



52E086E0004 2.9110 PHILLIPS

010

509-0025 121 Richmond Street West, Toronto, Canada, M5H 2K1, Telephone (416) 869-0010

REPORT ON AN
AIRBORNE MAGNETIC AND VLF-EM SURVEY
PHILLIPS TOWNSHIP
KENORA MINING DIVISION, ONTARIO

for
DOMINION EXPLORERS INC.

RECEIVED

MAY 13 1986

MINING LANDS SECTION

by

TERRAQUEST LTD.
Toronto, Canada

May 13, 1986

TERRAQUEST LTD.





52E08SE0004 2.9110 PHILLIPS

010C

TABLE OF CONTENTS

	Page
1. INTRODUCTION	1
2. THE PROPERTY	1
3. GEOLOGY	2
4. SURVEY SPECIFICATIONS	2
4.1 Instruments	2
4.2 Lines and Data	3
4.3 Tolerances	3
4.4 Photomosaics	3
5. DATA PROCESSING	3
6. INTERPRETATION	4
6.1 General Approach	4
7. SUMMARY	5

LIST OF FIGURES

- Fig. 1 - General Location Map
- Fig. 2 - Survey Area Map
- Fig. 3 - Sample Record

LIST OF MAPS IN JACKET

- No. A-606-1, Total Magnetic Field
- No. A-606-2, Vertical Magnetic Gradient
- No. A-606-3, VLF-EM Survey

1. INTRODUCTION

This report describes the specifications and results of a geophysical survey carried out for Dominion Explorers Inc. of 916-111 Richmond Street West, Toronto, Ontario by Terraquest Ltd., 905 - 121 Richmond St. W., Toronto, Canada. The field work was performed on February 27, 1986 and the data processing, interpretation and reporting from February 28, 1986 to May 13, 1986.

The purpose of a survey of this type is two-fold. One is to prospect directly for anomalously conductive and magnetic areas in the earth's crust which may be caused by, or at least related to, mineral deposits. A second is to use the magnetic and conductivity patterns derived from the survey results to assist in mapping geology, and to indicate the presence of faults, shear zones, folding, alteration zones and other structures potentially favourable to the presence of gold and base-metal concentration. To achieve this purpose the survey area was systematically traversed by an aircraft carrying geophysical instruments along parallel flight lines spaced at even intervals, 100 meters above the terrain surface, and aligned so as to intersect the regional geology in a way to provide the optimum contour patterns of geophysical data.

2. THE PROPERTY

The property is located in Phillips township, in the Kenora Mining Division of Ontario about 20 kilometers south of the town of Sioux Narrows. The property lies in the centre of the township and can be reached by Highway #71 which crosses the property.

The latitude and longitude are 49 degrees 15 min., and 94 degrees 01 min. respectively, and the N.T.S. references are 52E/1, 52E/8, 52F/4 and 52F/5.

The claim numbers are are shown in figure 2 and listed below:

K 670131-670139	(9)
K 751067	(1)
K 777348-777362	(15)
K 810631-810632	(2)
K 819324-819351.	(28)
.....total	55 claims

