



53B09SW0008 53B09SW0038 ZEEMEL LAKE

010

REPORT
ON
MAGNETIC AND VLF-EM SURVEYS
ON THE
ZEEMEL LAKE PROPERTY
DISTRICT OF KENORA, PATRICIA MINING DIVISION
NORTHWESTERN ONTARIO
FOR
SANTA MARIA RESOURCES LTD.

NTS 53 - B/9

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MINING LANDS SECTION

March, 1987

Stephen B. Medd, B.Sc.

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1.0 SUMMARY

Ground magnetic and VLF-EM surveys were carried out during October and November, 1986, and February, 1987, on the Zeemel Lake property of Santa Maria Resources Ltd.

Magnetic data in conjunction with regional geological data were used to outline two units of multiple zoned iron formation interbedded with mafic metavolcanics that cross the property in an east-west direction. Clastic metasediments are interpreted to underlie the northern part of the property and to separate the two iron formation - mafic volcanic units. Part of a biotite-hornblende tonalitic intrusion is interpreted to underlie the southern part of the property.

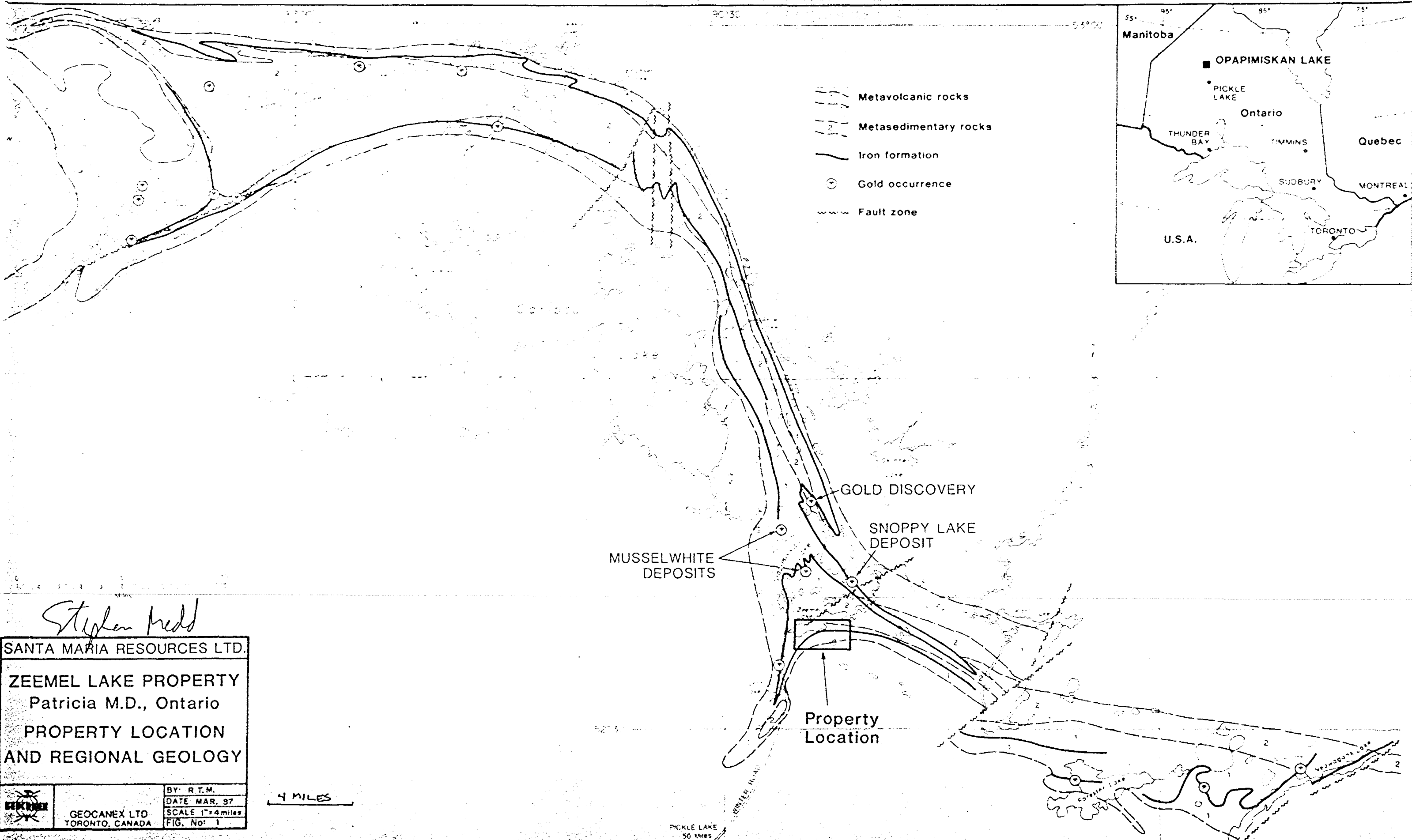
On the basis of magnetic discontinuities, six faults/shears trending north-northwest to north-northeast are interpreted to cross the east-west striking stratigraphy. An earlier generation of faults/shears cross the stratigraphy subconcordantly in an east-northeast direction and are slightly offset in spots by the later faults/shears. These structures are especially significant where they are associated with areas of abated magnetic response within iron formation, possibly reflecting the hydrothermal alteration of magnetite to grunerite + sulfides and the possible deposition of gold. Five areas of pronounced abated magnetic response have been identified within the two iron formation-mafic volcanic units. Based on the above information, five drill target fences have been selected.

2.0 INTRODUCTION

The following report describes the results of a ground magnetic survey and a VLF-EM survey conducted during October and November, 1986, and February, 1987, over the Zeemel Lake property of Santa Resources Ltd. The two surveys were performed in order to delineate lithological units and structural trends, and to locate conductive zones of sulfide-bearing iron formation, other stratabound massive or disseminated sulfide mineralization, and shearing, all of which might host gold.

3.0 PROPERTY DESCRIPTION, LOCATION AND ACCESS

The Zeemel Lake property is located approximately 70 miles north of the town of Pickle Lake in Northwestern Ontario, three miles south of Opapimiskan Lake (Fig. No. 1). The northwestern corner of the property is covered by Zeemel Lake. A block of 45 contiguous, unpatented, mining claims, form the property (Fig. No. 2). To the north, the Zeemel Lake property is bounded by a large claim block held by a consortium of companies that include Dome Exploration (Canada) Ltd., Inco Ltd., Esso Minerals Canada and Lacana Mining Corp. This block of claims contains the Musselwhite gold deposit and the Snoppy Lake gold zone. To the east, the Zeemel Lake property is bounded by a 53 claim property held under a Joint Venture Agreement among Power Explorations Inc., H.J. Hodge and W.G. Beach. Claim numbers and recording dates are as follows:



Stephen Medd

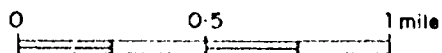
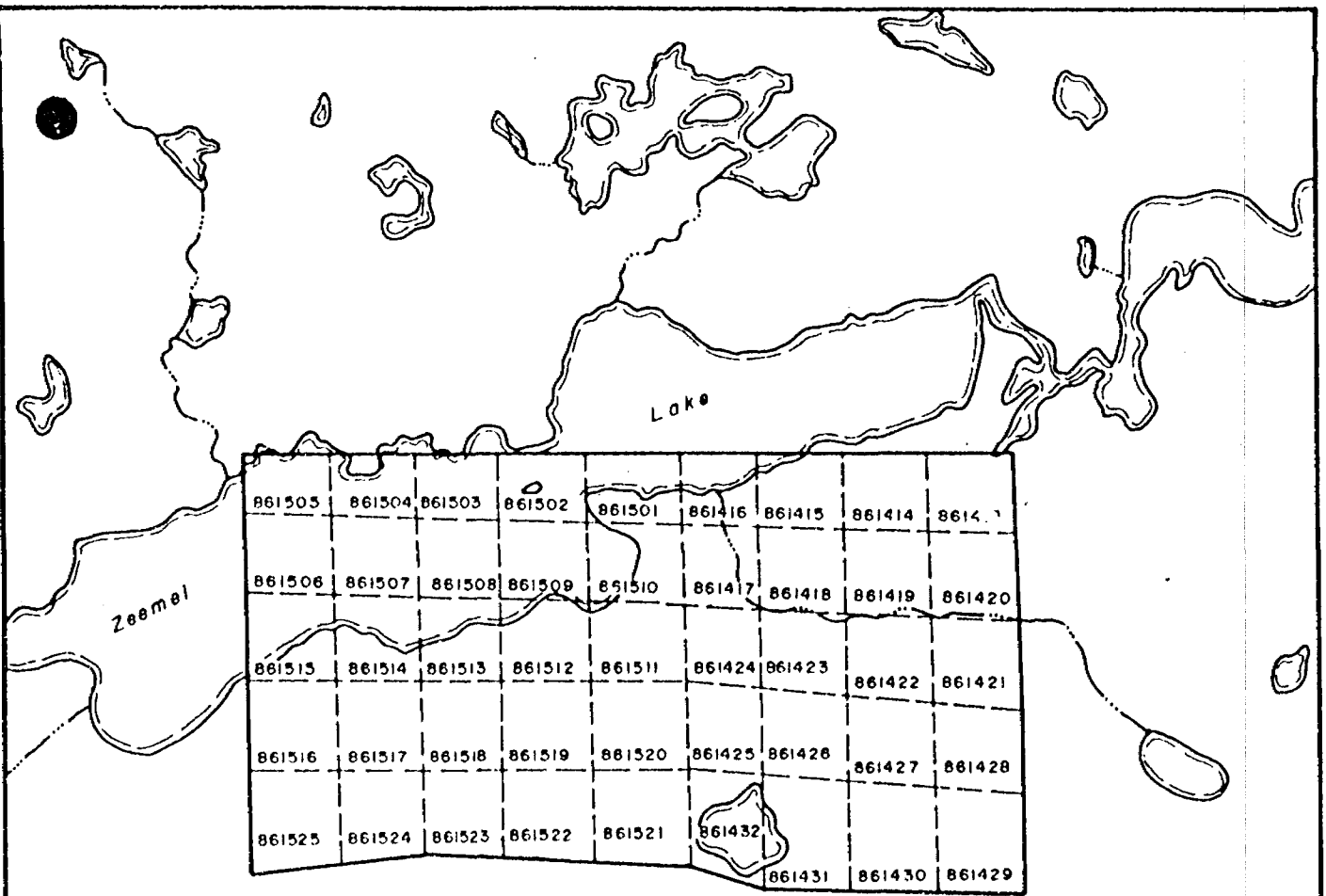
SANTA MARIA RESOURCES LTD.
 ZEEMEL LAKE PROPERTY
 Patricia M.D., Ontario
 PROPERTY LOCATION
 AND REGIONAL GEOLOGY

4 MILES

	BY: R.T.M.
	DATE MAR. 97
	SCALE 1"=4 miles
	FIG. No: 1

GEOCANEX LTD
 TORONTO, CANADA

PICKLE LAKE 50 Miles



Stephen Mudd

SANTA MARIA RESOURCES LTD.
 ZEEMEL LAKE PROPERTY
 Patricia M.D., Ontario
 CLAIM SKETCH



GEOCANEX LTD
 TORONTO, CANADA

BY: R.T.M.
 DATE: MAR, 87
 SCALE: 1" = 2640'
 FIG. No: 2

<u>Claim Numbers</u>		<u>Recording Date</u>
Pa 861413 - 861432 inclusive	(20)	February 7, 1986
Pa 861501 - 861525 inclusive	(25)	February 7, 1986
Total	45	Claims

The claims are held by Santa Maria Resources Ltd. of 808-85 Richmond Street West, Toronto, Ontario, M5H 2C9.

