Geophysical Report

on the

Magnetic & VLF-EM Surveys

King West Property

Baden Township
Larder Lake Mining Division

2.17255

April 04th, 1997

010

***Cardinal** Exploration Services*
Kirkland Lake, Ontario, Canada

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Introduction

This Geophysical Report was compiled by **Cardinal Exploration Services** at the request of Yvon Gagne and Jim Forbes, two of the beneficial owners of the **Thompson Property** located in Northeastern Ontario. It describes and evaluates the ground geophysical surveys conducted by, and under the supervision of, the aforementioned owners during February and March 1997. The data plotting of Plans and Profiles was sub-contracted to **Rayan Exploration Ltd.** of Timmins, Ontario.

This Report was written in support of, and to accompany a **Declaration of Assessment Work Performed on Mining Lands** for submission to the **Ontario Ministry of Northern Development and Mines** to satisfy the requisite Assessment Work Requirements.

Property Ownership

The Property is comprised of five, contiguous, Mineral Exploration Claims (15 units) in the Larder Lake Mining Division of Ontario, Canada. A search of the MNDM's C.L.A.I.M.S. Database reveals the Mineral Rights Ownership to be as proportioned in **Table 1** (see also **Appendix II - Claim Abstracts**). The Property was presented to the Author as having no material deviation from this recorded Title and as being free and clear of any and all liens/encumbrance. Plan M-205 indicates the Surface Rights as being reserved for the Crown with the exception of two, **Ontario Hydro,** power line right-of-ways which traverse the northeast boundary (L.O. 1392 and L.O. 1415).

Table 1 - Property Ownership

Name	Percent Interest
Gagne, Yvon	42.50%
Forbes, Jim	42.50%
McCombe, Barry	15.00%
	100.00%

Location and Access

The Property is located 13 air kilometers northwest of the village of Matachewan, 65 air kilometers southeast of the city of Timmins and 53 air kilometers west of the town of Kirkland Lake (see **Figure 1 - Location Map**). The claim block is located north of Mistinikon Lake in the central portion of the unsurveyed Township of Baden. It may also be referenced at:

Latitude/Longitude:	48° 02' 30" / 80° 44' 00'	NTS Sheet: 42 A/2
UTM Coordinates:	520,000 E / 5,321,500 N	OBM Sheet: 20 17 5100 53200

From Matachewan, unpaved, Provincial Highway 566 extends north and then west crossing Mistinikon Lake. From a landing at this point, access may be made to the southern boundary of the Property by boat, approximately 4.5 kilometers north. Alternatively, winter access is readily afforded via skidoo along the lake (see **Figure 2 - Access/Topographic Map**).

