Quebec in 1977.

I have been actively engaged in geophysical exploration since 1977 and have acquired a wide range of experience in geophysical methods and techniques.

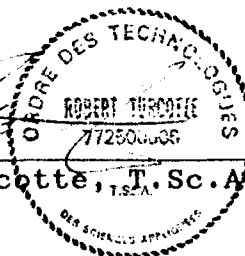
I am a member of "Corporation professionnelle des Technologues des Sciences Appliquées du Québec" and also a member of the Quebec prospectors association and of the Canadian Institute of Mining and Metallurgy.

I do not hold nor do I expect to receive an interest of any kind in these claims held by COMINCO LIMITED.

Signed in Val d'Or, this April 30, 1990.

By:

  
Robert Turcotte, T.Sc.A.



Qual: 2.11295



#60391

DOCUMENT #  
W 9006.6



41010NE0014 2.13385 CUNNINGHAM

900

Mining Act

Report of Work  
(Geophysical, Geological and Geochemical S)

Type of Survey(s) MAG & HEM	Mining Division PORCUPINE	Township or Area CUNNINGHAM
Recorded Holder(s) COMINCO LTD	2.13385	
Address 2200-120 ADELAIDE STREET WEST TORONTO, ONTARIO M5H 1T1		Prospector's Licence No. A10043
Survey Company VAL D'OR GEOPHYSIQUE- 50 BOUL. LAMAQUE VAL D'OR QUEBEC J9P 2H6		Telephone No. (416) 869-1850
Name and Address of Author (of Geo-Technical Report) G. LAMBERT & R. TURCOTTE C/O VAL D'OR GOEPHYSIQUE		Date of Survey (from & to) 01 04 90 04 04 90 Day Mo Yr Day Mo Yr

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

Special Provisions	Geophysical	Days per Claim
For first survey:	- Electromagnetic	40
Enter 40 days. (This includes line cutting)	- Magnetometer	20
For each additional survey using the same grid:	- Other	
Enter 20 days (for each)	Geological	
	Geochemical	
Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Other	
	Geological	
	Geochemical	
Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Other	
Total miles flown over claim(s).		
Date May 28, 1990	Recorded Holder or Agent (Signature) <i>R. Turcotte</i>	

Mining Claim		Mining Claim		Mining Claim	
Prefix	Number	Prefix	Number	Prefix	Number
P	1116720				
	1116721				
	1116726				
	1116727				
	1116731				
	1116732				
	1116734				
	1116735				
	1116736				
	1116737				
	1116739				
	1116740				

RECEIVED

JUN 29 1990

Total number of mining claims covered by this report of work.

12

Certification Verifying Report of Work

MINING LANDS SECTION

I hereby certify that I have a personal and intimate knowledge of the facts set forth in this Report of Work, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying  
R.C. LA ROCHE C/O COMINCO LTD. 2200-120 ADELAIDE ST. W. TORONTO, ONTARIO M5H 1T1

Telephone No.  
(416) 869-1850

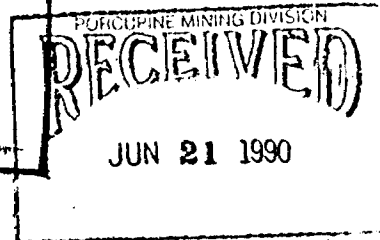
Date  
MAY 28th 1990

Certified By (Signature)  
*R.C. La Roche*

For Office Use Only

Total Days Cr. Recorded 720	Date Recorded JUNE 21 90	Mining Recorder <i>[Signature]</i> Mining Recorder
	Date Approved as Recorded See revised work statement	Provincial Manager, Mining Lands

JUN 21 1990





Ontario

Ministry of  
Northern Development  
and Mines

Ministère du  
Développement du Nord  
et des Mines

October 01, 1990

Mining Recorder  
Ministry of Northern Dev. & Mines  
60 Wilson Avenue  
TIMMINS, Ontario  
P4N 2S7

Dear Madam/Sir:

RE: Notice of Intent dated August 31, 1990 for  
Geophysical (Electromagnetic & Magnetometer) Survey  
submitted on Mining Claim: P 1116720 et al in the  
Township of Cunningham.

The assessment work credits, as listed with the above-mentioned  
Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so  
indicate on your records.

Yours sincerely,

Ron Gashinski  
Acting Provincial Manager, Mining Lands  
Mines & Minerals Division

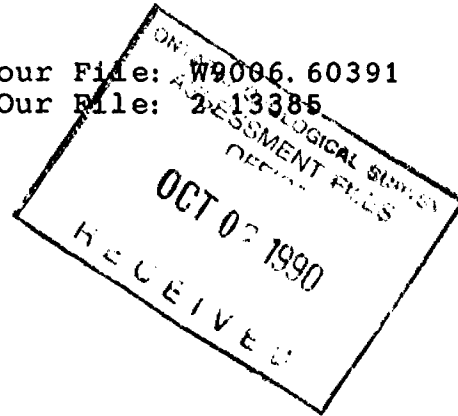
LJS: zm

cc: Mr. W. D. Tieman  
Mining & Lands Commissioner  
Toronto, Ontario

Cominco Ltd  
Toronto, Ontario

Mining Lands Section  
3rd Floor, 880 Bay Street  
Toronto, Ontario  
M5S 1Z8  
(416) 965-4888

Your File: W9006.60391  
Our File: 213385



Resident Geologist  
Timmins, Ontario

Val D'or Geophysique  
Val D'or Quebec



Recorded Holder  
**COMINCO LTD.**

Township or Area  
**CUNNINGHAM**

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic <u>30</u> days	P 1116720-21
Magnetometer <u>15</u> days	1116726-27
Radiometric _____ days	1116731-32
Induced polarization _____ days	1116734-737 incl.
Other _____ days	1116739-40
Section 77 (19) See "Mining Claims Assessed" column	
Geological _____ days	
Geochemical _____ days	
Man days <input checked="" type="checkbox"/> Airborne <input type="checkbox"/>	
Special provision <input checked="" type="checkbox"/> Ground <input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Credits have been reduced because of partial coverage of claims.	
<input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

[Empty box for special credits]

No credits have been allowed for the following mining claims

not sufficiently covered by the survey       insufficient technical data filed

[Empty box for no credits]

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geological - 40; Geochemical - 40; Section 77(19) - 60.