The property is accessible by float or ski-plane onto Zeemel Lake or by helicopter from Pickle Lake. It is also accessible by foot or snowmobile about one mile east of a winter road that connects Highway 808 with the Musselwhite deposit.

4.0 TOPOGRAPHY AND VEGETATION

The property is dominated on surface by flat-lying, flooded bog and swamp land on the southern side of Zeemel Lake. Very little outcrop exists.

5.0 PREVIOUS WORK

1950's Ben Ohmen and the Kovals

In the Libert Lake area, Ben Ohmen, a prospector working for the Kovals of Pickle Lake, discovered gold in iron formation and put down a number of trenches.

1962 The Musselwhite Brothers

Gold was first discovered on the adjacent Musselwhite property of the Dome et al consortium by the Musselwhite brothers in 1962.

1963 Kenpat Mines Ltd.

The property staked by the Musselwhite brothers in 1962, was optioned by Kenpat Mines Ltd., who in 1963, carried out geological and geophysical surveys and diamond drilling. Two gold zones were discovered with a number of ore grade intersections. However, work was suspended.

1962 - 1963 Inco Ltd.

Eighteen holes were drilled on the north and south sides of Zeemel Lake for a total of 4,503 feet. Two of these holes (#15,800 and #23,107) were drilled along strike to the east and west, respectively, of the Zeemel Lake property, encountering chlorite schist and intermediate to mafic metavolcanics with up to 15% pyrrhotite and pyrite. Another eight holes were drilled, for a total of 1,034 feet, in the Karl Lake and Markop Lake areas east and southeast, respectively, of the Zeemel Lake property.

1973 - 1981 Dome Exploration (Canada) Ltd. et al

In 1973, the Musselwhite brothers formed a grub stake financed and operated by Dome Exploration (Canada) Ltd., in Joint Venture with Canico Ltd., Esso Minerals Canada and Lacana Mining Corp. Since that time, considerable geophysical and geochemical work has been done and a total of 180 holes were drilled as of 1980. This work culminated in the announcement of the discovery of a major gold deposit containing in excess of 1,000,000 tons, grading 0.20 ounces of gold per ton (Northern Miner, March 5, 1981).

1976 John Reed

Prospecting, trenching and diamond drilling were performed in the Libert Lake property, by John Reed, an independent prospector.

1981 - Present Various Companies

Since 1981, considerable amounts of work including geological mapping, geophysics, geochemistry and diamond drilling have been performed in the Libert Lake area by a number of companies or individuals, some of whom include: H.J. Hodge; 493217 Ontario Ltd.; Van Horne Gold Exploration Inc. and Legion Resources Ltd.; and G. Armstrong, A. Best, B. Reid and S. Johnson.

1981 Dome Exploration (Canada) Ltd.

An airborne magnetic and electromagnetic survey, part of which covered the Zeemel Lake property, was conducted by Aerodat Ltd. over the area surrounding the Musselwhite deposit.

1981 Canico (Inco Ltd.)

A geological survey and ground magnetic survey were carried out, using a mapping scale of 1:2,500, in the Karl Lake area east of the Zeemel Lake property.

1985 Ontario Geological Survey

An airborne magnetic and electromagnetic survey was carried out by Aerodat Ltd. during the winter of 1985, and in early 1986, the results were released to the public on a set of 38 maps (scale 1:20,000). Maps 80743 and 80744 cover the Zeemel Lake property.

6.0 REGIONAL GEOLOGY AND ECONOMIC MINERALIZATION

The North Caribou Lake and Opapimiskan Lake greenstone belts are comprised of Archean metavolcanic and metasedimentary rocks that belong to the Sachigo Subprovince of the Superior Geological Province of the Canadian Shield. Together, the two belts form a narrow, arcuate, isoclinal syncline that stretches for approximately 140 kilometers from end to end. The metamorphic grade is upper greenschist to middle amphibolite facies. A thick clastic metasedimentary sequence, known as the Eyapamikama Lake Metasediments occupy the central and northwestern part of the North Caribou Lake greenstone belt. This sequence is flanked to the north by the North Rim Metavolcanics and to the south by the South Rim Metavolcanics. The South Rim Metavolcanics contain mafic to felsic metavolcanic flows and tuffs; the main lithologies being fine-to-medium-grained, massive and pillowed mafic flows. The North Rim Metavolcanics contain predominantly mafic metavolcanic rocks. Both the North and South Rim metavolcanic units host extensive zones of banded iron formation.

In the vicinity of Opapimiskan Lake, these two metavolcanic units pinch out and they are replaced by the Opapimiskan-Markop Metavolcanics. These rocks are mafic to ultramafic in composition and are possibly older and geochemically more primitive. They are similar compositionally to the Keeyask Lake Metavolcanics at the western end of Eyapamikama Lake. The metavolcanics are macroscopically intercalated with clastic metasediments between Opapimiskan and Markop Lakes. At the eastern end of the Opapimiskan Lake greenstone belt, a sequence of pillowed and mafic metavolcanics exist, and are known as the Forester-Neawagank Metavolcanics (Breaks et al, 1986).

Chemical metasediments are extensive in the Opapimiskan-Markop, Forester-Neawagank, North Rim and South Rim Metavolcanic sequences. The presence of grunerite in banded iron formation, correlates with zones of increased shearing that commonly parallel iron formation banding and axial planes of F₂ folds in banded iron formation at the Musselwhite gold prop. (Breaks et al, 1985).

The main gold zones in the North Caribou Lake and Opapimiskan Lake greenstone belts occur on the southern shore of Opapimiskan Lake. The Musselwhite deposit was originally discovered by the Musselwhite brothers in 1962. Between 1973 and 1980, the property was extensively explored and drilled by a consortium of companies headed by Dome Exploration (Canada) Ltd. This work culminated in the announcement of the discovery of a major gold deposit containing in excess of 1,000,000 tons, grading 0.20 ounces of gold per ton (The Northern Miner, March 5, 1981). Reserves currently stand at 3,200,000 tons grading 0.17 ounces of gold per ton in 4 zones. The discovery of the new Snoppy Lake gold deposit located two miles to the east, was recently announced by Dome Exploration (Canada) Ltd., (The Northern Miner, August 11, 1986). It currently stands as a shallow dipping zone 4,300 feet in length grading 0.24 ounces of gold per ton over an average width of 12 feet. Both of these deposits occur in complexly folded banded iron formation.

7.0 PROPERTY GEOLOGY

No geological and prospecting survey has yet been undertaken by Santa Maria on their Zeemel Lake property. However, from the regional mapping done by the O.G.S. in 1986 (Breaks et al, 1986), two units of multiple zoned iron formation hosted

in mafic metavolcanics (Opapimiskan-Markop Metavolcanics) are believed to cross the property in an east-west direction. Clastic metasediment underlie the northern part of the property and separate the two iron formation-mafic volcanic units. The southern part of the property is underlain by part of a biotite-hornblende tonalitic intrusion.

8.0 DESCRIPTION OF GEOPHYSICAL PROGRAM

During October and November, 1986, linecutting, magnetic surveying and VLF-EM surveying were carried out on the land portion of the Zeemel Lake property of Santa Maria. The personnel involved were:

R. LeMay	Val d'Or, Quebec	Linecutter	Oct. 18-Nov. 5
C. Morin	Val d'Or, Quebec	Linecutter	Oct. 18-Nov. 5
R. Boone	Val d'Or, Quebec	Linecutter	Oct. 18-Nov. 5
F. Recoskie	Val d'Or, Quebec	Geophysical Operator	Oct. 30-Nov. 5
C. Beggs	Toronto, Ontario	Geophysical Operator	Oct. 30-Nov. 5
R. Carpenter	Sioux Lookout, Ontario	Geophysical Operator	Oct. 30-Nov. 5

A total of 41.3 line miles were cut on the property. A base-line trending east-west was cut across the property, and perpendicular survey lines were cut 400 feet apart with pickets erected at 100-foot intervals.

During February 1987, magnetic surveying and VLF-EM surveying were carried out over the lake portion of the Zeemel Lake property. Survey lines were set up across frozen Zeemel Lake with pickets erected every 100 feet. The personnel involved were:

F.Recoskie	Val d'Or, Quebec	Geophysical Operator	Feb.15-20
G.Zimmer	Val d'Or, Quebec	Geophysical Operator	Feb.15-20
D.Recoskie	Val d'Or, Quebec	Geophysical Operator	Feb.15-20
R.Carpenter	Sioux Lookout, Ontario	Geophysical Operator	Feb.15-20

The magnetic survey was performed using a Scintrex Fluxgate MF-2 magnetometer. Readings of the vertical magnetic field were taken every 100 feet along the survey lines and in areas of high magnetic gradient, readings were taken at 50-foot intervals. Diurnal drift changes in the magnetic field were estimated by taking repeat readings at previously established stations at time intervals not exceeding 1.5 hours. Corrections were made, accordingly, to the vertical magnetic field value obtained at each station. The results of the magnetic survey are presented in Drawings No. SMZ-1 and SMZ-2 as vertical field readings and vertical field contours, respectively.

The VLF-EM survey was carried out using a Geonics EM-16 receiver tuned to receive the 24.8 kHz signal transmitted from Seattle, Washington (NLK). Readings of inphase (tilt angle) and quadrature were taken every 100 feet along the survey lines. The results are presented in profiled format

and contoured, Fraser-filtered inphase format in Drawings No. SMZ-3 and SMZ-4, respectively, located in back of the report.