FIGURE 1

LOCATION MAP - 1 : 600,000

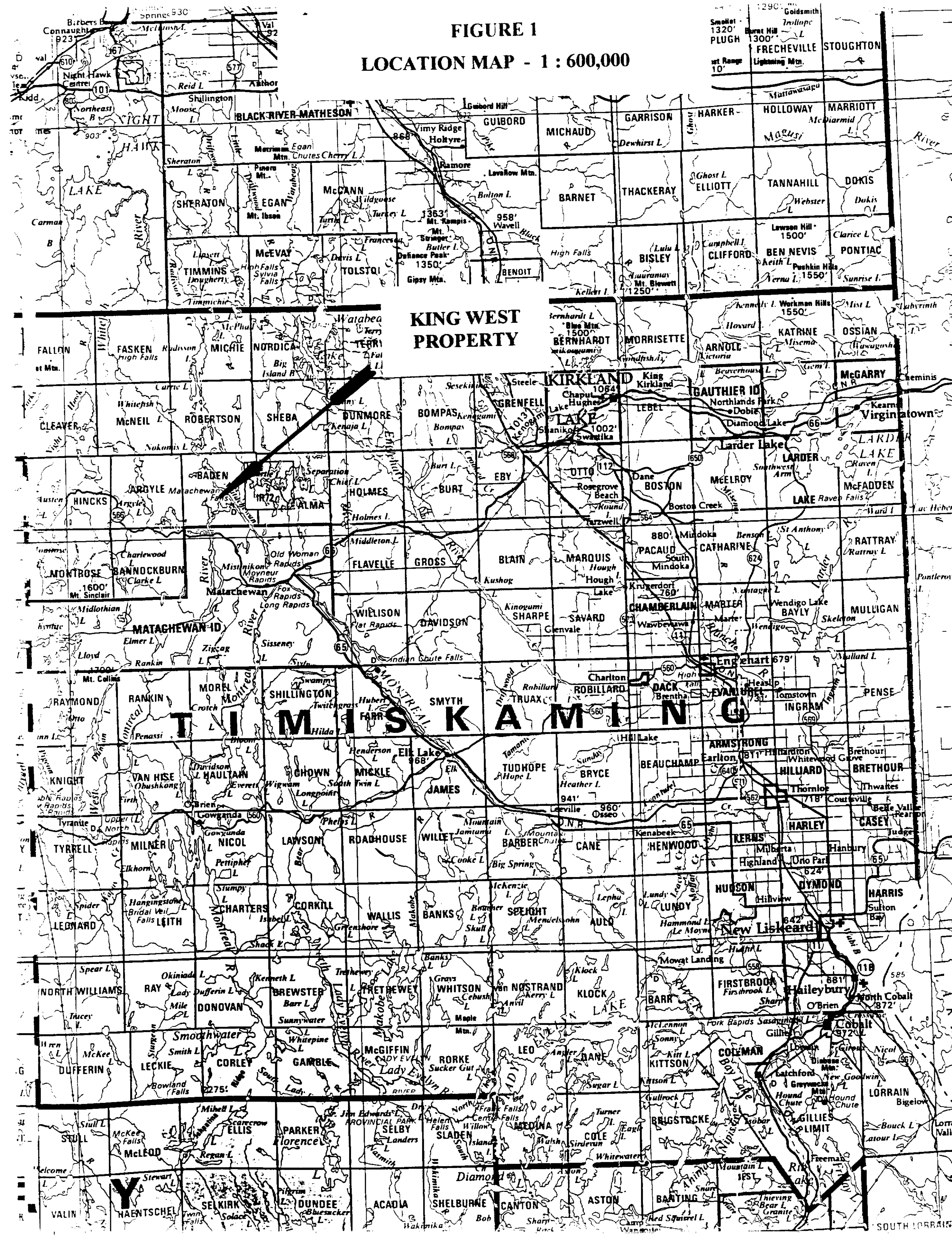


FIGURE 2

ACCESS / TOPOGRAPHIC MAP - 1 : 50,000

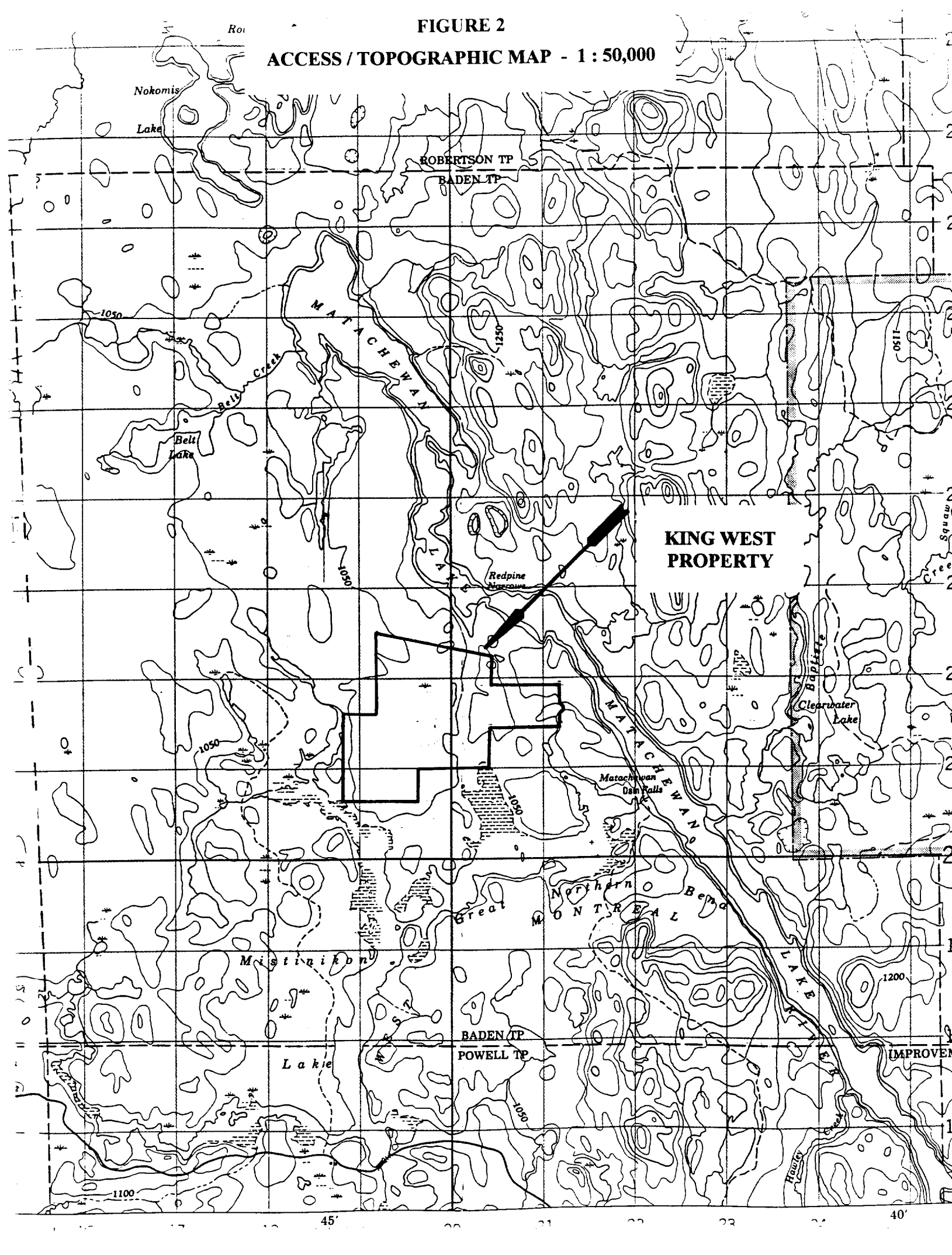
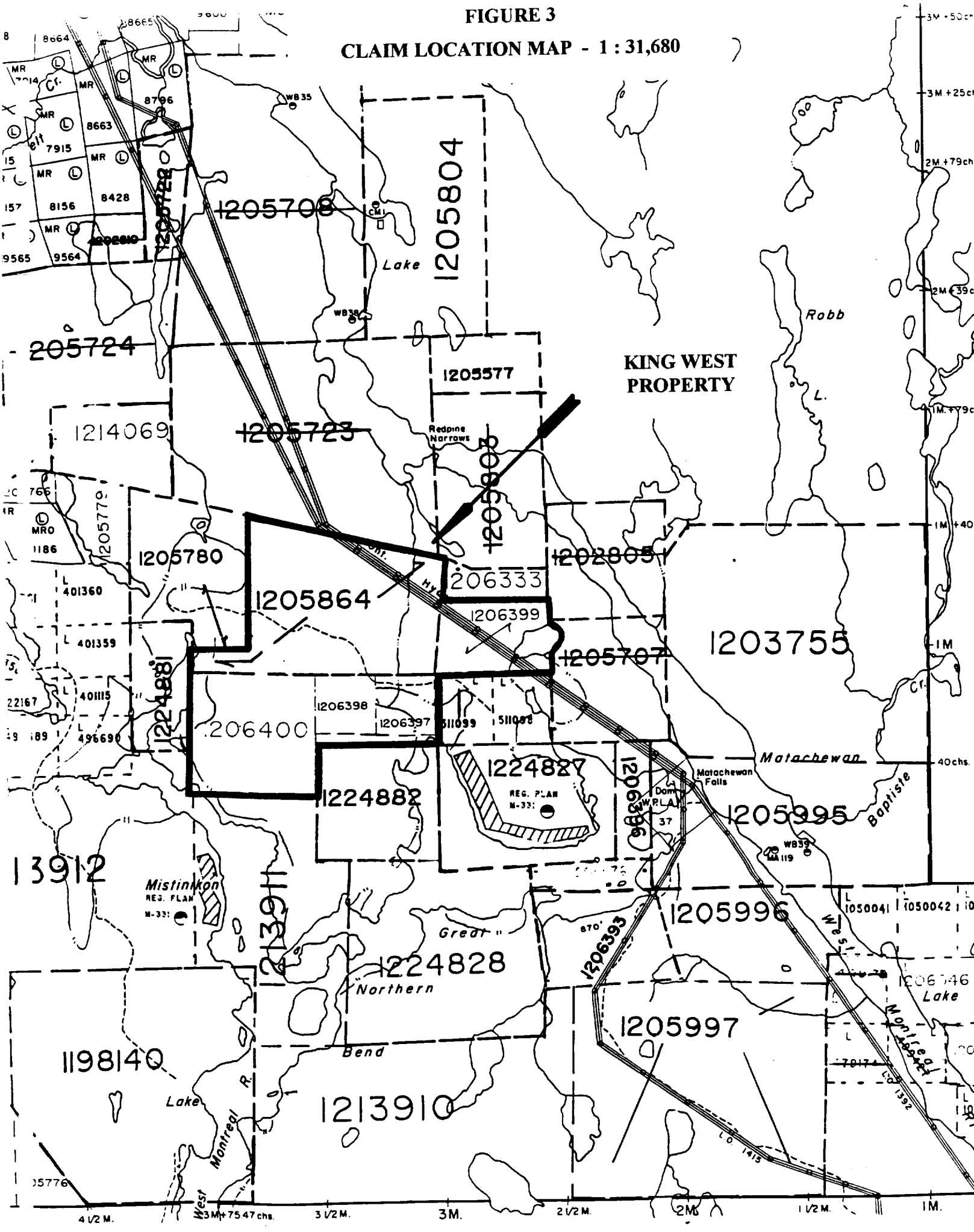


FIGURE 3

CLAIM LOCATION MAP - 1 : 31,680



Regional Geology

Mapping by Lovell (1967) shows the central portion of Baden township to be underlain by intermediate to mafic, Keewatin metavolcanics and pyroclastics which have been intruded by irregular felsic plugs of Algoman Age and younger, north-south trending, Matachewan diabase dikes (see **Figure 4 - Regional Geology Map**).

Table 2 - Geological Legend

Precambrian

Archean

Mafic Intrusive Rocks (Matachewan)

5	Diabase, undifferentiated

Silicic Intrusive Rocks (Algoman)

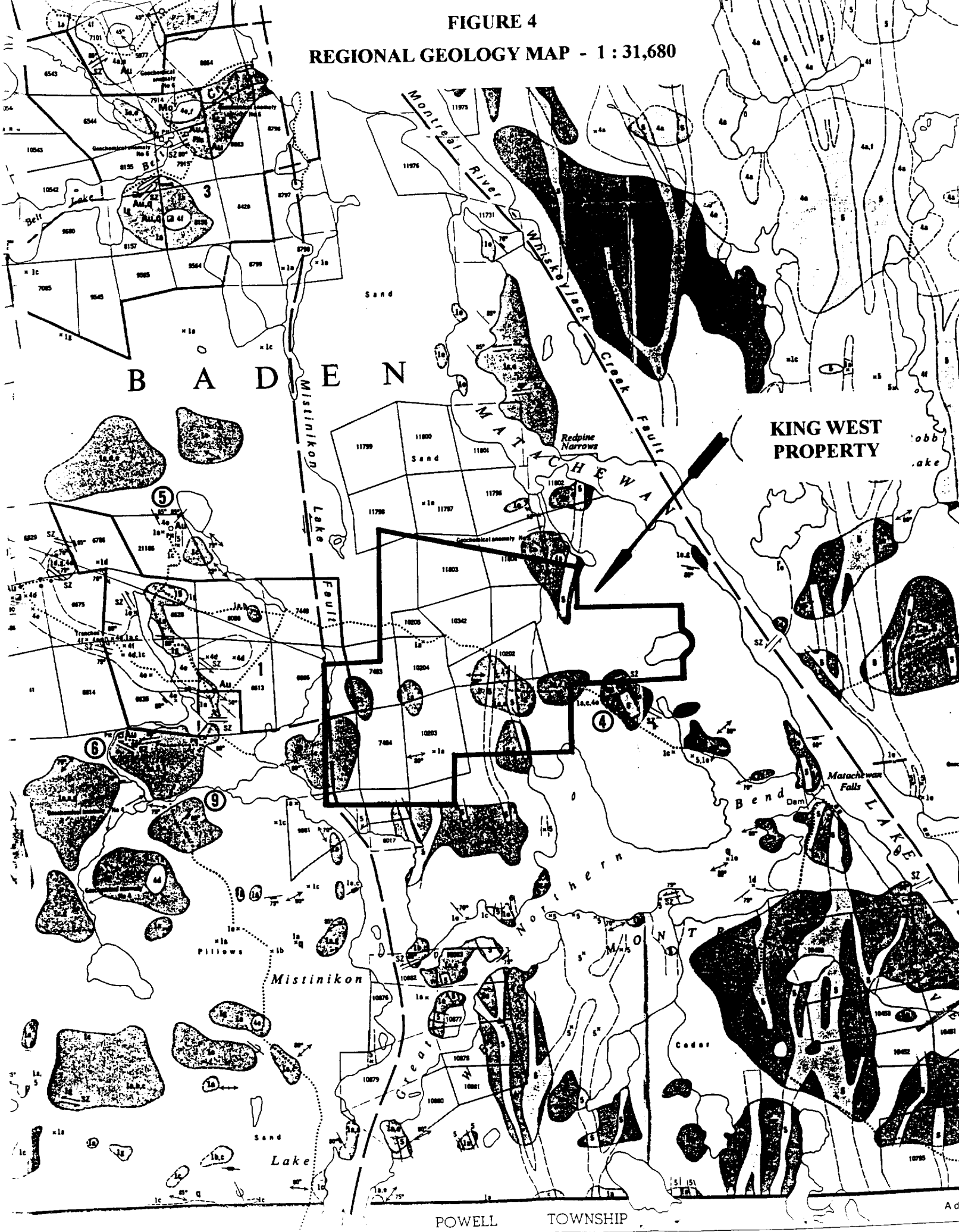
4a	Granite
4b	Granodiorite and granitic gneiss
4c	Syenite
4d	Mafic syenite and lamprophyre
4e	Syenite porphyry and coarse-grained syenite
4f	Quartz diorite and diorite

Volcanic Rocks (Keewatin)

1a	Basalt and andesite
1b	Bleached, silicified, sericitized volcanic rocks
1c	Andesite porphyry
1d	Tuff (banded, and massive types)
1e	Agglomerate
1f	Rhyolite and dacite
1g	Carbonatized and amygdaloidal rocks
1h	Amphibolite

FIGURE 4

REGIONAL GEOLOGY MAP - 1 : 31,680



Previous Work

A search of the MNDM's Assessment Files shows no record of any work having been filed on the two claims on which the current program was conducted. This is, in part, attributed to the fact that the land was closed to staking subject to Section 38f of the Mining act in 1978, effectively sterilizing the ground from exploration. This Land Caution remained in effect until April, 1995, when the current claim group was acquired.

