REPORT ON THE

VLF-EM SURVEY

ON THE

WALLS TOWNSHIP PROPERTY

OF

MAUREX RESOURCES LIMITED

RECEIVED
JUL 27 1987
MINING LANDS SECTION

by

Greg Hodges, B.Sc.
Robert S. Middleton Exploration Services Inc.

2nd. 2.5919

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ABSTRACT

A VLF-EM survey was conducted on the Walls Township property of Maurex Resources Limited. The property is in two blocks, one of 9 claims and one of 12 claims.

Several significant anomalies were detected, and further EM, magnetics and geological mapping are recommended.

INTRODUCTION

During the period from April 17 to April 30, 1987 a geophysical survey was conducted on the Walls Township Property of Maurex Resources Limited by Michael Tremblay.

The survey consisted of VLF (Very Low Frequency) electromagnetics and was conducted to aid in assessing the economic mineral potential of the property.

LOCATION AND ACCESS

The property is located in Walls Township, District of Cochrane, Ontario, approximately 80k due south of Hearst, Ontario. Access to the property is from Hearst via the Caithness road to the Levesque Lumber camp in Minnipuka Twp. (80km). From there the Goat River road is followed to the Boomerang branch which crosses the property. (figure 1 & 2)

CLAIM STATUS

The property is made up of two groups of claims, one of 9 claims and one of 12 claims in the Porcupine Mining Division. The claim numbers are:

	Claim	No.	Recording Date
Grid 1	916000 - 916008	9	May 14, 1986
Grid 2	915997 - 915999	3	May 14, 1986
	916009 - 916014	6	May 14, 1986
	916287 - 916290	3	May 14, 1986

CLAIM STATUS (cont'd)

These claims are held by Maurex Resources Limited in their staker's name, Michael Tremblay.

GEOLOGY

The property is located in an area of mafic to intermediate metavolcanic flows and felsic intrusives with minor metasedimentary (greywacke) units, felsic volcanic units and ultramafic intrusives (thoroughly serpentinized) (Thurston et. al. 1977). There are numerous early to middle Pre-Cambrian diabase dikes throughout the region, generally striking northeast or west-northwest.

The metavolcanic rocks are mostly amphibolite grade and andesitic in composition. The felsic intusives are granodioritic in composition.

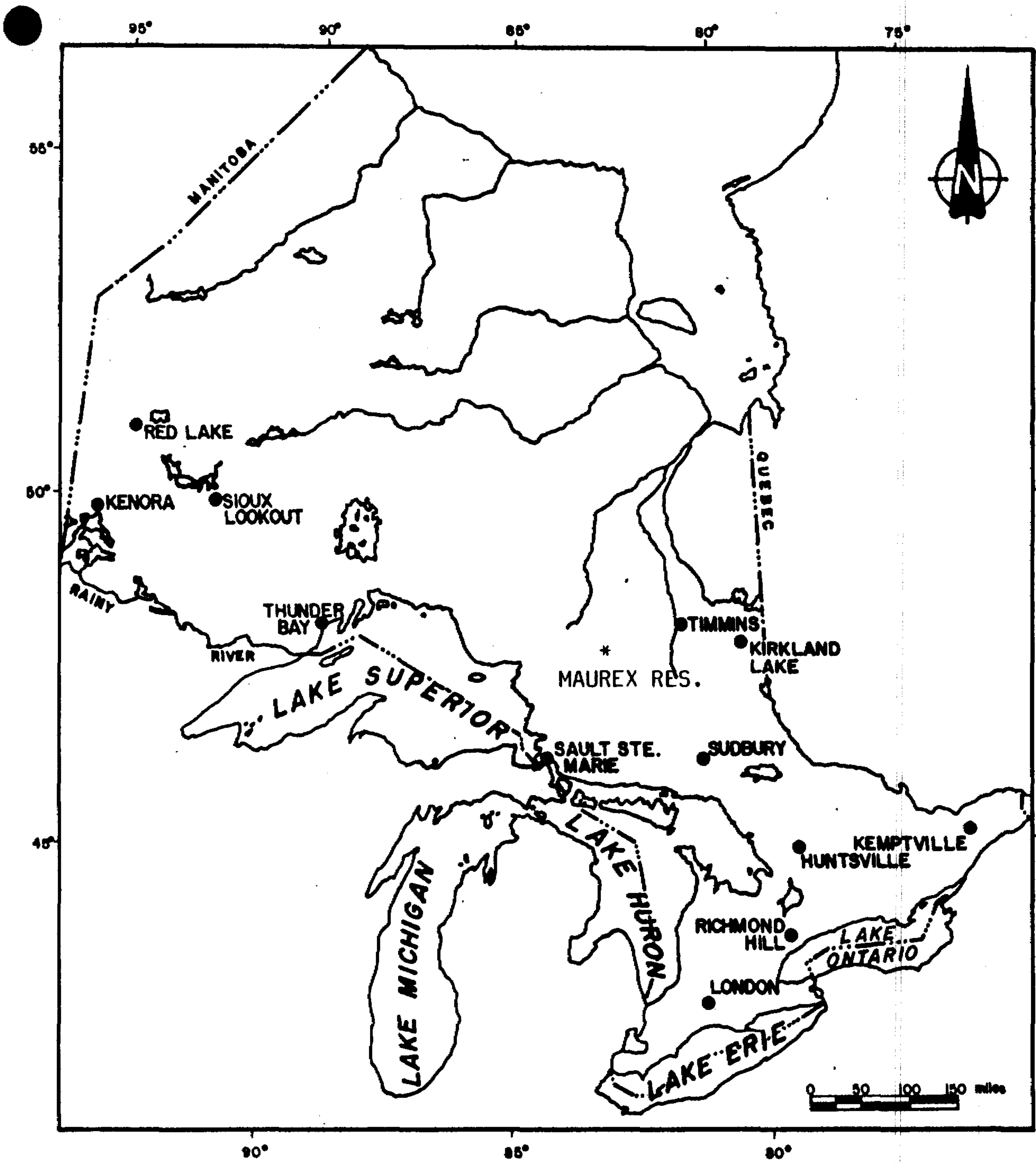
The property has never been mapped in detail.