9.0 RESULTS AND INTERPRETATION

Refer to the magnetic, VLF-EM and compilation data presented in Drawings No. SMZ-1 to SMZ-5 inclusive, in back of the report.

9.1 Lithology

Two units (IF-1 and IF-2) containing mafic metavolcanics hosting multiple zoned iron formation are interpreted, on the basis of contoured magnetic data, as crossing the property in an east-west direction. Both units contain several narrow magnetic bands of high gradient. The iron formation zones are probably relatively weak and/or thin since vertical field magnetic values of only 3,100 gammas (IF-1) and 8,525 gammas (IF-2) are the highest readings within both units.

A number of VLF-EM conductors occur within Units IF-1 and IF-2 often concordant and coincident with magnetic bands of high gradient. These conductors may represent pyrrhotite-pyrite mineralization occurring as sulfide facies iron formation or as sulfide-bearing, concordant shear zones within iron formation.

North of Unit IF-1 is an area of low magnetic gradient and low background values which probably represents clastic metasediments. A similar but more narrow unit exists between Units IF-1 and IF-2 and also probably represents clastic

metasediments. A number of east-west trending VLF-EM conductors occur within the clastic metasediments and may represent stratabound sulfide and graphite zones, or concordant shear zones.

The areas south, and possibly immediately east, of Unit IF-2 may represent part of a biotite-hornblende tonalitic intrusion which has been mapped by the O.G.S. (Breaks et al, 1986). They are characterized by low magnetic gradient and low background values.

Also noticeable from the magnetic contours is an intermediate or mafic dyke that strikes across the property in a northeast direction. It is more apparent from the regional airborne magnetic contours (O.G.S., 1985).

9.2 Faulting and Shearing

The property contains a complicated network of faulting and shearing that probably represents more than one phase of structural deformation. The most recent of these faults/shears are believed to be north-northwest to north-northeast structures that are easily discernible from the vertical field magnetic contours. They are identified by discontinuities along linear magnetic trends and do not possess VLF-EM conductive responses.

An earlier fault/shear direction is identified by at least three parallel, moderately strong, VLF-EM conductors that trend east-northeasterly across the southeastern part of the property. These conductors are subconcordant to the east-west stratigraphic trend and appear to truncate Unit IF-2 on the southeastern part of the property. Also, their

VLF-EM conductive responses appear to be slightly offset in spots by crosscutting structures/trending north-northwest to north-northeast.

A number of east-west trending VLF-EM conductors occur on the property and may represent conductive concordant shear zones or primary stratabound sulfide and graphite zones.

9.3 Folding

Two areas of small scale folding may exist within Unit IF-2 associated with faulting/shearing. On the basis of contoured magnetic data, these areas are defined by L36+00W to L24+00W, 12+00S to 20+00S and L16+00E to L32+00E, 18+00S to 30+00S.

9.4 Alteration

Five areas of possible hydrothermal alteration occurring within iron formation Units IF-1 and IF-2, are outlined on the basis of pronounced abatements in the magnetic intensity along linear magnetic trends. These areas appear to exist adjacent to or along fault/shear structures and may reflect the hydrothermal alteration of magnetite to grunerite + sulfides.

10.0 CONCLUSIONS AND RECOMMENDATIONS

The Zeemel Lake property of Santa Maria is crossed by two east-west striking units of multiple zoned iron formation hosted in mafic metavolcanics. Clastic metasediments are interpreted to underlie the northern part of the property and to separate the two iron formation-mafic volcanic units.

The southern part of the property may be underlain by part of a biotite-hornblende tonalitic intrusion.

At least two generations of faults or shear zones cross the property. The more recent ones trend north-northwest to north-northeast and appear to offset slightly an earlier generation of conductive east-northeast trending faults/shears that cross the southeastern part of the property subconcordantly to the stratigraphy. Small scale folding within the southern iron formation-mafic volcanic unit may be related to these faults/shears.

The structures described above are especially significant where they are associated with areas of abated magnetic response within iron formation zones. Such areas may reflect the hydrothermal alteration of magnetite to grunerite \pm sulfides and the possible disposition of gold. East-west trending conductors occurring within or adjacent to areas of hydrothermally altered iron formation are favourable drilling targets for gold.

The presence of grunerite \pm sulfides in the Akow-Eyapamikama Lakes banded iron formation correlates with zones of increased boudinage and shearing. Also, conversion of magnetite to grunerite is locally evident in progressing from limbs to crests of F_2 folds in the banded iron formation at the Musselwhite gold property (Breaks et al, 1985). Using these two examples as models for the Zeemel Lake property five drill target fences have been selected:

L44+00W, 28+00N to BL0+00
L36+00W, 10+00S to 24+00S
L12+00E, 12+00S to 32+00S
L28+00E, 8+00N to 6+00S
L32+00E, 18+00S to 32+00S

Respectfully submitted,



Stephen B. Medd, B.Sc.
Geocanex Ltd.

11.0 REFERENCES

- Breaks, F.W., et al, 1985. Opapimiskan Lake Project: Precambrian and Quaternary Geology of the North Caribou Lake Area, District of Kenora, Patricia Portion; p268-276 in Summary of Field Work, 1985, O.G.S., Paper S54.
- Breaks, F.W., et al, 1986. Opapimiskan Lake Project: Precambrian Geology of the Opapimiskan - Forester Lake Area, District of Kenora, Patricia Portion; p368-378 in Summary of Field Work, 1986, O.G.S., Paper 075.
- Hodge, H.J., 1981. Report on Gold Properties adjacent to Dome-Inco-Esso-Lacana Discovery, Opapimiskan Lake Area, Patricia Division, Ontario; unpublished report of Geocanex Ltd.
- Hodge, H.J., 1982. Report on Geological Mapping, Geochemical Sampling and Prospecting, Libert Lake Property of 493217 Ontario Ltd., District of Kenora, Patricia Portion, Patricia Mining Division, Ontario; unpublished report of Geocanex Ltd.
- Ontario Geological Survey, Resident Geologist Files - Toronto and Sioux Lookout, Various unpublished assessment reports.
- O.G.S., 1985. Airborne Electromagnetic and Total Intensity Magnetic Survey, Opapimiskan Lake Area, District of Kenora, Patricia Portion; by Aerodat Limited for Ontario Geological Survey, Geophysical/Geochemical Series, Maps 80743 and 80744, Scale 1:20,000. Survey and Compilation March to July, 1985.

APPENDIX A
CERTIFICATE OF QUALIFICATIONS

CERTIFICATE OF QUALIFICATIONS

THIS IS TO CERTIFY THAT:

I have been a resident of Toronto, Ontario since 1984.

I have been actively engaged in Canadian and foreign mining and explorations since 1979.

I am a graduate of the University of Waterloo, Waterloo, Ontario, with an Honours B.Sc. (1983) in the Co-op Program of Earth Sciences.

I am an associate member, in good standing, of the Geological Association of Canada.

I have disclosed, to the best of my knowledge, all relevant material, descriptive and interpretative, used in the compilation of this report.

DATED THIS 3rd DAY OF March, 1987

Stephen Medd

Stephen B. Medd, B.Sc.
Geologist

APPENDIX B
TECHNICAL DATA STATEMENT

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations 2,068 Number of Readings EM 2,068 Mag. 2,957
Station interval 100 feet (50 feet) Line spacing 400 feet
Profile scale 1 inch = 40%
Contour interval 100 gammas

MAGNETIC

Instrument Scintrex MF-2 Fluxgate magnetometer
Accuracy - Scale constant + 10 gammas
Diurnal correction method Looping method
Base Station check-in interval (hours) < 1.5 hours
Base Station location and value Various

ELECTROMAGNETIC

Instrument Geonics EM-16 VLF Receiver
Coil configuration Vertical
Coil separation Infinite
Accuracy + 2%
Method: [X] Fixed transmitter [] Shoot back [] In line [] Parallel line
Frequency 24.8 KHz, Seattle, Washington (NLK)
Parameters measured Inphase (tilt angle) and Quadrature (specify V.L.F. station)

GRAVITY

Instrument
Scale constant
Corrections made
Base station value and location
Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument
Method [] Time Domain [] Frequency Domain
Parameters - On time Frequency
- Off time Range
- Delay time
- Integration time
Power
Electrode array
Electrode spacing
Type of electrode

SANTA MARIA RESOURCES LTD. (Claim Holder)