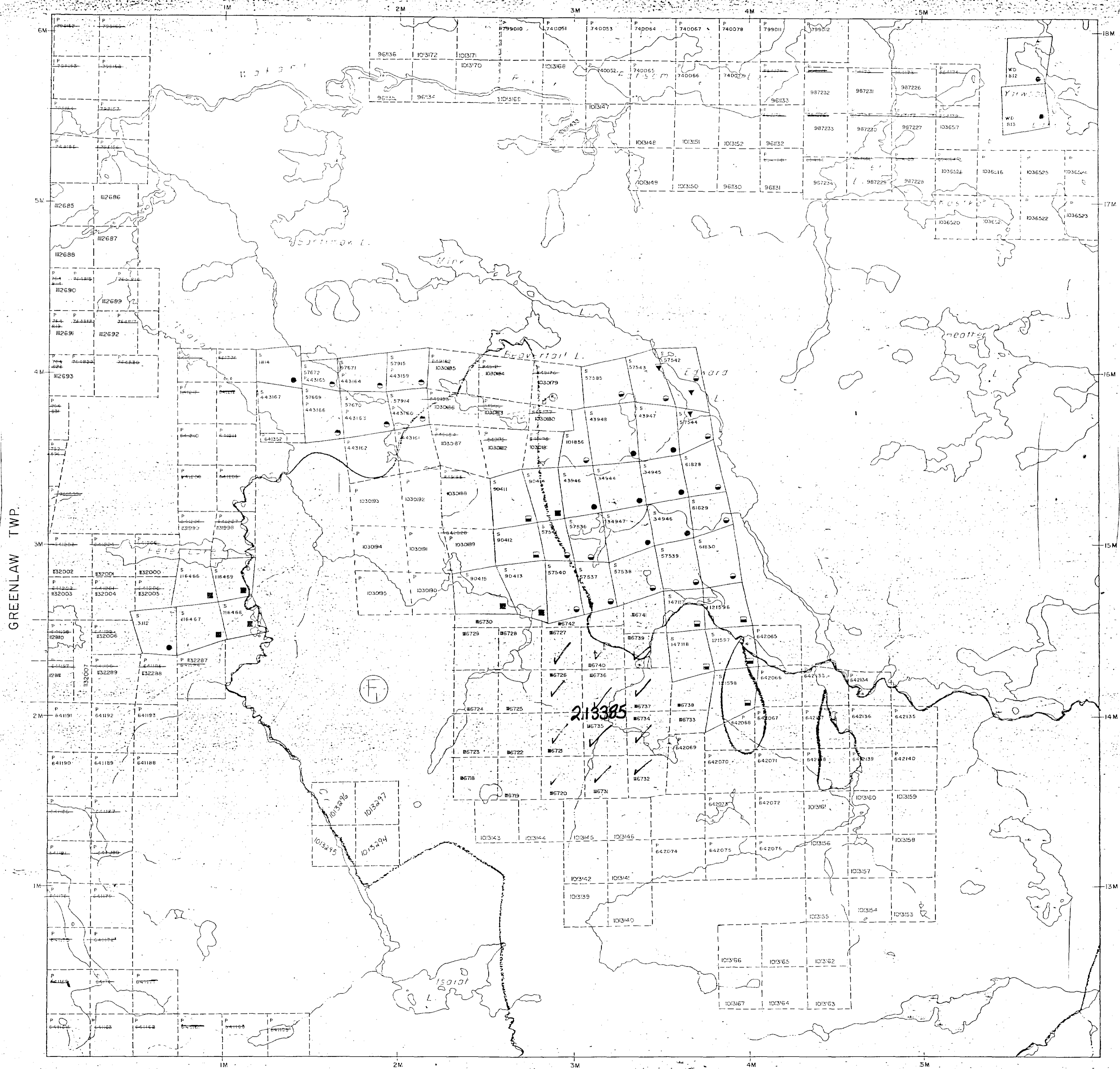
AREAS WITHDRAWN FROM DISPOSITION

- M.R.O. - MINING RIGHTS ONLY
- S.R.O. - SURFACE RIGHTS ONLY
- M.S. - MINING AND SURFACE RIGHTS

Description Order No. Date Disposition File

Ⓢ CROWN RESERVE

SWAYZE TWP



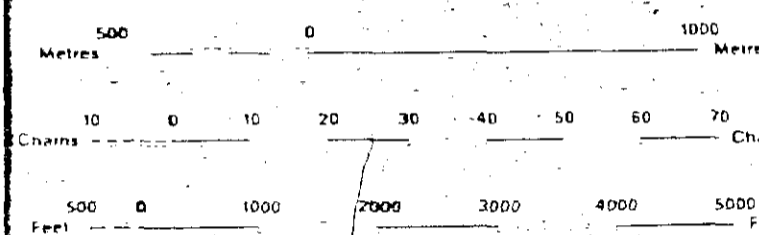
LEGEND

- HIGHWAY AND ROUTE NO.
- OTHER ROADS
- TRAILS
- SURVEYED LINES
- TOWNSHIP BASE LINES ETC.
- LOTS MINING CLAIMS PARCELS ETC.
- UNSURVEYED LINES
- LOT LINES
- PAVED BOUNDARY
- MINING CLAIMS ETC.
- RANGE AND RIGHT OF WAY
- UTILITY LINES
- NATURAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MAPS OR MUSKELG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT SURFACE & MINING RIGHTS	●
SURFACE RIGHTS ONLY	○
MINING RIGHTS ONLY	◐
LEASE SURFACE & MINING RIGHTS	◑
SURFACE RIGHTS ONLY	◒
MINING RIGHTS ONLY	◓
LICENCE OF OCCUPATION	◔
ORDER IN COUNCIL	OC
RESERVATION	Ⓢ
CANCELLED	Ⓢ
SAND & GRAVEL	Ⓢ

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6 1913 VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT R.S.O. 1970 CHAP. 380. SEC. 63 SUBSEC. 1



SCALE 1:20 000

Ⓢ THIS TWP. IS SUBJECT TO FOREST ACTIVITIES IN 1990. FURTHER INFORMATION AVAILABLE ON FILE.

GREENLAW TWP.

GARNET TWP.

BLAMEY TWP.

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, ONTARIO.



200

TOWNSHIP  
**CUNNINGHAM**

M.N.R. ADMINISTRATIVE DIVISION  
CHAPLEAU  
MINING DIVISION  
PORCUPINE

LAND TITLES / REGISTRY DIVISION  
SUDBURY

Ministry of Natural Resources Ontario  
Ministry of Northern Development and Mines

