

63.5376



VAL D'OR
GÉOPHYSIQUE

0m88-6-C-187



32D04SE0141 63.5376 HEARST

010

GEOPHYSICAL SURVEY
property of
NORAD RESOURCES LTD
LARDER LAKE Project
Hearst Twp.
~~Quebec~~ province of Ontario
March 1988

G. Lambert R. Turcotte

SERVICES EN LEVÉS GÉOPHYSIQUES
GEOPHYSICAL SERVICES

50, boul. Lamaque
VAL D'OR (Québec)
J9P 2H6

(819) 825-6529



32D04SE0141 63.5376 HEARST

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1.1	Total field contours
1.2	Total field and gradient profiles
2.1	Profiles NAA
4.1	Induced Polarization



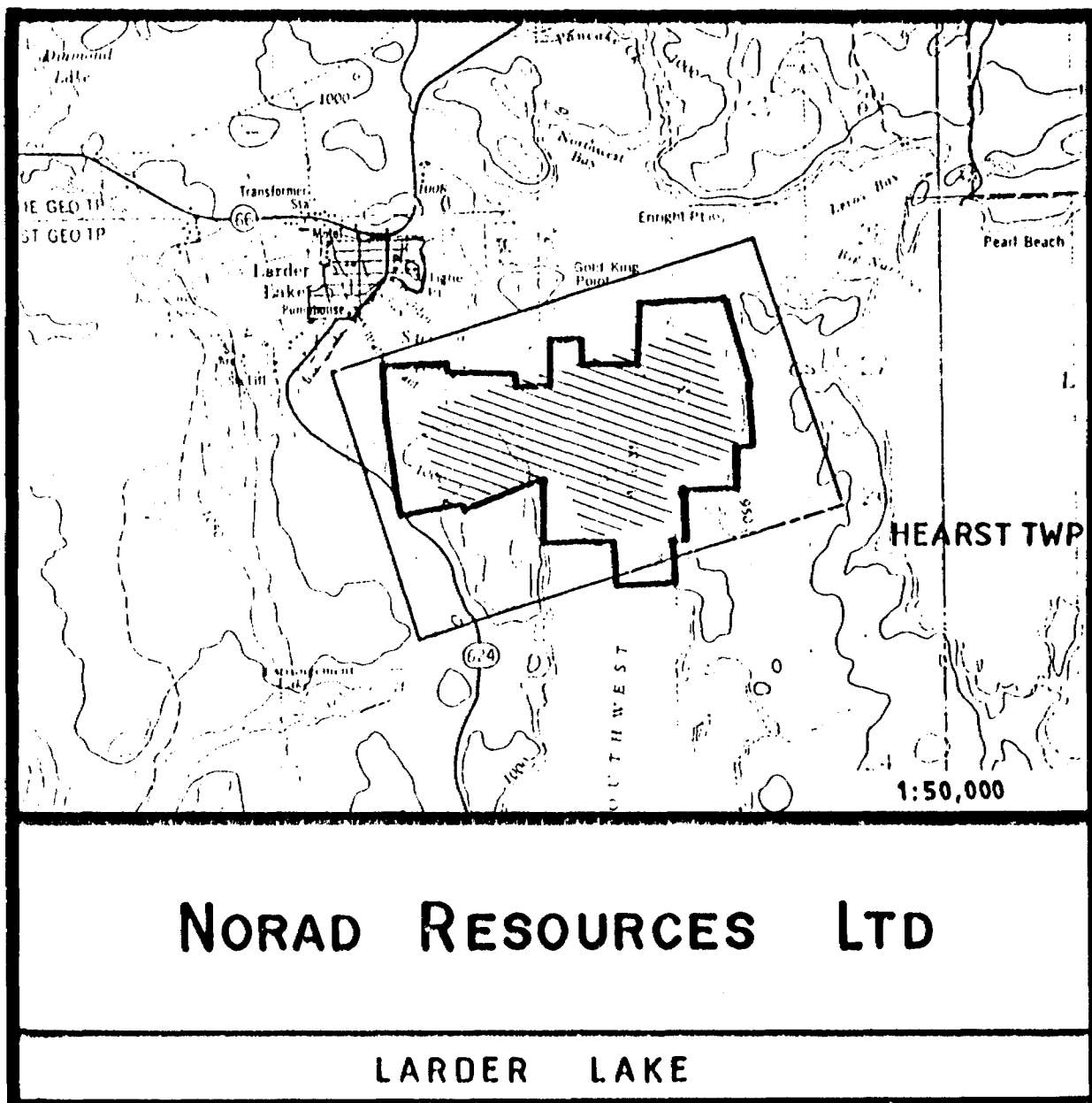


Figure #2 : Area surveyed



INTRODUCTION

In February 1988, geophysical surveys were carried out on a property owned by NORAD RESOURCES LTD, (LARDER LAKE Project) in Hearst township, province of Quebec.

The survey was designed to locate structures favorable for gold or base metal deposition.

PROPERTY, LOCATION AND ACCESS

The property is located approximately 2 kms south-east of the village of Larder Lake, in Hearst township, Larder Lake area, province of Quebec.

The property is easily accessible by the Larder Lake.

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

GEOPHYSICAL WORK

An electromagnetic EM-VLF survey, a total magnetic field and gradient survey and an induced polarization were carried out on the claim block between February 18th to 23th, 1988.

The EM-VLF survey was conducted over a total of 16.5 kms using a Geonics EM-16 instrument. A total of 35.8 kms was covered by the magnetic survey using two EDA OMNI-IV instruments and the induced polarization survey was covered over a total of 2.4 kms using the PHOENIX IPV-2, IPT-1, MG-1 system.



SURVEY SPECIFICATIONS

The geophysical survey were carried out along a network of North west - South east picket line cut at 200 feet intervals. The lines were chained and stations marked at 100 feet 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 50 feet with detail every 25 feet 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 EM-VLF survey was conducted with a Geonics EM-16 EM-VLF unit measuring the vertical component (In phase - Out of phase) of the secondary field. Readings were taken systematically every 50 feet using the NAA (Cutler) station.

The I.P. survey has been done with a dipole-dipole array. The electrodes separation (X) was 100 feet with measurements of N = 1 to 4.



RESULTS AND INTERPRETATION

The magnetic relief indicates the presence of lithological units of increased susceptibility at various depths on the property. In a background level of 58,400 gammas, magnetic intensities of up to 1,600 gammas above the background have been traced. In the North, a broad East-West magnetic response was mapped and indicates the occurrence of a deep (>300 feet) prism-shaped magnetic body. It is cut at its West edge by a major ENE/SSW break extending from about 1000W/2500S to 200E/400N and expressed by a significant magnetic low.

Immediately along and parallel to the Southeast margin of this break is another magnetic feature, probably a dyke, mapped from 400W/1900S to 400E/300N. Further to the East, another zone of magnetic depletion striking NE-SW was outlined between 400E/1300E and 3000E/600S and is still open to the East.

The magnetic setting of the gold mineralisation on the island is unclear although a NE/SW trend is suggested for the local structure and this fact can be used as a guide in elaboration strategies.

In the West part of the grid, a wide magnetic package extends between 1200W/500S to 4000W/050N and consists of several bands of mafic rocks over a width of 800 feet. This unit is flanked to the North and South by magnetically calm lithologies, probably sediments. Two possible NNW/SSE-trending tectonic lineaments exist, one extending from 1600W/900S to 2000W/100N and the second one from 2400W/1200S to 2800W/500N. Both these structures bear a significant potential for auriferous mineralisation.



The VLF profiles clearly show resistivity variations due to changes in bedrock topography and overburden thickness. A NE-SW trending high resistivity lineament occurs in the Eastern half of the property, and coincides with the presence of islands. Quite clearly the lake bottom is blanketed with a layer of conductive clays and most probably limits the penetration of the VLF field in reaching the bedrock.

A NE-SW trending lineament was mapped in the West and North of the property. It is characterized by an in-phase crossover and significant quadrature movement. It may be a bedrock feature (structure ?).

Two other such anomalies, although somewhat shorter and less well defined, were mapped in the West, around 4000W and 3000W. The other deflections on the data essentially delineate apparent resistivity variations due to topographic features.

As can be seen, no definite VLF signatures clearly characterize the known mineralisation, except for changes in apparent resistivity and one would assume from this fact that a very small metallic content is associated with the showings.

This interpretation is confirmed by the induced polarization tests. Over the island showing, East-West lines were run (TL 2000S and line 2400S) with I.P. No polarization effects were observed at this location, thus indicating no important concentrations of sulfides.

The I.P. data in the West has also failed to outline any significant metallic concentrations. The weak and unclear responses near the lake shore may be only noise effects due to the sudden background level transition.



CONCLUSION AND RECOMMANDATIONS

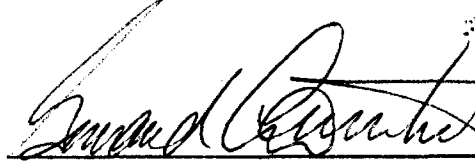
The geophysical investigations performed on the LARDER LAKE property have mapped an East-West striking lithological package consisting of alternating sediments and mafic volcanics. A dominant NE-SW structural trend has affected this rock assemblage and is evidenced by VLF and magnetic trends and lineaments.

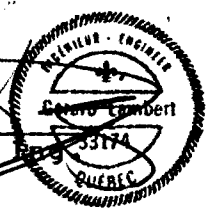
Although no direct geophysical signatures were identified in association with the known gold mineralisation, indirect clues may be inferred. We feel the NE-SW linears offer some indications as to how the rocks were faulted or displaced. The VLF responses in the West may warrant further investigation to at least establish if they are structure-related and to provide opportunities to better understand the relationship between the presence of gold mineralization and the vein network.

Complete coverage of the property with induced polarization is highly desirable because it is the best geophysical technique that can be applied in such an environment, particularly when lake bottom clays preclude the application of EM methods.


Respectfully submitted,
VAL D'OR GEOPHYSIQUE LTEE

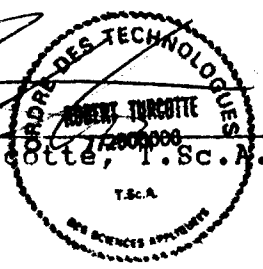
By :


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



And by :


Robert Turcotte, T.Sc.A.





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.

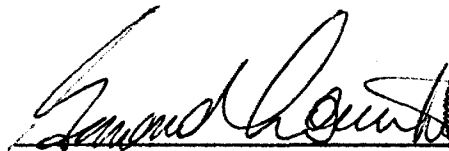
I am a member of the Ordre des Ingénieur du Québec since 1978.