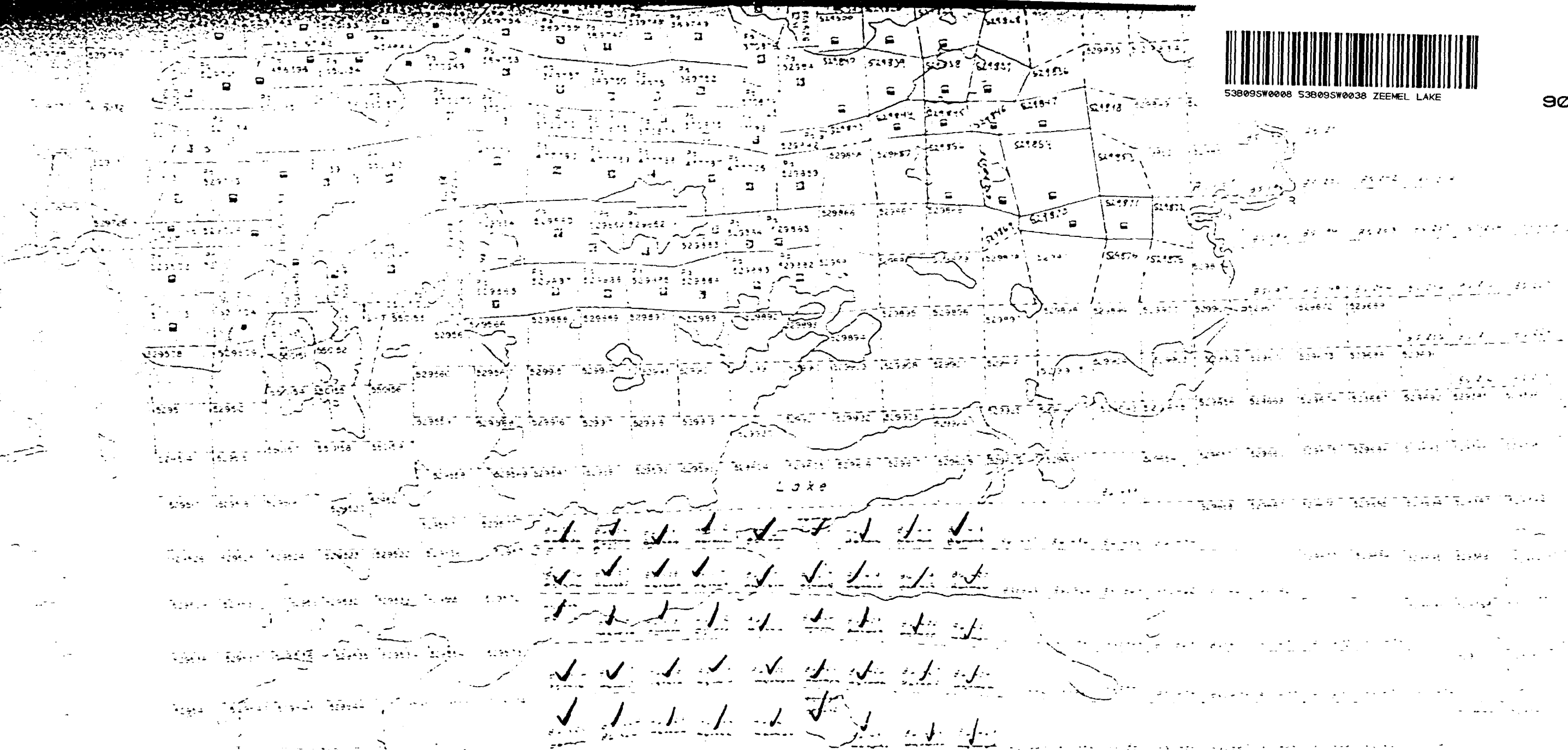
ZEEMEL LAKE PROPERTY

List of Claims

<u>Claim No.</u>	<u>Claim No.</u>
Pa 861413	Pa 861501
861414	861502
861415	861503
861416	861504
861417	861505
861418	861506
861419	861507
861420	861508
861421	861509
861422	861510
861423	861511
861424	861512
861425	861513
861426	861514
861427	861515
861428	861516
861429	861517
861430	861518
861431	861519
861432	861520
	861521
	861522
	861523
	861524
	861525

Total 45 claims

Stephen Mead



ZEEMEL LAKE

M. 2708

40 CHAINS



Ministry of Northern Development and Mines

R. Rickette
Mining Lands

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

#82-69

29932

Mining Act

Instructions: - Please type or print.
- If number of mining claims traversed exceeds space on this form, attach a list.
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
- Do not use shaded areas below.

Type of Survey(s) Ground Magnetometer & VLF-EM Survey	Township or Area Zeemel Lake Area G2278
Claim Holder(s) William Masakeyash	Prospector's Licence No. S-6130
Address Savant Lake, Ontario P0V 2S0	
Survey Company Geocanex Ltd.	Date of Survey (from & to) 18 10 86 17 03 87
Total Miles of line Cut 41.3	
Name and Address of Author (of Geo-Technical report) S. B. Medd B.Sc., 1117 - 7 Crescent Place, Toronto, Ontario	

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: Enter 40 days. (This includes line cutting)	Electromagnetic	40
	Magnetometer	20
For each additional survey using the same grid: Enter 20 days (for each)	Radiometric	
	Other	
	Geological	
	Geochemical	
Man Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	
	Other	
	Geological	
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne	Electromagnetic	Days per Claim

Prefix	Mining Claim Number	Expend. Days Cr.	Prefix	Mining Claim Number	Expend. Days Cr.
Pa	861413				
	861414				
	861415				
	861416				
	861417				
	861418				
	861419				
	861420				
	861421				
	861422				
	861423				
	861424				
	861425				
	861426				
	861427				
	861428				
	861429				
	861430				
	861431				
	861432				

RECEIVED

APR 21 1987

MINING LANDS SECTION

RECEIVED
PATRICIA MINING DIV.
APR 9 1987
A.M. 1st rec'd APR 9/87 P.M.
7 8 9 10 11 12 1 2 3 4 5 6

Expenditures (excluding power stripping)
Type of Work Performed
Performed on Claims

Calculation of Expenditure Days Credits

Total Expenditures ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date **April 3, 1987** Recorder Holder or Agent Signature *[Signature]*

Pa. 861413

Total number of mining claims covered by this report of work

For Office Use Only
Total Days Cr. Date Recorded **Apr 9 1987**
Recorded **1200** **4.4.87**
Mining Records *[Signature]*

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

Name and Postal Address of Person Certifying
G. G. Plaskett 808 - 85 Richmond Street West, Toronto, Ontario M5H 2C9

Date **April 3, 1987** Counted by Recorder *[Signature]*



Ministry of Northern Development and Mines

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

Ontario *R. Pichette*
Mining Lands

#82-70
29932

Instructions: - Please type or print.
- If number of mining claims traversed exceeds space on this form, attach a list.
- Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
- Do not use shaded areas below.

Mining Act

Type of Survey	Ground Magnetometer & VLF-EM Survey	Township or Area	Zeemel Lake Area G2278
Claim Holder(s)	Frank Recoskie	Prospector's Licence No.	K-19788
Address P.O. Box 186, Pickle Lake, Ontario P0V 3A0			
Survey Company	Geocanex Ltd.	Date of Survey (from & to)	Total Miles of line Cut
		18, 10 86 17, 03 87	41.3
Name and Address of Author (of Geo-Technical report) S. B. Medd B.Sc., 1117 - 7 Crescent Place, Toronto, Ontario			

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Electromagnetic	40
	Magnetometer	20
For each additional survey using the same grid: Enter 20 days (for each)	Radiometric	
	Other	
	Geological	
	Geochemical	
Plan Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	
	Other	
	Geological	
	Geochemical	
Airborne Credits	Electromagnetic	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Magnetometer	

Mining Claims Traversed (List in numerical sequence)

Prefix	Mining Claim Number	Expend Days Cr.	Prefix	Mining Claim Number	Expend Days Cr.
Pa	861501		Pa	861524	
	861502			861525	
	861503				
	861504				
	861505				
	861506				
	861507				
	861508				
	861509				
	861510				
	861511				
	861512				
	861513				
	861514				
	861515				
	861516				
	861517				
	861518				
	861519				
	861520				
	861521				
	861522				
	861523				

RECEIVED
APR 21 1987
MINING LANDS SECTION

PATROL MINING DIV.
1st rec'd Apr. 7/87
APP - G 1987

Expenditures (excluding Depreciation)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures \$ ÷ 15 = Total Days Credits

Total number of mining claims covered by this report of work: 25

For Office Use Only

Total Days Cr. Date Recorded: 1500 Apr. 9, 1987

Mining Inspector: *[Signature]*

Instructions

Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date: April 3, 1987

Received Hereby or Agent's Signature: *[Signature]*

Certification Verifying Report of Work

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

Name and Postal Address of Person Certifying: G. G. Plaskett 808 85 Richmond Street West, Toronto, Ontario M5H 2C9

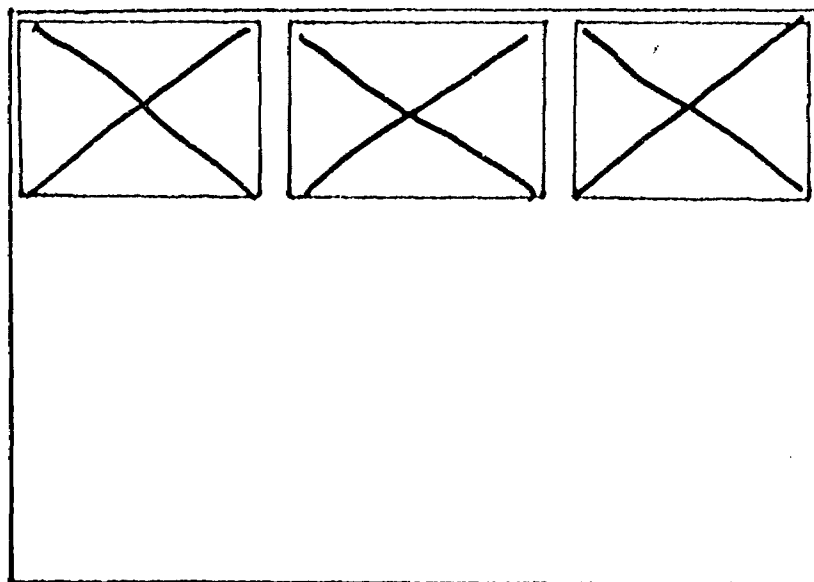
Date: April 3, 1987

SEE ACCOMPANYING
MAP(S) IDENTIFIED AS

53B/09 SW-0038 # 1-3

LOCATED IN THE MAP
CHANNEL IN THE
FOLLOWING SEQUENCE

(X)