The Property does, however, adjoin an old gold showing to the west. Lovell (1967) describes this M. King Property as follows:

> *This property is shown as property No. 4 on Map 2109 and is about a mile northwest of Matachewan Falls, on unsurveyed claim MR.33181. The Property was described by Dyer (1935, p. 47) under the name of Theodore Kallies. On it, a series of parallel shears across widths ranging from 30 to 50 feet extend for a length of more than 500 feet, and cut greenstones and syenite. The shears strike approximately N80°E and dip 80°S, and contain quartz stringers. The wallrock is greatly altered and contains pyrite. Near the east end of the 500-foot length of shear zone, a grab sample taken by the author gave an assay of 0.45 ounces of gold per ton, and others taken from dumps and bedrock, working westward along the shears, gave assays of 0.04, trace, trace, 0.36, 0.13, 0.05, nil, and nil ounces of gold per ton.*
>
> *Recent blasting at the west end of the shear zone has exposed a width of 15 feet of pink fine-grained syenite that has been intruded into the zone of strongest shearing. The syenite is sheared, sericitized, and chloritized, and contains a stockwork of quartz stringers. Fine-grained pyrite constitutes about 3 percent of the intermixed quartz stringers, syenite, and greenstones. Five representative samples taken by the author at approximately equal intervals across the 15-foot width of stockwork gave assays of 0.06, 0.39, trace, 0.17, and 0.11 ounces of gold per ton. In the opinion of the author, drilling should be planned to interest the shear zone below the stockwork of quartz stringers.*

Other operators conducted various programs on this neighboring property as reported in the Assessment Files listed in **Appendix I - References**.

Grid Cutting

A metric Grid was cut in March, 1997 covering the bulk of single-unit claims L-1206397-8 and the south east portion of claim L-1205864. It consisted of 1642 meters of east-west Baseline with eight cross lines (L9+00E to L16+00E) extending 500 meters north and approximately 125 meters south. Station pickets were established on 25m centers along the lines.

Magnetic Survey

A Total Field Magnetic Survey was completed on 5.4 line kilometers of Grid using a single, Scintrex Portable Proton Precession Magnetometer (see **Appendix V - Scintrex MP-2 Magnetometer Specifications**). A total of 207 readings were recorded at a station interval of 25 meters. The Survey was conducted by Yvon Gagne under the supervision of Jim Forbes on March 11th - 12th, 1997.

Control stations along the Baseline were recorded and corrected for diurnal drift using L9+00E / 0+00N as a base. Subsequently, the remainder of the Grid was surveyed in a looping fashion, with both the first and last reading of a loop being located at a control station. Each loop was closed within 45 minutes and adjustments were made to each reading taken along the loop to correct for diurnal drift.

The data, presented to the Author as diurnally corrected and accepted as accurate, was entered and preprocessed using a datum of 57,000 nT. It was then contoured and plotted at a scale of 1:2,000 with a 20 nT contour interval (see **Plan 1 - Total Field Magnetic Survey**).

The Magnetic Survey results indicate at least three, north-south striking linear magnetic highs with corresponding flanking lows or dipoles. They are interpreted to be diabase dikes which corresponds to previous, regional geological interpretation. The magnetic signature masks any other features which may be present. However, there are two prominent parallel features striking east-southeast across the Grid approximately 200 meters apart which appear to interrupt the north-south dikes, possibly offsetting a small amount.

The northeast corner of the Grid has a higher and broader magnetic susceptibility. While resolution is poor, it appears that this feature may be outlining a different geological unit as well as the north extension of a dike.

VLF-EM Survey

A single-frequency, VLF-EM Survey was also conducted over the entire Grid (205 readings) with a Geonics EM-16 (see **Appendix VI - Geonics EM-16 Specifications**). This data was collected by Jim Forbes on March 11th - 12th, 1997, using Cutler, Maine as the transmitting station.

Again, the data was received by the Author as correct, entered, pre-processed and plotted. The data was profiled at 1:2,000 and the fraser-filtered data was contoured at 1:2,000 (see **Plan 2 - Profiled VLF-EM Survey** and **Plan 3 - Filtered VLF-EM Survey**).

The VLF-EM Survey outlined 5 ground conductors and are described as follows:

Conductor A

This is a moderate conductor striking east-west from L10+00E / 2+12N to L14+00E / 2+25N. The strongest response is on L11+00E / 2+25N. For the most part, it appears to be just north of the termination or interruption of the diabase dike to the south and terminates on the west flank of the most easterly and strongest magnetic dike. The conductor has a close to normal sense quadrature response which may indicate a bedrock source.

Conductor B

This conductor strikes northwest from the west end of conductor A on L10+00E / 212N to L9+00E / 2+75N, open to the northwest. While the resolution is not good, it appears to have a normal sense quadrature response, having a possible bedrock source.

Conductor C

This conductor strikes southeast from L10+00E / 1+85N to L9+00E / 0+75N, open to the southwest. It has the same characteristics of and may be an extension of Conductor A.

Conductor D

This conductor strikes east-west from L13+00E / 0+40N to L16+00E / 0+75, open to the east. It has a normal quadrature response. The strongest response is on L13+00E / 0+40N which is in an area of lower magnetic susceptibility discussed above, interpreted to be a northwest structure, possibly a fault.

Conclusions & Recommendations

The magnetic data is rendered virtually useless as a result of the interpreted, north-south striking diabase dikes. The VLF-EM Survey outlined 4 conductors.

As there is no previous recorded work over the Grid, the first recommendation is that the Property be thoroughly prospected and grid-mapped. While the majority of the Property is overburden covered, township mapping by Lovell indicates moderate outcrop exposure over the present grided portion. Upon completion, the two Geophysical Surveys should be reinterpreted and correlated with the ascertained geology.

The prospecting and mapping should pay particular attention to identifying ground-truth on the aforereferenced VLF-EM conductors and the apparent, east-south east "breaks" in the magnetic data. These trends may be alteration zones (with attendant magnetite destruction) and/or a structural phenomena. The King gold property shears, immediately to the east, are hosted on this approximate trend.

As resources permit, the grid should be expanded to blanket the entire Property with a subsequent preliminary exploration phase of prospecting, mapping, and magnetic and VLF-EM surveys in an effort to delineate any further alterations, structures and syenites which are known in the area to host gold.

In light of the limited previous exploration work conducted directly on the Property, the resurgence in the area as a result of the lifting of the Land Caution, and the presumed overburden cover over the majority of the Property (and limited known geology), the proposed grid expansion and geophysics may identify additional exploration targets.

APPENDIX I

REFERENCES

Assessment Files (Kirkland Lake Resident Geologist Office)

- KL-0169 - August Porcupine Gold Mines Ltd
- KL-1334 - Kallies, T & Hughes, T
- KL-1423 - King, Henry
- KL-1573 - Larche, JP & Rousseau, A.
- KL-1858 - Mid-North Engineering Services Ltd
- KL-2411 - Ronda Copper Mines Ltd

Personal Communications

- R.J. Meikle (Rayan Exploration Ltd)

Reports

- ODM Report Vol 27 Pt 1 (Sec 8) - Matachewan Gold Area (1918)
- ODM Geological Report 51 - Geology of Matachewan Area (1967)

Maps and Plans

• ODM Map 27a - Matachewan Gold Area (1918)	1:47,520
• ODM Map 2109 - Geology of Baden & Alma Townships (1967)	1:31,680
• ODM Geological Compilation Series Map 2205 (1972)	1:253,440
• ODM P Map 1019 - Airborne Mag/EM (1975)	1:15,840
• ODM OFM 179 - Geology of Argyle & Baden Twps (1991)	1:20,000
• ODM P Map 195 - Baden Township (1963)	1:15,840
• ODM P Map 900 - Baden Township Data Sheet (1975)	1:15,840
• MNR Plan M-205 - Baden Claim Map (1995)	1:31,680
• MNR OBM 20 17 5100 53200 (1987)	1:20,000
• MNR OBM 20 17 5200 53200 (1987)	1:20,000
• MNR FRI Plan 17 5100 53200 (1995)	1:20,000
• MNR FRI Plan 17 5200 53200 (1995)	1:20,000
• EMR NTS Sheet 42 A/2 (1989)	1:50,000