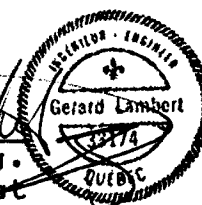
I am a member of the Quebec Prospector Association, the Prospector & Developers Association of Canada, the Society of Exploration Geophysicist, the European Association of Exploration Geophysicists and the Canadian Institute of Mining & Metallurgy.

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 NORAD RESOURCES LTD.

Rouyn-Noranda, March 10, 1988.


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.

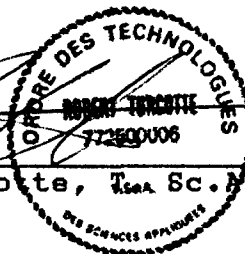
I am a member of "Corporation professionnelle des Technologues des Sciences Appliquées du Québec" and also a member of the Quebec prospectors association and of the Canadian Institute of Mining and Metallurgy.

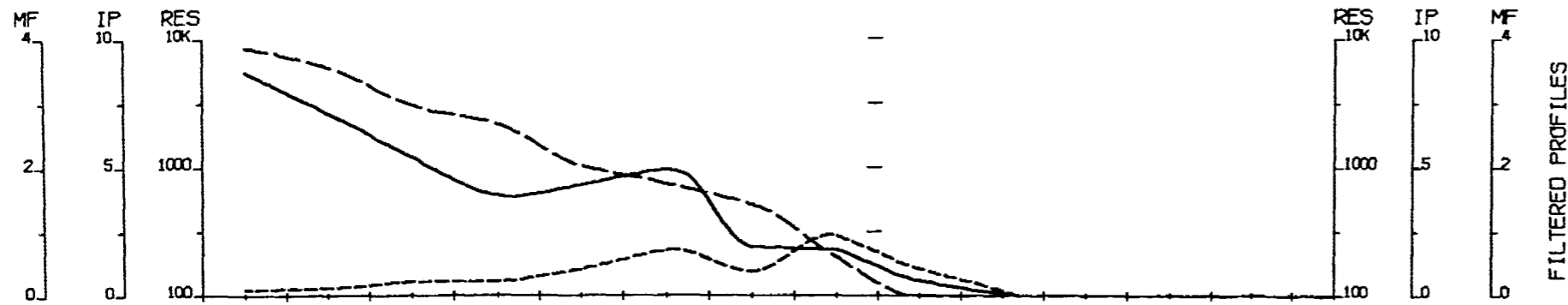
I do not hold nor do I expect to receive an interest of any kind in these claims held by NORAD RESOURCES LTD.

Signed in Val d'Or, this March 10, 1988.

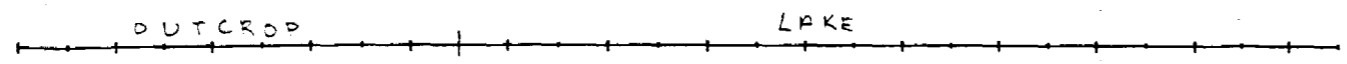
By:


Robert Turcotte, T. Sc. B.

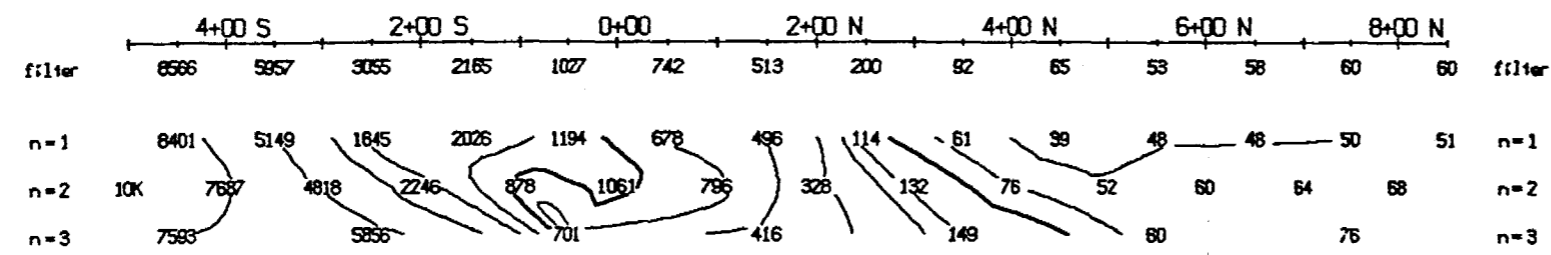




FILTERED PROFILES



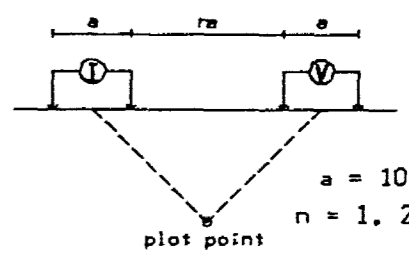
TOPOGRAPHY



RESISTIVITY
(ohm-m)

Line 22+00 W

Dipole-Dipole Array



Filtered Profiles

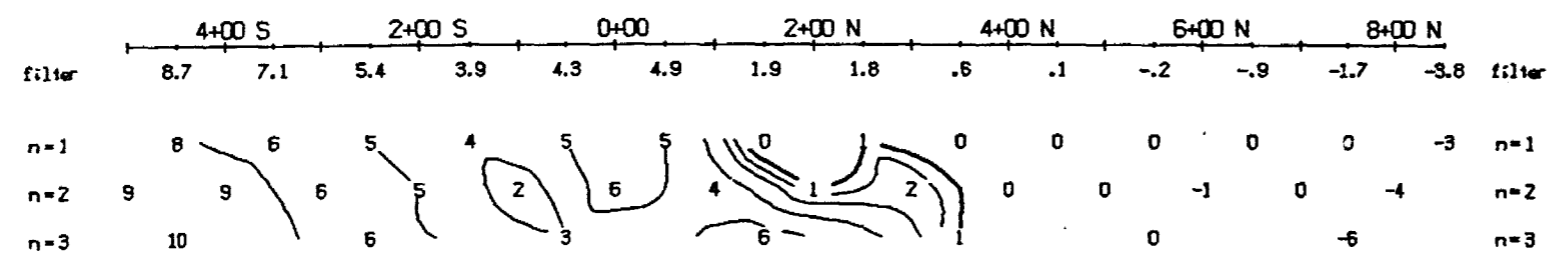
Resistivity	-----	filter	*
Polarization	=====		**
M. Factor	-----		***

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10, ...

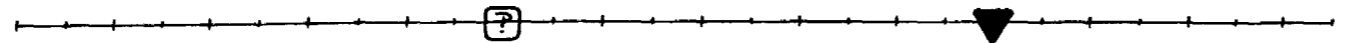
Instrument: PHOENIX IPT1,EDA IP-2
Time cycle: 2 sec.
Operator: Joel Grenier

INTERPRETATION

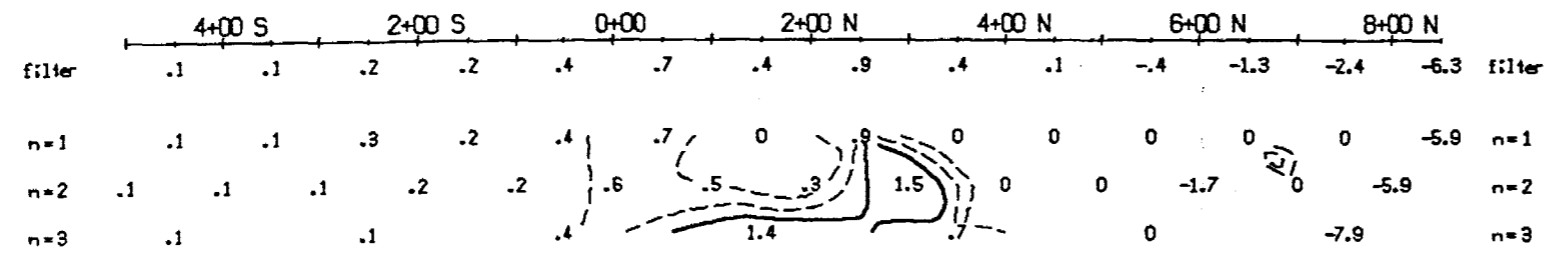
- Strong increase in polarization accompanied by marked decrease in resistivity.
- ▣ Well defined increase in polarization without marked resistivity decrease.
- Poorly defined polarization increase with no resistivity signature.
- ▼ Low resistivity feature.



CHARGEABILITY
(msec)



INTERPRETATION



METAL FACTOR
(ip/res * 100)

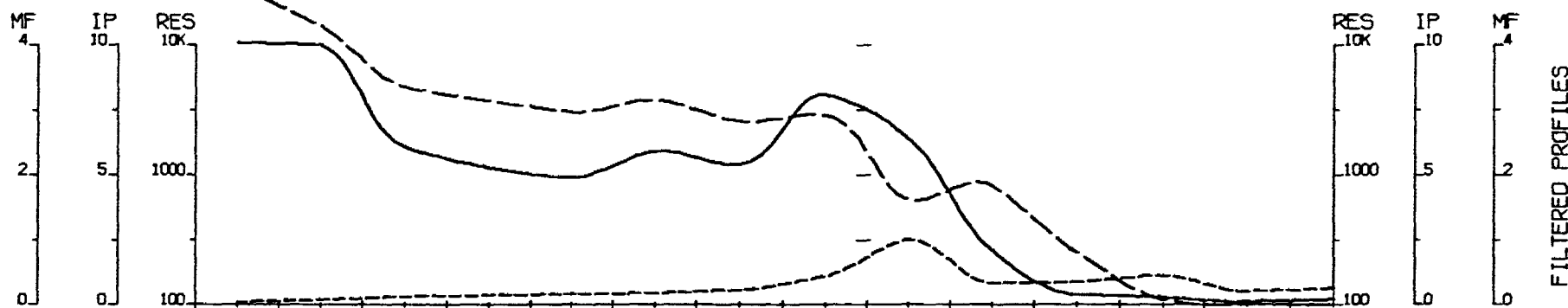
Induced Polarization Survey

NORAD RESOURCES LTD

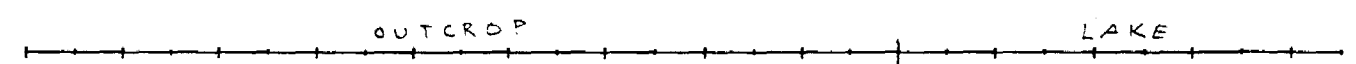
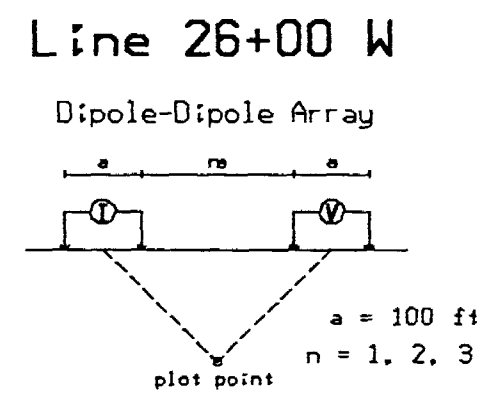
Larder Lake project
Mc Vittie township