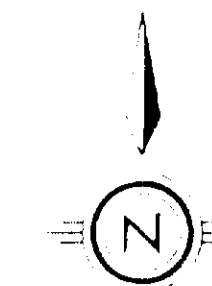
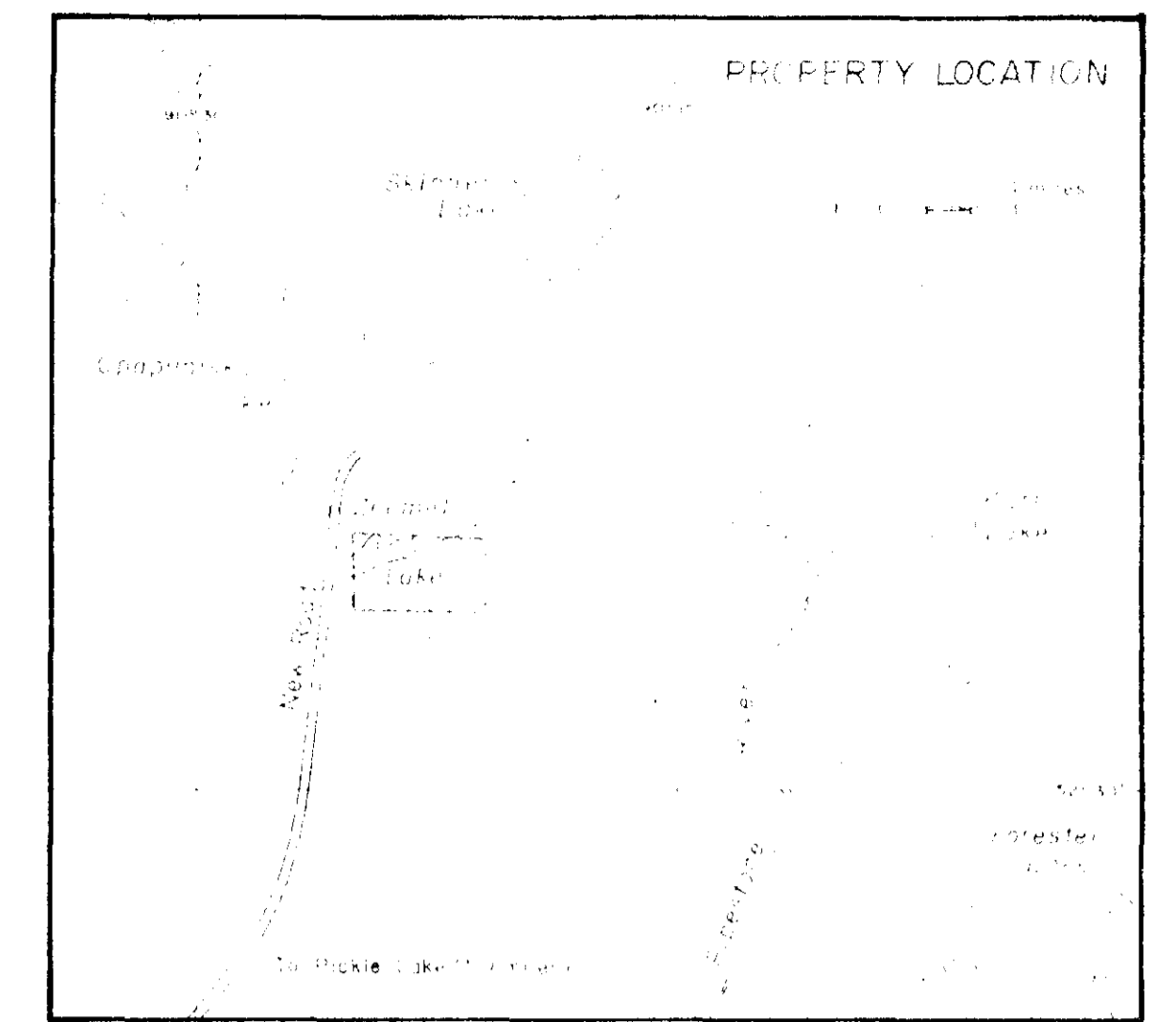


FOR ADDITIONAL

INFORMATION

SEE MAPS:

53B/09SW-0038 #4-5



29932

LEGEND
 Grid line with 100' spacing
 Stream, swamp, lakeshore
 Claim post and line
 Instrument Scintrex MF-2

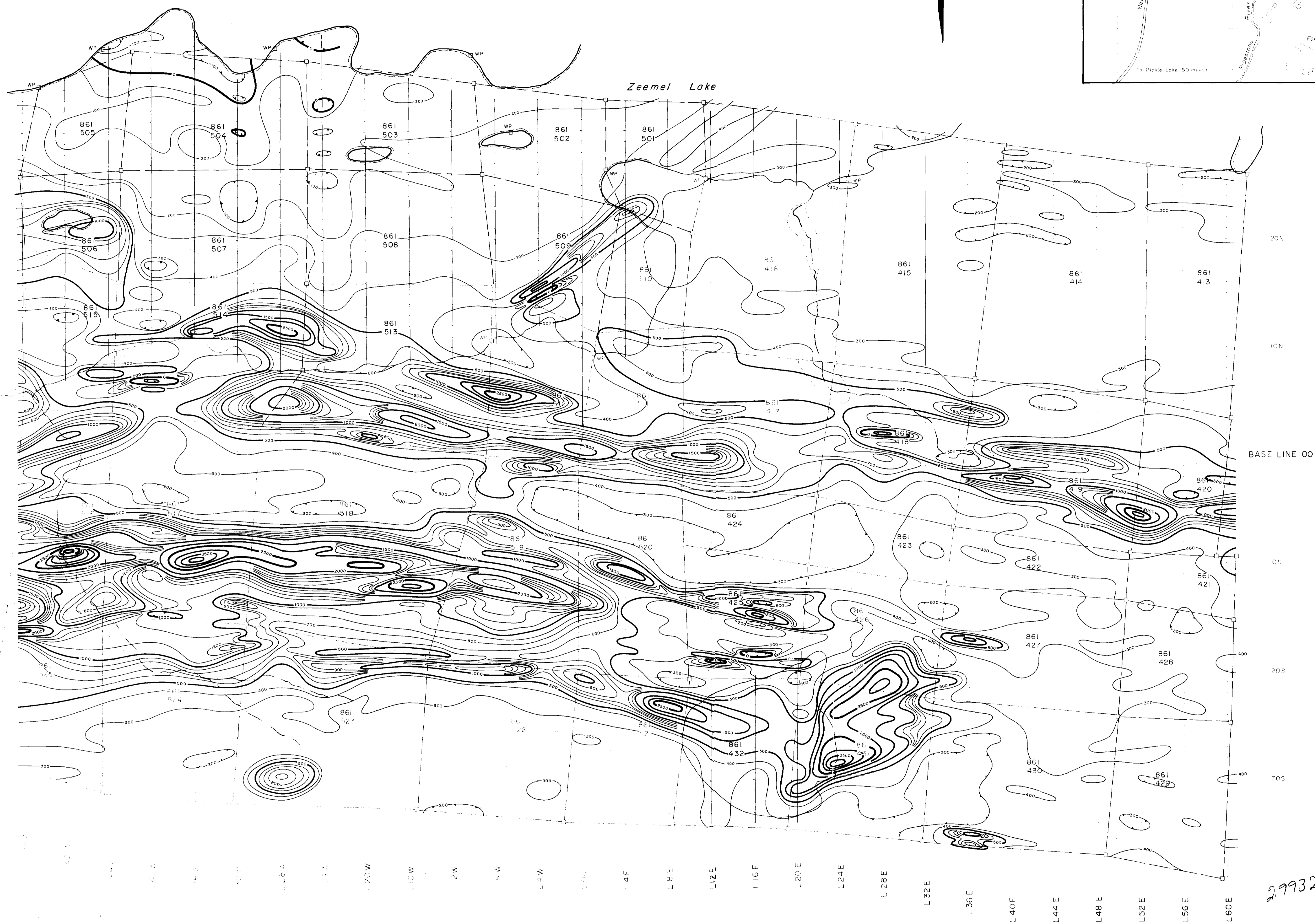
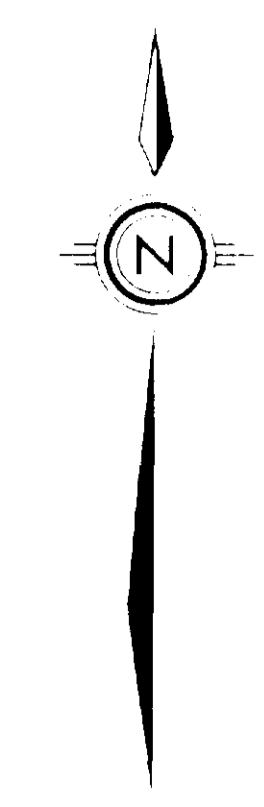
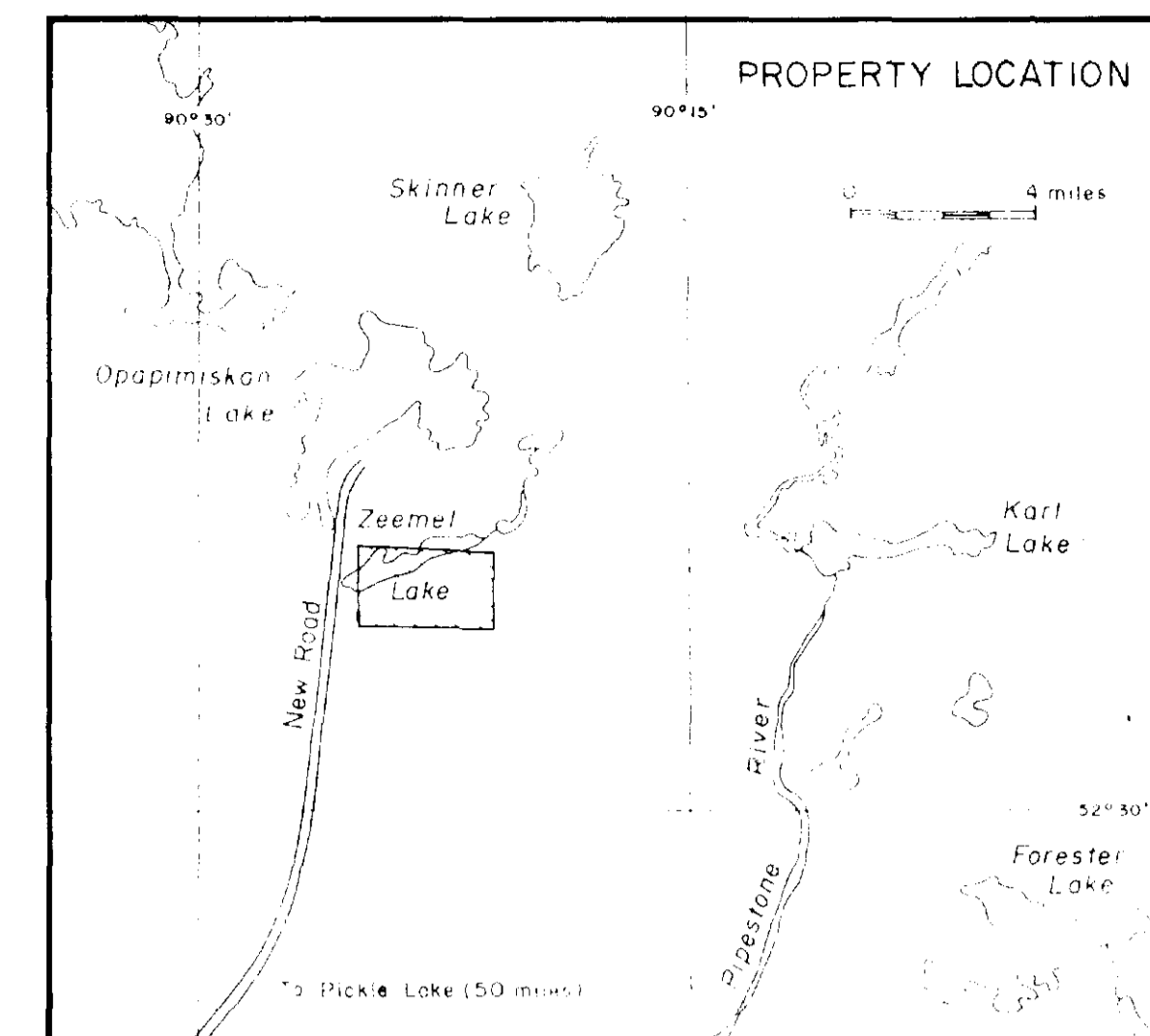
Scale 1" = 400 feet

