



410155W0043 2.10273 DENYES

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REPORT on the MAGNETOMETER SURVEY
on the
Sylvanite Property
of
GLEN AUDEN RESOURCES LIMITED
Denyes Township
by
Greg Hodges, B.Sc.
August 7, 1987

RECEIVED

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MINING LANDS SECTION



	PAGE
ABSTRACT.....	i
INTRODUCTION.....	1
LOCATION AND ACCESS.....	1
CLAIM.....	1
REGIONAL GEOLOGY.....	2
PROPERTY GEOLOGY.....	3
PREVIOUS WORK.....	5
SURVEY PROCEDURE	
MAGNETICS	
Theory.....	8
Field Method.....	10
PERSONNEL AND EQUIPMENT.....	10
SURVEY STATISTICS.....	11
INTERPRETATION.....	11
CONCLUSIONS AND RECOMMENDATIONS.....	11
REFERENCES.....	13
CERTIFICATION	
APPENDIX A: Equipment Specifications	

LIST OF FIGURES

- Figure 1 Property Location - Regional
- Figure 2 Property Location - Local
- Figure 3 Claim Map

BACK POCKET: Contoured Magnetics

ABSTRACT

A total field magnetics survey was conducted on the 6-claim Sylvanite property of Glen Auden Resources Limited in Denyes Township. The survey clearly distinguished the areas of mafic volcanic rock from the felsic volcanic and intrusive rock, outlining several interesting structural features. Further geophysical surveying (induced polarization) is recommended to extend the geologic knowledge into the areas of deep overburden.

INTRODUCTION

During the period from May 6 to May 13, 1987, a geophysical survey was conducted on the Sylvanite Property of Glen Auden Resources Limited in Denyes Township.

The survey, conducted by Robert S. Middleton Exploration Services Inc., was a total field magnetics survey, and was conducted to assist in geologically mapping the property for assessment of economic mineral potential.

LOCATION AND ACCESS

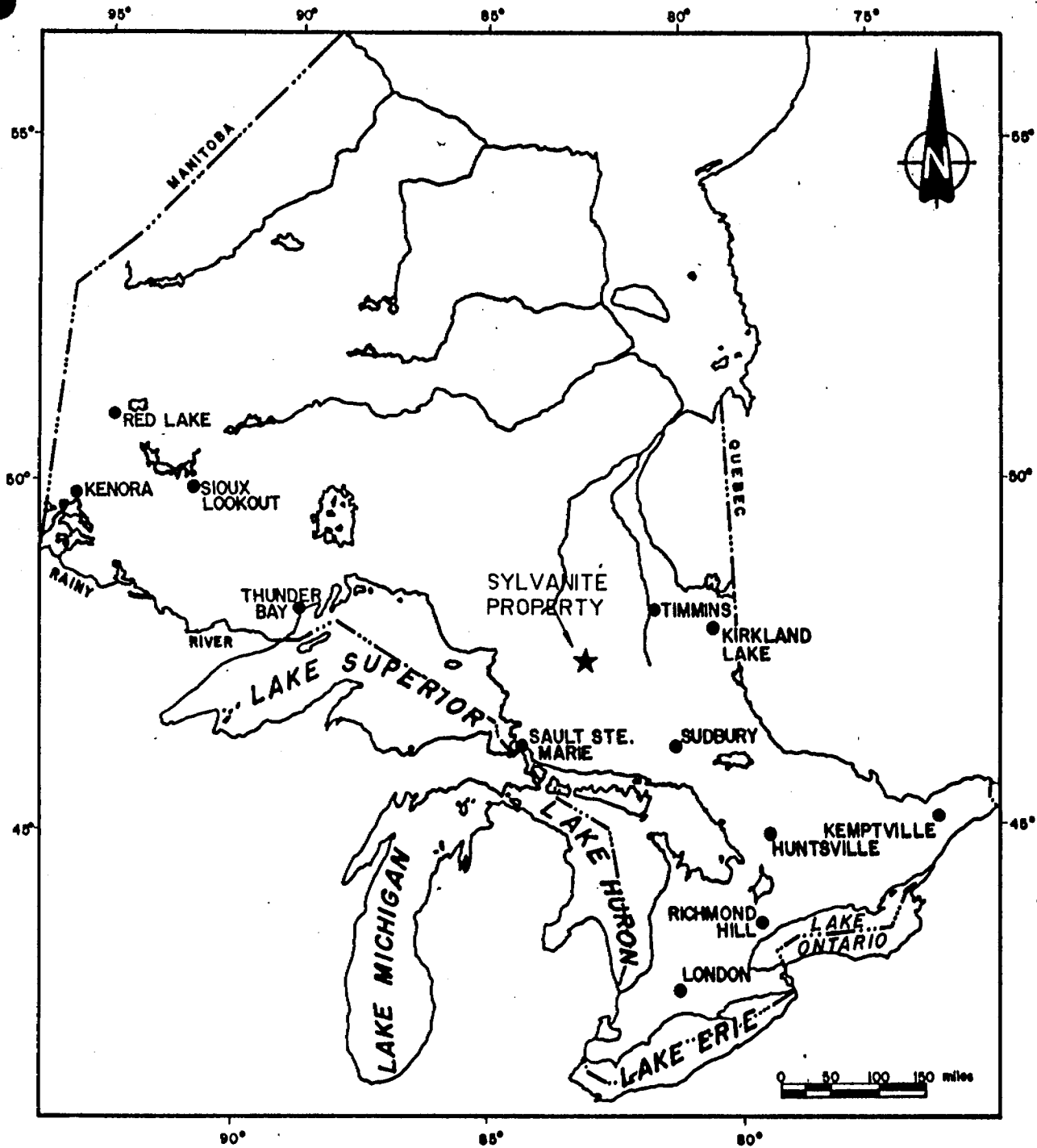
The property is located in Denyes Township, District of Cochrane, Ontario, 90 kilometers by air southwest of Foleyet, Ontario. (Figures 1 and 2).