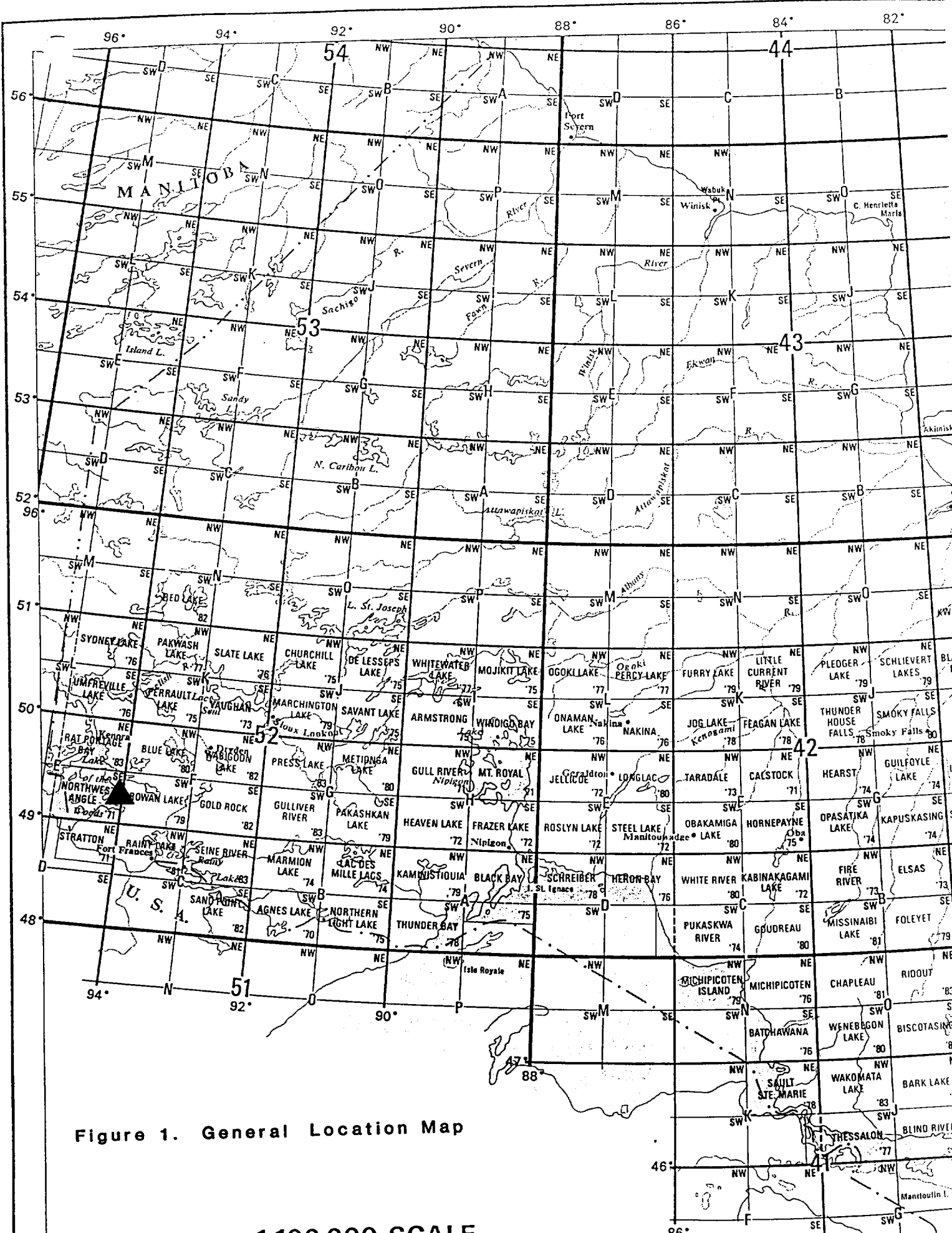


Figure 1. General Location Map

1:100 000 SCALE

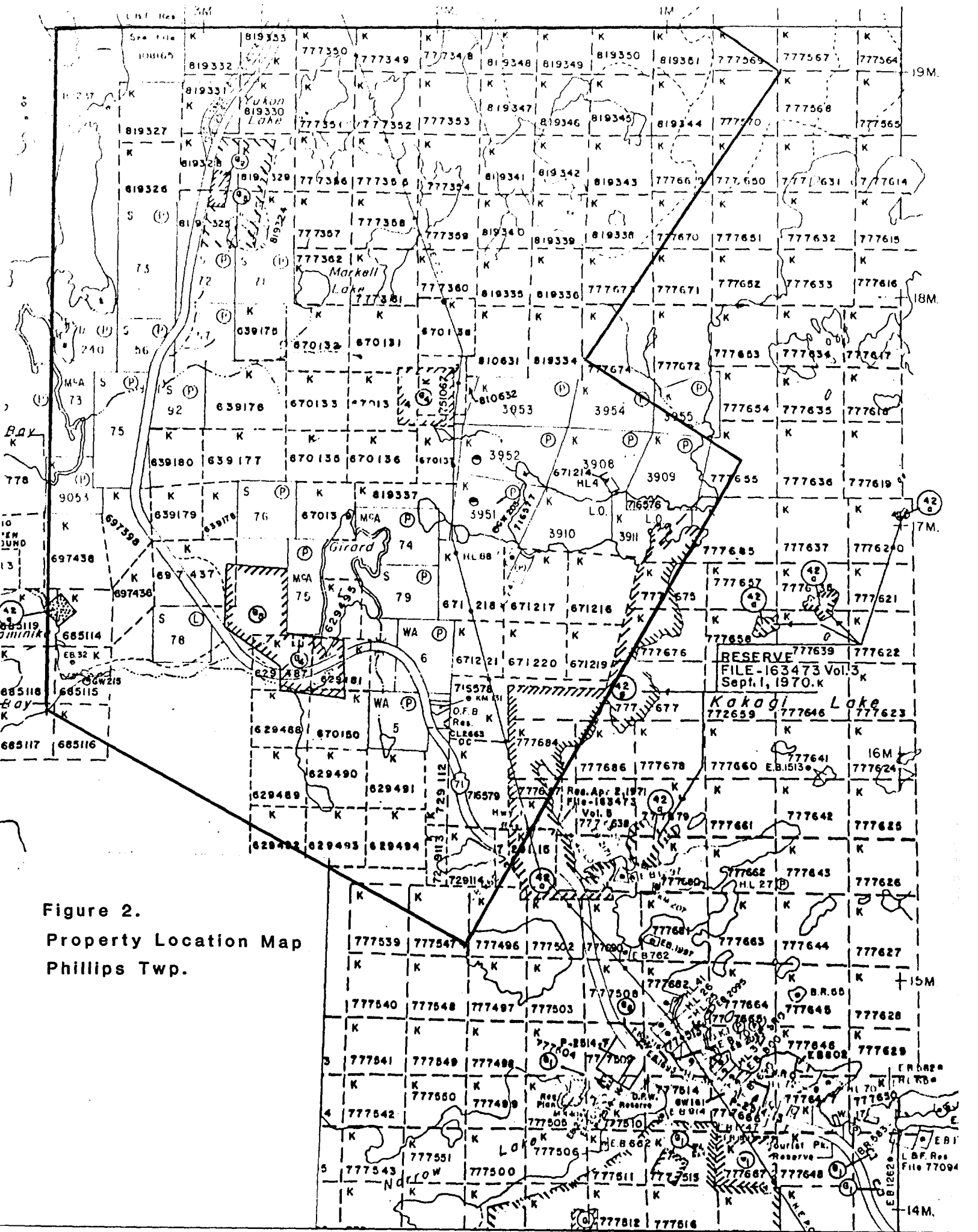


Figure 2.
Property Location Map
Phillips Twp.