Date: 88/02/18
Interpretation by: G. Lambert ing.
Scale: 1 in. = 200 ft

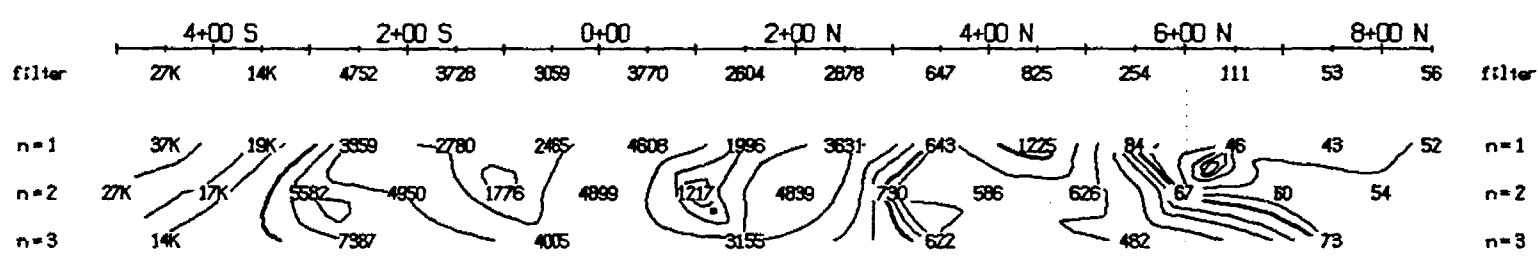
VAL D'OR GEOPHYSIQUE LTEE



FILTERED PROFILES



TOPOGRAPHY

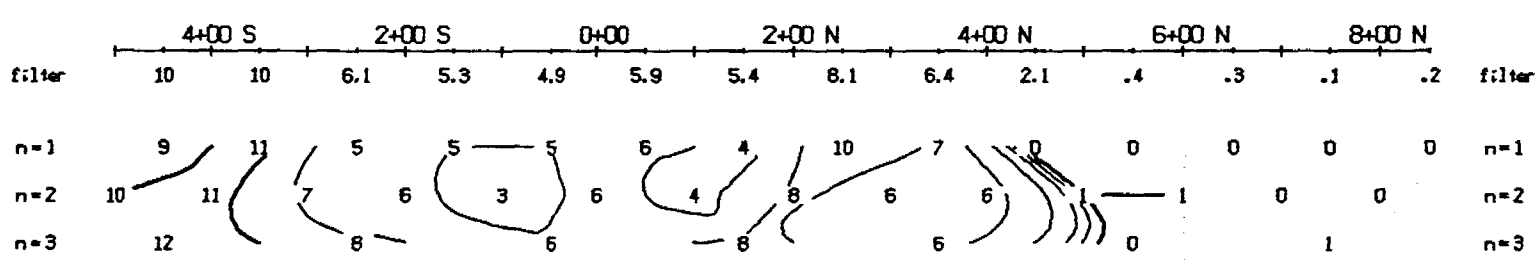


Filtered Profiles

Resistivity	-----	filter	*
Polarization	=====		**
M. Factor	-----		***

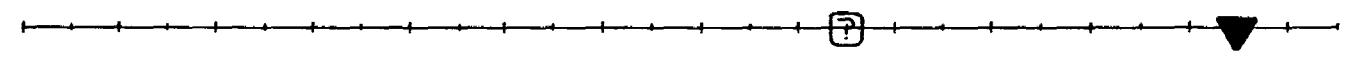
Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10, ...

Instrument: PHOENIX IPT1,EDA IP-2
Time cycle: 2 sec.
Operator: Joel Grenier

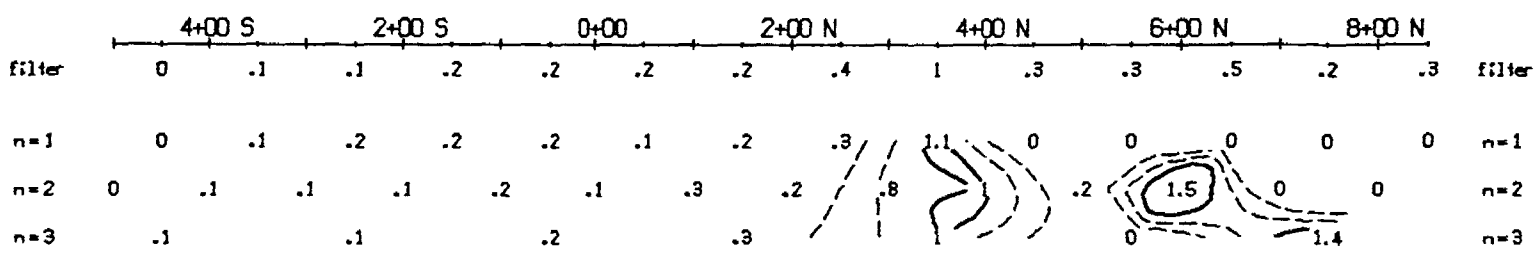


CHARGEABILITY (msec)

- INTERPRETATION
- Strong increase in polarization accompanied by marked decrease in resistivity.
 - ▣ Well defined increase in polarization without marked resistivity decrease.
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 - ▼ Low resistivity feature.



INTERPRETATION



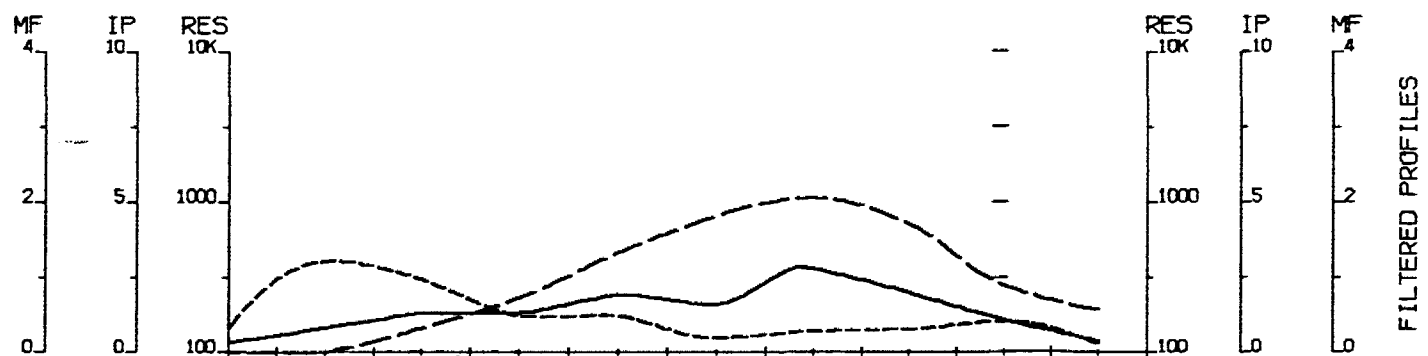
METAL FACTOR (ip/res * 100)

Induced Polarization Survey

NORAD RESOURCES LTD
Larder Lake project
Mc Vittie township

Date: 88/02/18
Interpretation by: G. Lambert ing.
Scale: 1 in. = 200 ft

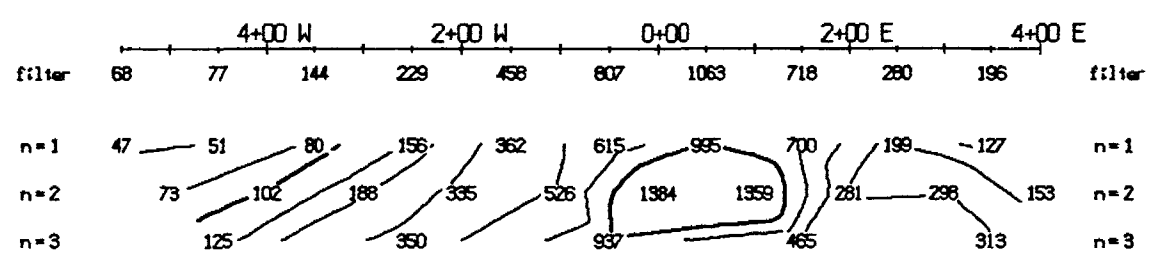
VAL D'OR GEOPHYSIQUE LTEE



FILTERED PROFILES

LAKE

TOPOGRAPHY

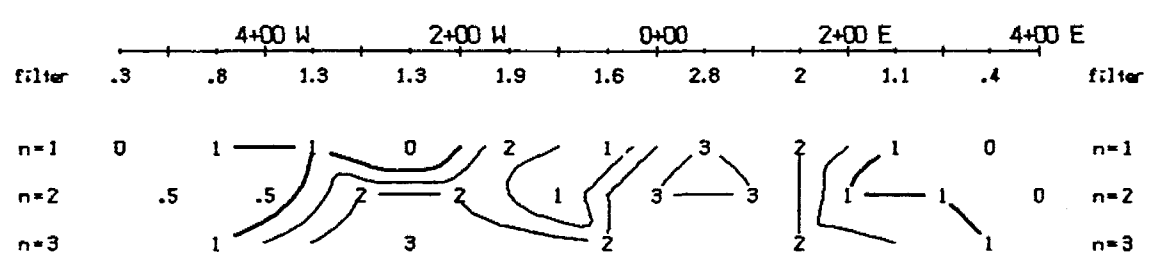


RESISTIVITY
(ohm-m)

Resistivity ———— filter *
Polarization ———— **
M. Factor ———— ***

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10, ...

Instrument: PHOENIX IPT1, EDA IP-2
Time cycle: 2 sec.
Operator: Joel Grenier



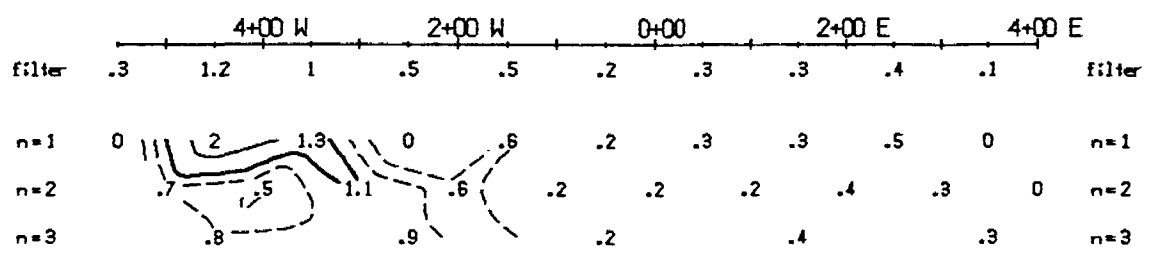
CHARGEABILITY
(msec)

INTERPRETATION

- Strong increase in polarization accompanied by marked decrease in resistivity.
- ▣ Well defined increase in polarization without marked resistivity decrease.
- Poorly defined polarization increase with no resistivity signature.
- ▼ Low resistivity feature.