53B/09SW-0038 #1

SANTA MARIA RESOURCES LTD.
ZEEMEL LAKE PROPERTY
 Opapimiskan Lake Area, Ontario
Magnetometer Survey
VERTICAL FIELD READINGS

By *Stephen Medd*
 DATE December 8/02
 SCALE 1"=400'
 DWG. No. SMZ-1

GEOCANEX LTD.
 TORONTO, CANADA



29932

Instrument Scintrex MF-2
 Contour interval 100 gammas
 100 gamma contour
 500 gamma contour
 2500 gamma contour
 Depression
 210

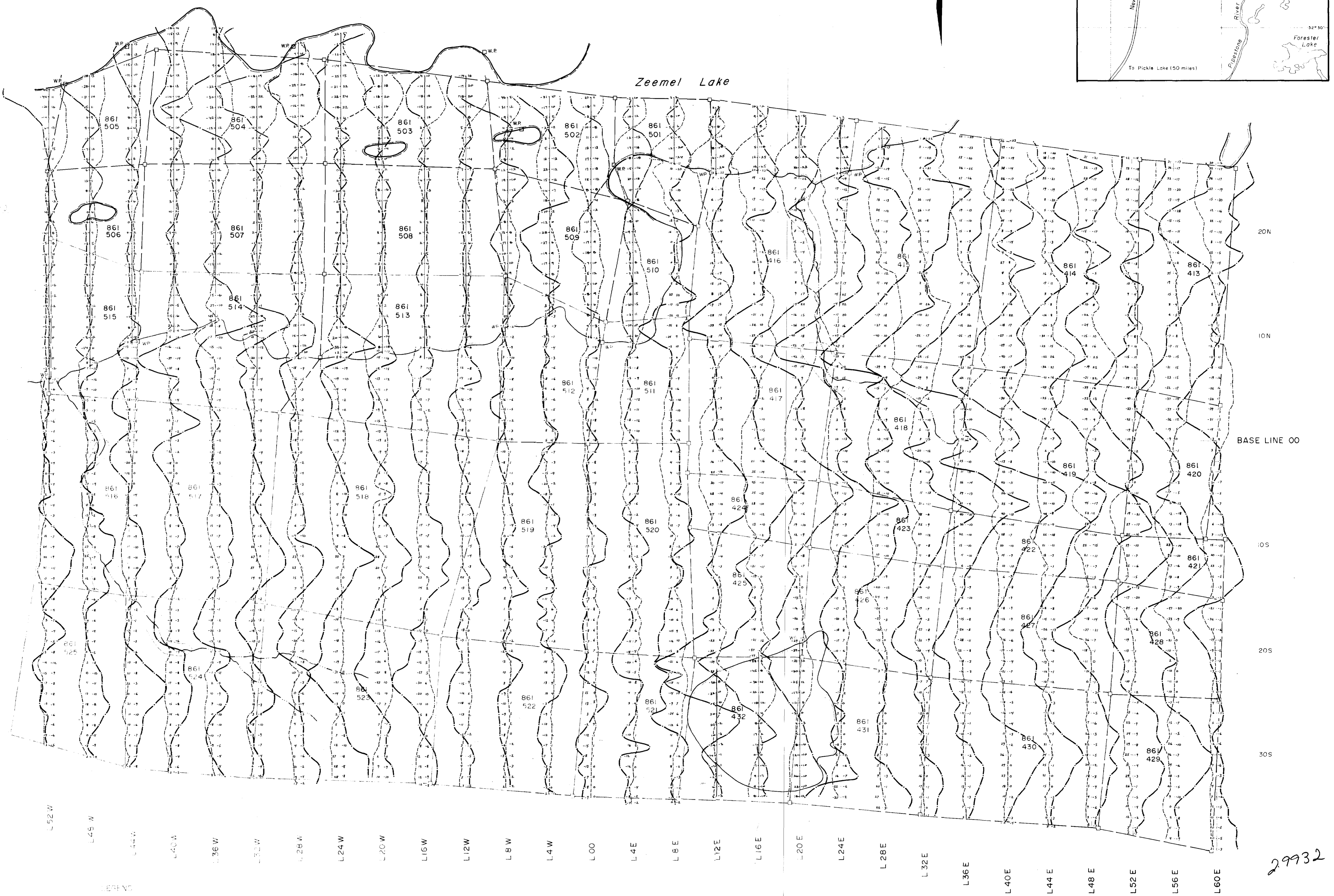
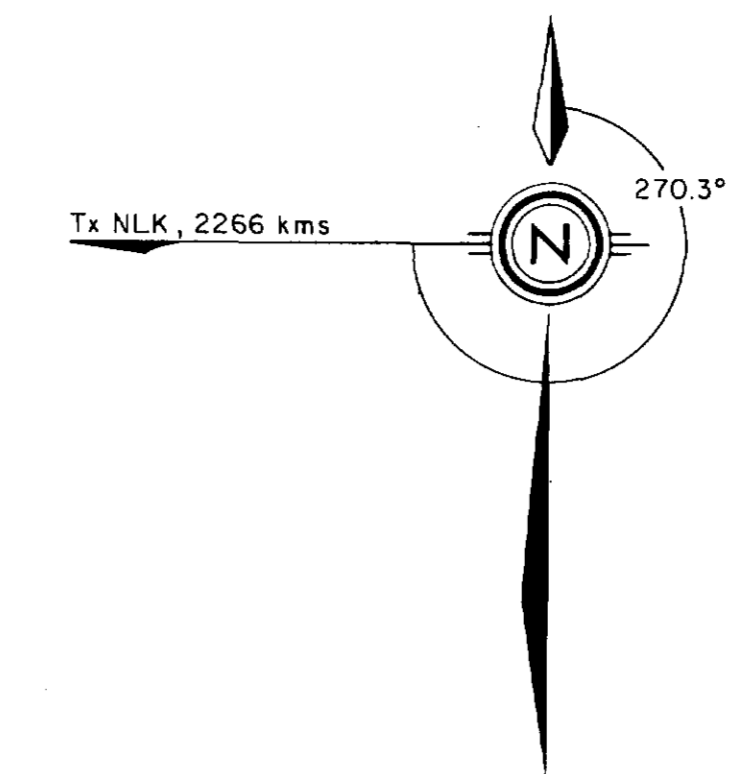
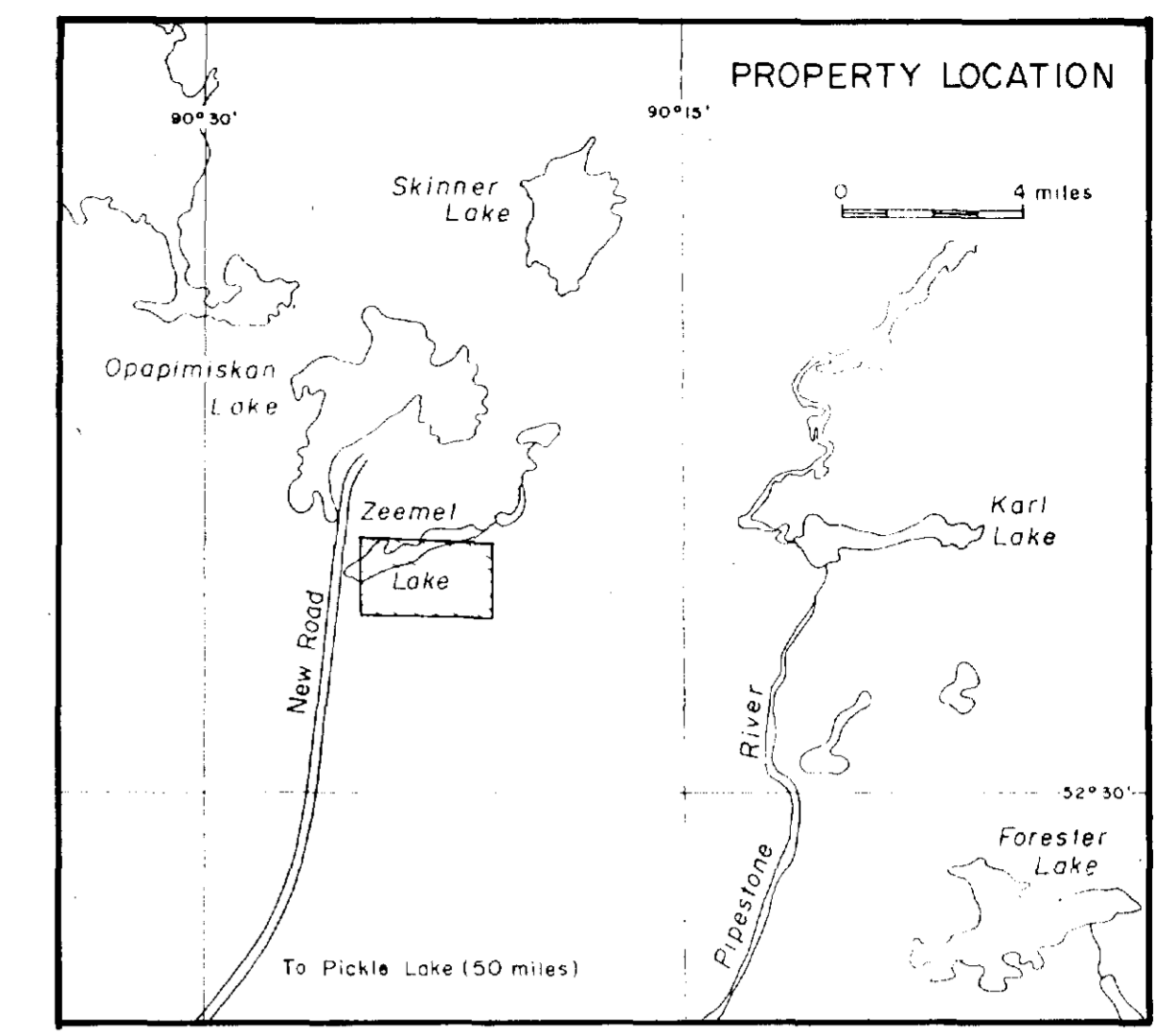