APPENDIX II

CLAIM ABSTRACTS

LARDER LAKE
CLAIM ABSTRACT

Claim No: L 1206397
Status: Active

Due Date: 1997-APR-04	Recorded: 1995-APR-04
Work Required: 400	Staked: 1995-APR-04 07:23
Total Work: 0	Description of Claim:
Total Reserve: 0	BADEN (M-0205)
Present Work Assignment: 0	
Claim Bank: 0	Claim Units: 1
	Multiple Township: N

Claim Ownership

Percentage	Client#	Recorded Holder(s)
42.50	132578	FORBES JIM HAROLD
15.00	300793	MCCOMBE BARRY KEN
42.50	134329	GAGNE YVON MICHAEL

Type	Date	Dollars	Description	
STAKER	1995-APR-04		RECORDED BY FORBES ALAN JOSEPH (K22698)	R9580.00345
STAKER	1995-APR-04		FORBES ALAN JOSEPH (300983) RECORDS 42.50 % IN THE NAME OF GAGNE YVON MICHAEL (134329)	R9580.00346
STAKER	1995-APR-04		FORBES ALAN JOSEPH (300983) RECORDS 42.50 % IN THE NAME OF FORBES JIM HAROLD (132578)	R9580.00347
STAKER	1995-APR-04		FORBES ALAN JOSEPH (300983) RECORDS 15.00 % IN THE NAME OF MCCOMBE BARRY KEN (300793)	R9580.00348

Reservation :
01 400' surface rights reservation around all lakes and rivers
02 Sand and gravel reserved
03 Peat reserved
04 Other reservations under the Mining Act may apply

*** End of Abstract ***

Status of claim is based on information currently on record.

LARDER LAKE
CLAIM ABSTRACT

Claim No: L 1206398
Status: Active

Due Date: 1997-APR-04	Recorded: 1995-APR-04
Work Required: 400	Staked: 1995-APR-04 08:20
Total Work: 0	Description of Claim: BADEN (M-0205)
Total Reserve: 0	
Present Work Assignment: 0	
Claim Bank: 0	Claim Units: 1
	Multiple Township: N

Claim Ownership

Percentage	Client#	Recorded Holder(s)
15.00	300793	MCCOMBE BARRY KEN
42.50	132578	FORBES JIM HAROLD
42.50	134329	GAGNE YVON MICHAEL

Type	Date	Dollars	Description	
STAKER	1995-APR-04		RECORDED BY THOMPSON THOMAS LAWRENCE GEORGE (K22570)	R9580.00341
STAKER	1995-APR-04		THOMPSON THOMAS LAWRENCE GEORGE (300191) RECORDS 42.50 % IN THE NAME OF GAGNE YVON MICHAEL (134329)	R9580.00342
STAKER	1995-APR-04		THOMPSON THOMAS LAWRENCE GEORGE (300191) RECORDS 42.50 % IN THE NAME OF FORBES JIM HAROLD (132578)	R9580.00343
STAKER	1995-APR-04		THOMPSON THOMAS LAWRENCE GEORGE (300191) RECORDS 15.00 % IN THE NAME OF MCCOMBE BARRY KEN (300793)	R9580.00344

Reservation :

01	400' surface rights reservation around all lakes and rivers
02	Sand and gravel reserved
03	Peat reserved
04	Other reservations under the Mining Act may apply

*** End of Abstract ***

Status of claim is based on information currently on record.

LARDER LAKE
CLAIM ABSTRACT

Claim No: L 1205864
Status: Active

Due Date: 1997-APR-07	Recorded: 1995-APR-07
Work Required: 2800	Staked: 1995-APR-06 13:00
Total Work: 0	Description of Claim:
Total Reserve: 0	BADEN (M-0205)
Present Work Assignment: 0	
Claim Bank: 0	Claim Units: 7
	Multiple Township: N

Claim Ownership

Percentage	Client#	Recorded Holder(s)
15.00	300793	MCCOMBE BARRY KEN
42.50	132578	FORBES JIM HAROLD
42.50	134329	GAGNE YVON MICHAEL

Type	Date	Dollars	Description	
STAKER	1995-APR-07		RECORDED BY FORBES JIM HAROLD (K18275)	R9580.00445
STAKER	1995-APR-07		FORBES JIM HAROLD (132578) RECORDS 42.50 % IN THE NAME OF GAGNE YVON MICHAEL (134329)	R9580.00446
STAKER	1995-APR-07		FORBES JIM HAROLD (132578) RECORDS 15.00 % IN THE NAME OF MCCOMBE BARRY KEN (300793)	R9580.00447

Reservation :
01 400′ surface rights reservation around all lakes and rivers
02 Sand and gravel reserved
03 Peat reserved
04 Other reservations under the Mining Act may apply

*** End of Abstract ***

Status of claim is based on information currently on record.

LARDER LAKE
CLAIM ABSTRACT

Claim No: L 1206399
Status: Active

Due Date: 1997-APR-07	Recorded: 1995-APR-07
Work Required: 800	Staked: 1995-APR-06 11:55

Total Work:	0	Description of Claim:
Total Reserve:	0	BADEN (M-0205)
Present Work Assignment:	0	
Claim Bank:	0	Claim Units: 2
		Multiple Township: N

Claim Ownership

Percentage	Client#	Recorded Holder(s)
15.00	300793	MCCOMBE BARRY KEN
42.50	134329	GAGNE YVON MICHAEL
42.50	132578	FORBES JIM HAROLD

Type	Date	Dollars	Description	
STAKER	1995-APR-07		RECORDED BY MCCOMBE BARRY KEN (K22682)	R9580.00448
STAKER	1995-APR-07		MCCOMBE BARRY KEN (300793) RECORDS 42.50 % IN THE NAME OF GAGNE YVON MICHAEL (134329)	R9580.00449
STAKER	1995-APR-07		MCCOMBE BARRY KEN (300793) RECORDS 42.50 % IN THE NAME OF FORBES JIM HAROLD (132578)	R9580.00450

Reservation :

01	400' surface rights reservation around all lakes and rivers
02	Sand and gravel reserved
03	Peat reserved
04	Other reservations under the Mining Act may apply

*** End of Abstract ***

Status of claim is based on information currently on record.

LARDER LAKE
CLAIM ABSTRACT

Claim No: L 1206400
Status: Active

Due Date: 1997-APR-04	Recorded: 1995-APR-04
Work Required: 1600	Staked: 1995-APR-04 08:54
Total Work: 0	Description of Claim:
Total Reserve: 0	BADEN (M-0205)
Present Work Assignment: 0	
Claim Bank: 0	Claim Units: 4
	Multiple Township: N

Claim Ownership

Percentage	Client#	Recorded Holder(s)
42.50	132578	FORBES JIM HAROLD
15.00	300793	MCCOMBE BARRY KEN
42.50	134329	GAGNE YVON MICHAEL

Type	Date	Dollars	Description	
STAKER	1995-APR-04		RECORDED BY FORBES JIM HAROLD (K18275)	R9580.00338
STAKER	1995-APR-04		FORBES JIM HAROLD (132578) RECORDS 42.50 % IN THE NAME OF GAGNE YVON MICHAEL (134329)	R9580.00339
STAKER	1995-APR-04		FORBES JIM HAROLD (132578) RECORDS 15.00 % IN THE NAME OF MCCOMBE BARRY KEN (300793)	R9580.00340

Reservation :
01 400' surface rights reservation around all lakes and rivers
02 Sand and gravel reserved
03 Peat reserved
04 Other reservations under the Mining Act may apply

*** End of Abstract ***

Status of claim is based on information currently on record.

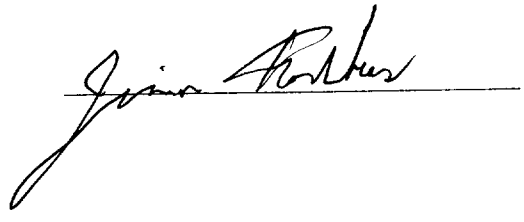
APPENDIX III

OPERATOR CERTIFICATE

I, Jim Harold Forbes, of Kirkland Lake, Ontario, do hereby state:

- I have been prospecting since 1969,
- I have held a valid Prospectors License continuously since 1974,
- I was trained as a geophysicist by Texas Gulf Mines in the 1970's and have conducted numerous geophysical surveys for other companies since this time,
- the Ontario Ministry of Northern Development & Mines has previously approved work submitted by me,
- I personally conducted the VLF-EM Survey, and
- I was present and assisted/supervised Yvon Gagne with the Magnetic Survey.

Dated at Kirkland Lake, Ontario, this 4th day of April, 1997,



APPENDIX IV

AUTHOR CERTIFICATE

With reference to the Geophysical Report authored in my name and dated April 04th, 1997 on the Magnetic and VLF-EM Surveys conducted on the King West Property, Baden Township;

I, Joseph D. Horne, do hereby affirm:

1. I have been employed in various exploration/geological capacities with numerous exploration and consulting companies since my formal training at Haileybury School of Mines, Haileybury, Ontario (1982-85),

2. I am president of Cardinal Exploration Services (a Division of JD Horne & Associates Ltd) with Business Office located at Suite #3 - 12 Government Road West, Kirkland Lake, Ontario, Canada,

3. I have no interest, direct or indirect, in the Property described in this Report nor do I expect to receive any, and

4. This Report is based on public information available from MNDM Assessment Files, data presented to me as properly collected and accurate, and professional communications pertaining to the data's interpretation,

Respectfully submitted,

Joseph D. Horne
April 04th, 1997
Kirkland Lake, Ontario

APPENDIX V

SCINTREX MP-2 MAGNETOMETER SPECIFICATIONS

SCINTREX MP-2 Portable Proton Precession Magnetometer

Function

The MP-2 is a portable one gamma proton precession magnetometer for field survey or base station use. The optimized design of sensor and circuitry using the latest COS/MOS components has resulted in a very light weight, low power consumption, rugged and reliable magnetometer.