PREVIOUS WORK

In 1957, Sand River Gold Mining company drilled a hole on the west side of the Pichogen River near the CNR line. The entire hole was drilled in magnetite bearing serpentinite with trace amounts of sulphide. Gold assays were apparently not reported.

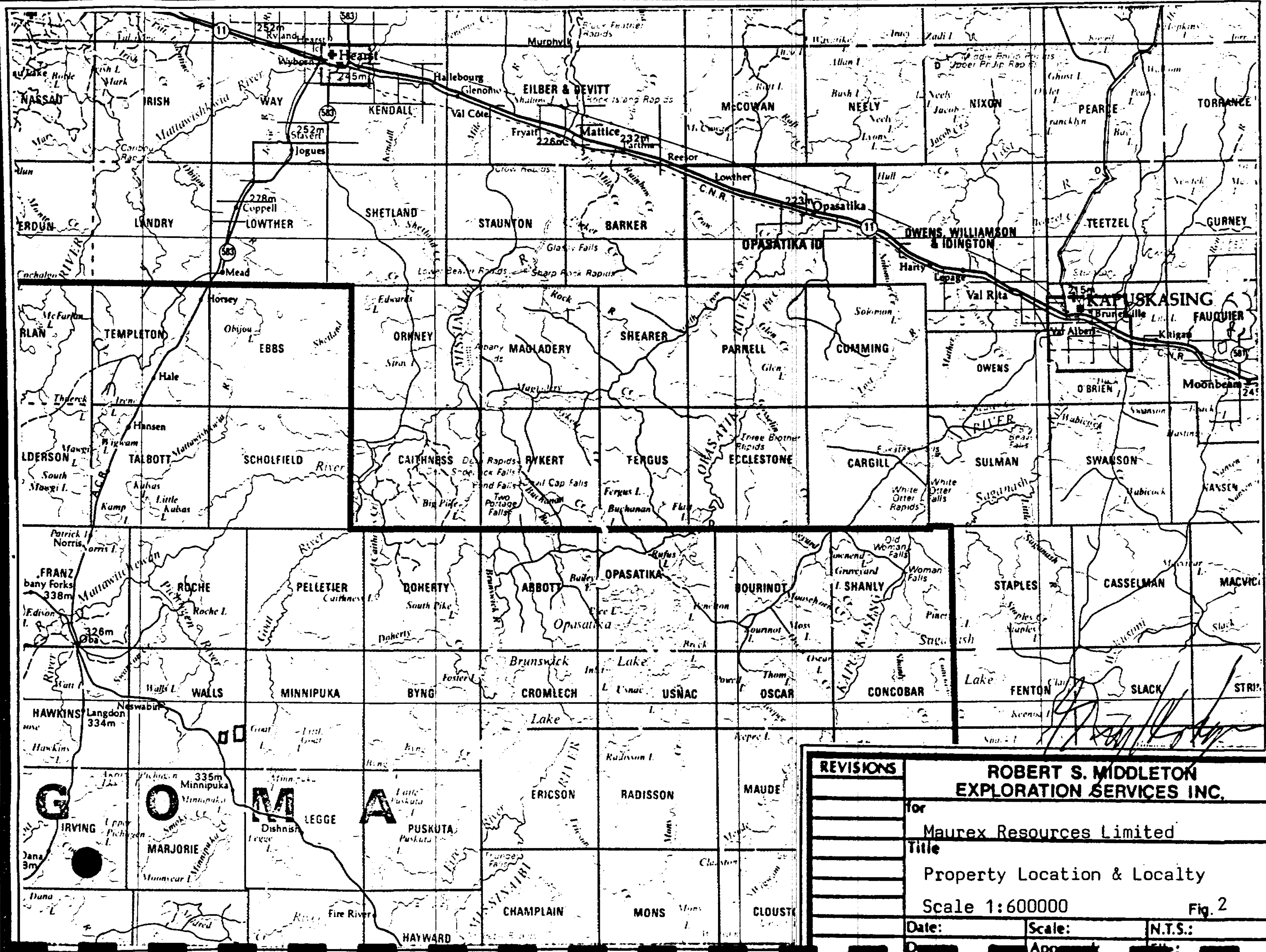
Tremblay (1987) Report

"In 1981 Amax Mineral Explorations Limited and Noranda Explorations Limited Jointly conducted aerial magnetic and electromagnetic surveys over the property. This was followed up by gound surveys and one drill hole of 66.5 m. The drill core along with the assay results are on file with the Ministry of Northern Development and Mines in