3. GEOLOGY

Map References

1. Map 52c: Whitefish Bay Area. scale 1:63,360, O.D.M. 1943
2. Map 2447: Kakagi Lake. scale 1:31,680, O.G.S. 1981

The survey area is underlain by north trending mafic to intermediate volcanics with pods of gabbroic intrusives and minor feldspar and quartz-feldspar porphyrys. Diabase dykes trend to the northwest. Faults and lineaments trend to the northeast and northwest.

Granitic plutons occur to the west and southwest. Felsic to intermediate volcanics parallel the mafic volcanics to the east and southeast.

The area has received considerable past exploration; five shafts have been put down in the area.

4. SURVEY SPECIFICATIONS

4.1 Instruments

The survey was carried out using a Cessna 206 aircraft, registration C-GGLS, which carries a magnetometer and a VLF electromagnetic detector.

The magnetometer is a high sensitivity airborne proton (Overhauser) type with the sensor element mounted in a towed bird at an elevation of 15 metres below the aircraft. It's specifications are as follows:

Resolution:	0.01 gamma
Accuracy:	0.03 gamma for 2 readings per second
Cycle time:	0.5 second
Range:	20000-100000 gammas
Gradient tolerance:	Up to 5000 gammas per meter
Model:	GSM-11
Manufacturer:	GEM Systems Inc., 105 Scarsdale Rd., Don Mills, Ontario, M3B 2R5

The VLF-EM unit uses three orthogonal detector coils to measure (a) the total field strength of the time-varying EM field and (b) the phase relationship between the vertical coil and both the "along line" coil (LINE) and the "cross-line" coil (ORTHO). The LINE coil is tuned to a transmitter station that is ideally positioned at right angles to the flight lines, while the ORTHO coil transmitter should be in line with the flight lines. It's specifications are:

Accuracy:	1%
Reading interval:	1/2 second
Model:	TOTEM 2A
Manufacturer:	Herz Industries, Toronto