Light emitting diodes coupled with an ingenious optically polarized reflector combine solid state reliability with easy reading even in bright sunlight.

Coupled with a module into which the MP-2 is easily inserted, the magnetometer can be used as a base station unit for analogue or digital recording. Full details of the MBS-2 Magnetic Base Station are available on another Scintrex specification sheet.

The noise-cancelling dual-coil sensor and electronics have been so designed as to effectively eliminate reading problems due to virtually all magnetic gradients which may be encountered in field survey conditions.

Features

1 gamma sensitivity and accuracy over range of 20,000 to 100,000 gammas.

Operates in very high gradients, to 5000 gammas per meter.

Ultra small size and weight.

Up to 25,000 readings from only 8 D cells.

Battery pack isolated from electronics for corrosion protection.

Battery pack easily extended for winter use.

Light emitting diode digital display, with complete test feature.

Unique no-glare polarized reflector permits easy reading in bright sunlight.

Indicator light warning of excessive gradient, ambient noise or electronic failure.

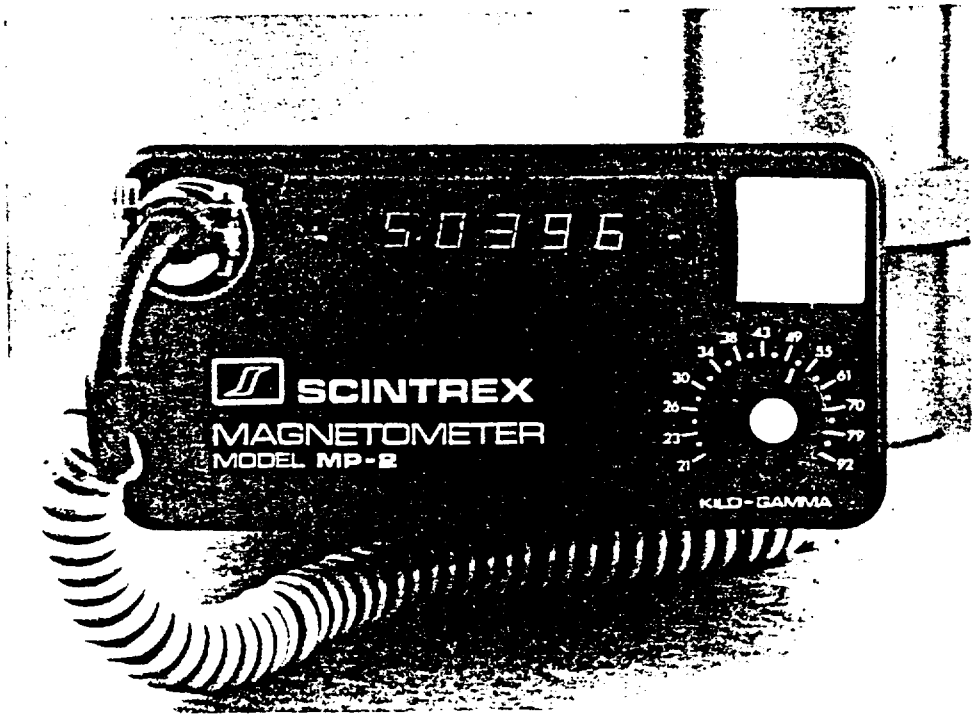
Digital readout of battery voltage.

Rugged all metal housing for rough field use at all temperatures.

Automatic recycling or external trigger features permit ready conversion to base station use.

Short reading time.

Broad operating temperature range.



MP-2 Console

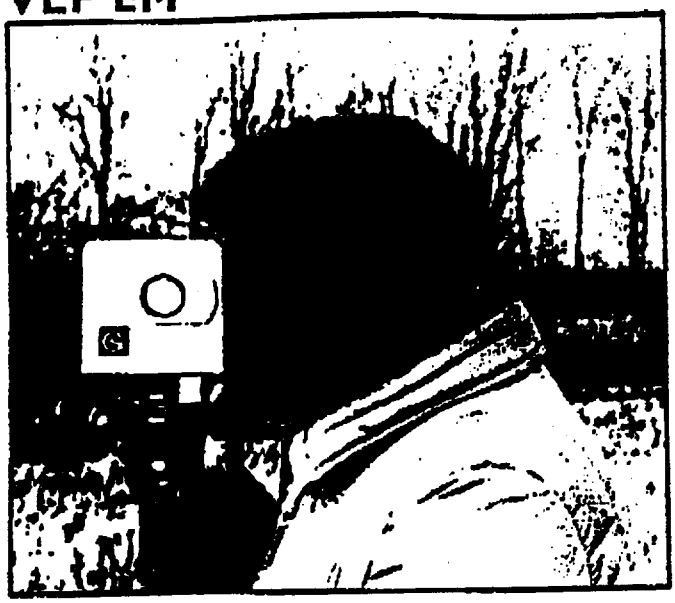
MP-2 in Operation with Staff Sensor

APPENDIX VI

GEONICS EM-16 SPECIFICATIONS

VLF (PLANE WAVE) EM INSTRUMENTS

VLF EM



EM16

One of the most popular and widely used electromagnetic instruments, the EM16 VLF receiver makes the ideal reconnaissance EM. This can be attributed to its field reliability, operational simplicity, compactness and mutual compatibility with other reconnaissance instruments such as portable magnetometers and radiometric detectors.

The VLF method of EM surveying, pioneered by Geonics, has proven to be a simple economical means of mapping geological structure and fault tracing. The applications are many and varied, ranging from direct detection of massive sulphide conductors to the indirect detection of precious metals and radioactive deposits.

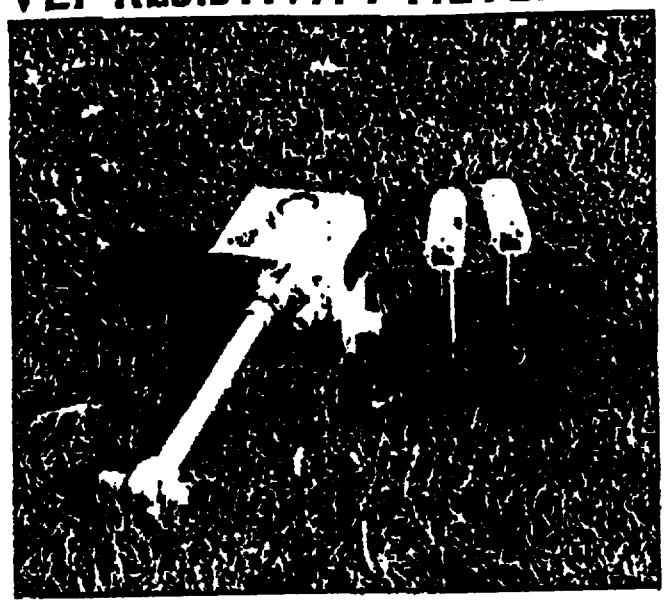
FEATURES

- The EM16 is the only VLF instrument that measures the quad-phase as well as the in-phase secondary field. This has the advantage of providing an additional piece of data for a more comprehensive interpretation and also allows a more accurate determination of the tilt angle.
- The secondary fields are measured as a ratio to the primary field making the measurement independent of absolute field strength.
- The EM16 is the only VLF receiver that can be adapted to measure VLF resistivity.

Specifications

MEASURED QUANTITY	In-phase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field. (i.e. tangent of the tilt angle and ellipticity)
SENSITIVITY	In-phase : ±150% Quad-phase : ± 40%
RESOLUTION	±1%
OUTPUT	Nulling by audio tone. In-phase indication from mechanical inclinometer and quad-phase from a graduated dial.
OPERATING FREQUENCY	15-25 kHz VLF Radio Band. Station selection done by means of plug-in units.
OPERATOR CONTROLS	On/Off switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.
POWER SUPPLY	6 disposable 'AA' cells
DIMENSIONS	42 x 14 x 9 cm
WEIGHT	Instrument: 1.8 kg Shipping : 5.5 kg

VLF RESISTIVITY METER



EM16/16R

The EM16R is a simple, button on attachment to the EM16 converting it to a direct reading terrain resistivity meter. The EM16R interfaces a pair of potential electrodes to the EM16 enabling the measurement of the ratio of, and the phase angle between, the horizontal electric and magnetic fields of the plane wave propagated by distant VLF radio transmitters.

The EM16R is direct reading in ohm-meters of apparent ground resistivity. If the phase angle is 45°, the resistivity reading is the true value and the earth is uniform to the depth of exploration (i.e. a skin depth). Any departure from 45° of phase indicates a layered earth. Two layer interpretation curves are supplied with each instrument to permit an interpretation based on a two layer earth model.