Access to the property was by fixed wing aircraft from Ivanhoe Lake near Foleyet (Therriault Air) to Jackleg Lake, a small lake just north of the property.

CLAIM

The property consists of six unpatented mining claims in the Porcupine Mining District.

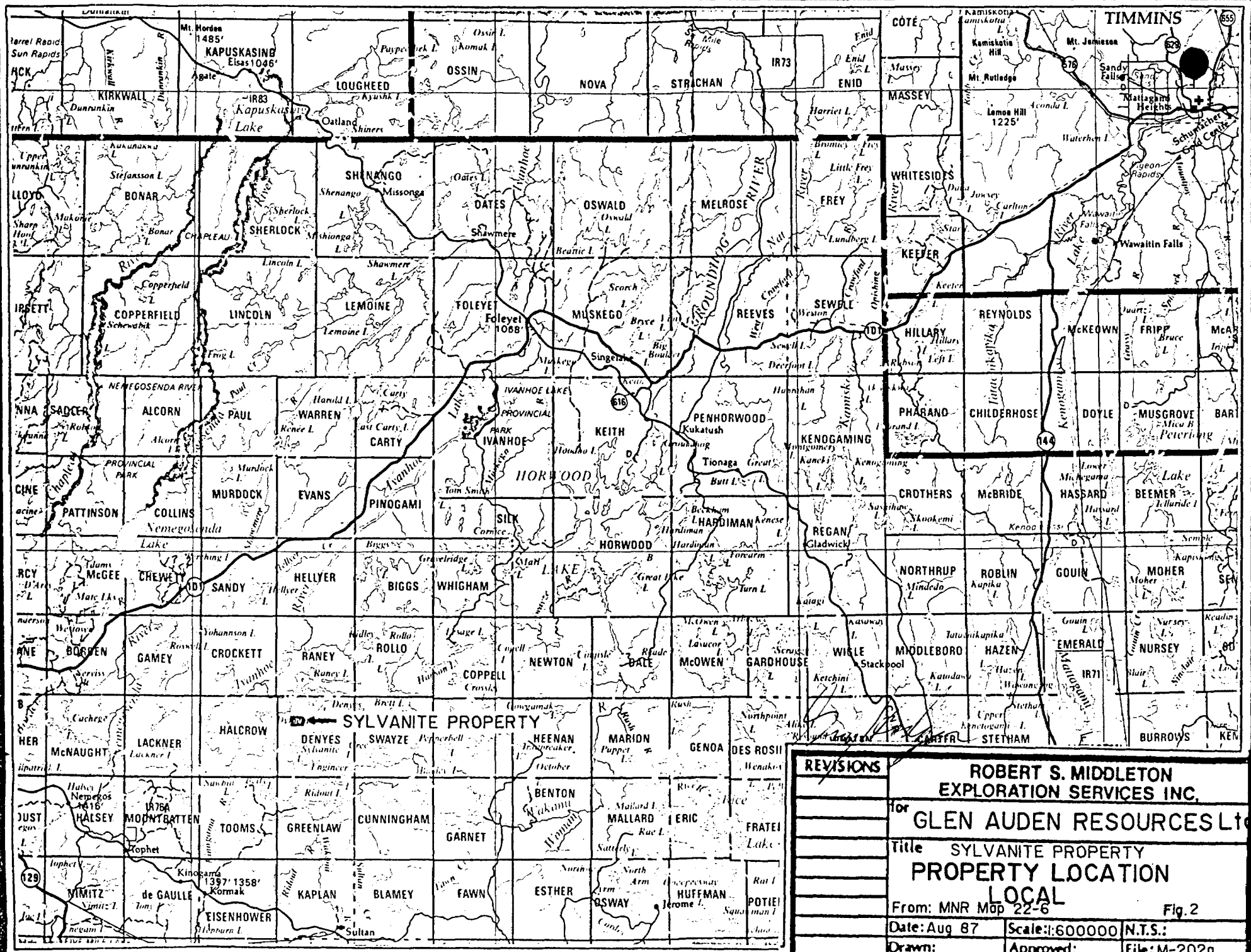
CLAIM NOS.	NO.	RECORDING DATE
931813-913818	6	June 12, 1986