Date AUGUST, 1986

Number

G-1095

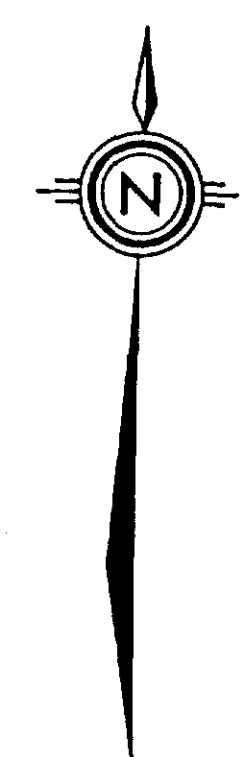
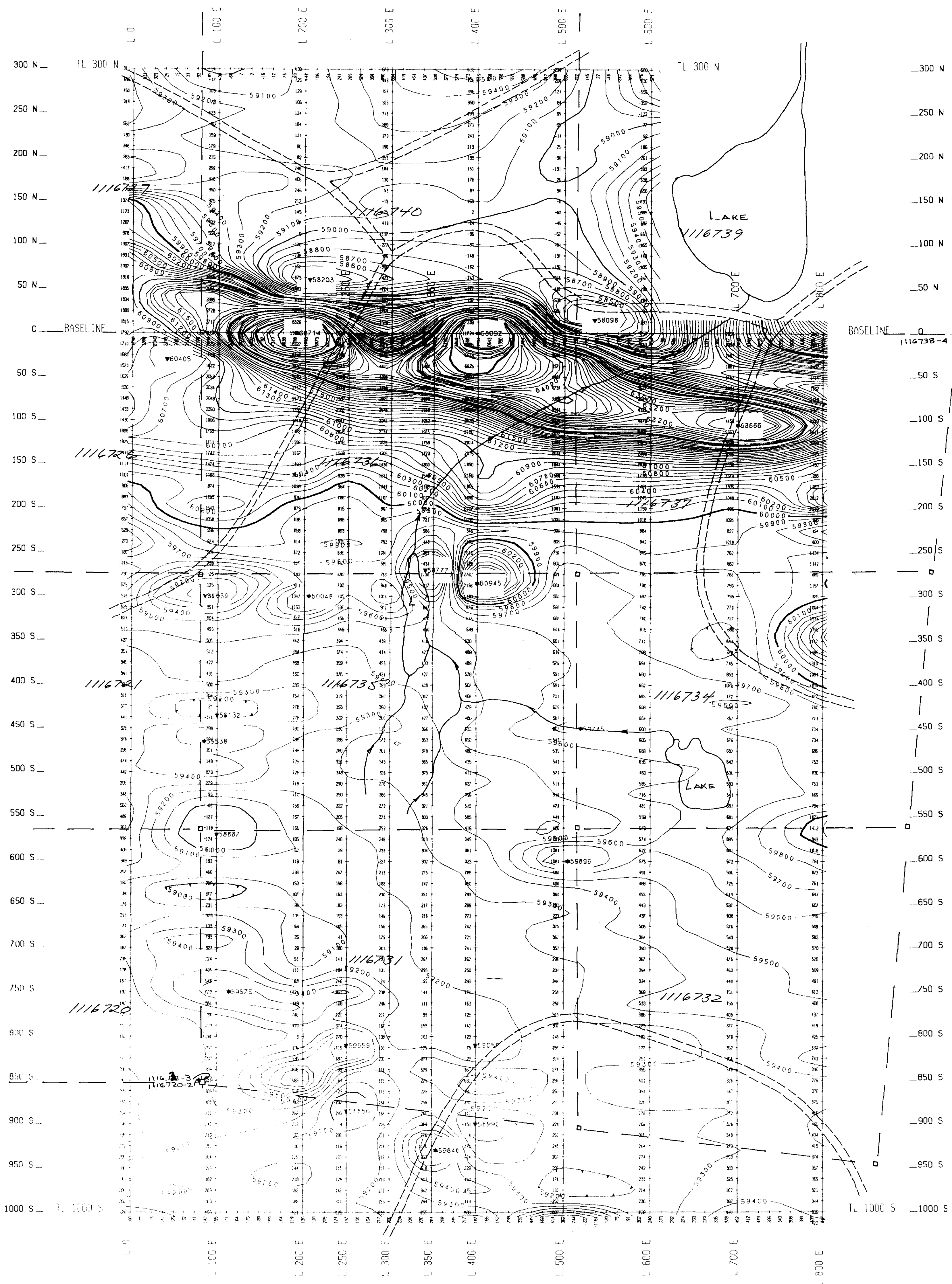
REC'D JUN

RECEIVED JUN 11 1986

Received Sept 15/86

CL-Gen. S.L. 5/86





**LEGEND**

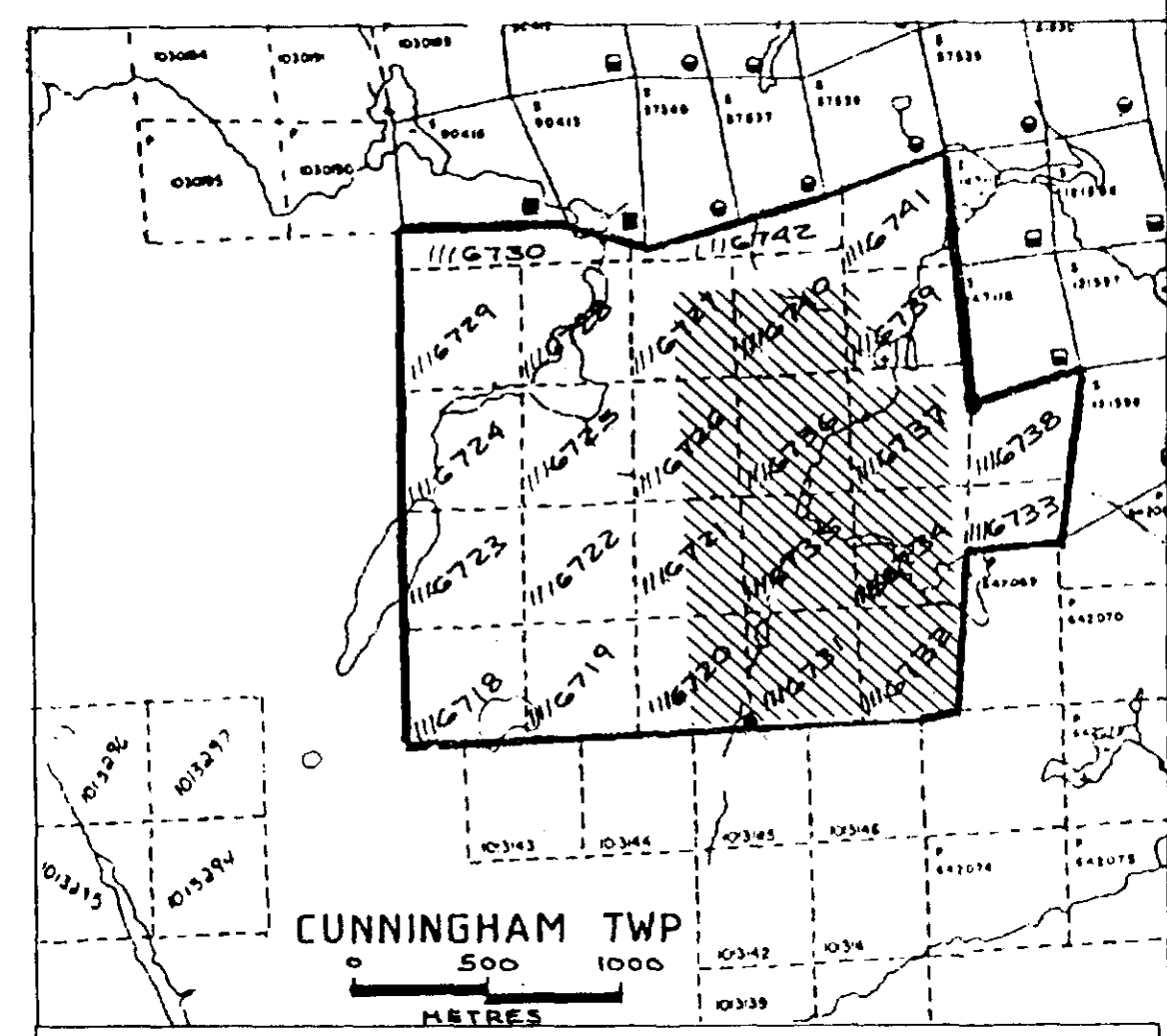
CONTOUR INTERVAL (gamma).

100  
1000  
7500

Reading = total field - 59000 gamma.  
Instrument: EDA OMNI IV

INTERPRETATION.

Interpreted shear zone.  
Interpreted fault.