This highly portable resistivity meter makes an ideal tool for quick geological mapping and has been used successfully for a variety of applications.

- Detection of massive and disseminated sulphide deposits
- Overburden conductivity and thickness measurements
- Permafrost mapping
- Detection and delineation of industrial mineral deposits
- Aquifer mapping

Specifications EM16R ATTACHMENT

MEASURED QUANTITY	• Apparent Resistivity of the ground in ohm-meters • Phase angle between E_x and H_y in degrees
RESISTIVITY RANGES	• 10 — 300 ohm-meters • 100 — 3000 ohm-meters • 1000 — 30000 ohm-meters
PHASE RANGE	0-90 degrees
RESOLUTION	• Resistivity : ±2% full scale • Phase : ±0.5°
OUTPUT	Null by audio tone. Resistivity and phase angle read from graduated dials.
OPERATING FREQUENCY	15-25 kHz VLF Radio Band. Station selection by means of rotary switch.
INTERPROBE SPACING	10 meters
PROBE INPUT IMPEDANCE	100 MΩ in parallel with 0.5 picofarads
DIMENSIONS	19 x 11.5 x 10 cm. (attached to side of EM16)
WEIGHT	1.5 kg (including probes and cable)

Ontario

Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use)
W9780.00261
Assessment Files Research Imaging

Personal information cc
Mining Act, the informat
Questions about this
933 Ramsey Lake Roa

42A02SE0046 2.17255 BADEN

900 **2.17255**

6(3) of the Mining Act. Under section 8 of the
rk and correspond with the mining land holder.
orthern Development and Mines, 6th Floor,

Instructions: - For work performed on Crown Lands before **recording** a claim, use form 0240.
- Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary)

Name	Client Number
SEE ATTACHED SHEET	
Address	Telephone Number
	Fax Number
Name	Client Number
Address	Telephone Number
	Fax Number

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

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☑ Geotechnical: prospecting, surveys, assays and work under section 18 (regs)
☐ Physical: drilling, stripping, trenching and associated assays
☐ Rehabilitation

Work Type	Office Use
GRID CUTTING MAGNETIC SURVEY (MAG) VLF-EM SURVEY (VLF-EM)	Commodity
	Total $ Value of Work Claimed
Dates Work Performed From 21 (Day) 02 (Month) 97 (Year) To 14 (Day) 03 (Month) 97 (Year)	NTS Reference
Global Positioning System Data (if available) — Township/Area: BADEN TWP.	Mining Division
M or G-Plan Number: M-205	Resident Geologist District

Please remember to: - obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name	Telephone Number
CARDINAL EXPLORATION SERVICES	705 567 4511
Address	Fax Number
SUITE 3 - 12 GOVT RD W., KIRKLAND LAKE, ON	705 567 4522
Name	Telephone Number
RAYAN EXPLORATION LTD.	705 268 4866
Address	Fax Number
SUITE 22, HOLLINGER BLDG, TIMMINS, ON	705 267 7107
Name	Telephone Number
JIM FORBES	
Address	Fax Number
APT #5 - 49 GOVT RD. W., KIRKLAND LAKE, ON	

4. Certification by Recorded Holder or Agent

I, YVON GAGNE (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent	Date
Yvon Gagne	APRIL 04 97
Agent's Address	Telephone Number / Fax Number
	567 - 5597

0241 (02/96)

Deemed — July 03 / 97

5. Work to be recorded and distributed. Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous link must accompany this form. W9780 00261

	Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.	Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date.
eg	TB 7827	16 ha	$26, 825	N/A	$24,000	$2,825
eg	1234567	12	0	$24,000	0	0
eg	1234568	2	$ 8, 892	$ 4,000	0	$4,892
1	1206397	1	2,207.00	400	1,607.00	207.00
2	1206398	1	2,000.00	400	1,600.00	
3	1205864	7	2,000.00	2,800		
4	1206399	2		800		
5	1206400	4		1,600		
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
		Column Totals	6,207.00	6,000.00		207.00

2.12255

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I, Yvon Gagné (Print Full Name), do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recorded Holder or Agent Authorized in Writing: Yvon Gagné — Date: April 04/97

6. Instructions for cutting back credits that are not approved.

Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- ☑ 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- ☐ 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- ☐ 3. Credits are to be cut back equally over all claims listed in this declaration; or
- ☐ 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

1206400

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only
Received Stamp

RECEIVED
'97 APR 4 PM 2 19
MINING DIVISION
TIMMINS, ONTARIO

Deemed Approved Date: July 3/97 — Date Notification Sent:
Date Approved: July 3/97 — Total Value of Credit Approved:
Approved for Recording by Mining Recorder (Signature): Acting — Linda Lamontagne

0241 (02/96)

Ontario Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use): W9780.0026

2.17255

Personal information collected on this form is obtained under the authority of subsection 6(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of Work Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
GRID CUTTING	24 MANDAYS	150.00/DAY	3,600.00
MAGNETIC SURVEY	2 "	150.00/DAY	300.00
VLF-EM SURVEY	2 "	150.00/DAY	300.00
Associated Costs (e.g. supplies, mobilization and demobilization).			
EM-16 RENTAL			50.00
MAGNETOMETER ~~SURVEY~~ RENTAL			40.00
MISC			106.63
REPORT ($ PLOTTING)			267.15
Transportation Costs			
TRUCK - 3,360 Km		0.30/Km	1,008.00
SKIDOO RENTAL - 8 DAYS		50.00/DAY	400.00
Food and Lodging Costs			
27 MANDAYS - MEALS			135.00
		Total Value of Assessment Work	$6,206.78

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APR 8 1997
MINING LANDS BRANCH

Calculations of Filing Discounts:

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK × 0.50 = Total $ value of worked claimed.

Note:
- Work older than 5 years is not eligible for credit.
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

Certification verifying costs:

I, YVON GAGNE (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as RECORDED HOLDER (IN PART) (recorded holder, agent, or state company position with signing authority) I am authorized to make this certification.

Signature	Date
Yvon Gagne	APRIL 04/97

0212 (02/96)

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9846
Fax: (705) 670-5863

August 6, 1997

YVON MICHAEL GAGNE
31 Balsam Ave.
Kirkland Lake, Ontario
P2N-1W7

Dear Sir or Madam:

Submission Number: 2.17255

Subject: Transaction Number(s):	**Status**
W9780.00261	Approval After Notice

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Bruce Gates by e-mail at gates_b@torv05.ndm.gov.on.ca or by telephone at (705) 670-5856.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 11151

Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.17255

Date Correspondence Sent: August 06, 1997 **Assessor:** Bruce Gates

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9780.00261	1206397	BADEN	Approval After Notice	July 31, 1997

Section:
14 Geophysical MAG
14 Geophysical VLF

The 45 days outlined in the Notice dated June 16, 1997 have passed.

Assessment work credit has been approved as outlined on the attached Distribution of Assessment Work Credit sheet.

Correspondence to:
Resident Geologist
Kirkland Lake, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):
YVON MICHAEL GAGNE
Kirkland Lake, Ontario

JIM HAROLD FORBES
KIRKLAND LAKE, Ontario

Distribution of Assessment Work Credit

The following credit distribution reflects the value of assessment work performed on the mining land(s).

Date: August 06, 1997

Submission Number: 2.17255

Transaction Number: W9780.00261

Claim Number	Value Of Work Performed
1206397	1,013.00
1206398	1,013.00
1205864	1,246.00
Total: $	3,272.00

Correspondence ID: 11151

Declaration of Recorded Holders
Claims L-1206397, L-1206398 & L-1205864

2.17255

42.5% GAGNE, Yvon - Client # 134329
31 Balsam Ave, Kirkland Lake, ON
P2N 1W7

42.5% FORBES, Jim - Client # 132578
Apt #5 - 49 Government Road West, Kirkland Lake, ON
P2N 2E3

15.0% McCOMBE, Barry - Client # 300793
84 McKelvie Ave, Kirkland Lake, ON
P2N 2K8

Robertson Twp. M.310

Shebo Twp. M.385

Argyle Twp. M.203

Alma Twp. M.202

MATACHEWAN INDIAN RESERVE No. 72

Powell Twp. M.241

2.17255 MNG VLF.

THE TOWNSHIP OF

BADEN

DISTRICT OF TIMISKAMING

2.17255

LARDER LAKE MINING DIVISION

SCALE: 1-INCH — 40 CHAINS

LEGEND

PATENTED LAND	● or (P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	C.
CANCELLED	
PATENTED S.R.O.	

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

Flooding rights to contour elevation 870 to Ont. Hydro ,L.O. 7601 File : 12290 v.2

~~(R1) Surface and Mining Rights Withdrawn from Staking, section 36/80 order No W 65/83~~

(R1) MINING & SURFACE RIGHTS REOPENED TO PROSPECTING, SALE OR LEASE. ORDER #0-L-10/95, PREVIOUSLY WITHDRAWN UNDER ORDER #W 65/83.