Thin o/b.

INTERPRETATION



METAL FACTOR
(ip/res * 100)

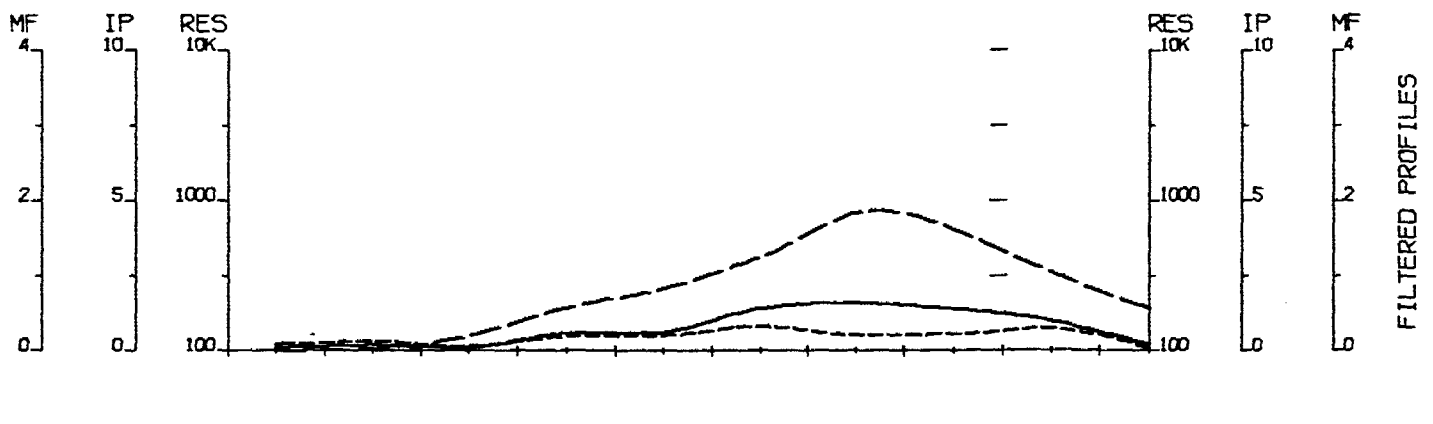
Induced Polarization Survey

NORAD RESOURCES LTD

Larder Lake project
Mc Vittie township

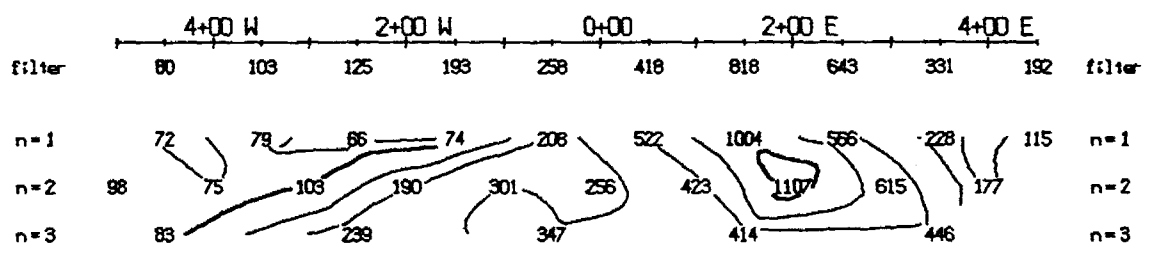
Date: 88/02/18
Interpretation by: G. Lambert ing.
Scale: 1 in. = 200 ft

VAL D'OR GEOPHYSIQUE LTEE



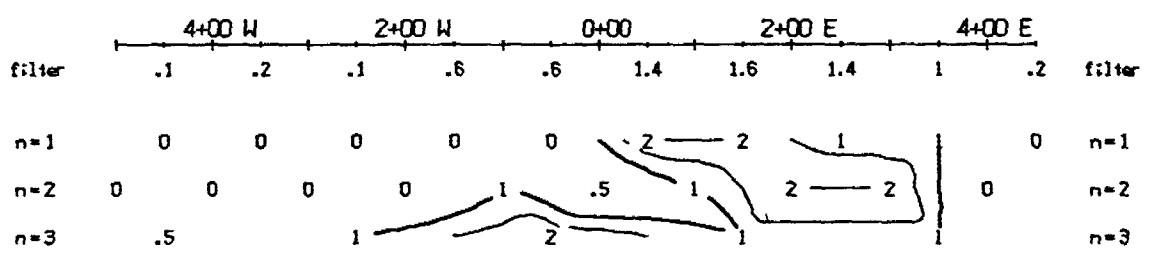
FILTERED PROFILES

LAKE



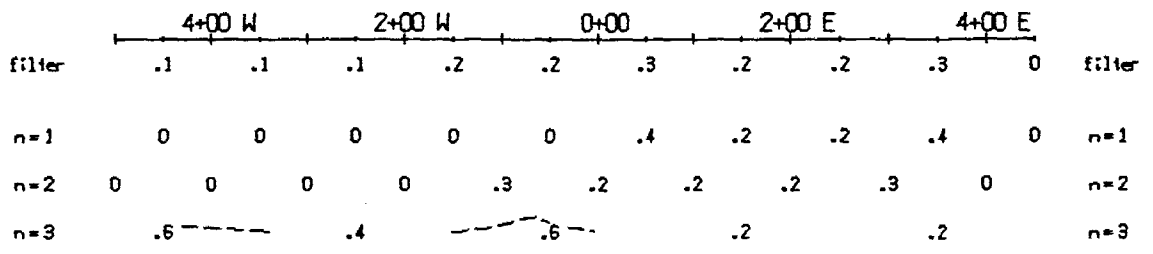
TOPOGRAPHY

RESISTIVITY
(ohm-m)



CHARGEABILITY
(msec)

Thin o/b.

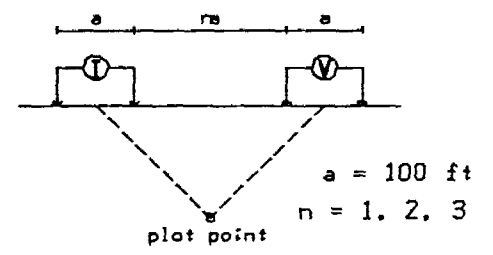


INTERPRETATION

METAL FACTOR
(ip/res * 100)

Tie Line 20+00 S

Dipole-Dipole Array



Filtered Profiles

Resistivity	-----	filter *
Polarization	=====	**
M. Factor	-----	***

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10, ...

Instrument: PHOENIX IPT1, EDA IP-2
Time cycle: 2 sec.
Operator: Joel Grenier

INTERPRETATION

- Strong increase in polarization accompanied by marked decrease in resistivity.
- ▣ Well defined increase in polarization without marked resistivity decrease.
- Poorly defined polarization increase with no resistivity signature.
- ▼ Low resistivity feature.

Induced Polarization Survey

NORAD RESOURCES LTD

Larder Lake project
Mc Vittie township

Date: 88/02/18
Interpretation by: G. Lambert ing.
Scale: 1 in. = 200 ft

VAL D'OR GEOPHYSIQUE LTEE

Preliminary Conclusions

November, 1988 Report on Knutson Option

for

Norad Resources



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Significant gold bearing quartz, carbonate and syenite porphyry stockwork type vein structures occur on the mainland McRae claim 11054 and M island claim 26162.

Mainland Claim 1054, #5 Trench Area

Trenches #1, 3, 4, 5 & 7 were detreed and partially cleared and assayed.

Tree growth rings indicate no serious evaluation of these trenches for gold has been performed since about 1935.

Chip sample assay results in trenches #1, 3, 4, 5 & 7 show gold values over a westerly strike length of about 180'. For example, 27 chip samples 3' - 5' long in a partially cleared 70' x 30' portion of trench #5 gives an arithmetic average of 0.05 oz/ton gold.

The local and regional geology shows syenite porphyry intruding greenstone and arkosic sediments. The schistosity is usually west trending and steeply dipping.

A southwest trending shear at south end of trench #5 apparently caused crenulation and looseness resulting in increased quartz veining, carbonate and erratically distributed (2 - 15%) fine to medium grain sulfides. A pipe-like structure may be located here.

Gold sometimes occurs in hard siliceous carbonate rock associated with sulfides, especially when close to quartz syenite porphyry.

The discontinuous and erratic nature of the carbonate, sulfides, quartz veins, stockworks and gold values suggests a bulk sampling method be used to determine the average grade of gold.

Recommendations, Mainland Claim 1054

Objective

- a) To determine the geological and structural controls, trend and extent of gold mineralization.
- b) To outline and grade a 150,000 ton block of gold ore.

Recommendations, Mainland Claim 1054, cont'd.Work Program

1. About 150' x 250' area to be detreed and trenches #1 - 10 cleared.
2. Geological mapping and chip assay sampling.
3. Back hoe trenching to prepare bedrock setups on 20' centres.
4. Air track drill, 2½" diameter holes on 20' centres to about 50' depth. (6000')
5. Regional reconnaissance.

The approximate cost of the above program is about \$40,000.00.
Alternatively, total cost for 6000', 2½" HQ core is about \$112,000.00.

M Island Claim 26162

M island is underlain by quartz porphyry with north trending vertically dipping well developed shearing along the west side of the island.

Trenches A, B & C were detreed and trenches B & C assay sampled.

The presence of gold, carbonate, disseminated sulfides, conformable and stockwork type white quartz veins was confirmed.

Assay chip samples indicate a 10' wide and 60' long band of rock along the west shore contains 0.10 oz/ton gold.

RecommendationsObjective

- a) To determine the geological and structural controls, trend, extent and grade of gold mineralization.

Work Program

1. Additional tree clearing, burning and cleaning of trenches A, B & C.
2. Dig a new trench "D" over drill hole #3 gold intersection of about 1 oz/ton gold over 2.5'.
3. Geological mapping and representative chip sample assaying.
4. Drill and blast a 2 ton bulk sample, taking about 1000 lbs. rock from each trench A, B, C, & D.
5. Island M reconnaissance.