Timmins. The one intersection from 32.0 to 33.4 m contained 6.02 pmm gold (.1750 pt) in massive pyrite and

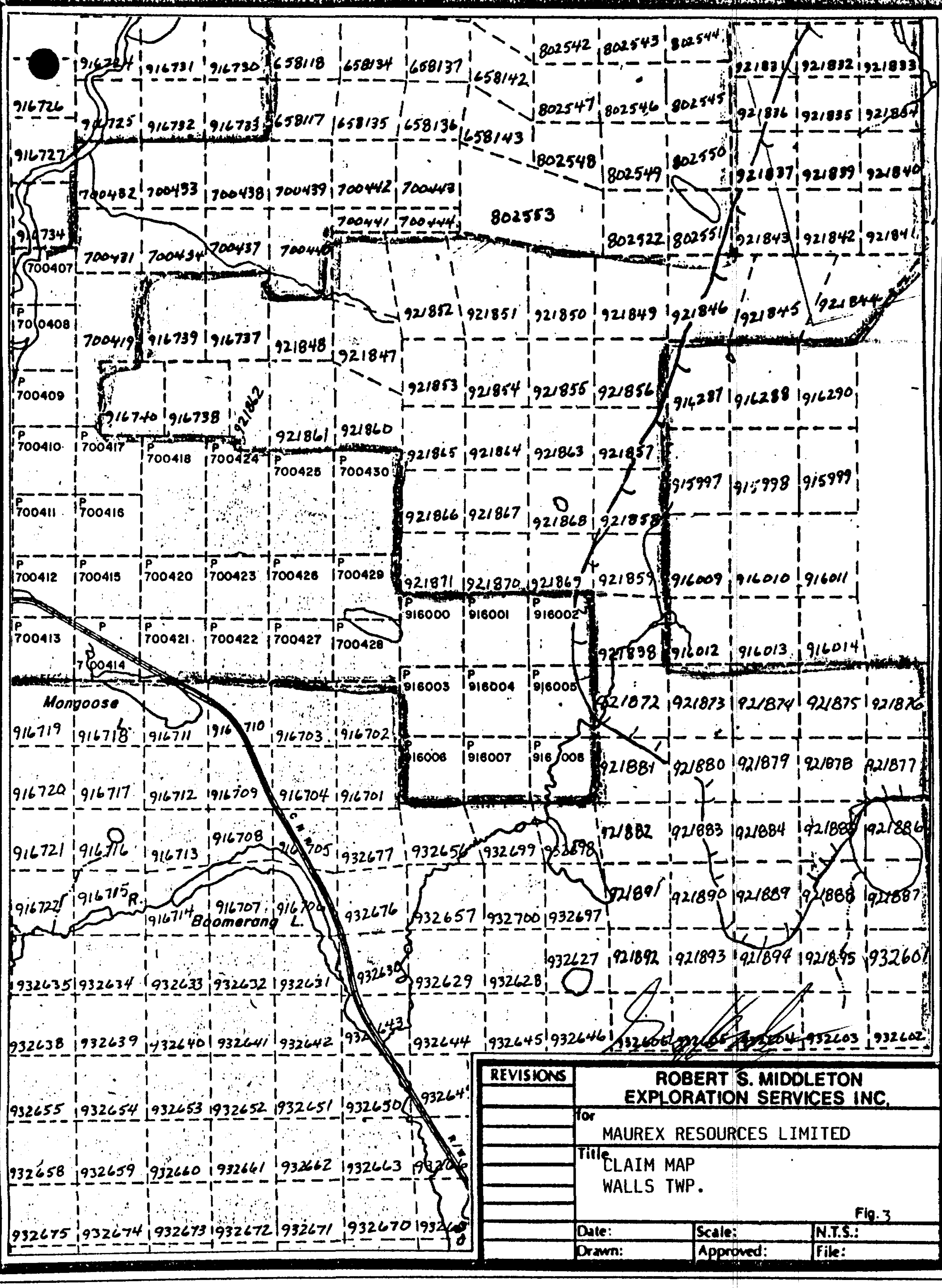


PROVINCE OF ONTARIO

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for Maurex Resources Limited		
	Title Property Location & Regional		
	Fig. 1		
	Date:	Scale: 1" = 160 mi.	N.T.S.:
	Drawn:	Approved:	File:



REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.
	for Maurex Resources Limited
	Title Property Location & Localty
	Scale 1:600000 Fig. 2
	Date: Scale: N.T.S.:
	Drawn: Approved: File:



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for MAUREX RESOURCES LIMITED

Title CLAIM MAP
WALLS TWP.