Scale 1 : 2 500

**COMINCO LTD**  
SHUN PROJECT **2013885**

**MAGNETIC SURVEY**  
TOTAL FIELD CONTOUR

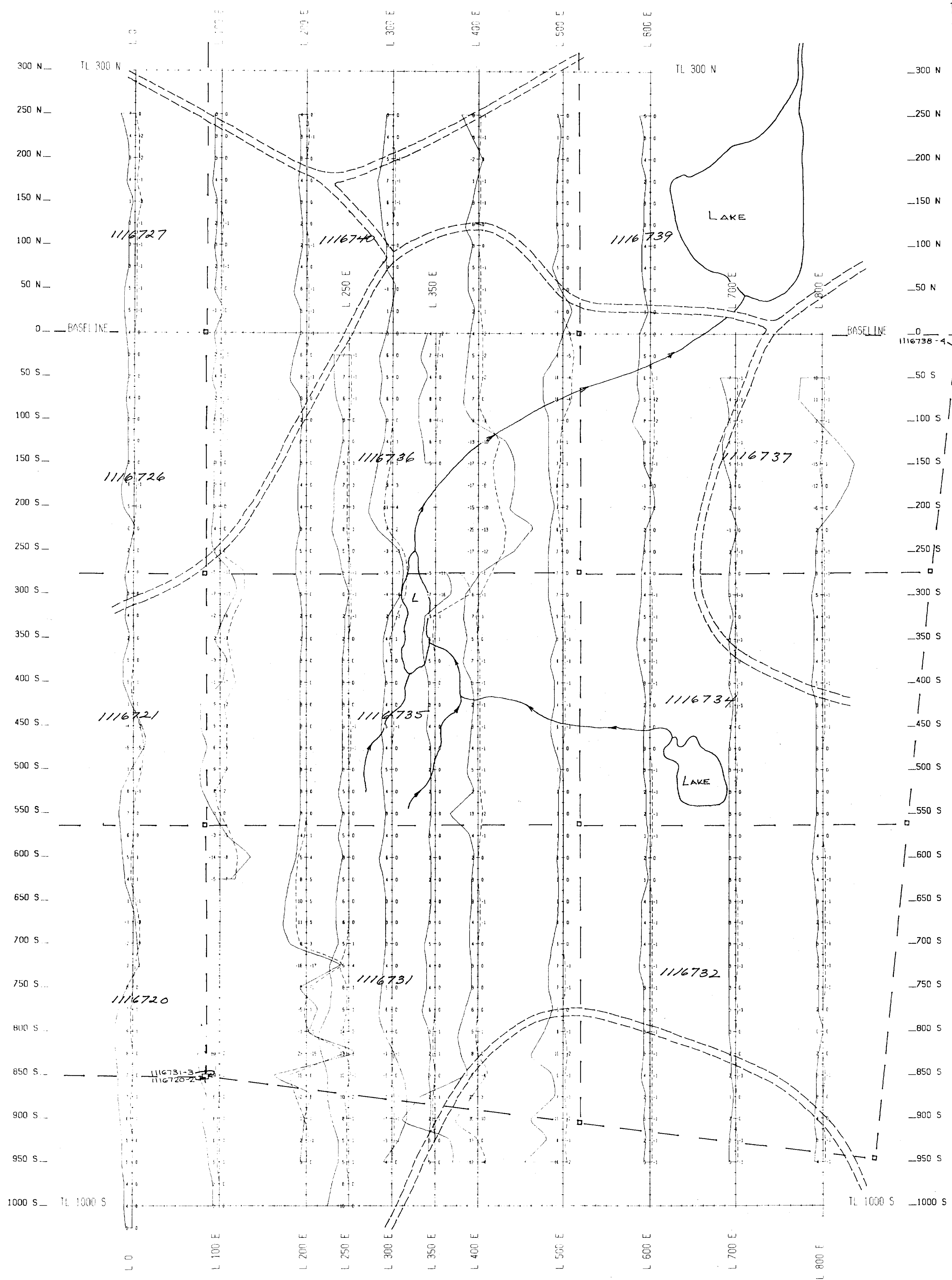
VAL D'OR GEOPHYSIQUE LTEE  
Interpreted by : G. Lambert., Ing. Date 04/90

Scale 1 : 2500 Map no. 1.1









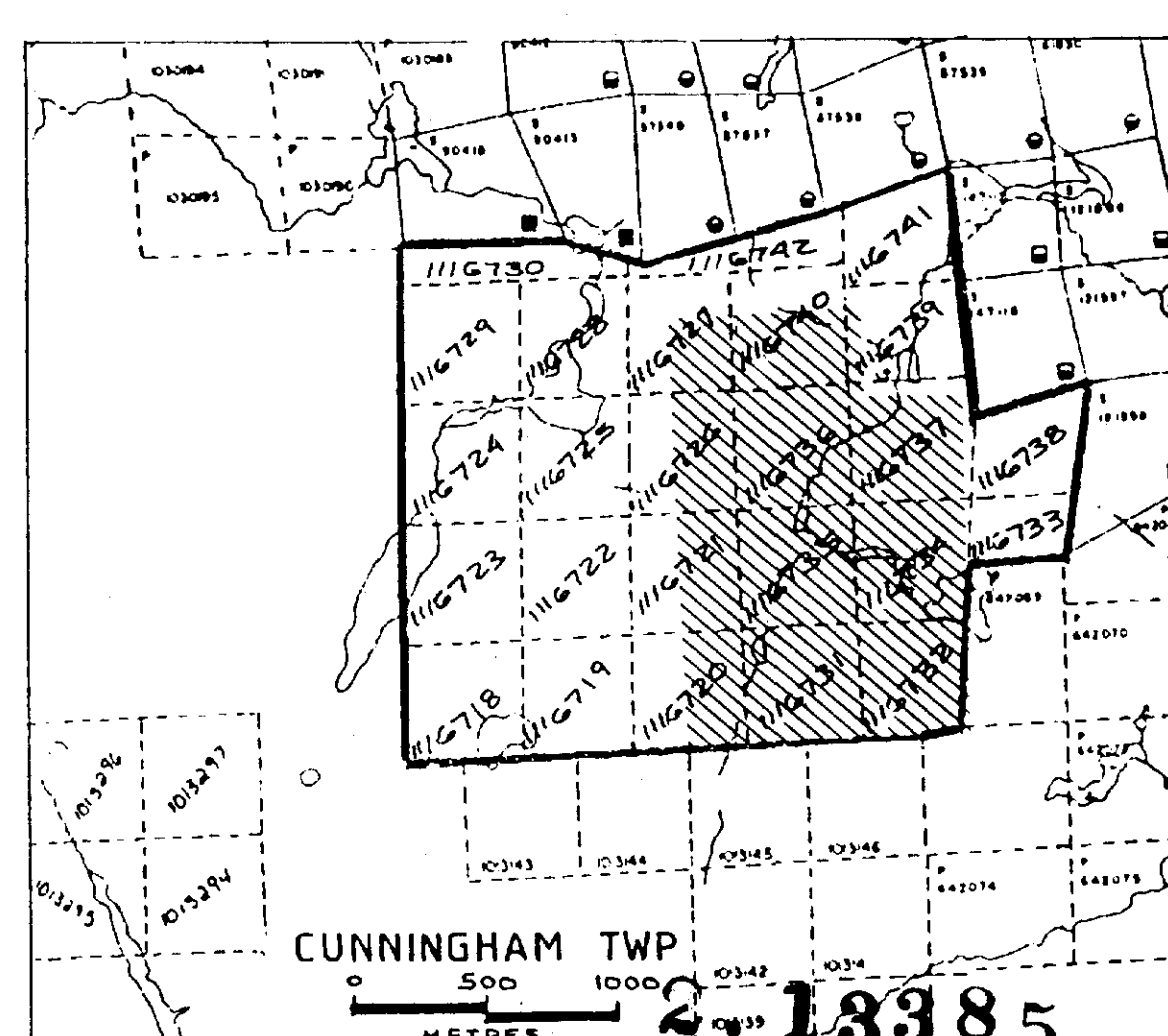
**LEGEND**

**INTERPRETATION.**

- Relatively low resistivity unit with respect to immediate surroundings. Bedrock valley, thicker overburden, etc. or without an associated tectonic structure.
- Relatively high resistivity unit with respect to immediate surroundings. Bedrock ridge, thinner overburden, more resistive lithological unit.
- Well defined Maxin H.E.M. bedrock conductor, conductance higher than 40 mhos. Definitely metallic causes, continuous, massive to semi-massive mineralisation.
- Low conductivity Maxin H.E.M. conductor, lower than 20 mhos, causes possibly metallic. Discontinuous, stringer or disseminated mineralisation, or electrolytic conductive tectonic structure.
- Depth, conductance and dip estimates of bedrock conductors.
- Interpreted shear zone.
- Interpreted fault.