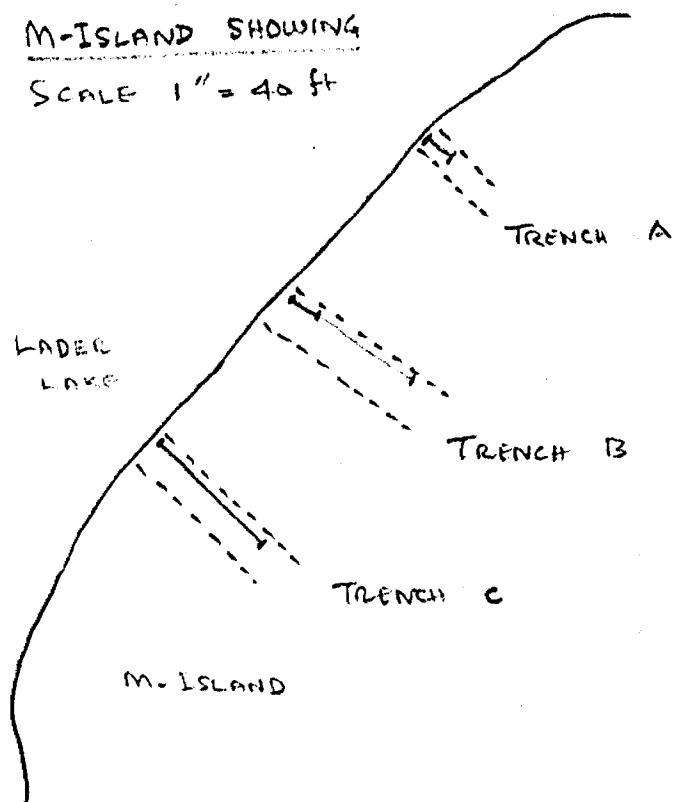
The approximate cost of the above program is \$15,000.00.

Erwin Hamilton

November 3, 1988

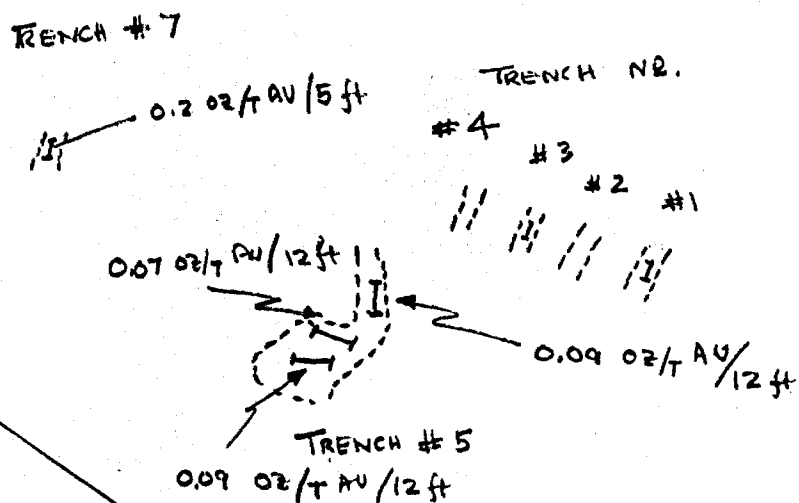
Erwin Hamilton, P.Eng.

M-ISLAND SHOWING
SCALE 1" = 40 ft



LOCATION OF TRENCH B:
L1W/221005

MCRAE SHOWING
SCALE 1" = 50 FT



NORAD RESOURCES LTD
MCRAE RITE PROPERTY
LADDER LAKE, ONT
TRENCH SAMPLING
E. HAMILTON - 1980



Swastika Laboratories

A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

10 - 0.28
5 - 0.21
3 - 0.13
6 - 0.10

Certificate of Analysis

Certificate No. 73351

Date Oct. 24, 1988

Received Oct. 19, 1988

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Split Core Samples

Submitted by Norad Resources Ltd., Toronto, Ontario.

Page 1 of 2.

SAMPLE NO.	GOLD Oz/ton	SILVER Oz/ton	SAMPLE NO.	GOLD Oz/ton	SILVER Oz/ton
9001	Nil	Nil	DM-0921	Nil	Trace
DM-0901	0.020/3'	Nil	0922	0.025	Nil
0902	0.002	Nil	0923	— 0.185/0.175	0.02
0903	0.080	0.01	0924	0.040	Nil
0904	0.060	Trace	0925	0.005	Nil
0905	0.080/0.090	0.01	0926	— 0.130	0.01
0906	0.070	0.01	0927	0.015	Nil
0907	0.002	Nil	0928	0.010	Trace
0908	0.085	Trace	0929	0.060/5'	0.01
0909	0.010	Trace	0930	Nil	Nil
0910	0.002	Nil	0931	Nil	0.01
0911	0.045	Nil	0932	0.005	0.01
0912	0.100	Trace	0933	Nil	Trace
0913	0.165/0.160	0.01	0934	0.002	Trace
0914	0.045	Nil	0935	0.002	Trace
0915	0.002	Nil	0936	0.005	Trace
0916	0.005	Trace	0937	— 0.190/0.215/5'	0.02
0917	0.002	Nil	0938	0.030	Nil - 10'
0918	0.002	Nil	0939	0.005	Nil - 5'
0919	— 0.125	0.01	0940	0.050	0.01 - 5'
0920	0.020	Trace		Con't....	

30'
#15
TRACE

12'
0.01

8'
0.085/16'

21'
#15
TR.

TR.
#5
37'

TR
#11

TR
#3

TR
#1

TR
#7

TR
Trench C
Influenced

↓
↑

↓
↑

↓
↑

Per G. Lebel
G. Lebel - Manager /ns





SAMPLE NO.	GOLD Oz/ton	SILVER Oz/ton
DM-0941	0.005	Nil - 5'
0942	0.015	Nil - 5'
0943	0.002	0.02 - 5'
0944	0.005	Nil - 5'
0945	0.015	Nil - 1'
0946	0.180/0.140	0.01 - 10'
0947	0.005	Nil - 5'
0948	0.030	Trace - 5'
0949	0.010	Nil - 5'
0950	0.055	Trace - 5'
0951	0.020	Nil - 5'
0952	0.002	Nil - 7'

TR C 44'

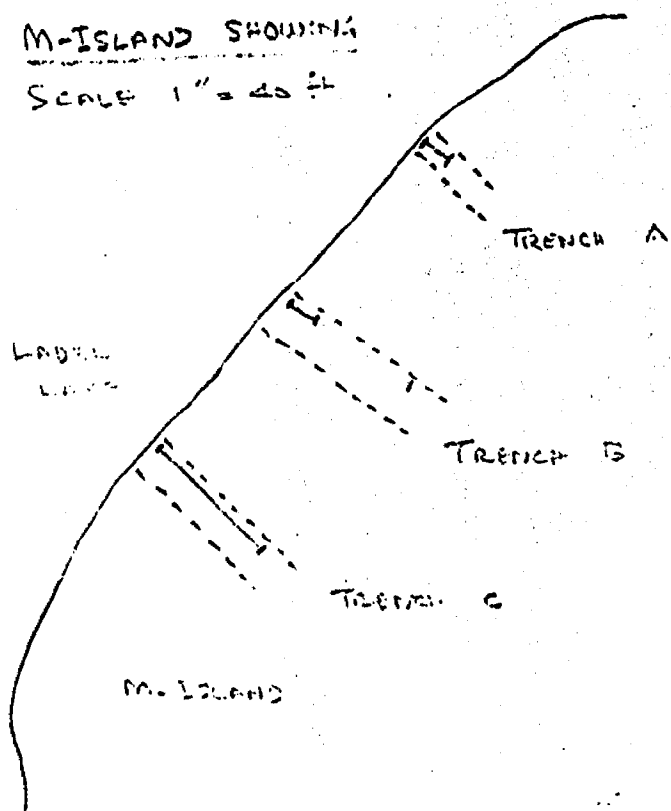
Trench B
'M' Inland
42'

Per G. Lebel
G. Lebel - Manager



M-ISLAND SHOWING

SCALE 1" = 40 FT

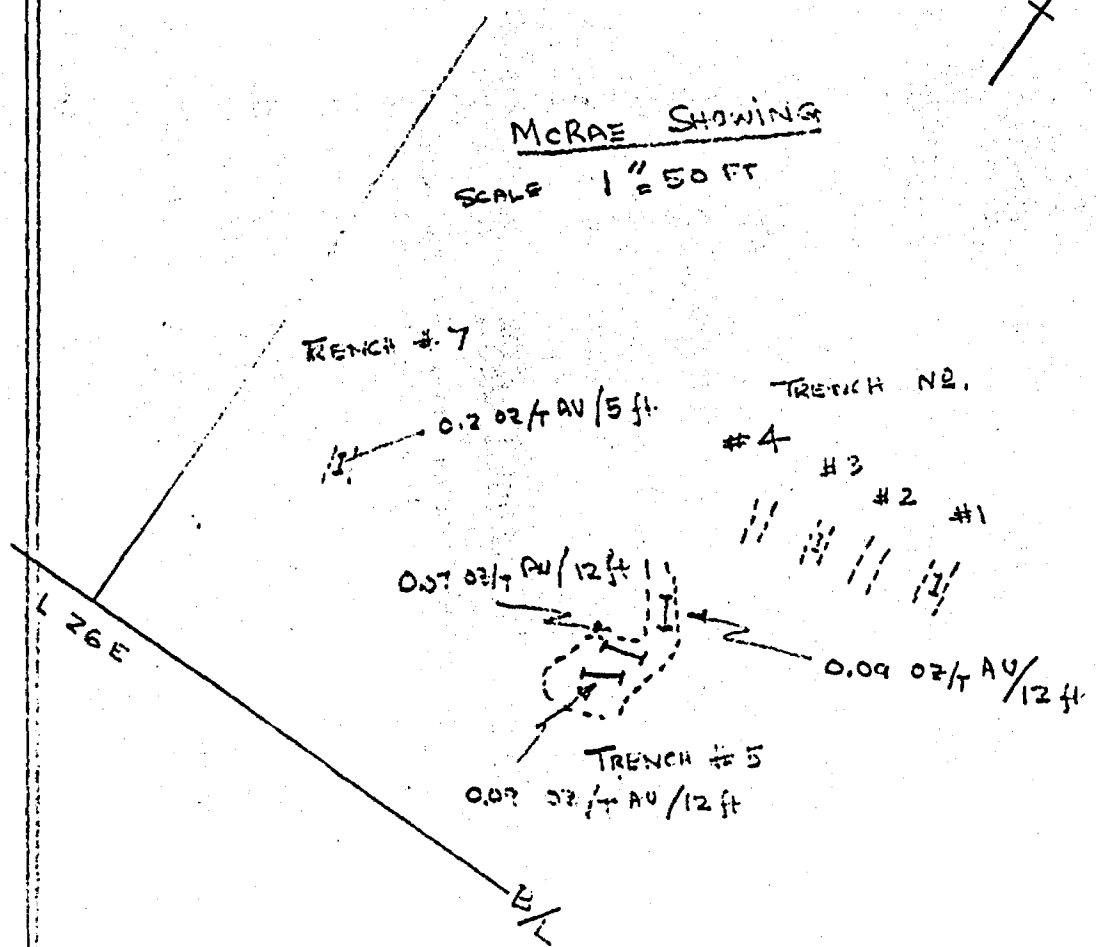


Location of trench B:

L1W/22498

MCRAE SHOWING

SCALE 1" = 50 FT

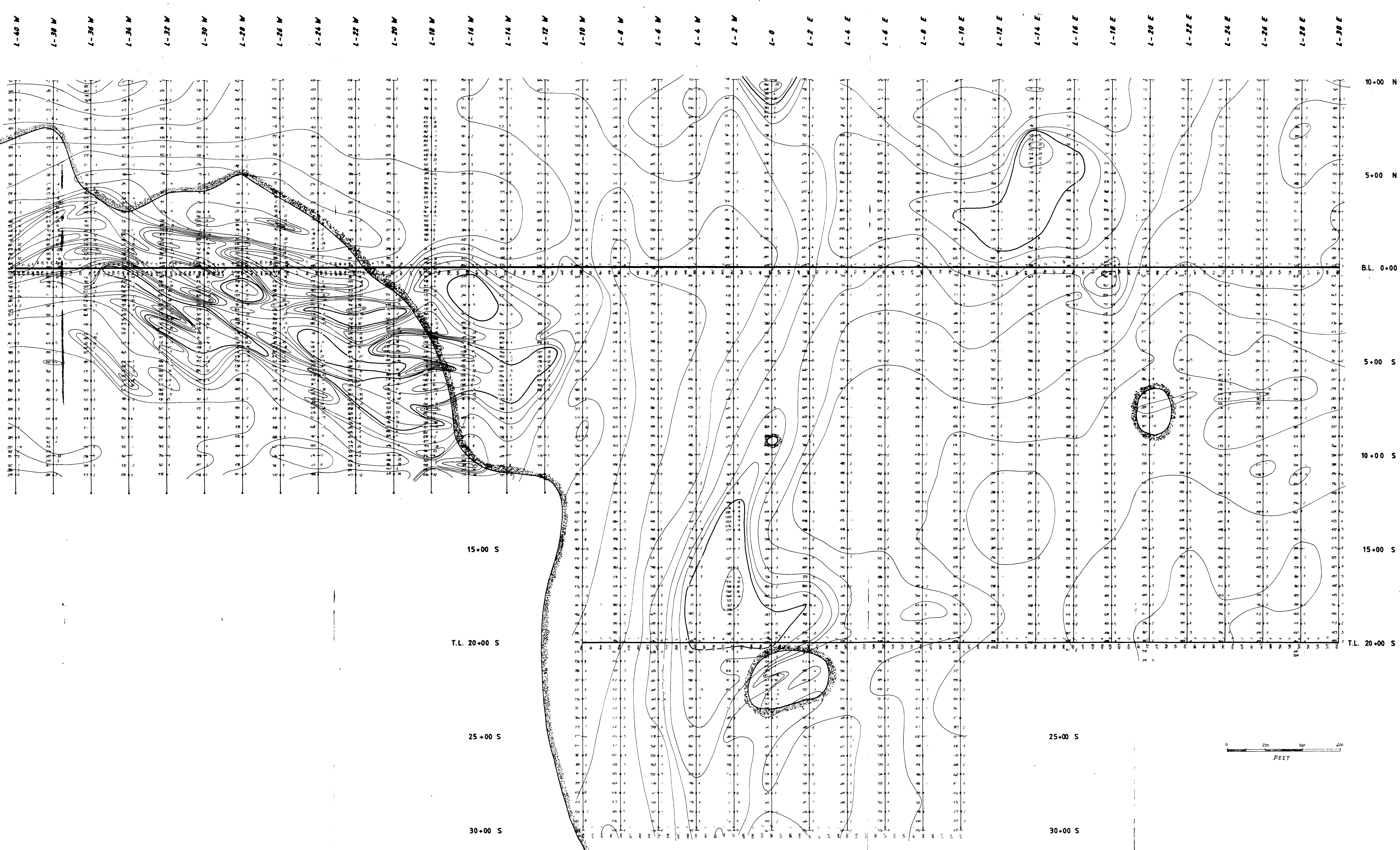
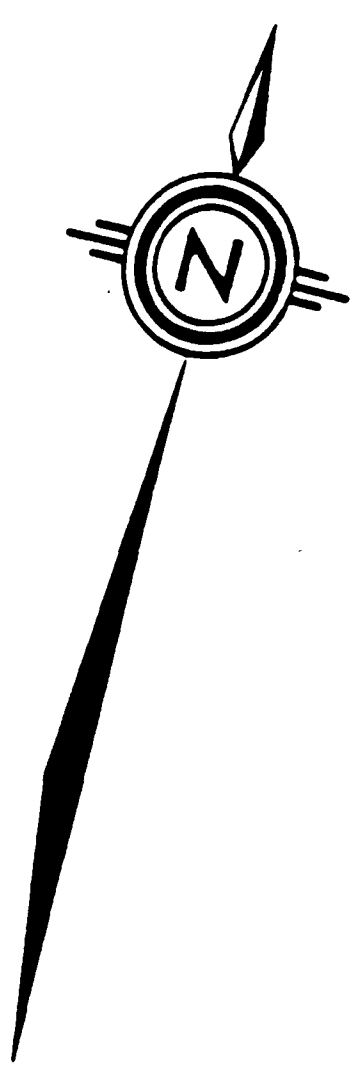


trenching done in 1980?
only resampling done in 1988

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MCRAE RITE PROPERTY
LADDER LINE 5017

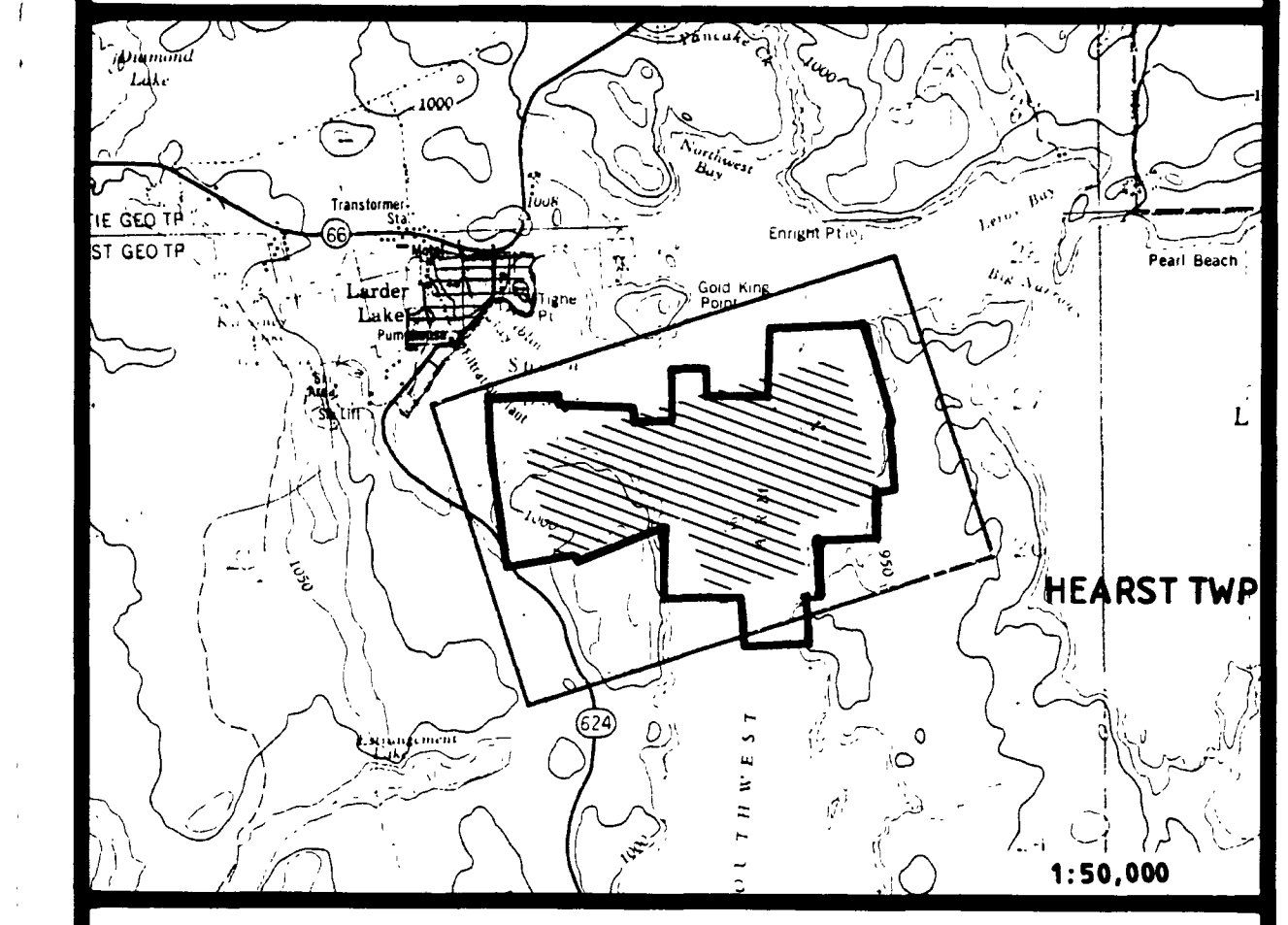
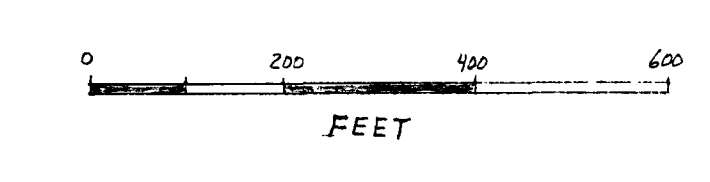
TRENCH SAMPLING
ESTABLISHED 1980