Fig. 3

Date:	Scale:	N.T.S.:
Drawn:	Approved:	File:

pyrrhotite. The host rock was togged as being metagraywacke. No further work was reported and the claims were allowed to lapse.

In 1986 the Ministry of Northern Development and Mines conducted a regional aerial survey over the region. Several conductors were noted on the property."

SURVEY PROCEDURE

Theory

The VLF (Very Low Frequency) electromagnetic system is a frequency domain system which uses military transmitters designed to communicate with submarines as a source. The system measures the response of conductors to these time varying electromagnetic fields.

The transmitted, or primary EM field is a sinusoidally varying field in the range of 15.0 to 30.0 KHz, dependant on the source station used. This field induces an electromotive force (emf), or voltage in any conductor through which the field passes.
This is defined by

$$\oint E.dl = \frac{\partial \emptyset}{\partial t} \quad \text{(The Faraday Induction Principle)}$$

where E is the electric field strength in volts/metre (and so $\oint E.dl$ is the emf around a closed loop) and $\emptyset$ is the magnetic flux through the conductor loop. This emf causes a secondary electromagnetic field, which is measured by the receiver.

The VLF transmitting antennae are vertically oriented, thus the primary field is horizontal perpendicular to the transmission direction.

The secondary field from a conductor is different in amplitude from the primary, and shifted in phase.

Theory (cont'd)

Because both fields are sinusoidal, the resultant electromagnetic vector traces an ellipse. The receiver measures two of the following properties of the ellipse: orientation of the minor axis (tilt), ratio of minor to major axis (ellipticity), or amplitude of the minor axis (field strength).

The receiver has two receiving coils built in, one coil with a normally vertical axis and the other horizontal. The signal from the vertical axis coil is first minimized by tilting the instrument. The remaining signal in this coil is finally balanced out by a measured percentage of signal from the horizontal coil, after being shifted in phase by 90°.

Assuming the secondary signal is small compared to the primary field, the mechanical tilt angle is an accurate measure of the vertical real (in phase) component of the secondary, and the 90° compensation signal from the horizontal coil is a measure of the quadrature vertical signal.

Field Method

A transmitter station is selected which gives a strong field as close as possible to right angles to the suspected strike of the geology.

The reference (horizontal) coil is oriented parallel to the primary field, and then the instrument is tilted until the minimum is heard. The quadrature component (compensator) is then adjusted until a further minimum is reached, and the tilt angle and compensation field recorded as in phase and quadrature field in percent.

Readings are normally taken at 25m intervals. Shorter spaced readings may be taken unless the data is to be Fraser Filtered for plotting.

PERSONNEL AND EQUIPMENT

The survey was conducted by Michael Tremblay for Maurex Resources Limited. The receiver was a Geonics EM16, using the Annapolis VLF transmitter (21.4 kHz). The specifications for this instrument are in Appendix A.

SURVEY STATISTICS

The survey consisted of 40.35 line km of single station VLF-EM data.

INTERPRETATION

Numerous conductors were detected on both properties, but the 12 claim property (Grid 2) shows the more promising anomalies.

Grid 1

This grid has many disjointed and isolated anomalies, but no strong indications of significant conductors. Much of the grid appears to be masked by conductive overburden (swamp) extending roughly over the area outlined by the dashed line on the map.

Grid 2

This Grid has several moderate-to-strong anomalies, all of which trend west-northwest. Some of these definitely coincide with the anomalies detected by the Ontario Geological Survey airborne EM survey of the Oba Kapuskasing region (map 80834). These airborne anomalies are part of a cluster around fiducial 3918-3920 on flight-line 22840. Due to the error in photo-lay-down of airborne data it is not possible to match the ground VLF anomalies definitely to the airborne.

CONCLUSIONS AND RECOMMENDATIONS

As the property has not been geologically mapped in detail it is recommended that this be done soon. It is probable that very little outcrop will be found but the survey should be completed.

The VLF survey detected numerous conductors but a more powerful EM system should be used on the property to provide more information about the conductors and to distinguish between overburden sources and bedrock conductors.

A survey with the Apex Perametrics Max Min II is recommended using 444Hz, 1777Hz and 3555Hz with a 150m coil spacing.

A total field magnetic survey is recommended to assist a geologic mapping of the property by outlining structure.