**ELECTROMAGNETIC PROFILE.**

- Inphase 1 ca. = 10 %
- Out of phase 1 ca. = 10 %

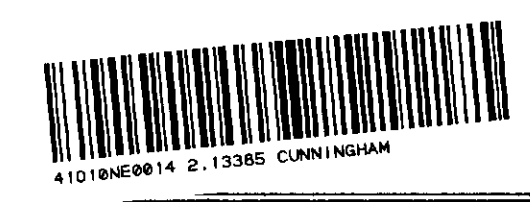


**COMINCO LTD**  
**SHUN PROJECT**

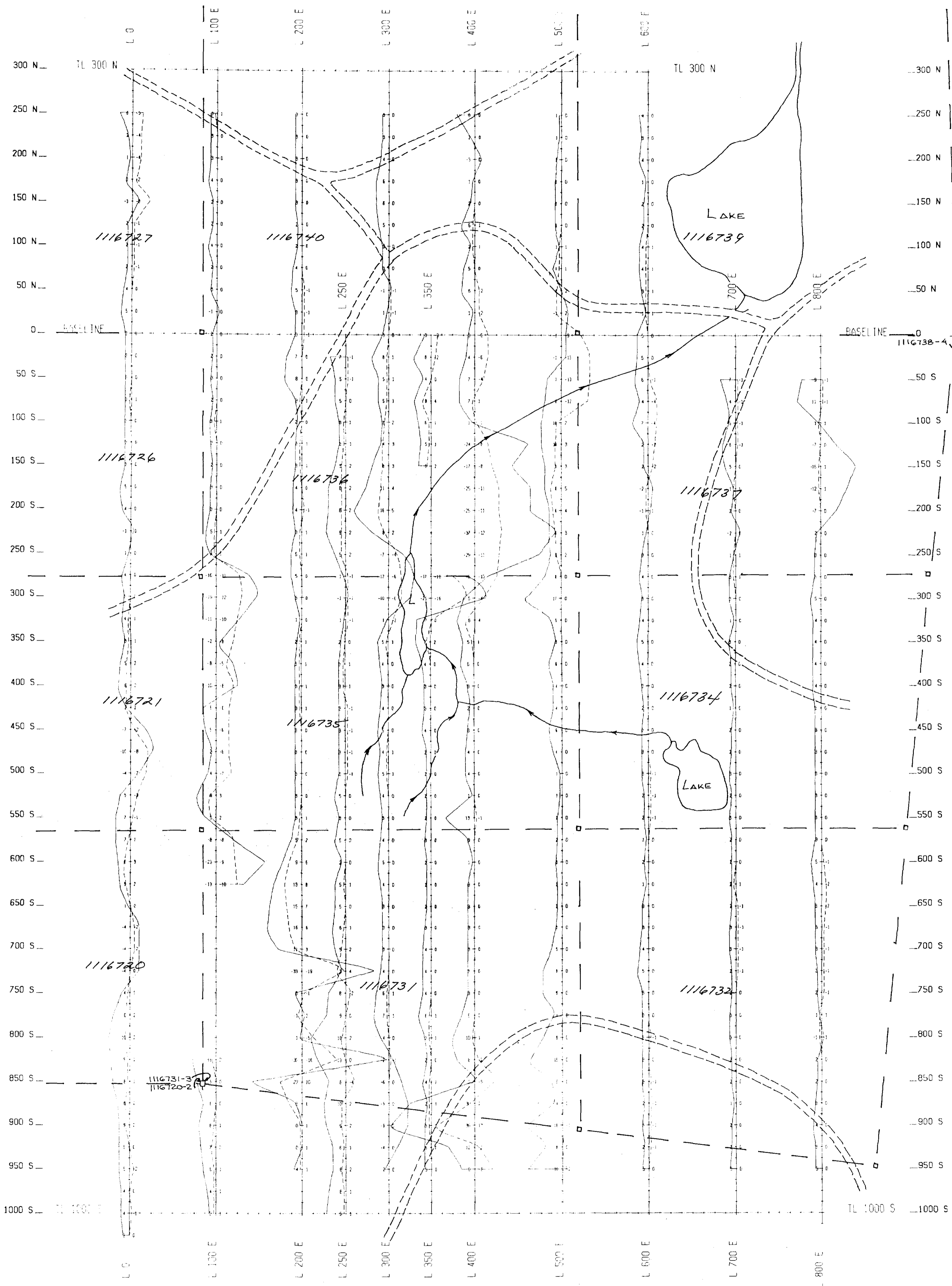
**ELECTROMAGNETIC H.E.M SURVEY**  
FREQUENCY 220 CABLE 100 M.