TERRAQUEST
 GTE 09 01 35 TH 12 29 28 BY: M.M.
 ACFT C-FAKK FH 8437 FLTN 651

PRG. VER. 280184-GRAD.
 SURALT 100M

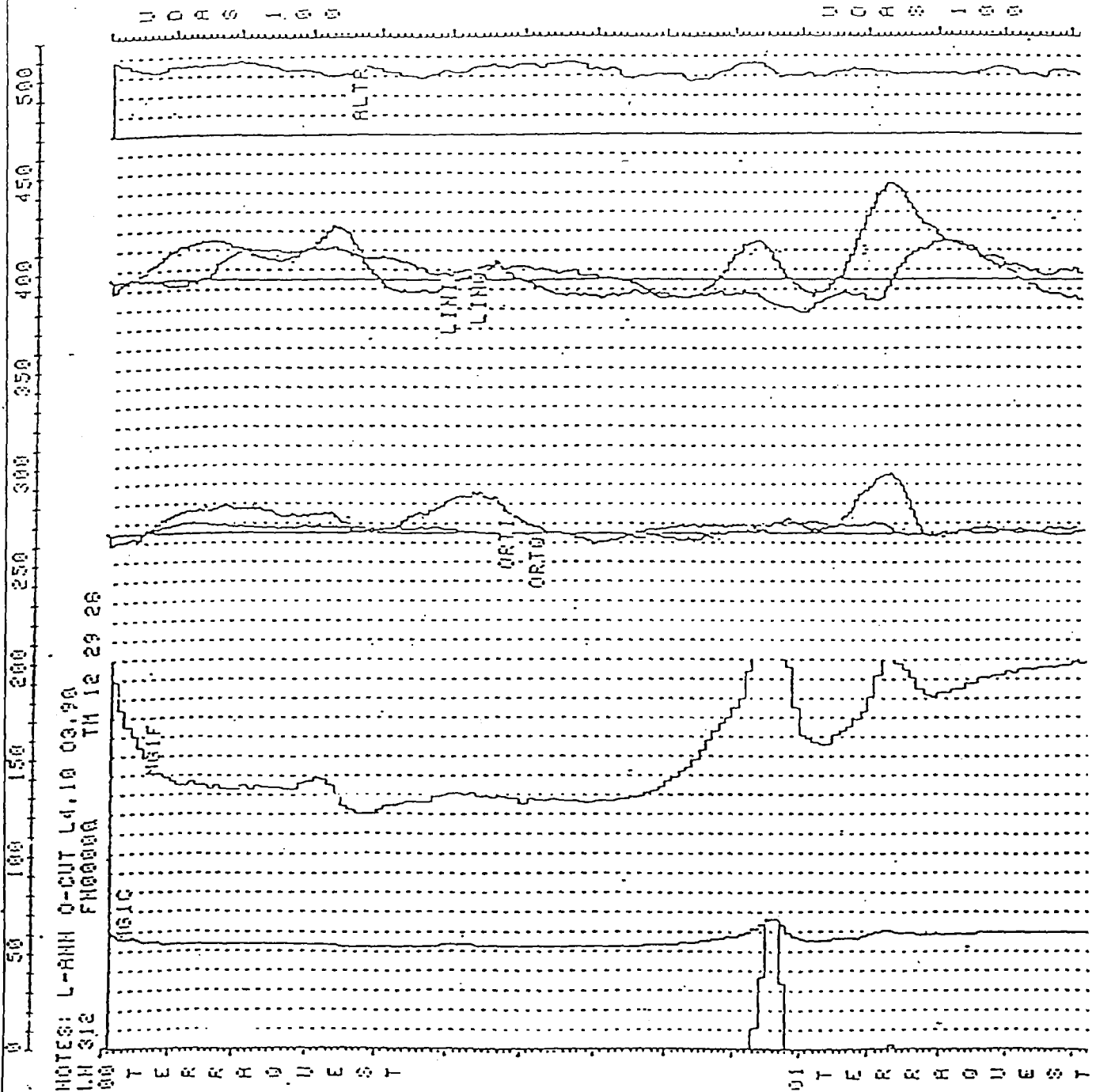


FIGURE 3. SAMPLE OF ANALOGUE DATA

TERRAQUEST LTD.



The VLF sensor is mounted in the left wing tip extension.

Other instruments are:

- . King KRA-10A Radar altimeter
- . UDAS-100 data processor with Digidata nine track tape recorder, manufactured by Urtec Ltd., Markham, Ontario.
- . Geocam video camera and recorder for flight path recovery, manufactured by Geotech Ltd., Markham, Ontario.

4.2 Lines and Data

- a) Line spacing: 100 meters
- b) Line direction: 120 degrees
- c) Terrain clearance: 100 meters
- d) Average ground speed: 193 km/hr.
- e) Data point interval: Magnetic: 27 meters
VLF-EM: 27 meters
- f) Tie Line interval: 2 kilometers
- g) Channel 1 : NSS Annapolis, 21.4 kHz.
- h) Channel 2 : NAA Cutler, 24.0 khz.
- i) Line km over total survey area: 304
- j) Line km over claim groups: 100

4.3 Tolerances

- a) Line spacing: Any gaps wider than twice the line spacing and longer than 10 times the line spacing were filled in by a new line.
- b) Terrain clearance: Portions of line which were flown above 125 meters for more than one km were reflown if safety considerations were acceptable.
- c) Diurnal magnetic variation: Less than twenty gammas deviation from a smooth background over a period of two minutes or less as seen on the base station analogue record.
- d) Manoeuvre noise: Approximately +/-5 gammas.

4.4 Photomosaics

For navigating the aircraft and recovering the flight path, mosaics of aerial photographs were made from existing air photos. In order to provide a semi-controlled base the photos were laid down on a topographic map which had been photographically adjusted to the photo scale. The laydown was then photographed and printed at the final map scale.

5. DATA PROCESSING

Flight path recovery was carried out in the field using a video tape

viewer to observe the flight path as recorded by the Geocam video camera system. The flight path recovery was completed daily to enable reflights to be selected where needed for the following day.

The magnetic data was levelled in the standard manner by tying survey lines to the tie lines. The IGRF has not been removed. The total field was contoured by computer using a program provided by Dataplotting Services Inc. To do this the final levelled data set is gridded at a grid cell spacing of 1/4 the flight line spacing.

The vertical magnetic gradient is computed from the total field data using a method of transforming the data set into the frequency domain, applying a transfer function to calculate the gradient, and then transforming back into the spatial domain. The method is described by a number of authors including Grant, 1972 and Spector, 1968.

The VLF data was treated automatically so as to normalize the non conductive background areas to 100 (total field strength) and zero (quadrature). The algorithms to do this were developed by Terraquest and will be provided to anyone interested by application to the company.

All of these dataprocessing calculations and map contouring were carried out by Dataplotting Services Inc. of Toronto.

INTERPRETATION

6.1 General Approach

To satisfy the purpose of the survey as stated in the introduction, the interpretation procedure was carried out on both the magnetic and VLF data. On a local scale the magnetic gradient contour patterns were used to outline geological units which have different magnetic intensity and patterns or "signatures". Where possible these are related to existing geology to provide a geological identity to the units. On a regional scale the total field contour patterns were used in the same way.

- Grant, F.S. and Spector A., 1970: Statistical Models for Interpreting Aeromagnetic Data; Geophysics, Vol 35
Grant, F.S., 1972: Review of Data Processing and Interpretation Methods in Gravity and Magnetism; Geophysics 37-4
Spector, A., 1961: Spectral Analysis of Aeromagnetic maps; unpublished thesis; University of Toronto, 1961.