All three of these surveys would require that a grid of survey line be cut.

Respectfully submitted,

Greg Hodges, B.Sc.
Geophysicist

REFERENCES

Thurston, P.C., Siragusa, G.M., Sage R.P. 1977
Geology of the Chapleau Area, Ontario Division of Mines, Geoscience Report 157 (Accompanying Map 2221)

Tremblay, Michael 1987
Property Report on Walls Township Property For Maurex Resources Limited

APPENDIX A

EQUIPMENT

SPECIFICATIONS

EM16

VLF Electromagnetic Unit

Pioneered and patented exclusively by Geonics Limited, the VLF method of electromagnetic surveying has been proven to be a major advance in exploration geophysical instrumentation.

Since the beginning of 1965 a large number of mining companies have found the EM16 system to meet the need for a simple, light and effective exploration tool for mining geophysics.

The VLF method uses the military and time standard VLF transmissions as primary field. Only a receiver is then used to measure the secondary fields radiating from the local conductive targets. This allows a very light, one-man instrument to do the job. Because of the almost uniform primary field, good response from deeper targets is obtained.

The EM16 system provides the *in-phase* and *quadrature* components of the secondary field *with the polarities indicated.*

Interpretation technique has been highly developed particularly to differentiate deeper targets from the many surface indications.

Principle of Operation

The VLF transmitters have vertical antennas. The magnetic signal component is then horizontal and concentric around the transmitter location.

Specifications

Source of primary field	VLF transmitting stations.
Transmitting stations used	Any desired station frequency can be supplied with the instrument in the form of plug-in tuning units. Two tuning units can be plugged in at one time. A switch selects either station.
Operating frequency range	About 15-25 kHz.
Parameters measured	(1) The vertical in-phase component (tangent of the tilt angle of the polarization ellipsoid). (2) The vertical out-of-phase (quadrature) component (the short axis of the polarization ellipsoid compared to the long axis).
Method of reading	In-phase from a mechanical inclinometer and quadrature from a calibrated dial. Nulling by audio tone.
Scale range	In-phase ± 150%; quadrature ± 40%.
Readability	± 1%.
Reading time	10-40 seconds depending on signal strength.
Operating temperature range	−40 to 50° C.
Operating controls	ON-OFF switch, battery testing push button, station selector, switch, volume control, quadrature, dial ± 40%, inclinometer dial ± 150%.
Power Supply	6 size AA (penlight) alkaline cells. Life about 200 hours.
Dimensions	42 x 14 x 9 cm (16 x 5.5 x 3.5 in.)
Weight	1.6 kg (3.5 lbs.)
Instrument supplied with	Monotonic speaker, carrying case, manual of operation, 3 station selector plug-in tuning units (additional frequencies are optional), set of batteries.
Shipping weight	4.5 kg (10 lbs.)

GEONICS LIMITED

Designers & manufacturers of geophysical instruments

subsidiary of Deering Milliken Inc.

2 Thorncliffe Park Drive,
Toronto/Ontario/Canada
M4H 1H2
Tel: 425-1824
Cables: Geonics

CERTIFICATION

I, D. Greg Hodges, of 136 Cedar Street South, in the city of Timmins, Province of Ontario, certify as follows concerning my report on the Maurex Resources Limited property in Walls Township, Province of Ontario and dated July 24, 1987:

1. I am a member in good standing of the Society of Exploration Geophysicists

2. I am a graduate of Queen's University at Kingston, Ontario, with a B.Sc. (Hons.) Geological Sciences with Physics, obtained in 1980.

3. I have been practising in Canada, and occasionally in the United States, Europe, and Australia for the past seven years.

4. I have no direct interest in the properties, leases, or securities of Maurex Resources Limited, nor do I expect to receive any.

5. The attached report is a product of:

   a) Examination of data included in the report which was collected on the property concerned.

Dated this July 24, 1987
Timmins, Ontario

Greg Hodges

D. Greg Hodges, Geophysicist

2nd/2.5919

Ministry of Northern Development and Mines
Ontario

Report of Work #116 #1

(Geophysical, Geological, Geochemical and Expenditures)

Mining

42B13NW0202 2.10232 WALLS

900

Type of Survey(s)	Township or Area
VLF-EM-16	Walls Twp

Claim Holder(s)	Prospector's Licence No.
Michael Tremblay	M-21667

Address: Box 183 Timmins

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
M.A. Tremblay	19 Day 4 Mo. 87 Yr. – 2 Day 5 Mo. 87 Yr.	42.45 Km

Name and Address of Author (of Geo-Technical report): Rand Hodgson 43 St. Olvef Rd. Toronto M6S 3H5

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical	
	- Electromagnetic	20
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

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Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

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.