PROVINCE OF ONTARIO

[Handwritten Signature]

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.	
	for GLEN AUDEN RESOURCES LTD.	
	Title SYLVANITE PROPERTY PROPERTY LOCATION REGIONAL	
	Fig. 1	
	Date: Aug 87	Scale: 1"=160mi. N.T.S.
	Drawn:	Approved: File: M-202a



REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for GLEN AUDEN RESOURCES LTD		
	Title SYLVANITE PROPERTY PROPERTY LOCATION LOCAL		
	From: MNR Map 22-6		Fig. 2
	Date: Aug 87	Scale: 1:600000	N.T.S.:
	Drawn:	Approved:	File: M-202a

RANEY TWP.

DENYES TWP.

Denyes
Lake

Dyment
Lake

931813	931814	931815
931818	931817	931816

Drig. [Signature]

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for	GLEN AUDEN RESOURCES LTD.	
	Title	<i>Sylvanite Property</i>	
	CLAIM LOCATION MAP		
	Date: Jan. 1987	Scale: 1"=1/2mile	N.T.S.:
	Drawn: C.G.	Approved:	File: M-202a

Fig 3

REGIONAL GEOLOGY

The following is quoted from Abernethy, 1987:

"The rocks of the Glen Auden property are part of the east-west trending Swayze greenstone belt, approximately 28 miles long by 18 miles wide. The rocks are all Precambrian in age and are steeply dipping in fold structures, whose axis trend in a sinuous east-west path across the area. Faults and shear zones trend predominantly north to north-west.

The belt shows wide lithologic variety but mafic volcanic flows predominate with felsic volcanic rocks and sediments occupying long linear structures towards the centre of the belt. Diabase is rare but several long dikes traverse the belt with a north-northeasterly trending orientation. Ultramafic flows, granitic plugs and iron formation are also found in the belt.

The Swayze belt is truncated in the west by the Kapuskasing structure and to the east bifurcates with one arm trending towards the Porcupine gold camp and the other arm trending towards the Kirkland Lake gold camp."

PROPERTY GEOLOGY

The following is quoted from Abernethy, 1987:

"The property is almost entirely covered by thin rolling moraines and sand planes. Bedrock exposure is limited and restricted to valley walls of the north-easterly flowing creek that traverses claims 931815 and 931816. Mafic volcanic rocks were found in the southeast corner of the property whereas felsic volcanics and feldspar porphyries were found on the north side of the creek. The mafic volcanic rocks are massive, dark green, aphanitic with variable chlorite, calcite and pyrite alteration. No pillows or other structures were found. Where the mafic volcanic rocks have a well developed foliation, they were mapped as chlorite schists.

The felsic volcanic rocks consisted entirely of intermediate to felsic tuffs with ash to lapilli sized fragments. No true rhyolites were found. The felsic volcanic most commonly found was a buff to pale green, massive or very weakly foliated rock with 1-2mm, white, sub-rounded fragments comprising about 20% of the weathered rock surface. The matrix is fine grained and

weakly chloritized with little or no calcite, pyrite or sericite. The feldspar porphyries found on the property are pink to beige on the weathered surface, massive, with 1-2mm white, euhedral feldspar phenocrysts comprising 30% of the rock face and a fine grain siliceous, pale matrix.

Alteration was most prevalent in close proximity to the Sylvanite Trench where tuffs and porphyries (?) are now altered to feldspar-chlorite-sericite schists with moderate to strong calcite alteration. Iron carbonate, silicification, pyrite and chalcopryrite alteration is extensive surrounding the trench areas. The prevailing structure on the property is an east-west schistosity noted in some outcrops. A diabase dike trending north-south was observed intruding an intermediate tuff.

The Sylvanite Trenches are located in the south half of claim 931817. From limited exposures in the trenches it appears that a thin quartz-carbonate-sulphide vein pinches and swells from 6" to 5' over a length of 160' trending approximately 110°. Northeast faults have displaced the vein up to 10' in places. The

wallrock is an altered chlorite schist of uncertain origin intruded by several highly sheared and altered quartz-feldspar porphyries. Quartz veining crosscuts both lithologies. Pyrite and minor chalcopyrite was observed in the quartz veins and in surrounding haloes disseminated throughout the wallrock. Ankerite and dolomite were common accessories within quartz veins and as discrete veins."