MAGNETIC CONTOURS	VALUES
—	200
—	300
—	400
—	500
—	600
—	700
—	800
—	900
—	1000
—	1200
—	1600
—	2000

Add 50 000 gammas to obtain exact reading.
inst: PPM - 375 and OMNI IV from EDA

- Outcrop
- Creek
- Swamp
- Highway
- Electric line
- Fence
- Access road



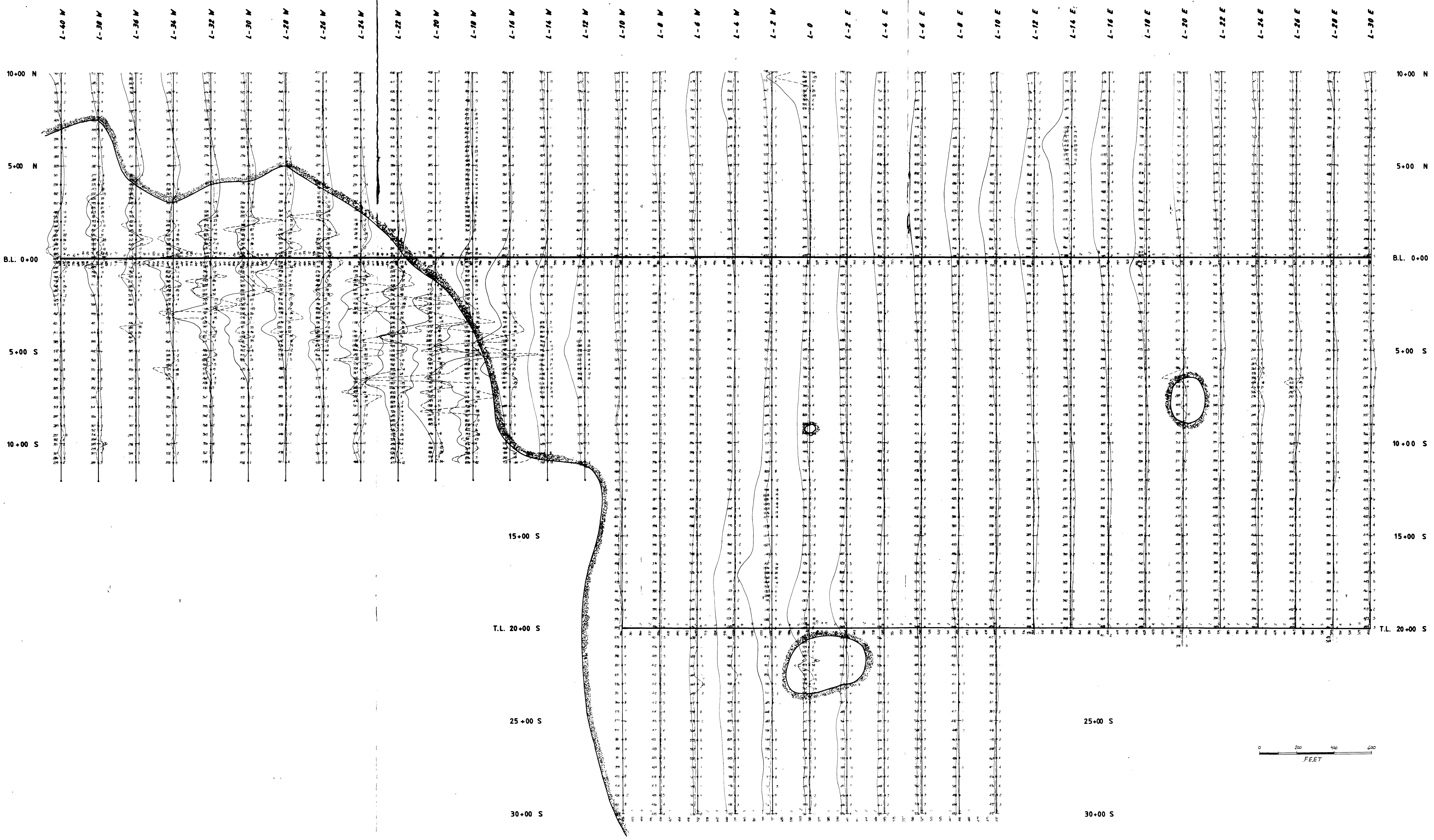
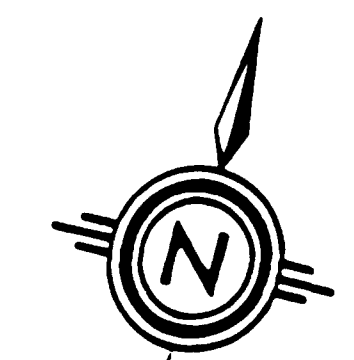
63-5376 omrs-rr
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LARDER LAKE
MAGNETIC SURVEY
TOTAL FIELD CONTOURS

VAL D'OR GÉOPHYSIQUE
EXECUTED BY M.C. 02-1988
DRAWN BY S.A. J.B. G.M. 02-1988
INTERPRETED BY G. Lambert Ing. 02-1988
APPROVED BY

SCALE: 1 in = 200 ft MAP N°: 1.1

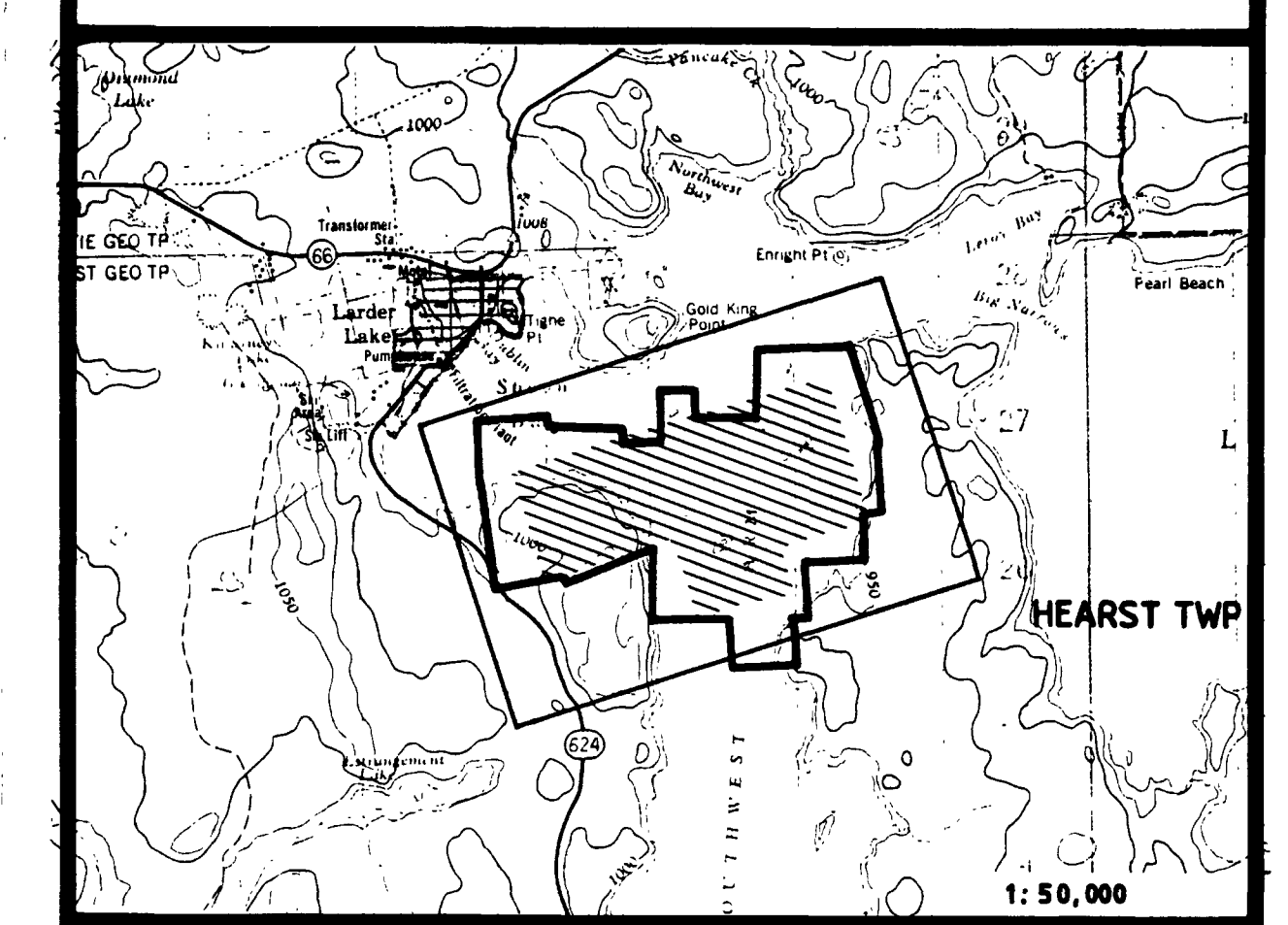
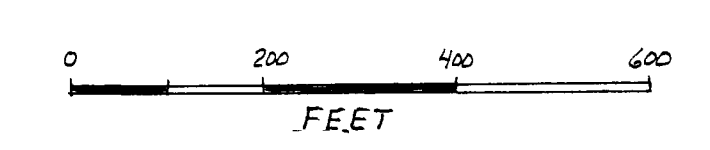




MAGNETIC PROFILE
 TOTAL FIELD
 (1 cm = 500 gamma)
 80 000

total field Gradient
 100 50 0 50 100
 100 50 0 50 100
 1 cm = 50 gamma/metre
 GRADIENT
 instr: EDA PPM 375 & OMNI IV