SANTA MARIA RESOURCES LTD.
ZEEMEL LAKE PROPERTY
 Opapimiskan Lake Area, Ontario

Magnetometer Survey
VERTICAL FIELD CONTOURS

BY: *Stephen Hill*
 DATE: December 86
 SCALE: 1:4800
 DWG. No. SMZ-2

53B/09SW-0038 #2



29932

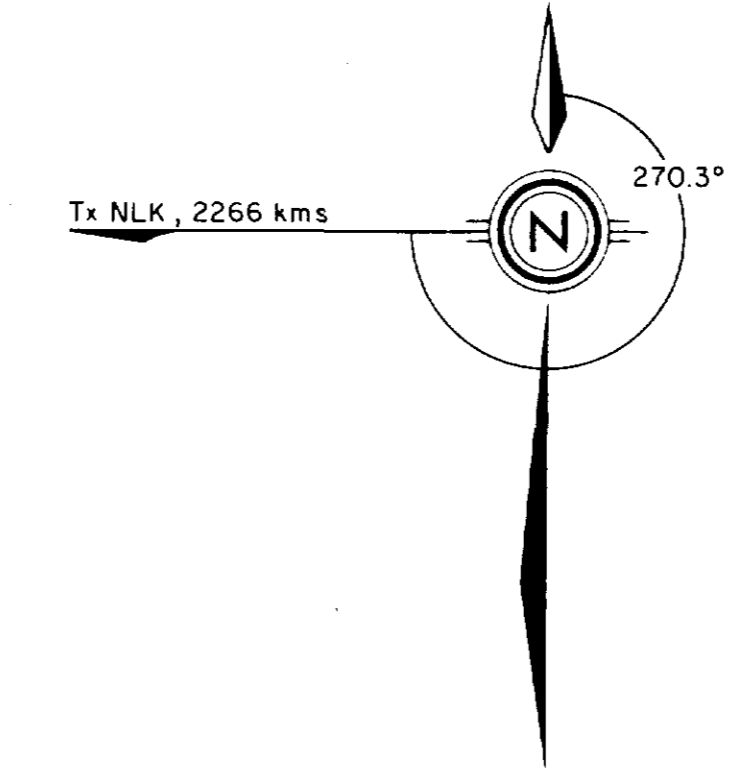
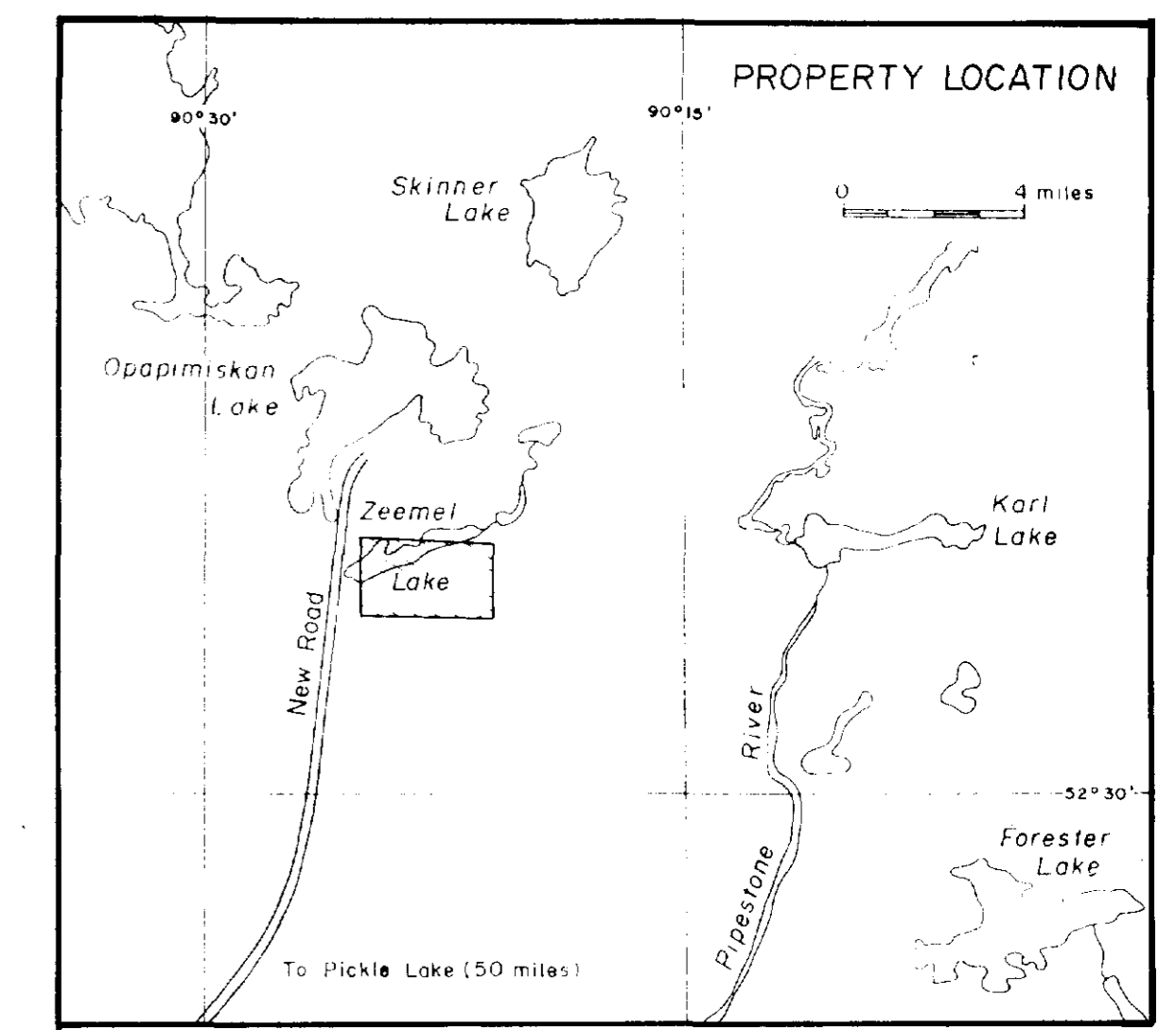
Grid
 Station
 Datum
 Instrument Geonics EM-16
 Transmitter NLK, Seattle, Wash., 24.8 kHz
 Readings taken facing north, plotted IP OP
 Profiles at I² = 40%, plotted +
 Inphase profile
 Quadrature profile

Scale 1" = 400 feet

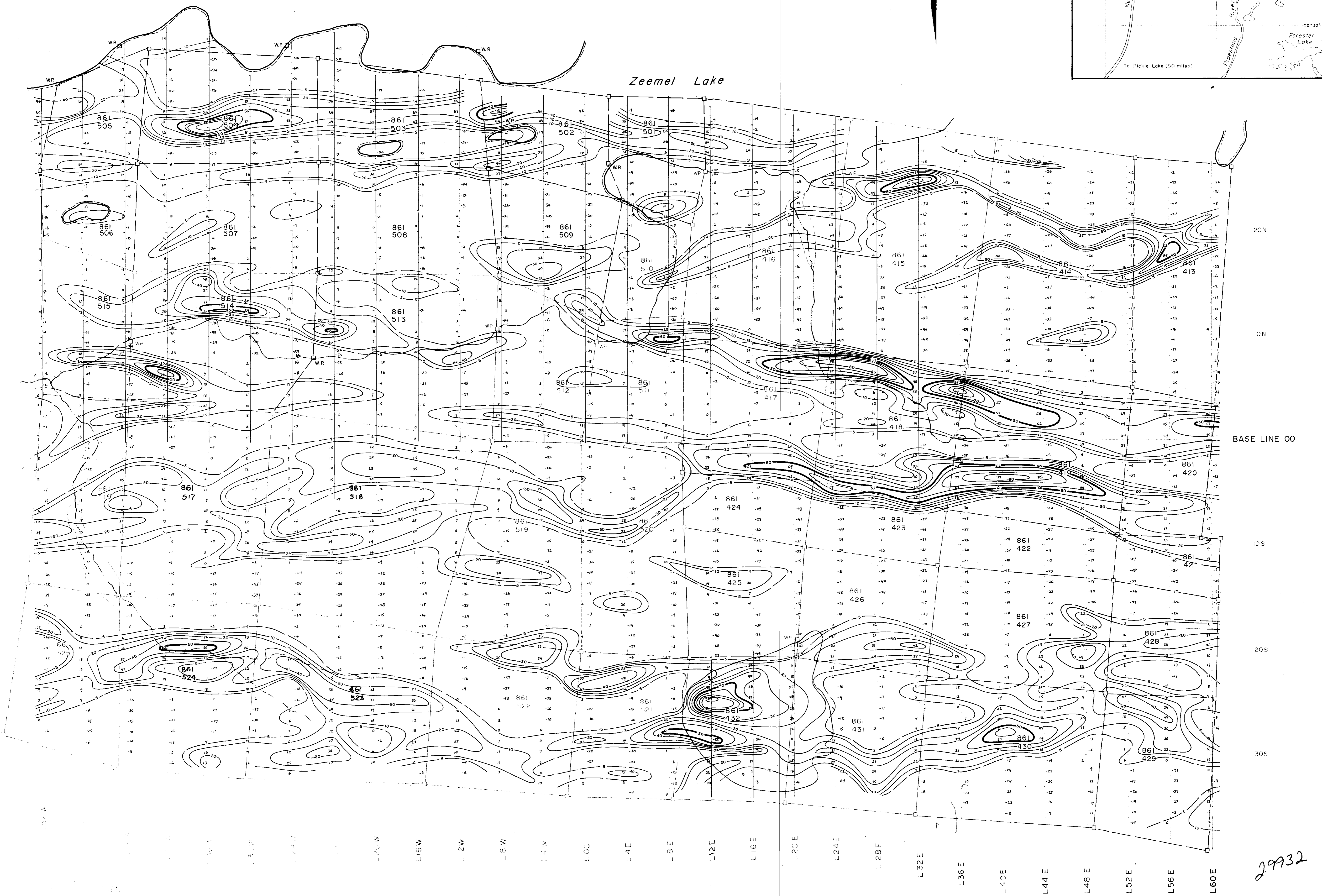
SANTA MARIA RESOURCES LTD.	
ZEEMEL LAKE PROPERTY	
Opapimiskan Lake Area, Ontario	
VLF EM SURVEY - Tx NLK	
 Stephen Madd GEONEX LTD TORONTO, CANADA	BY: DATE: December 86 SCALE: 1:4800 DWG. No: SMZ-3