PREVIOUS WORK

The following is quoted from Abernethy, 1987:

"The original prospecting in Denyes Township followed the discovery of the Kenty Mine in northeastern Swayze Township in 1932 and 33. Eighteen claims were staked by Sylvanite Gold Mines Limited over the present Glen Auden property and prospecting under the direction of Duncan Campbell was undertaken. Trenching on the present 931816 claim uncovered a series of parallel porphyry dikes striking northwest which intrude schistose greywackes and tuffs. Rickaby (1934) visited the working for the Ontario Department of Mines and describes the property:

'The porphyry and schist have been fractured and the fractures filled with quartz heavily mineralized with pyrite and carbonates. The quartz vein with an indicated length of 200 feet lies along the contact between bedded tuffs and porphyry extending from trench B to trench D...No native gold is visible, but channel-sampling over 3 foot widths over a length of 160 feet of this vein are reported to give values up to 0.40 ounces per ton in gold. Grab samples of the quartz carrying considerable pyrite gave values up to 0.36 oz/ton in gold.'

Erie Canadian Mines Limited optioned the property in 1934. Geologist J. Akers performed geological mapping over the entire present Glen Auden property, and cleaned and detail mapped seventeen trenches, ten of which were over the main showing. The best values obtained in chip samples over a 140 foot length of a quartz vein in trench No.3 are:

<u>GRADE</u>	<u>WIDTH</u>
.34oz	4.7 feet
1.75oz	5.3 feet
1.85oz	10.2 feet
2.41oz	8.2 feet*
.40oz	4.0 feet
1.50oz	4.5 feet
.11oz	7.0 feet
1.20oz	3.8 feet
1.86oz	10.4 feet*
1.61oz	10.2 feet

Notes:

1. All samples taken along vein are reported.
2. Values represent weighted average of channel samples taken across the trenched vein.
3. Asterisk represents where unrealistically high grades have been cut to 5oz/ton.
4. Samplers most likely sampled best looking parts of vein.
5. Source: file T-2072 Timmins Assessment Files.

Five short diamond drill holes were recommended by Erie Canadian Mines on the basis of the trenching, but no evidence that the holes were drilled exists.

Resampling of the old trenches in 1940 by Sylvanite Gold Mines Ltd. confirmed the Erie results and extended the length of the mineralized zone to 300 feet.

In 1972 Falconbridge Nickel Mines Limited staked six claims which included the gold showing and most of the present property. Work included geological mapping on a line grid with crosslines at 400 foot intervals and old trenches on the main porphyry zone were reconditioned (?) for sampling (Kelly 1973).

Thirty-five chip samples of relatively fresh, unleached material were taken. Results of the gold assays were disappointing in comparison to

the Sylvanite and Erie results. Only one short zone, 0.22oz weighted average over 8.5 feet over a possible 16 foot length, was delineated. As a result the claims were allowed to lapse.

Manville Canada Inc. restaked the property in 1981. A new grid was cut and a geological and radiometric survey conducted by R.F. Kaltwasser and J. Goodger, and the old trenches were resampled where fresh exposures existed. Grab samples from quartz-carbonate veins in the old trenches resulted in assays up to 0.20 oz/ton over five feet (Eveleigh 1984). Retrenching and systematic sampling was recommended but not performed."

SURVEY PROCEDURE

MAGNETICS

Theory

The magnetic method is based on measuring alteration in the shape and magnitude of the earth's naturally occurring magnetic field caused by changes in the magnetization of the rocks in the earth.

These changes in magnetization are due mainly to the presence of the magnetic minerals, of which the most common is

magnetite, and to a lesser extent ilmenite, pyrrhotite, and some less common minerals.

Magnetic anomalies in the earth's field are caused by changes in two types of magnetization: induced and remanent (permanent). Induced magnetization is caused by the magnetic field being altered and enhanced by increases in the magnetic susceptibility of the rocks, which is a function of the concentration of the magnetic minerals.

Remanent magnetism is independent of the earth's magnetic field, and is the permanent magnetization of the magnetic particles (magnetite, etc.) in the rock. This is created when these particles orient themselves parallel to the ambient field when cooling. This magnetization may not be in the same direction as the present earth's field, due to changes in the orientation of the rock or the field.

The most common method of measuring the total magnetic field in ground exploration is with a proton precession magnetometer. This device measures the effect of the magnetic field on the magnetic dipole of hydrogen protons. This dipole is caused by the "spin" of the proton, and in a magnetometer these dipoles in a sample of hydrogen-rich fluid are oriented parallel to a magnetic field applied by an electric coil surrounding the sample. After this magnetic field is removed, the dipoles begin to precess (wobble) around their orientation under the influence

of the ambient earth's magnetic field. The frequency of this precession is proportional to the earth's magnetic field intensity.

Field Method

The magnetics data were collected with a proton precession magnetometer, which measures the absolute value of the total magnetic field of the earth to an accuracy of ± 1 n Tesla. The magnetometer is carried down the survey line by a single operator, with the sensor mounted on a short pole to remove it from the surface geologic noise. Readings are normally taken at 25 m intervals, and at 12.5 m intervals where the operator observes a high gradient (anomaly).