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, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

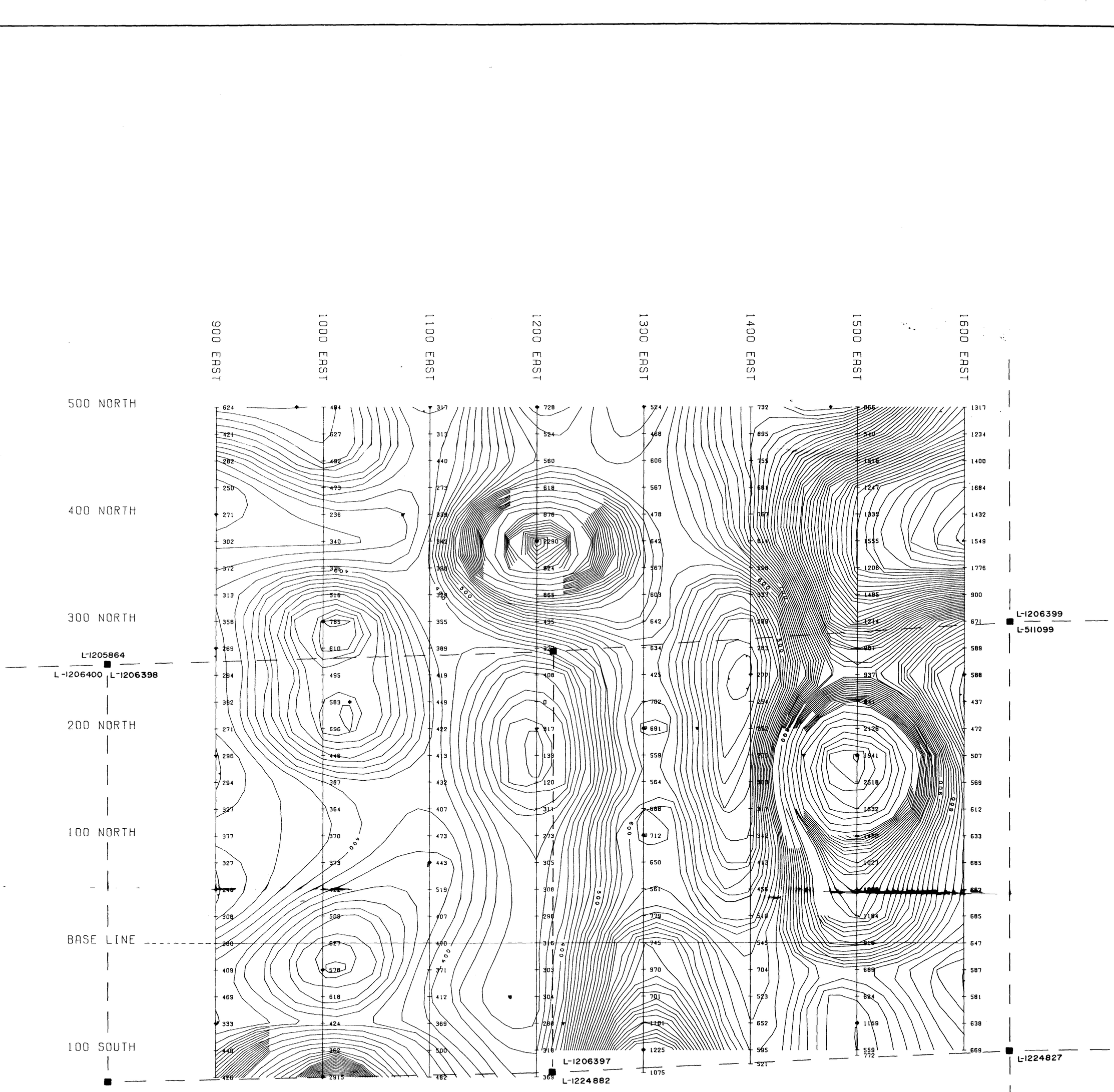
PLAN NO. M.205

ONTARIO

MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH

CIRCULATED JAN. 30, 1995



LEGEND

INSTRUMENT: SCINTREX MP-2. PROTON PRECESSION MAGNETOMETER

PARAMETERS MEASURED: EARTH'S TOTAL MAGNETIC FIELD (NANO-TESLAS)