53B/095W-0038 #3





Zeemel Lake



Instrument Geonics EM 16
 Transmitter NLK, Seattle, Wash., 24.8 kHz
 Contours of Fraser filtered VLF EM inphase data
 +5% contour
 +10% contour
 +50% contour



230

SANTA MARIA RESOURCES LTD.
ZEEMEL LAKE PROPERTY
 Opapimiskan Lake Area, Ontario

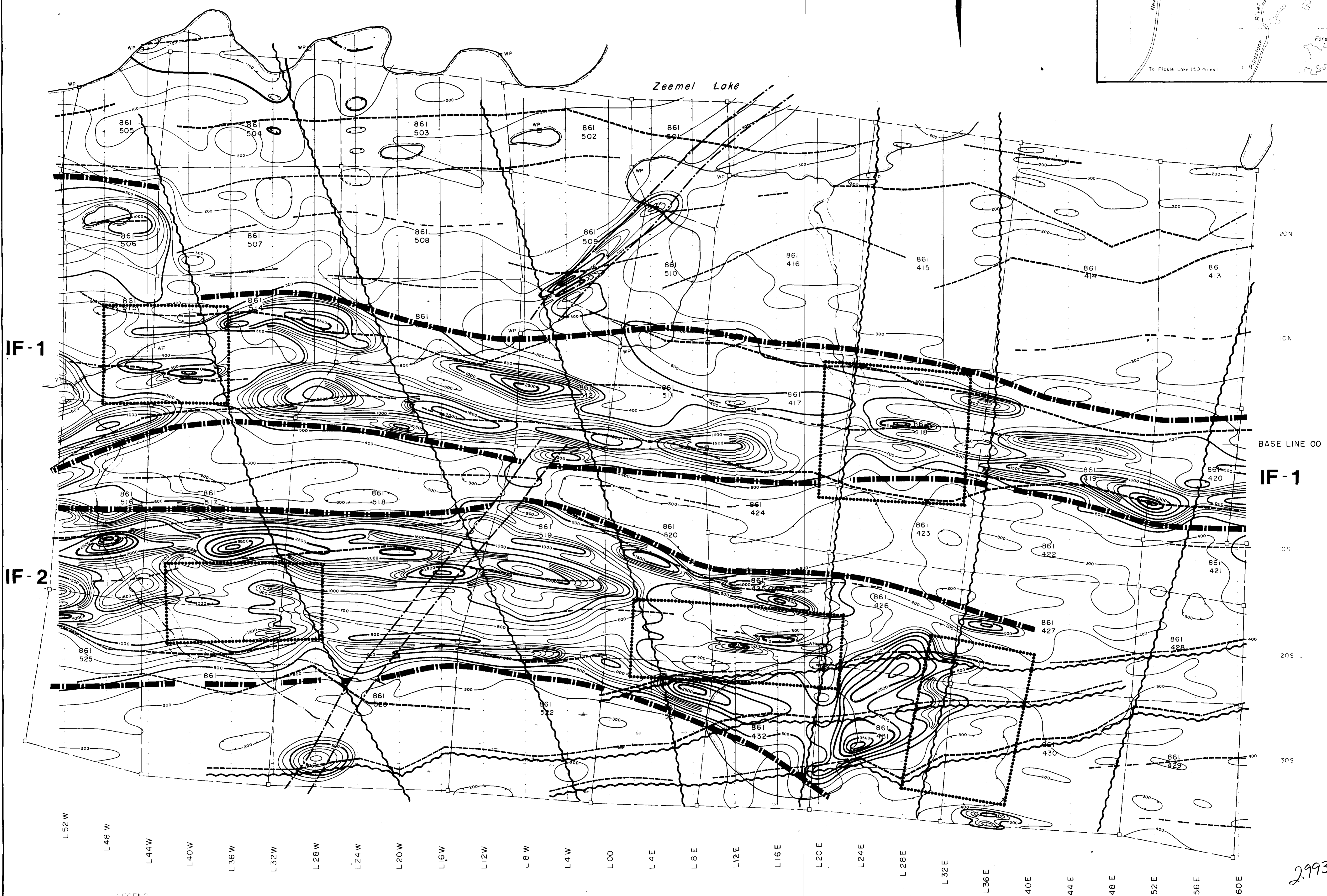
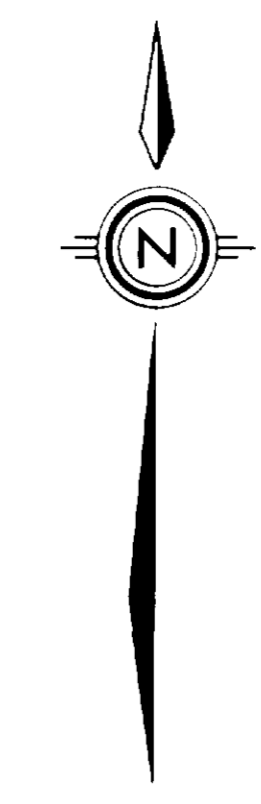
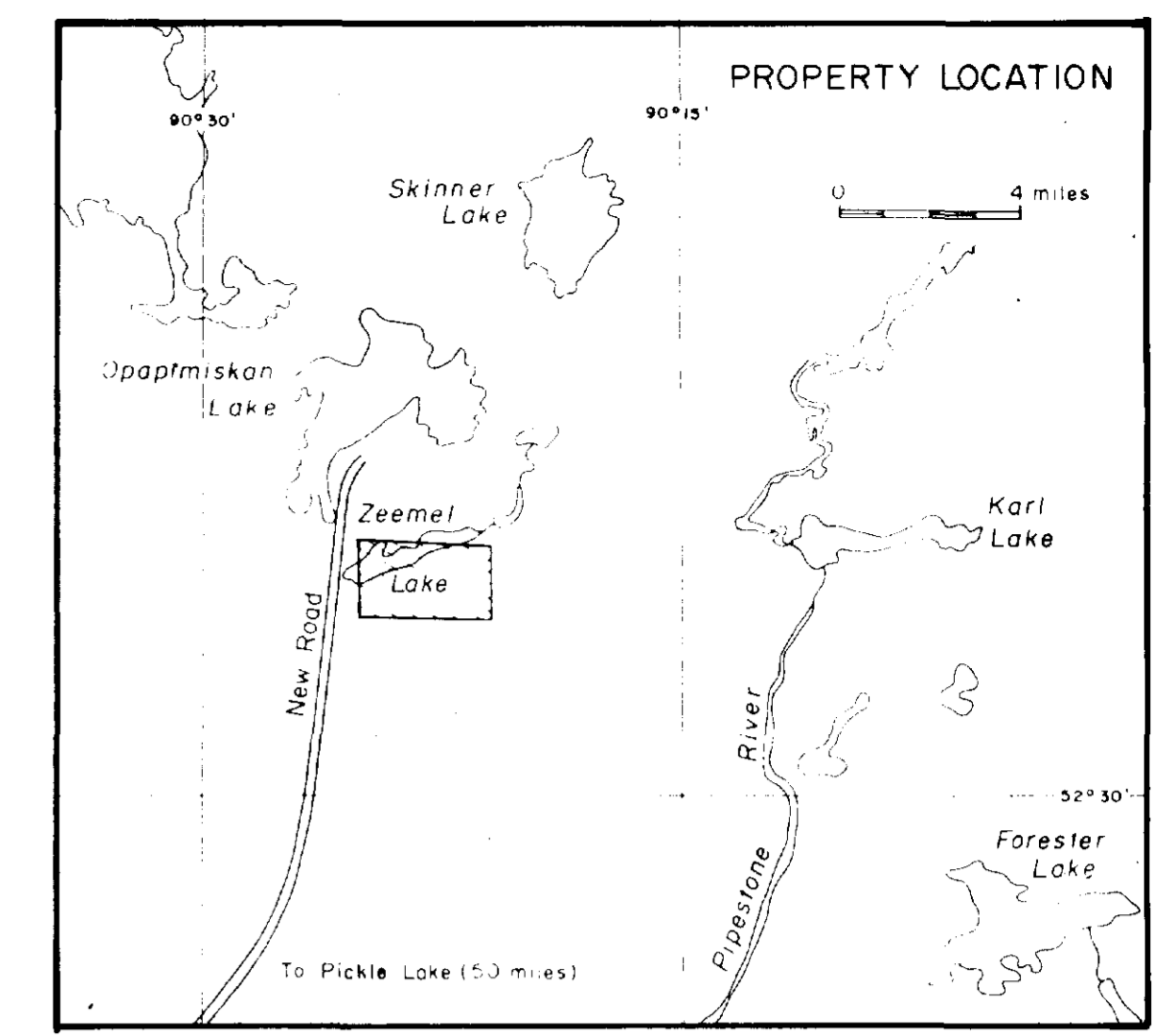
VLF EM Survey
FILTERED INPHASE CONTOURS

BY: **GEONICS**
 DATE: December 86
 SCALE: 1:4800
 DWG. No: SMZ-4

GEOCANEX LTD.
 TORONTO, CANADA

53B/096W-0038 #4

29932



IF-1

IF-2

20N

10N

BASE LINE 00

IF-1

10S

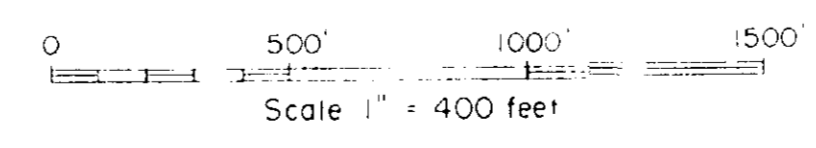
20S

30S

29932

LEGEND

Grid line with 100 stations	Fault or shear	
Stream, swamp, or estuary	Major geological boundary	
Claim post and line	Dyke	
Instrument Scintrex MF-2	Area of alteration	
Contour interval 100 gammas	VLF-EM conductor axis	
100 gamma contour	>30%	
500 gamma contour	5-30%	
2500 gamma contour	<5%	
Depression		



SANTA MARIA RESOURCES LTD.
ZEEMEL LAKE PROPERTY
 Opapimiskan Lake Area, Ontario

COMPILATION MAP

Stephen Medd
 GEOCANEX LTD.
 TORONTO, CANADA

BY: S. Medd
 DATE: December 86
 SCALE: 1:4800
 DWG. No: SMZ-5

53B/095W-0038 # 5