The readings are corrected for changes in the earth's total field (diurnal drift) by measuring and recording the drift with a stationary (base station) magnetometer. This recorded drift is then applied to the data as a correction.

PERSONNEL AND EQUIPMENT

Robert S. Middleton Exploration Services Inc. provided one man to conduct the magnetic survey. The instrument was an EDA Instruments PPM-350 magnetometer with a PPM-400 recording base station magnetometer. Specifications for these instruments may be found in Appendix A.

SURVEY STATISTICS

The survey consisted of 8.49 line kilometers of magnetic surveying.

INTERPRETATION

The magnetic survey served well to outline the mafic metavolcanic units on the property although in some places the mafic and felsic intrusives are so closely mixed that a survey of this detail could not separate them. As a first order approximation, areas of magnetic background greater than 1250 nT are mostly mafic volcanics and the areas below 1000 nT are the felsic volcanic and intrusive units.

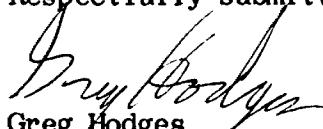
Several faults/fractures were interpreted, as shown on the magnetic map. The creek between L300W and L400W appears to follow one of the faults.

CONCLUSIONS AND RECOMMENDATIONS

Concurrent with the magnetic survey, a detailed geologic survey was conducted on the Sylvanite Property. The next recommended work is a more detailed geophysical survey to examine the geology underlying the eskers on the west half of the property. The best survey for this is induced polarization, with its ability to detect resistivity contrast, shear zones, and disseminated mineralization.

The survey should be planned on the lines which cross the most significant structural features, especially lines 4+00W, 6+00W, 8+00W, 10+00W and 11+50W.

Respectfully submitted



Greg Hodges
Geophysicist

REFERENCES

ABERNETHY, R.K.
1987

REPORT ON THE PROPERTY OF GLEN
AUDEN RESOURCES LIMITED, DENYES
TOWNSHIP, PORCUPINE MINING
DIVISION, DISTRICT OF COCHRANE ;
Porcupine Mining Division
Assessment File (Timmins)

RICKABY, H.C.
1934

GEOLOGY OF THE SWAYZE GOLD AREA
Ontario Department of Mines AR43,
Part III

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 GLEN AUDEN REOURCES LIMITED Sylvanite property in Denyes Township, Province of Ontario and dated August 7, 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 GLEN AUDEN 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 August 7, 1987
Timmins, Ontario



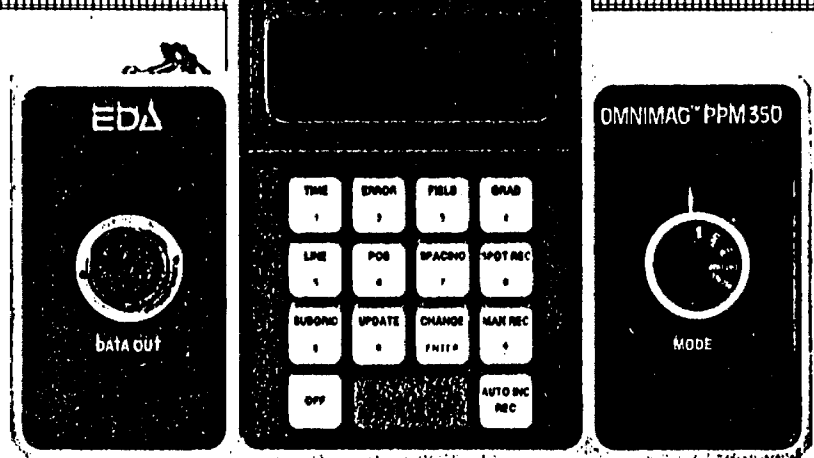
D. Greg Hodges, Geophysicist

Qual.
25919

A P P E N D I X A

OMNIMAG PPM-350 Total Field Magnetometer

EDA



The PPM-350 is the latest addition to EDA's OMNIMAG*™ series of magnetometers and gradiometers. It is engineered to provide users with the latest state-of-the-art advances in microprocessor technology, including many features that are unique in the field.

