



41P10NE0045 63.2538 NICOL

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GEOLOGICAL REPORT

ON

CLAIMS N.R. 49796 and M.R. 49797

NICOL TOWNSHIP, ONTARIO.

INTRODUCTION

General Statement

During the month of May, 1969, a geological survey of claims numbered N.R. 49796 and M.R. 49797 in Nicol Township, Gowanda Silver Area, Ontario, was conducted by the writer. This survey was implemented using the same base and picket line system used for magnetometer and electromagnetic surveys conducted in March and April, 1969, and is reported in conjunction with them.

Previous Geological Work

Two reports have been issued by the Ontario Department of Mines on the area of these claims. They are "Gowanda Silver Area", Vol. LXXV, Pt. 5, 1926, Pages 1-61; and "Geology of the Miller Lake Portion of the Gowanda Silver Area", Vol. LXXIV, Pt. 5, 1955. Preliminary Map No. P.374 -Nicol Township, covers this area. No specific reference is made to these claims in either report.

Ontario Department of Mines assessment work files contain the log of a 105' packback diamond drill

hole on the east boundary of M.R. 49797. No assay results are given, but at 75' a fracture containing cobalt arsenides and at 76' a 3/4" grey calcite vein containing cobalt arsenides is recorded. This hole is assumed to be under the silver bearing pit at 1,000' south, Line I W. but was not located.

Topography and Timber

The topography consists of low rolling hills with lower swampy and pond areas. The timber consists chiefly of jack-pine, spruce and poplar with a few birch, pine and balsam mixed with them. The timber is not presently of economic significance for lumber.

Accessibility

The north boundary of the claims is within one quarter of a mile of Highway No. 560 which is a good gravel road existing between the towns of Gowanda and Elk Lake, Ontario. At this point on the highway the property is approximately 4 mile east of Gowanda and 20 miles west of Elk Lake.

A hydroelectric power line traverses the country about one mile north of the claims.

GENERAL GEOLOGY

The basement rocks consist of a Keowatin complex of steeply dipping basic and intermediate lavas with some la. porphyre and Algonian granitic rocks. This basement is intruded by Matachewan north-south trending diabase dikes. Overlying these rocks are the Huronian sediments consisting of Gowganda conglomerates, greywacke, and quartzite; and Lorrain quartzite, arkose and conglomerate. These rocks are low dipping and generally flat lying.

The above assemblage of rocks has been intruded by the inverted cone shaped Nipissing diabase rocks which takes the form of a basin structure. The silver ore deposits of the area are associated with this intrusive which is about 500' thick.

Keweenawan quartz diabase and olivine diabase dikes have intruded this whole series of rocks. These dikes are vertical, but their strike is not parallel. They appear to form a superimposed triangle over the basin area. So far the largest production of silver has come from the western apex of the triangle. Silver is also found in the northeastern and southeastern apex although to date none has been produced.

STRUCTURAL GEOLOGY

The Seewatin rocks are highly sheared and folded and this deformation probably occurred in the Algonian period. The Huronian rocks are relatively undisturbed, except locally at the Nipissing diabase contacts.

Faulting and shearing are most recent structures. Some of these faults are great and disturb all rock types, but the majority are confined to the Nipissing diabase.

THEORY FOR EXPLORATION

Silver in the Cobalt-Gowganda areas is found associated with cobalt and nickel arsenides in vertical and near vertical green and white calcite veins which fill faults, fractures and shearing in three general geological environments.

The three environments are:

- (a) Silver ore located at the upper contact of the Nipissing diabase, both in the diabase and in the country rocks.
- (b) Silver ore located in the central part of the Nipissing diabase.
- (c) Silver ore located at the lower contact of the Nipissing diabase, both in the diabase and in the country rock.

Most of the production in the Gowganda area is from the upper contact area while in Cobalt it is from the lower contact area with minor amounts from the central part. Usually the Nipissing diabase occurs as a basin shaped structure and is termed an "ore centre". Variations will alter this theory in different instances due to local geological conditions, but basically it applies.

ECONOMIC GEOLOGY

The rocks on mining claims M.R. 49796 and M.R.49797 consist wholly of Nipissing diabase. These are part of a basin shaped intrusive in Keewatin lavas and Huronian sediments. The claims are located in the southeast part of the Miller Lake "ore centre" of Siscoe Metals and Castle Trethewey which are located 2 1/2 miles to the northwest and on the west part of the basin. They also are located in the projected southeast apex of the triangle of diabase dikes and close to the upper contact of a subsidiary diabase basin structure lying immediately east of the Miller Lake basin.