READING INTERVAL: 25 METERS

CONTOUR INTERVAL: 20 NANO-TESLAS

DATUM SUBTRACTED FROM ALL PLOTTED READINGS: 57000 nT

200 100 0 50 100 150 200

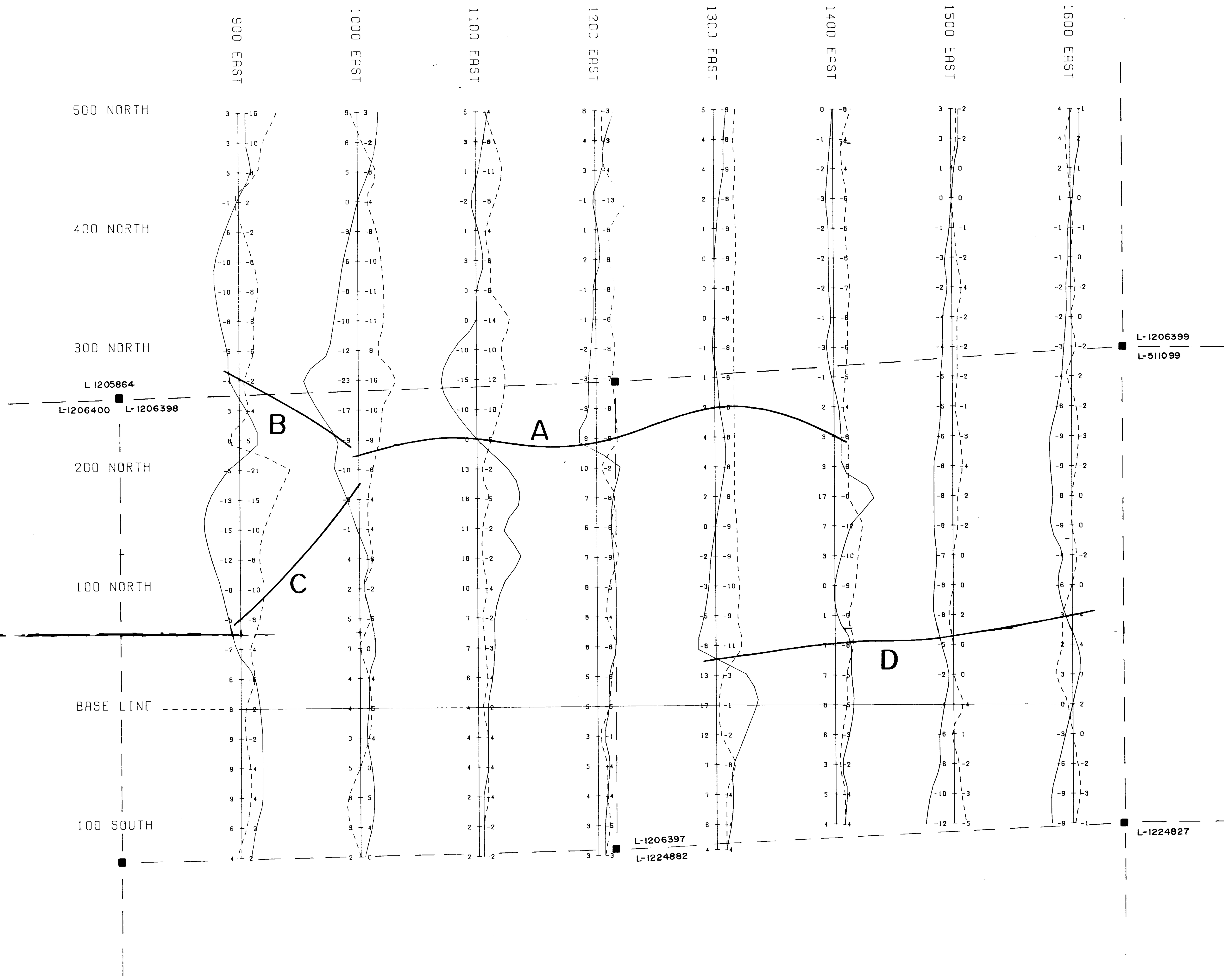
Client: CARDINAL EXPLORATION SERVICES

Property: KING WEST PROPERTY

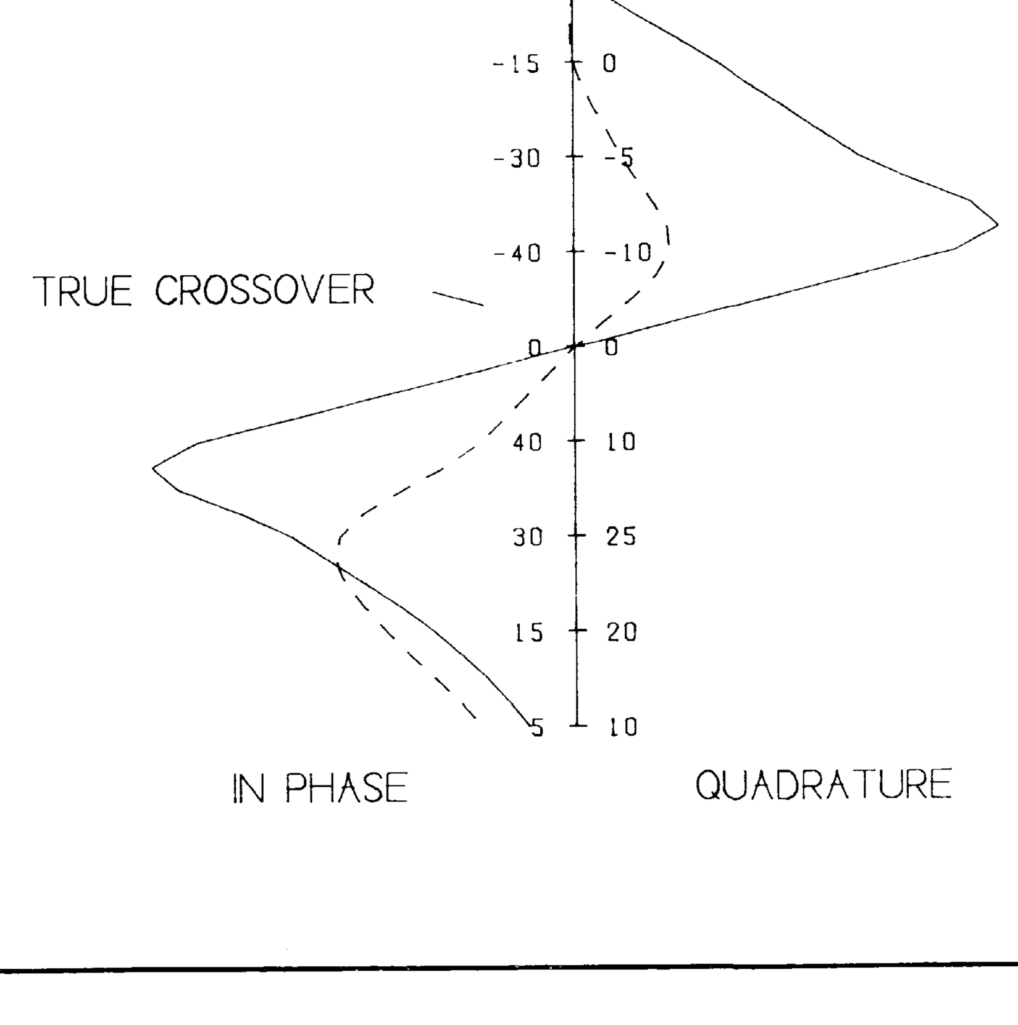
210

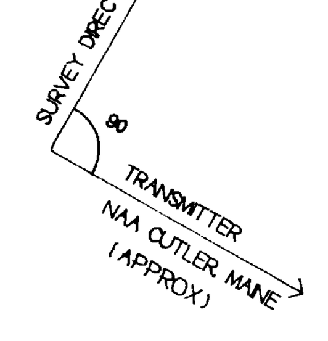
Title: TOTAL FIELD MAGNETIC SURVEY

Processed: R.J. MEIKLE	Checked: RJM
Date: MARCH/97	Township: BADEN TWP.
Province: ONTARIO	N.T.S.:
Scale: 1:2000	Drawing: KWMAG



PROFILE SCALE: 1cm = 10%





LEGEND

INSTRUMENT: GEONICS EM-16

PARAMETERS MEASURED: IN-PHASE AND QUADRATURE

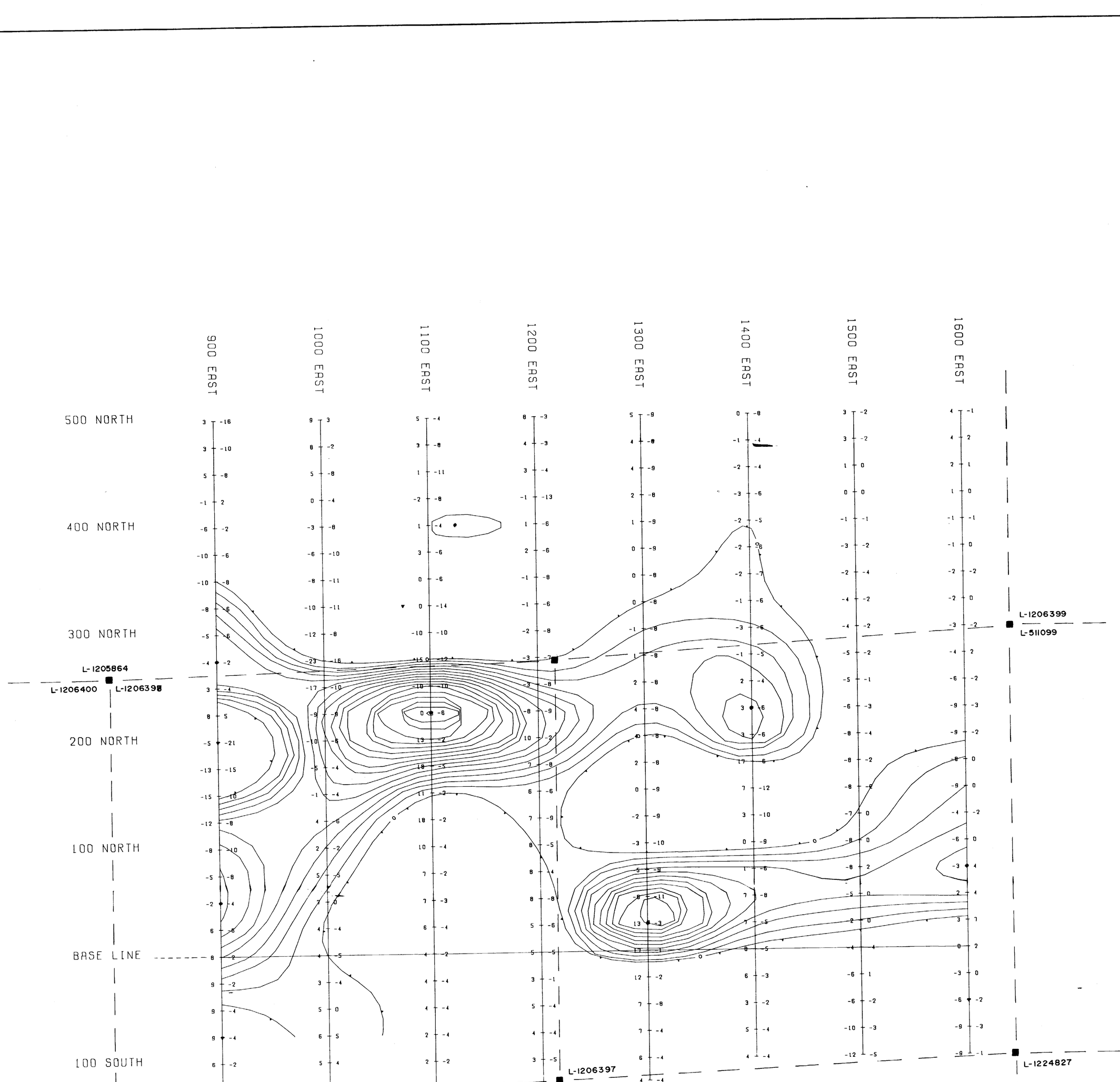
READING INTERVAL: 25M

ALL READINGS TAKEN FACING APPROX. NORTH

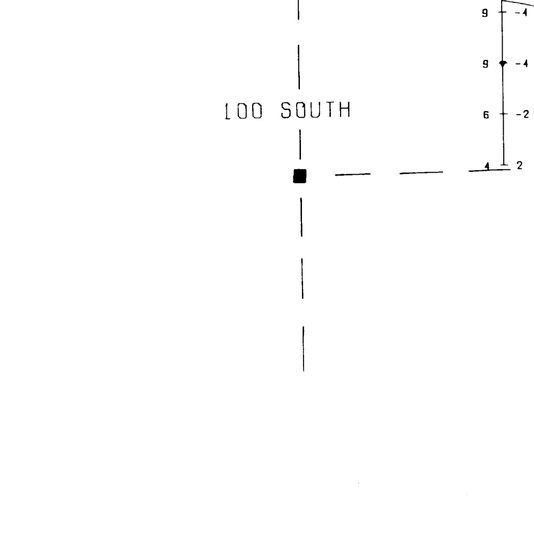
STATION: CUTLER MAINE NAA-24.Ø KHZ.

2ØØ 1ØØ Ø 5Ø 1ØØ 15Ø 2ØØ

Client: CARDINAL EXPLORATION SERVICES	
Property: KING WEST PROPERTY	
Title: PROFILED I.P./O.P. VLF-EM SURVEY	
Processed: R.J. MEIKLE	Checked: RJM
Date: MARCH/97	Township: BADEN TWP.
Province: ONTARIO	N.T.S.:
Scale: 1:2000	Drawing: KWVLFPROF ②



PROFILE SCALE: 1cm = 10%



LEGEND

INSTRUMENT: GEONICS EM-16

PARAMETERS MEASURED: IN-PHASE AND QUADRATURE

READING INTERVAL: 25M

ALL READINGS TAKEN FACING APPROX. NORTH

STATION: CUTLER MAINE NAA-24.0 KHZ.

CONTOUR INTERVAL: 2 units. FILTERED I.P. VALUES

200 100 0 50 100 150 200

Client: CARDINAL EXPLORATION SERVICES

Property: KING WEST PROPERTY

230

Title: FILTERED VLF-EM SURVEY

Processed: R.J. MEIKLE	Checked: RJM
Date: MARCH/97	Township: BADEN TWP.
Province: ONTARIO	N.T.S.:
Scale: 1:2000	Drawing: KWFFVLF ③