Major benefits and features include:

- Significant increase in productivity
- Lowered survey costs
- Automatic diurnal correction
- Programmable grid coordinates
- Highly reproduceable data
- Ergonomic design
- Simplified fieldwork
- Computer-compatible



Specifications

Dynamic Range	18,000 to 93,000 gammas
Sensitivity	± 0.02 gamma
Statistical Error Resolution	0.01 gamma
Standard Memory Capacity	1383 data blocks or readings
Absolute Accuracy	± 15 ppm at 23°C, 50 ppm over the operating temperature range
Display Resolution	0.1 gamma
Capture Range	$\pm 25\%$ relative to ambient field strength of last stored value
Display	Custom-designed, ruggedized liquid crystal display with an operating temperature range from -35°C to $+55^{\circ}\text{C}$
Gradient Tolerance	5,000 gammas per meter
Sensor	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy
Sensor Cable	Remains flexible in temperature range; includes low strain connector
Operating Environmental Range	-35°C to $+55^{\circ}\text{C}$; 0–100% relative humidity; weather-proof
Power Supply	Non-magnetic rechargeable sealed lead acid battery cartridge or belt; or, Disposable "C" cell battery cartridge or belt
Battery Cartridge Life	2,000 to 5,000 readings, depending upon ambient temperature and rate of readings
Weight and Dimensions	
Instrument Console only	3.4 kg, 238 x 150 x 250 mm
Lead Acid Battery Cartridge	1.9 kg
Sensor	1.2 kg, 56 mm diameter x 200 mm
System Complement	Electronics console; sensor with 3-meter cable; sensor staff; power supply; harness assembly; operation manual.

EDA is a pioneer in the development of advanced geophysical systems and has created many innovations that increase field productivity and lower survey costs.

EDA's OMNIMAG series consists of the PPM-350 Total Field Magnetometer, PPM-400 Base Station Magnetometer, and the PPM-500 Vertical Gradiometer. Contact us *now* for details.

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Cable: Instruments Toronto
(416) 425-7800

In U.S.A.
EDA Instruments Inc.
5151 Ward Road
Wheat Ridge, Colorado
U.S.A. 80033
Telex: 00 450681 DVR
(303) 422-9112



W8706.127

Mining

Type of Survey(s): LINE CUTTING, MAGNETOMETRIC Township or Area: DENYSE Twp.
 Claim Holder(s): GLEN ADER RESOURCES LTD. Prospector's Licence No.: T-1915
 Address: 500, 67 RICHMOND ST. W. TORONTO, ONT. M5H 1Z5
 Survey Company: ROBERT S. MIDLETON EXAMINATION SERVICES Date of Survey (from & to): 5 87 Total Miles of line Cut: 8.5 Km
 Name and Address of Author (of Geo-Technical report): D. GREG. HOGES, P.O. Box 1637 TIMMINS, ONTARIO P4N 7W8

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

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
P	931813				
	931814				
	931815				
	931816				
	931817				
	931818				

RECEIVED
 JUN 1 1987
 MINING LANDS SECTION

RECORDED
 JUN 08 1987

Expenditures (excludes power stripping)
 Type of Work Performed: RECEIVED
 Performed on Claim(s): JUN 9 1987

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: 9/6/87 Recorded Holder or Agent (Signature): [Signature]

For Office Use Only
 Total Days Cr. Recorded: 240 Date Recorded: June 9/87
 Date Approved as Recorded: 1987.09.23 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: D. GREG. HOGES, P.O. Box 1637, Timmins, Ont. P4N 7W8
 Date Certified: 9/6/87 Certified by (Signature): [Signature]

Raney Twp. - M.1069

THE TOWNSHIP OF
OF
2.10273
DENYES

DISTRICT OF
SUDBURY

PORCUPINE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

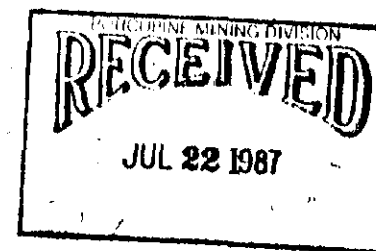
LEGEND

- 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 Ⓜ
- CANCELLED C.
- PATENTED FOR S.R.O. Ⓞ

NOTES

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

■ L. U. P.