Faults and shear zones are interpreted mainly from lateral displacements of otherwise linear magnetic anomalies but also from long narrow "lows". The direction of regional faulting in the general area is taken into account when selecting faults. Folding is usually seen as curved regional patterns. Alteration zones can show up as anomalously quiet areas, often adjacent to strong, circular anomalies that represent intrusives. Magnetic anomalies that are caused by iron deposits of ore quality are usually obvious owing to their high amplitude, often in tens of thousands of gammas.

VLF anomalies are categorized according to whether the phase response is normal, reverse, or no phase at all. The significance of the differing phase responses is not completely understood although in general reverse phase indicates either overburden as the source or a conductor with considerable depth extent, or both. Normal phase response is theoretically caused by surface conductors with limited depth extent.

Areas showing a smooth response somewhat above background (ie. 110 or so) are likely caused by overburden which is thick enough and conductive enough to saturate at these frequencies. In this case no response from bedrock is seen.

7. SUMMARY

A combined airborne magnetic and VLF-EM mapping survey has been carried out at 100 metre line intervals with data reading stations at 27 metres along the flight lines. All data are produced on maps at a scale of 1:10,000.

TERRAQUEST LTD.



Charles Q. Barrie, M.Sc.
Geologist

Inst 28305.



Ministry of
Natural
Resources

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

34-86



52E08SE004 2.9110 PHILLIPS

900

Mining Act

Do not use shaded areas below

Type of Survey(s) **Airborne Geophysics** Township or Area **Phillips Twp, M-2102**

Claim Holder(s) **Wasabi Resources Ltd., D. MacEachren** Prospector's Licence No. **T986, H9574**

Address **Suite 916 - 111 Richmond Street West, Toronto, Ontario M5H 2G4**

Survey Company **Terraquest Ltd.** Date of Survey (from & to) **27 02 86** to **28 02 86** Total Miles of line Cut **-**

Name and Address of Author (of Geo Technical report) **R. Watson, Ste. 905, 121 Richmond Street West, Toronto, Ontario M5H 2K1**

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	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

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

Airborne Credits	Electromagnetic	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	40
	Magnetometer	40
	Radiometric	
	Other	

✓ REDUCED TO MAXIMUM

Type of Work Performed **KENORA MINING DIV.**

Performed on Claim(s) **RECEIVED MAR 3 1986**

Calculation of Expenditures **7889.10** ÷ **15** = **525.93**

Total Expenditures **\$** ÷ **15** =

Prefix	Mining Claim Number	Expend. Days Cr.
K	670131 ✓	
	670132 ✓	
	670133 ✓	
	670134 ✓	
	670135 ✓	
	670136 ✓	
	670137 ✓	
	670138 ✓	
	670139 ✓	
	751067 ✓	
	777348	
	777349	
	777350	
	777351	
	777352	
	777353	
	777354	
	777355	
	777356	
	777357	
	777358	
	777359	
	777360 ✓	

Prefix	Mining Claim Number	Expend. Days Cr.
K	777361 ✓	
	777362	
	810631 ✓	
	810632	
	819324	
	819325	
	819326	
	819327	
	819328	
	819329	
	819330	
	819331	
	819332	
	819333	
	819334	
	819335 ✓	
	819336	
	819337 ✓	
	819338	
	819339	
	819340	
	819341	
	819342	

670131

Total number of mining claims covered by this report of work. **55**

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 **Feb. 28 / 86** Recorded Holder or Agent (Signature) *U. Abolins*

For Office Use Only

Total Days Recorded **3870** Date Recorded **MAR. 3 / 86** Mining Recorder *[Signature]*

Date Approved as Recorded **86-7-18** Branch Director *[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 **U. Abolins**

#34-86

Phillips Twp.

Mining Claims Traversed - continued.

- K 819343
- 819344
- 819345
- 819346
- 819347
- 819348
- 819349
- 819350
- 819351

KENORA
MINING DIV.
RECEIVED
MAR 3 1986
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

Wasabi Resources Ltd.

860, 910 - 7th Avenue S.W.
Calgary, Alberta T2P 3N8
Telephone: (403) 234-8822

RECEIVED

JUL 21 1986

MINING LANDS SECTION

July 14, 1986

Ontario Ministry of
Northern Development
and Mines
Whitney Block, 6th Floor
Queen's Park
TORONTO, Ontario
M7A 1W3

Attention: J.C. Smith, Supervisor
Mining Lands Section

Dear J.C. Smith:

RE: Airborne Geophysical (Magnetometer & Electromagnetic)
Surveys submitted on Mining Claims K 670131, et al,
in the Township of Phillips; Your File: 2.9110

Regarding the above and further to your letter of July 8, 1986 please be advised that the original plans were returned with the necessary data to the Ontario Ministry of Northern Development and Mines on July 10, 1986 by a Mr. Abe Abelson.

If you have any further questions or concerns please contact Mr. Abelson at Durham Resources Inc. at (416) 364-3182.

Yours truly,

WASABI RESOURCES LTD.