Mining Claims Traversed (List in numerical sequence)

Prefix	Number	Expend. Days Cr.
P	916287	
	916288	
	916290	
	915997	
	915998	
	915999	
	916009	
	916010	
	916011	
	916012	
	916013	
	916014	
	916000	
	916001	
	916002	
	916003	
	916004	
	916005	
	916006	
	916007	
	916008	

RECORDED
MAY 12 1987

PORCUPINE MINING DIVISION
RECEIVED
MAY 12 1987

Total number of mining claims covered by this report of work: 21

Date	Recorded Holder or Agent (Signature)
May 12/87	Mike Tremblay

For Office Use Only		
Total Days Cr. Recorded	Date Recorded	Mining Recorder
420	May 12/87	B Hanley Mining Recorder
	Date Approved as Recorded	Branch Director
	1987.08.28	W.M. Chamesky

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: Michael Tremblay
P.O Box 183 Timmins, Ont.

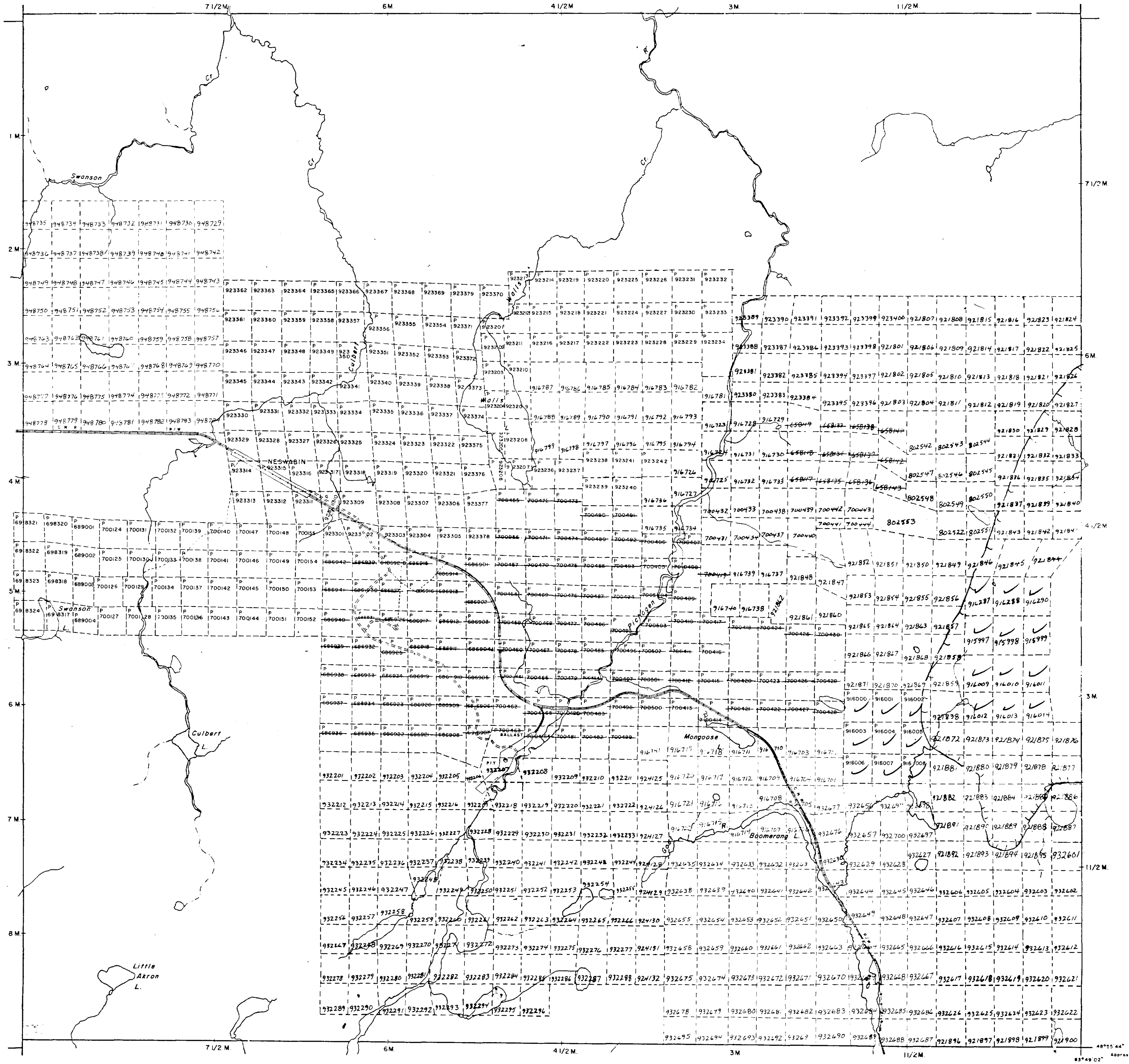
Date Certified: May 12/87 Certified by (Signature): Mike Tremblay