- Outcrop
- Creek
- Swamp
- Highway
- Electric line
- Fence
- Access road



63,5376 0188-187
NORAD RESOURCES LTD

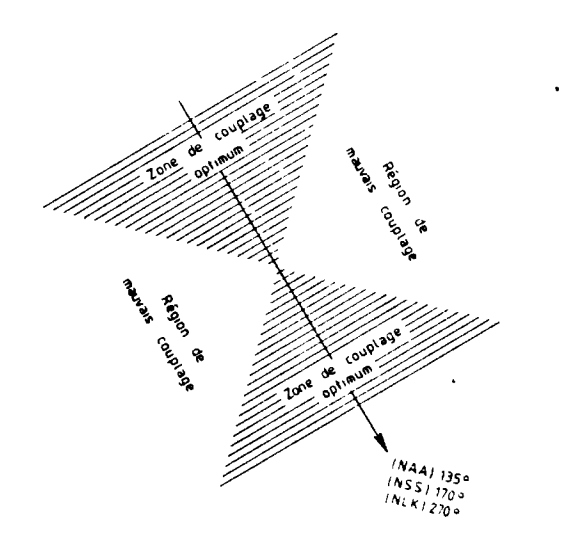
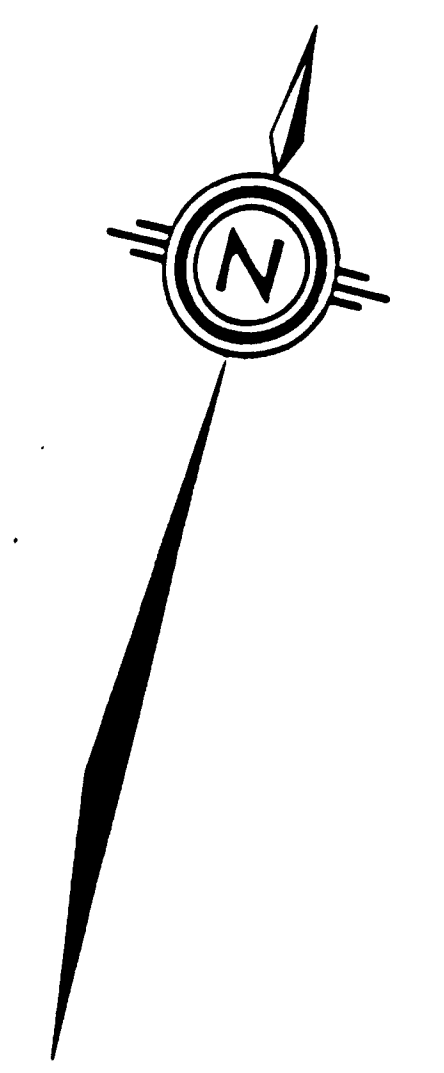
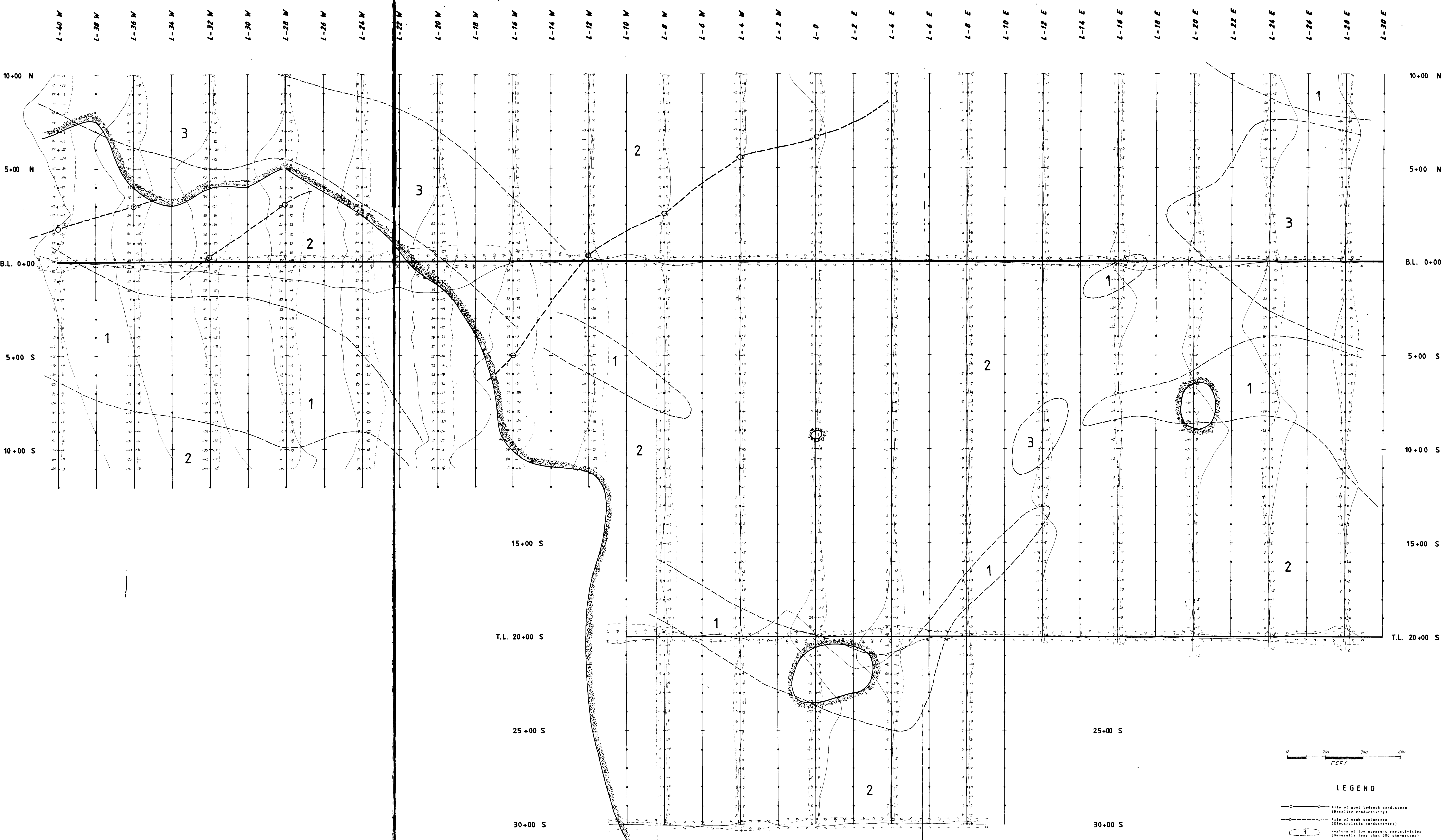
LARDER LAKE
MAGNETIC SURVEY
 TOTAL FIELD and GRADIENT PROFILES

VAL D'OR
 GEOPHYSIQUE

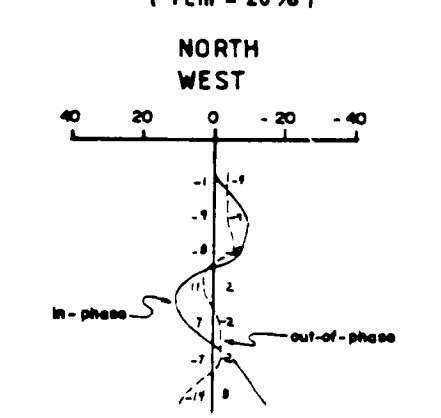
EXECUTED BY	M.C.	02-1988
DRAWN BY	S.A. J.B. G.M.	02-1988
INTERPRETED BY	G. Lambert ing.	02-1988
APPROVED BY		

SCALE: 1 in = 200 ft MAP N° 12



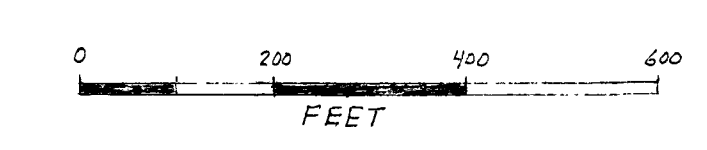


VLF PROFILE
1 cm = 20%



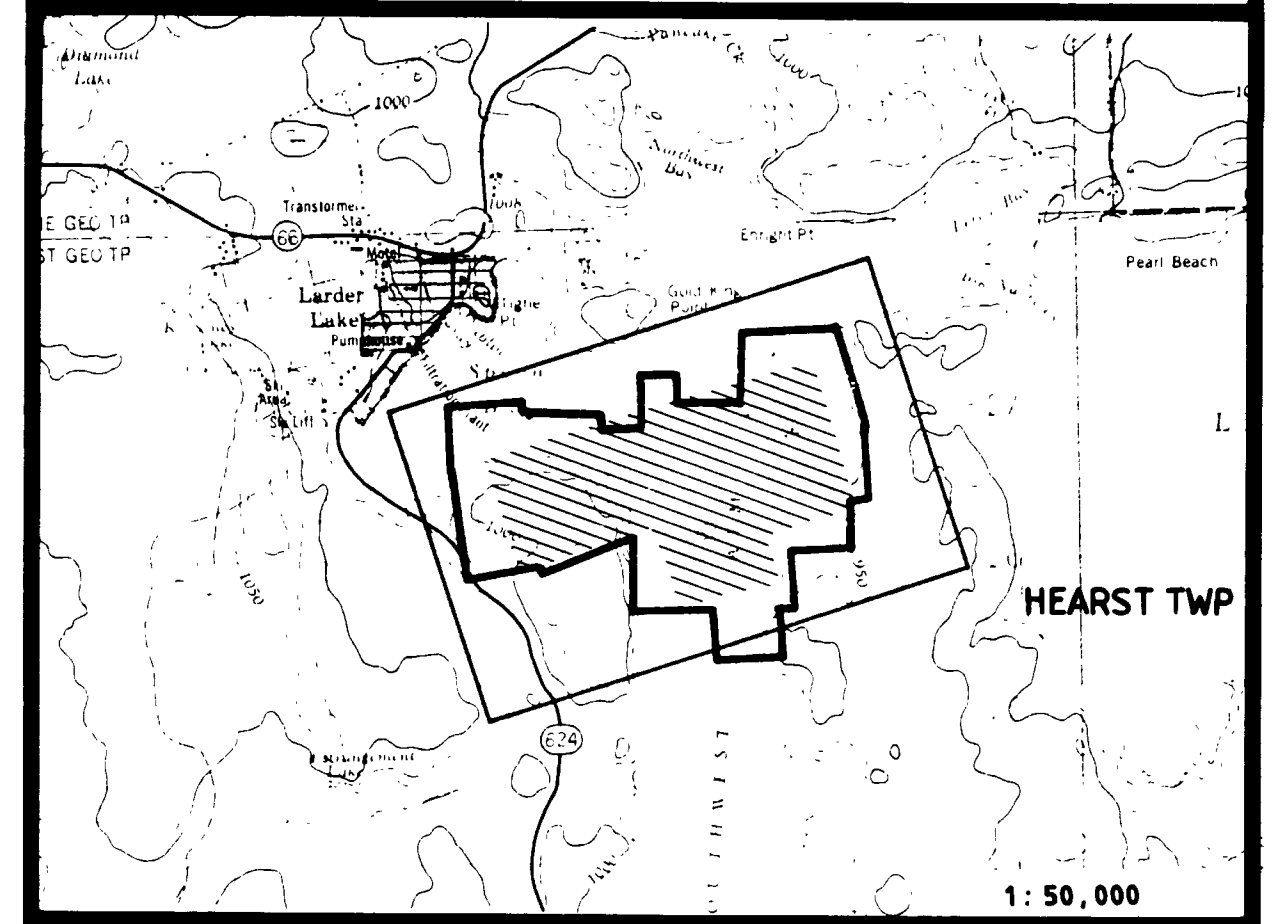
N.A.A. Readings facing north (lines north south)
N.S.S. Readings facing east (lines east west)
Instr: Geonics EM-16

- Outcrop
- Creek
- Swamp
- Highway
- Electric line
- Fence
- Access road



LEGEND

- Area of good bedrock conductors (Metallic conductors)
- Area of weak conductors (Electrostatic conductors)
- Region of low apparent resistivity (Generally less than 300 ohm-meters)
- Region of intermediate apparent resistivity
- Region of high apparent resistivity (Generally higher than 3000 ohm-meters)



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LARDER LAKE

EM - VLF SURVEY, N.A.A. PROFILES



EXECUTED BY M.C. 02-1988
DRAWN BY S.A. J.B. G.M. 02-1988
INTERPRETED BY G. Lambert ing. 02-1988
APPROVED BY _____

SCALE: 1 in = 200 ft MAP N° : 21