Ken C. Johnston

cc: Mr. Abe Abelson,
Durham Resources Inc.

REGISTERED

July 8, 1986

File: 2.9110

Wasabi Resources Ltd
Suite 916
111 Richmond Street West
Toronto, Ontario
M5H 2G4

*Submitted to the Board on
Att. U. Alvarado*

Dear Sirs:

RE: Airborne Geophysical (Magnetometer & Electromagnetic)
Surveys submitted on Mining Claims K 670131, et al,
in the Township of Phillips

Enclosed is a copy of our letter dated May 23, 1986 requesting
additional information for the above-mentioned surveys.

Unless you can provide the required data by July 18, 1986,
we will have no other alternative but to assess the material
on hand and grant assessment work credits accordingly.

For further information, please contact Mr. Ray Pichette at
(416) 965-4888.

Yours sincerely,

J.C. Smith, Supervisor
Mining Lands Section

Whitney Block, 6th Floor
Queen's Park
Toronto, Ontario
M7A 1W3

Telephone: (416) 965-4888

SH/mc

cc: Terraquest Ltd
Suite 905
121 Richmond Street West
Toronto, Ontario
M5H 2K1

Mining Recorder
Kenora, Ontario
#34-86

Encl.

Handwritten notes and stamps on the right side of the page, including a date stamp "JUL 10 1986".

May 23, 1986

File: 2.9110

Wasabi Resources Ltd
Suite 916
111 Richmond Street West
Toronto, Ontario
M5H 2G4

Dear Sirs:

RE: Airborne Geophysical (Magnetometer & Electromagnetic)
Surveys submitted on Mining Claims K 670131, et al,
in Phillips Township

Returned herein are the magnetometer plans (in duplicate) for
the above-mentioned submission. On each copy, please show the
perimeter claim numbers, and return the plans to this office,
quoting file 2.9110.

For further information, please contact (Mrs.) Susan Hurst at
(416) 965-4888.

Yours sincerely,

J.C. Smith, Supervisor
Mining Lands Section

Whitney Block, 6th Floor
Queen's Park
Toronto, Ontario
M7A 1W3

Telephone: (416) 965-4888

SH/mc

cc: Mining Recorder
Kenora, Ontario
#34-86

Terraquest Ltd
Suite 905
121 Richmond Street West
Toronto, Ontario
M5H 2K1

Encl.



Mining Act

In the matter of mining claims:

K 670131, et al, in the
Township of Phillips as listed
on Report of Work #34.

On consideration of an application from the recorded holder, Wasabi Resources Ltd
under Section 77 Subsection 22 of the Mining Act, I hereby order that the time for filing reports and plans in support of
~~Airborne Geophysical (Electromagnetic & Magnetometer)~~ work recorded on March 3, 19 ~~86~~
be extended until and including May 15, 19 ~~86~~.

1986.04.28
Date

[Signature]

Signature of Director, Land Management Branch

Copies:

Wasabi Resources Ltd
Suite 916
111 Richmond Street West
Toronto, Ontario
M5H 2G4
Attention: D. MacEachren

Terraquest Ltd
Suite 905
121 Richmond Street West
Toronto, Ontario
M5H 2K1

Mining Recorder
Kenora, Ontario

AB

*Charles Bairnie
asked for Ext. to
May 15th.
called Apr. 25th.*

April 24, 1986

Report of Work #34

Wasabi Resources Ltd
Suite 916
111 Richmond Street West
Toronto, Ontario
M5H 2G4

Attention: D. MacEachren

Dear Sir:

RE: Mining Claims K 670131, et al,
in the Township of Phillips

We have not received the reports and maps (in duplicate)
for Airborne (Electromagnetic & Magnetometer) Surveys
on the above-mentioned claims.

As the assessment "Report of Work" was recorded by the
Mining Recorder on March 3, 1986 the 60 day period
allowed by Section 77 of the Mining Act for the submission
of the technical reports and maps to this office will
expire on May 2, 1986.

If the material is not submitted to this office by May 2,
1986 we will have no alternative but to instruct the Mining
Recorder to delete the work credits from the claim record
sheets.

For further information, please contact Mr. Arthur Barr at
(416)965-4888.

Yours sincerely,

J.C. Smith, Supervisor
Mining Lands Section

Whitney Block, 6th Floor
Queen's Park
Toronto, Ontario
M7A 1W3

Telephone: (416) 965-4888

AB/mc

cc: Terraquest Ltd

cc: Mining Recorder

Mining Lands Section

File No 2.9110

Control Sheet

TYPE OF SURVEY

- PHYSICAL
- GEOLOGICAL
- GEOCHEMICAL
- EXPENDITURE

MINING LANDS COMMENTS:

Lgd.
Ld.