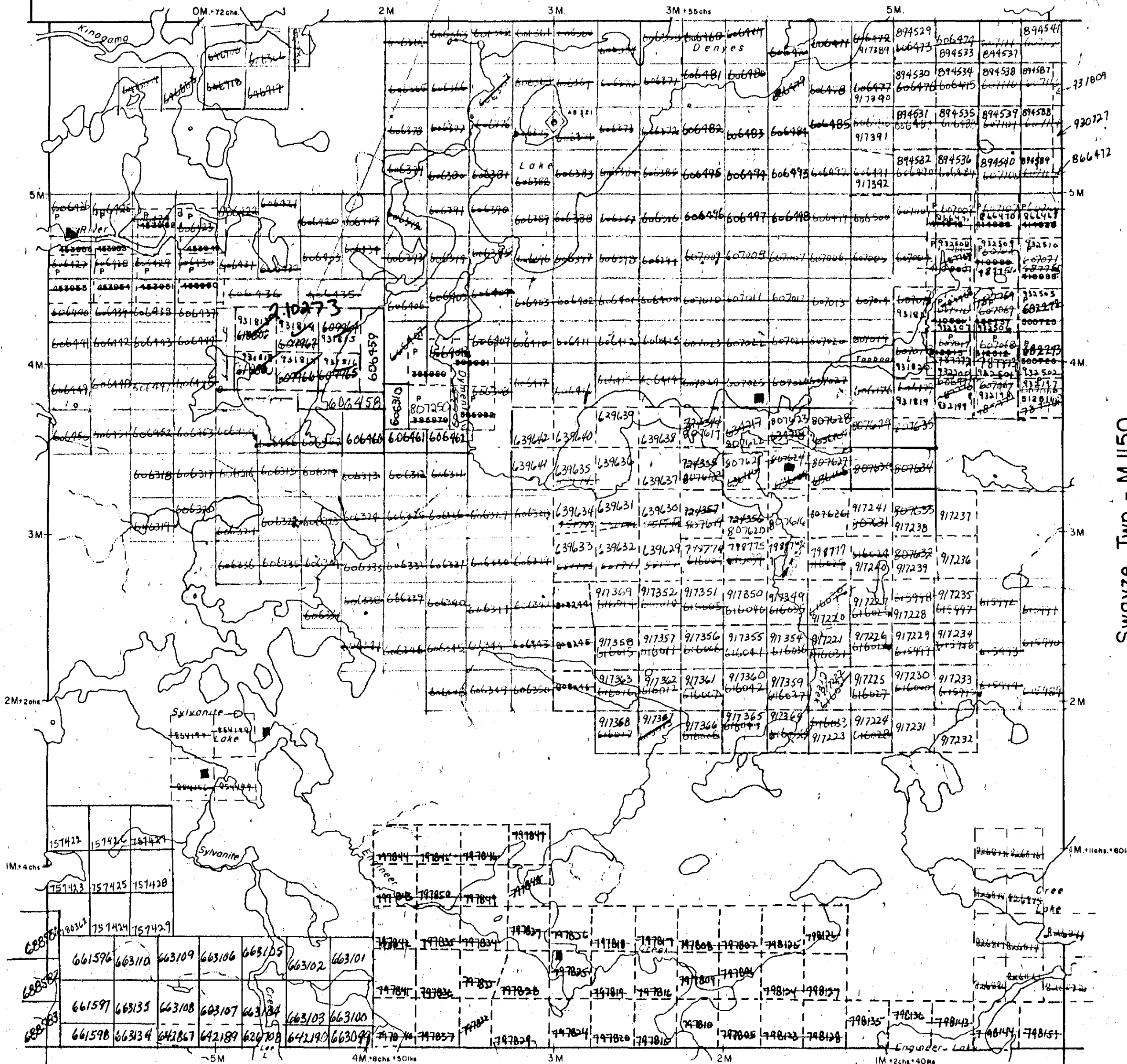
Received Jan. 4/80

PLAN NO. **M.758**

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

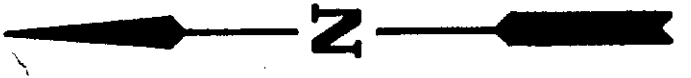
Halcrow Twp. - M.906

Swayze Twp. - M.1150

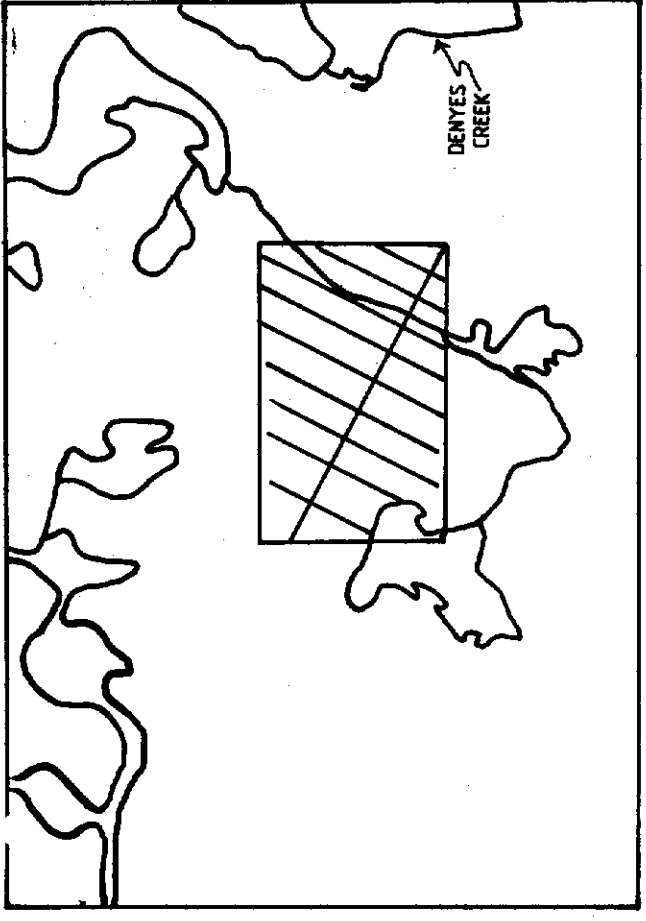


Greenlaw Twp. - M.895



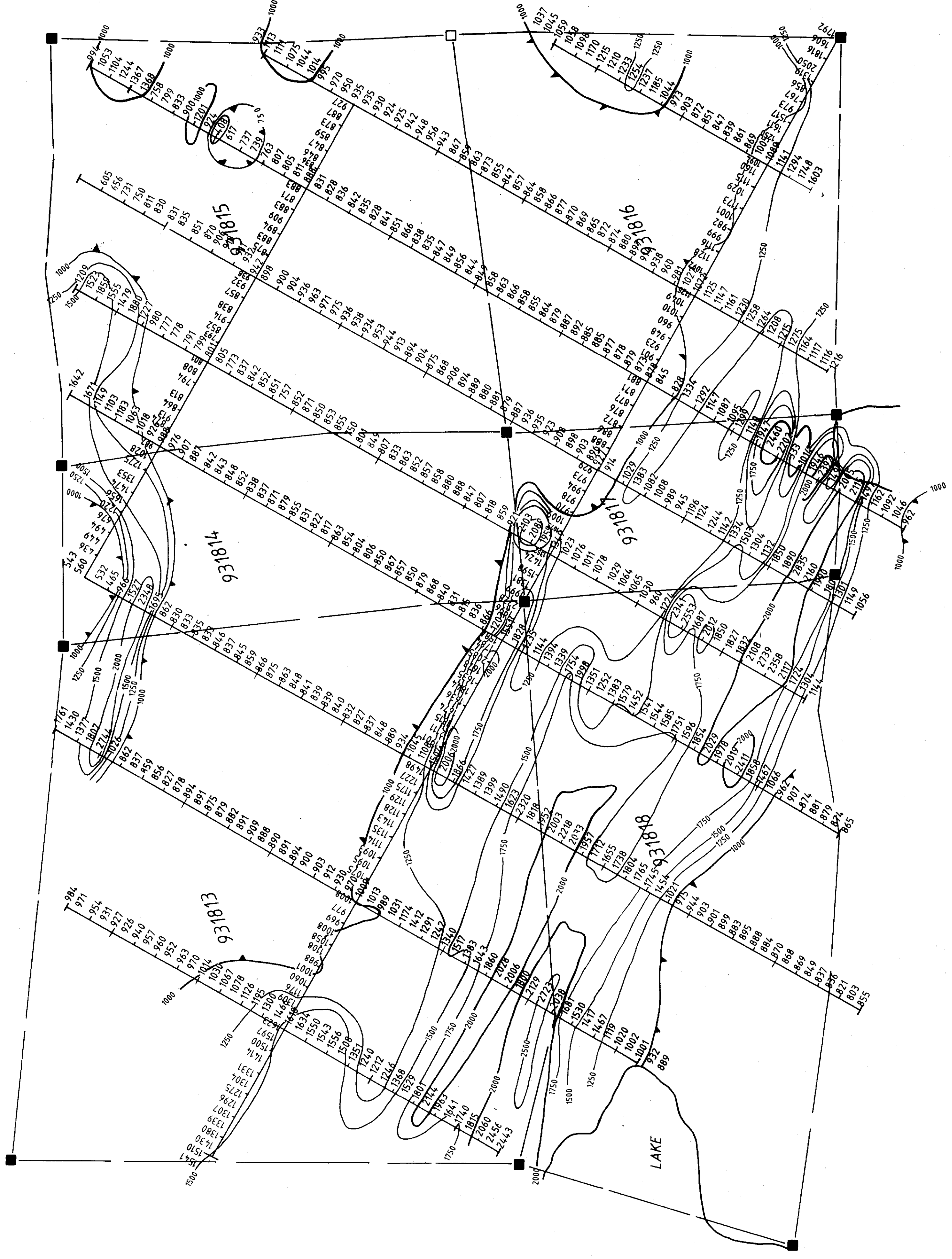


Claim map sketch scale 1"=1/2 mile



M00+4 L
M00+5 L
M00+6 L
M00+7 L
M00+8 L
M00+9 L
M00+10 L
M00+11 L

7+00N
6+00N
5+00N
TL 4+00N
3+00N
2+00N
1+00N
BL 0+00



S00+1
S00+2
S00+3
S00+4
S00+5

210273

- Post (Assumed)
- Post (Located)

[Signature]

REVISIONS

for **ROBERT S. MIDDLETON
EXPLORATION SERVICES INC.**

Title **GLEN AUDEN RESOURCES LTD**
Sylvanite property Denyes 14p

BACKGROUND : 5000 gamma
CONTOURED MAGNETOMETER SURVEY

Date: May/87 Scale: 1:2500
Drawn: D.M. Approved: *[Signature]*