**VAL D'OR GEOPHYSIQUE LTEE**  
Interpreted by: G. Lambert, Ing. Date 04/90

Scale 1:2500 Map no. 3.1

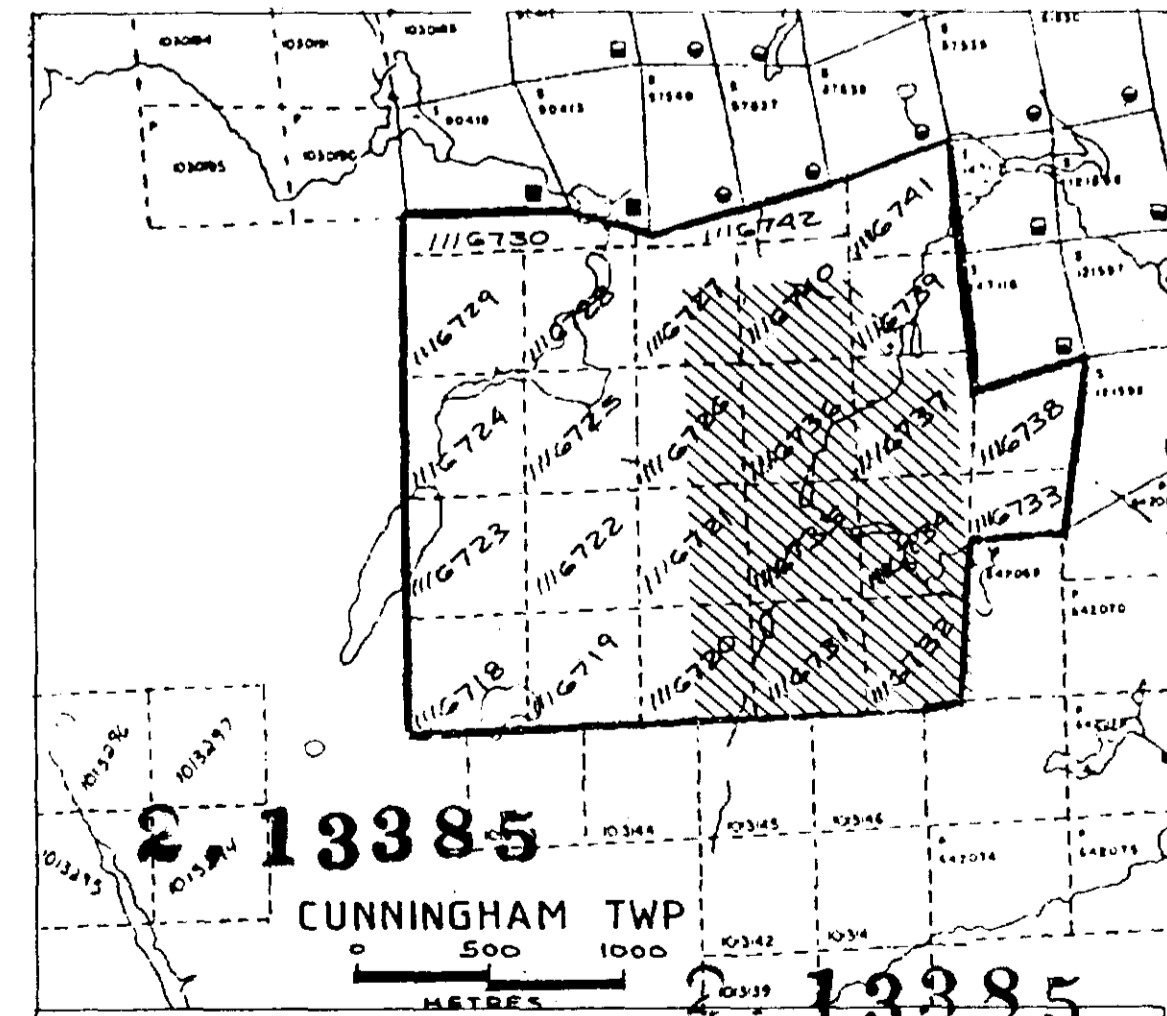






LEGEND

- INTERPRETATION:
- Relatively low resistivity unit with respect to immediate surroundings. Bedrock valley, thicker overburden, with or without an associated tectonic structure.
  - Relatively high resistivity unit with respect to immediate surroundings. Bedrock ridge, thinner overburden, more resistive lithological unit.
  - Well-defined Maxin H.E.M. bedrock conductor, conductance higher than 40 mhos. Definitely metallic causes, continuous, massive to semi-massive mineralisation.
  - Low conductivity Maxin H.E.M. conductor, lower than 20 mhos. Causes possibly metallic; discontinuous, stringer or disseminated mineralisation.
  - Depth, conductance and dip estimates of bedrock conductors.
  - Interpreted shear zone.
  - Interpreted fault.
  - ELECTROMAGNETIC PROFILE:**
    - In phase 1 cm. = 10 %
    - Out of phase 1 cm. = 10 %