S. Hurst

Signature of Assessor

July 14/80

Date

Tweedsmuir Twp. M.2023

KENORA MINING DIV.
RECEIVED
 MAY 15 1986
 AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

THE TOWNSHIP OF
PHILLIPS

DISTRICT OF KENORA
 KENORA MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

- PATENTED LAND Ⓟ
- CROWN LAND SALE C.S.
- LEASES Ⓛ
- 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 X
- CANCELLED C.
- PATENTED LAND S.R.O. Ⓟ

NOTES

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

42
 S.R.O. withdrawn from staking under Sec. 42 of Mining Act, Aug. 18, 1970.
 File: 183474, 178126.

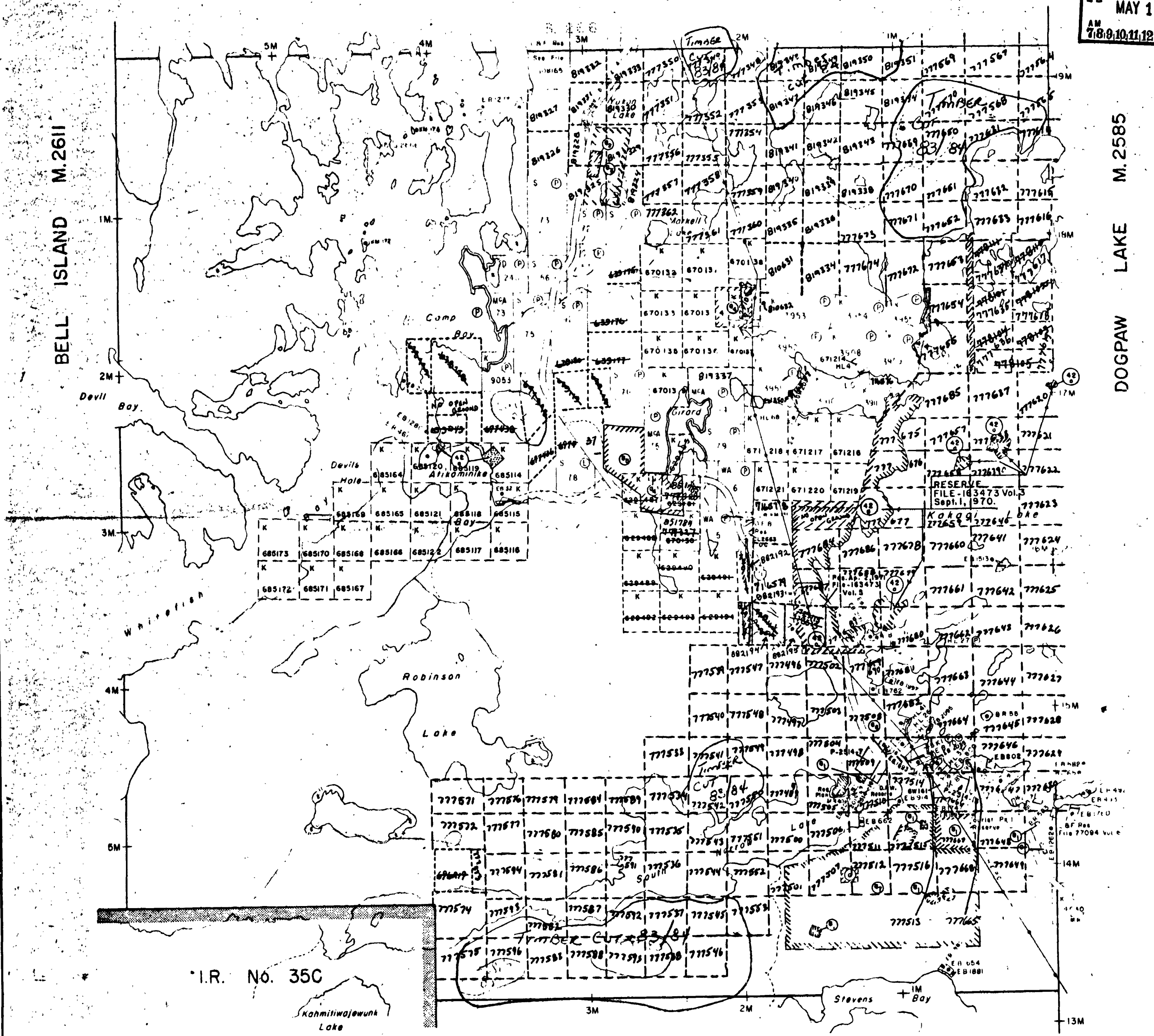
SAND & GRAVEL

- Ⓟ QUARRY PERMIT
- Ⓟ GR. FILE 141687
- Ⓟ GRAVEL FILE 114428
- Ⓟ MTC PIT NO. 1002
- Ⓟ GRAVEL FILE 1113
- Ⓟ MTC PIT NO. 1003
- Ⓟ MTC PIT NO. 1004
- Ⓟ MTC PIT NO. 1008

KENORA MINING DIV.
RECEIVED
 MAY 17 1983
 AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