REFERENCE

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



42B13NW8282 2.10232 WALLS

200

Prescribed Burn July/86

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JUN 30 1987

LEGEND

HIGHWAY AND ROUTE No.
OTHER ROADS
TRAILS
SURVEYED LINES
TOWNSHIPS, BASE LINES, ETC.
LOTS, MINING CLAIMS, PARCELS, ETC.
UNSURVEYED LINES
LOT LINES
PARCEL BOUNDARY
MINING CLAIMS ETC.
RAILWAY AND RIGHT OF WAY
UTILITY LINES
NON PERENNIAL STREAM
FLOODING OR FLOODING RIGHTS
SUBDIVISION OR COMPOSITE PLAN
RESERVATIONS
ORIGINAL SHORELINE
MARSH OR MUSKEG
MINES

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT
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
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 INCH = 40 CHAINS

TOWNSHIP

WALLS

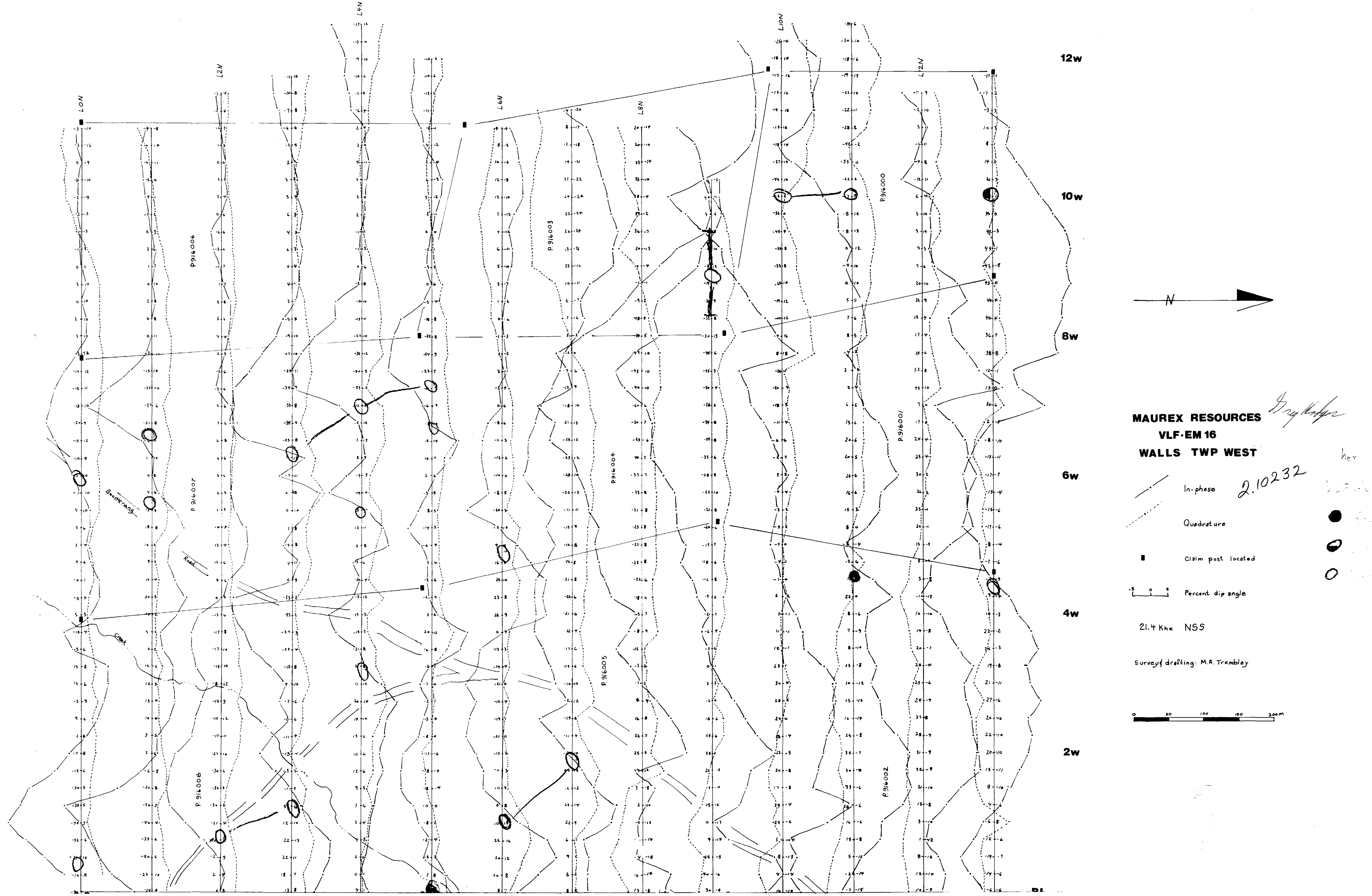
M.N.R. ADMINISTRATIVE DISTRICT
HEARST

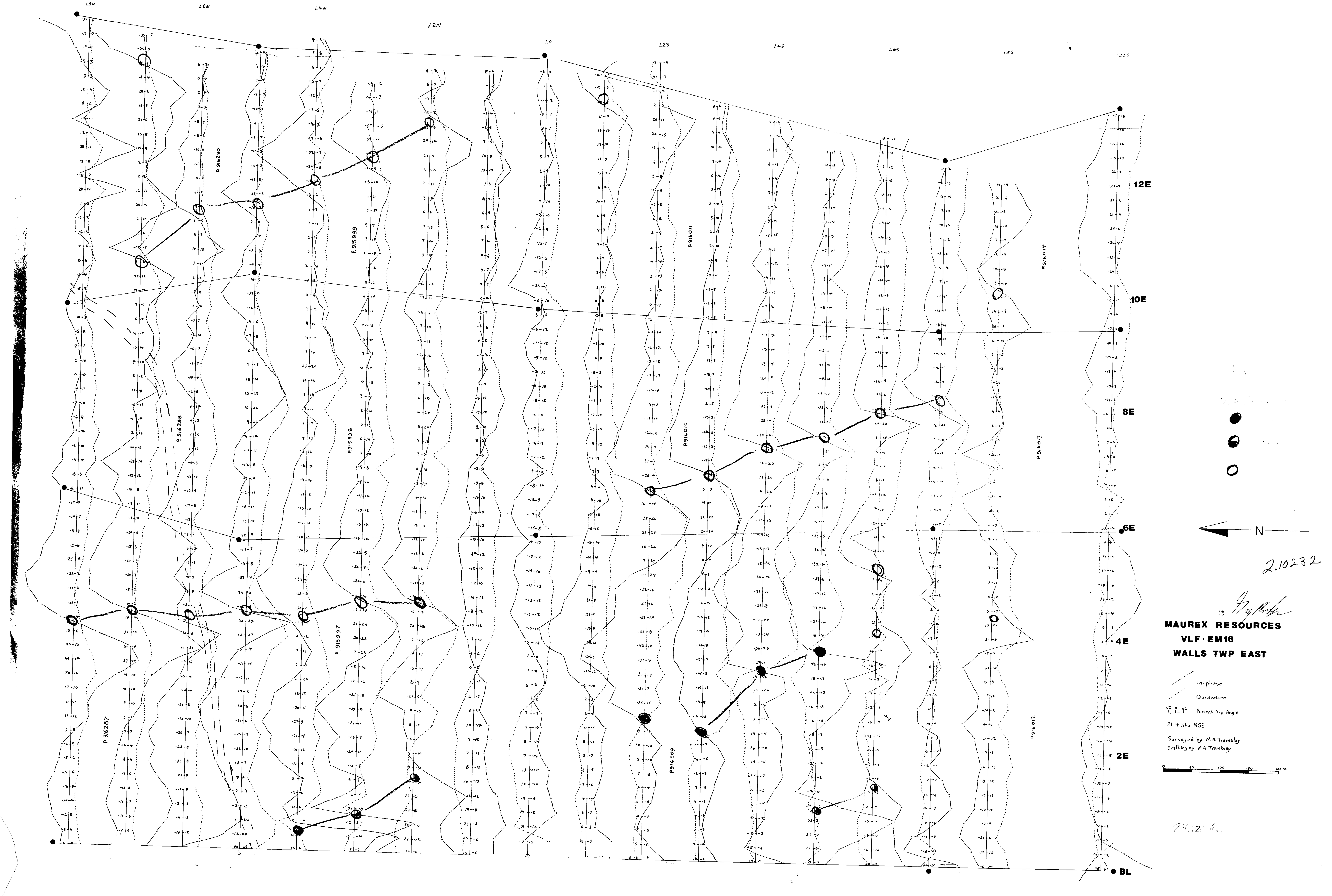
MINING DIVISION
PORCUPINE

LAND TITLES / REGISTRY DIVISION
ALGOMA

Ministry of Natural Resources
Land Management Branch
Ontario

Date: MARCH, 1983
Number: G-2360


MAUREX RESOURCES
VLF-EM 16
WALLS TWP WEST
2.10232
In-phase
Quadrature
Claim post located
Percent dip angle
21.4 Khz NSS
Surveys drafting: M.A. Trembley
0 50 100 150 200M
N
12w
10w
8w
6w
4w
2w
L0N
L2N
L4N
L6N
L8N
L10N
L12N
P.916000
P.916001
P.916002
P.916003
P.916004
P.916005
P.916006
P.916007
P.916008
Road
Creek
Boomerang
210



MAUREX RESOURCES
VLF·EM16
WALLS TWP EAST
In-phase
Quadrature
Percent Dip Angle
21.4 Khz NSS
Surveyed by M.A. Trembley
Drafting by M.A. Trembley
N
2.10232
12E
10E
8E
6E
4E
2E
BL
L8N
L6N
L4N
L2N
L0
L2S
L4S
L6S
L8S
L10S
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P.915997
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P.916009
P.916010
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P.916012
P.916013
P.916014

220