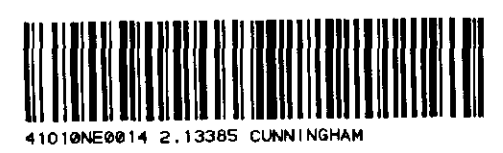


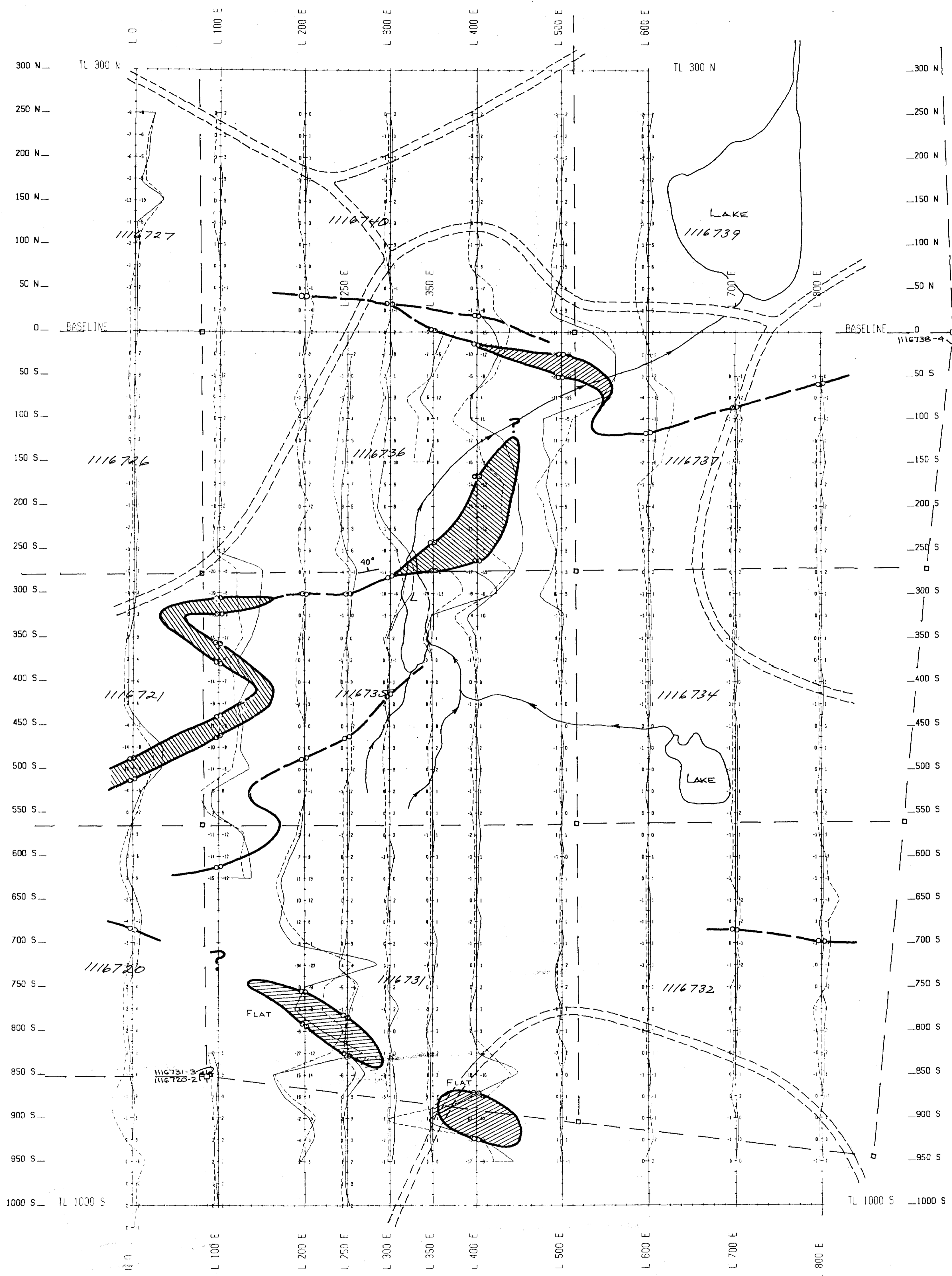
**COMINCO LTD**  
**SHUN PROJECT**

**ELECTROMAGNETIC H.E.M SURVEY**  
FREQUENCY 880 CABLE 100 M.

**VAL D'OR GEOPHYSIQUE LTEE**  
Interpreted by: G. Lambert, Ing. Date 04/90

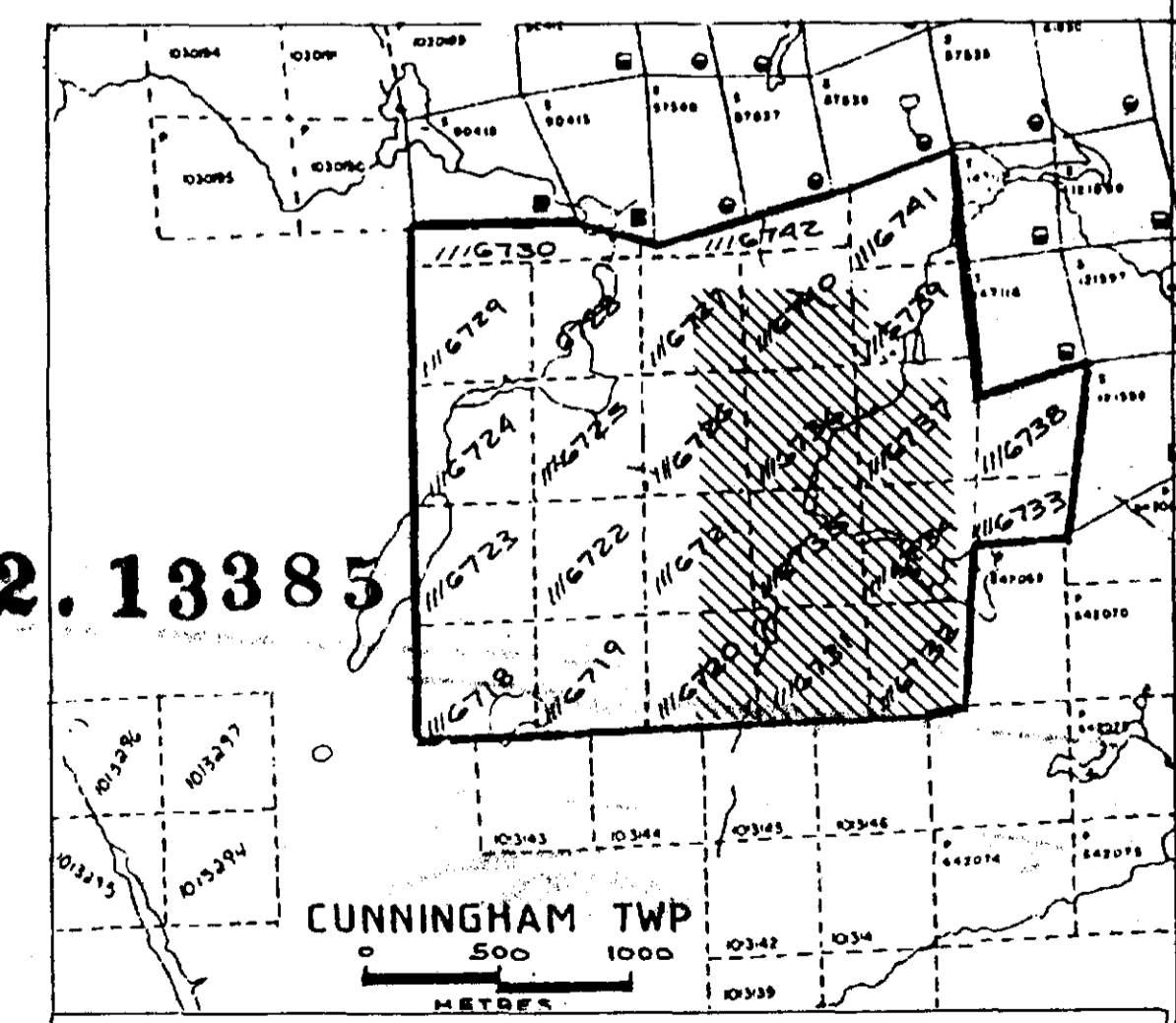
Scale 1 : 2500 Map no. 3.2





LEGEND

- INTERPRETATION:
- Relatively low resistivity unit with respect to immediate surroundings. Bedrock valley, thicker overburden, with or without an associated tectonic structure.
  - Relatively high resistivity unit with respect to immediate surroundings. Bedrock ridge, thinner overburden, more resistive lithological unit.
  - Well-defined Maxin H.L.E.M. bedrock conductor, conductance higher than 40 whos. Definitely metallic causes, continuous, massive to semi-massive mineralisation.
  - Low conductivity Maxin H.L.E.M. conductor, lower than 20 whos. Causes possibly metallic, discontinuous stringer or disseminated mineralisation, or electrolytic conductive tectonic structure.
  - Depth, conductance and dip estimates of bedrock conductors.
  - Interpreted shear zone.
  - Interpreted fault.
- ELECTROMAGNETIC PROFILE.
- In phase 1 ca. = 10 %
  - Out of phase 1 ca. = 10 %