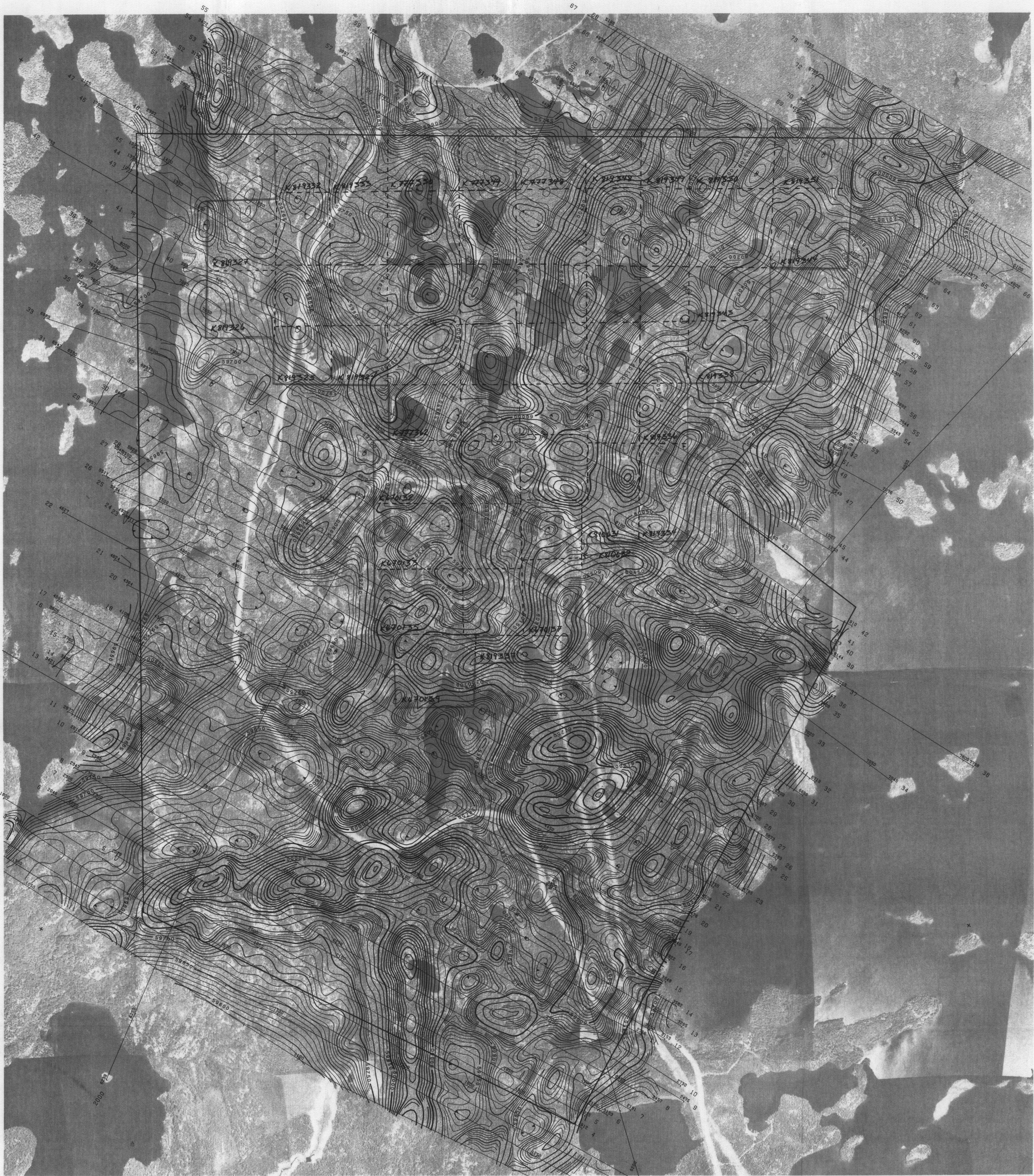
PLAN NO. **M.2102**

ONTARIO
 MINISTRY OF NATURAL RESOURCES
 SURVEYS AND MAPPING BRANCH



I.R. No. 35C





LEGEND

Terrain Clearance..... 100 metres
 Line Spacing..... 100 metres

1000 gammas
 250 gammas
 50 gammas
 10 gammas



DOMINION EXPLORERS INC.

TOTAL MAGNETIC FIELD

PHILLIPS TWP. - ONTARIO

N.T.S. NO: 52E/1&8,52F/4&5 DRAWING NO. A-606.1

SCALE 1 : 10,000 DATE: May 1986

TERRAQUEST LIMITED
 TORONTO, CANADA



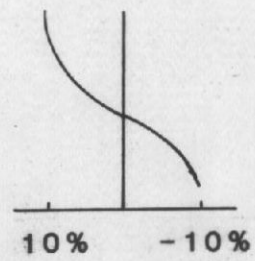


LEGEND

Terrain Clearance..... 100 metres
 Line Spacing..... 100 metres

Field Strength
 50%
 10%
 2%

Quadrature



VLF Transmitter Annapolis 21.4 kHz
 azimuth 122.7

29110 *MRS*

DOMINION EXPLORERS INC.

AIRBORNE VLF-EM SURVEY
 CONTOURS OF TOTAL FIELD STRENGTH
 PROFILES OF QUADRATURE

PHILLIPS TWP. - ONTARIO

N.T.S. NO. 52E/1&8,52F/4&5 DRAWING NO. A-608.3

SCALE 1 : 10,000 DATE May 1986

TERRAQUEST LIMITED
 TORONTO, CANADA