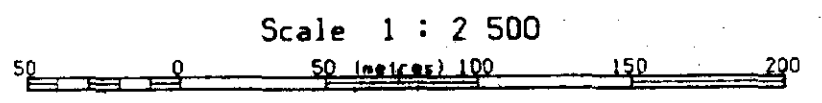


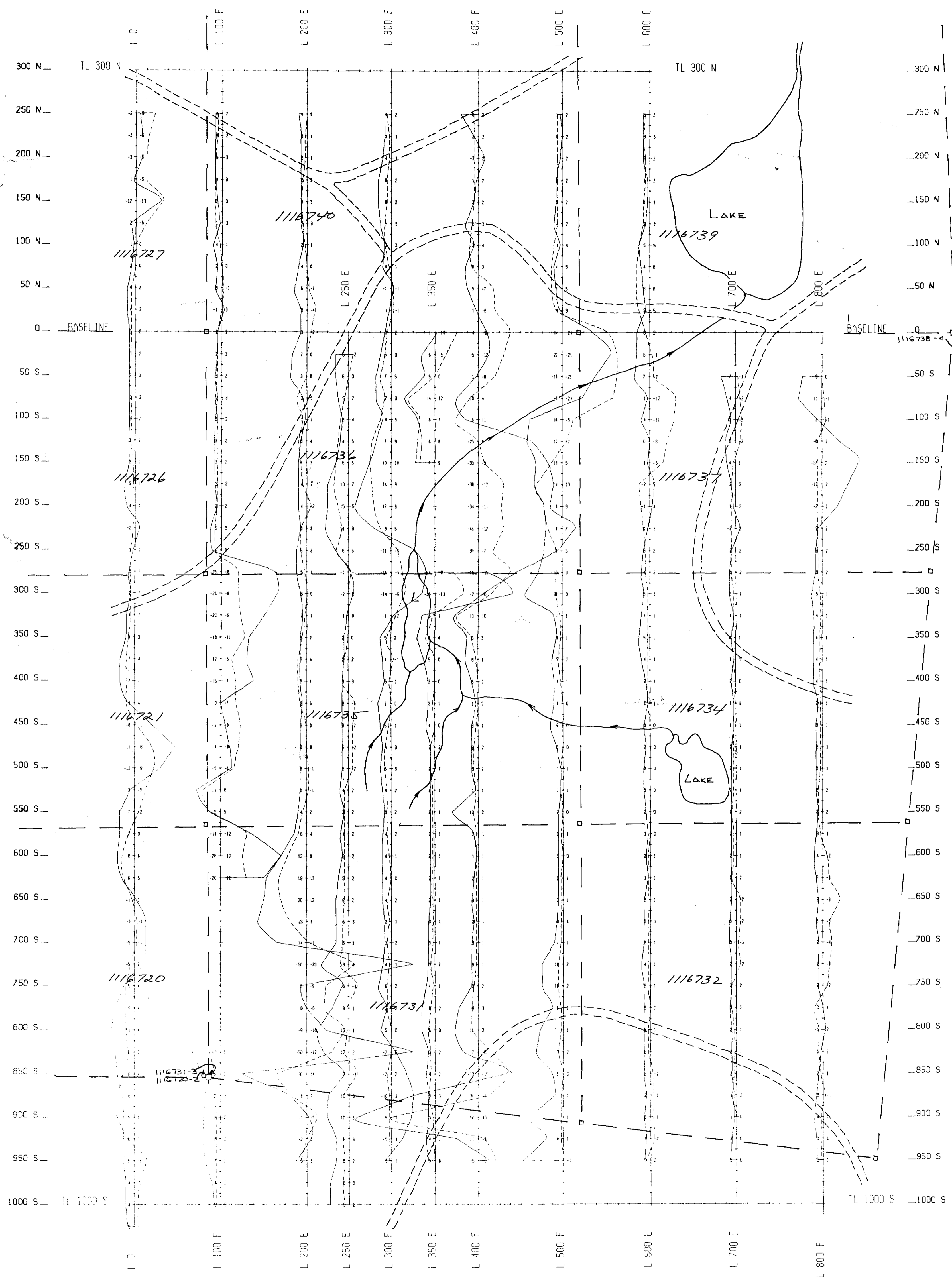
**COMINCO LTD**  
SHUN PROJECT

**ELECTROMAGNETIC H.E.M SURVEY**  
FREQUENCY 3520 CORRECTED CABLE 100 M.

**VAL D'OR GEOPHYSIQUE LTEE**  
Interpreted by : G. Lambert., Ing. Date 04/90

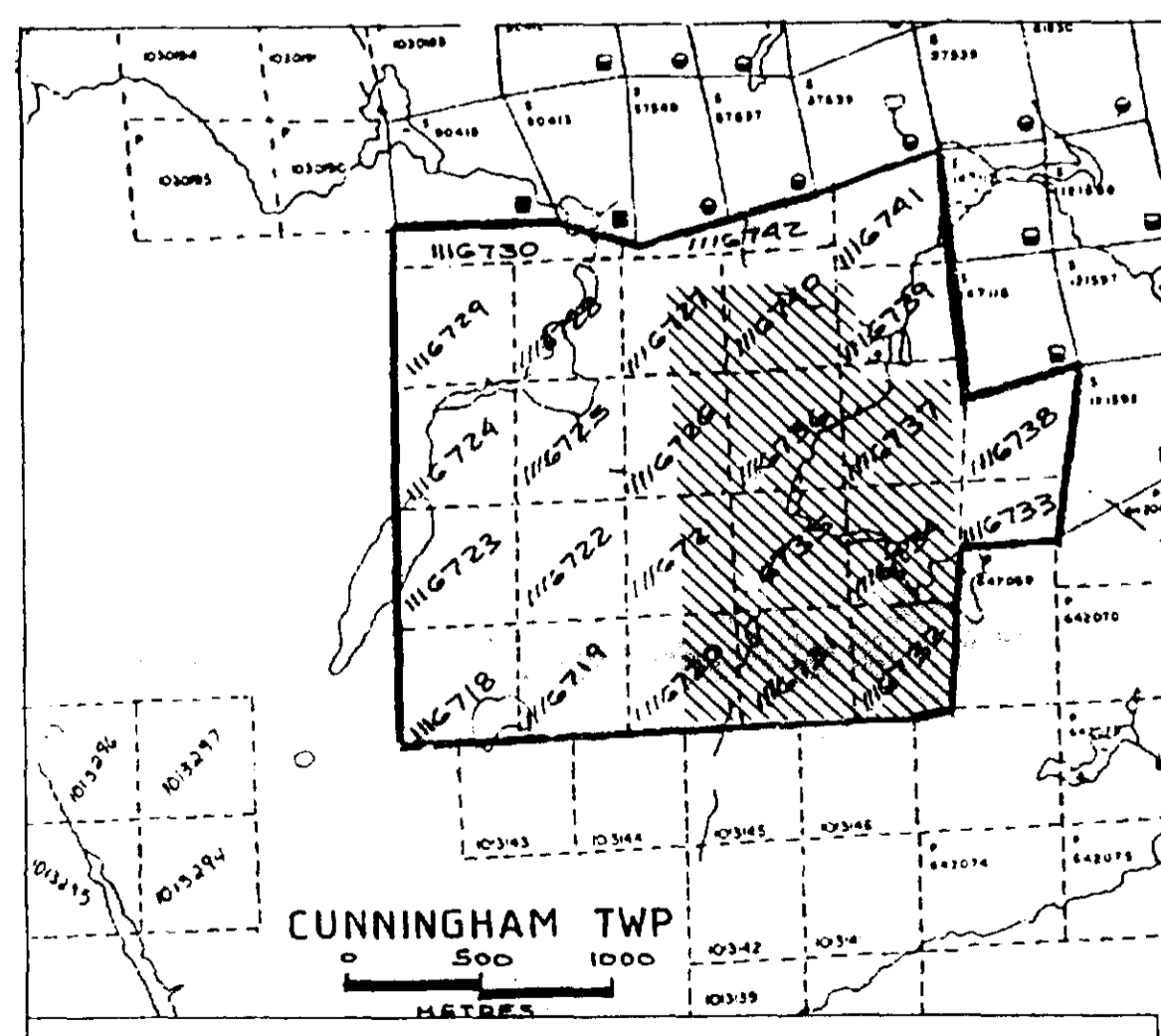
Scale 1 : 2500 Map no. 3.3





LEGEND

- INTERPRETATION:
- Relatively low resistivity unit with respect to immediate surroundings. Bedrock valley, thicker overburden, with or without an associated tectonic structure.
  - Relatively high resistivity unit with respect to immediate surroundings. Bedrock ridge, thinner overburden, more resistive lithological unit.
  - Well-defined Max in H.L.E.M. bedrock conductor, conductance higher than 40 mhos. Definitely metallic causes, continuous, massive to semi-massive mineralisation.
  - Low conductivity Max in H.L.E.M. conductor, less than 20 mhos. Causes possibly metallic; discontinuous, stringer or disseminated mineralisation.
  - Or electrolytic conductive tectonic structure.
  - Depth, conductance and dip estimates of bedrock conductors
  - Interpreted shear zone.
  - Interpreted fault.
- ELECTROMAGNETIC PROFILE.
- Inphase 1 cm. = 10 Ω
  - Out of phase 1 cm. = 10 Ω



COMINCO LTD  
SHUN PROJECT 2.13385

ELECTROMAGNETIC H.E.M SURVEY  
FREQUENCY 3520 CABLE 100 M.

VAL D'OR GEOPHYSIQUE LTEE  
Interpreted by : G. Lambert., Ing. Date 04/90

Scale 1 : 2500 Map no. 3.3-1