Minor fracture patterns were determined trending north-northwesterly and northeasterly by the electromagnetic surveys and this was supported by ground evidence.

The electromagnetic survey portrayed two faults which were expressed on the ground as linear swamps, one at the west boundary of M.R. 49797 and striking north-northwesterly. Coincident with this fault and on strike about 800' north a significant electromagnetic conductor was located. An old shaft was located on the north boundary of M.R. 49797 which contained white calcite veins and was adjacent to this fault on the east. Shearing parallel to the fault and trending south from this shaft was located.

The second fault is located at the east side of N.R. 49797 and strikes north northeasterly. About 1,000' S. on L. 18, and on the east side of the fault a fracture striking N. 65° E. contains a 2" gouge with silver in it and cobalt bloom. An old packsack drill hole assumed to be under this fracture intersected cobalt arsenides and the favorable gray calcite. Grabe samples taken by the author several years ago assayed 229.1, 21.16, 23.18 and 1.38 oz. Ag./ton. An old shaft was located in the southwest part of N.R. 49796 and not much information was obtained here. In addition other prospecting pits were located scattered around the property. No evidence of diamond drilling was located.

Three additional claims have been staked adjacent and to the east of N.R. 49797. The other surrounding ground is owned by Silver Bar Mines, Siscoe Metals and G. Milner. Old pits exhibiting calcite veins were observed in the south part of L. 105846. A considerable amount of trenching which showed cobalt and nickel arsenides was done on the claim to the south of this one in the early prospecting days.

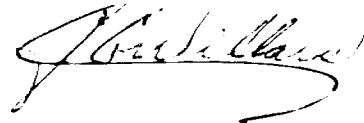
SUMMARY AND CONCLUSIONS

Silver is present on the claims and associated with a favourable geological and structural environment. Further exploration is warranted.

RECOMMENDATIONS

Conduct geochemical sampling in the two major fault areas to outline diamond drill targets. In any event these two areas are worthy of further testing by diamond drilling.

Respectfully submitted,



ew Liskeard, Ontario
June 12, 1969.

Jack G. Hillars B.A.Sc., P.Eng.



41P10NE0045 63.2538 NICOL

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REPORT ON
GEOPHYSICAL SURVEYS
CLAIMS MR. 49796 and MR. 49797
NICOL TOWNSHIP, ONTARIO

INTRODUCTION

During the months of March and April, 1969, line cutting, a magnetometer survey and an electromagnetic survey were conducted on unpatented claims numbered M.R. 49796 and M.R. 49797 in Nicol Twp., Gowanda silver area, Ontario. The claims are owned by Jack G. Millars, New Liskeard, Ontario, and are located in the northeast part of the township.

The claims are readily accessible by road. They are located approximately 700 feet south of Highway No. 560 at a point twenty miles west of Elk Lake, or four miles east of Gowanda.

Silver is found filling faults and fractures. The magnetometer survey was used to outline possible fault structures and the VLF electromagnetic survey was used to outline fracture patterns.

SURVEY PROCEDURE

A control system of base and picket lines totalling 5.6 miles was cut on the claims. The Base Line is 3,000' long, oriented in a $5.80.5^{\circ}$ W. direction and located centrally on the claims. Picket lines were cut at 200' spacing and stations marked at 100' intervals. C. Bush, New Liskeard, John Gore, Cobalt, Jack Pierce and Walter Carter, Gowganda, all in Ontario, were employed for the line cutting.

A magnetometer survey using a Sharpe MF-I fluxgate instrument with a sensitivity of 20 gammas per scale division and a readability of 5 gammas was used. The maximum range is plus or minus 100,000 gammas. Readings were taken at each 100' station. The survey and interpretation was carried out by J.G. Willars, New Liskeard, Ontario.

An electromagnetic survey using the Very Low Frequency (VLF) method was carried out and a Ronka EM.16 unit was employed. Readings were taken at each 100' station using both Cutler, Maine and Annapolis, Maryland as power sources. The survey and interpretations were carried out by J.G. Willars, New Liskeard, Ontario. Separate maps have been prepared for each power source.

PREVIOUS GEOLOGICAL WORK

The Ontario Department of Mines has issued two geological reports on the area in which these claims are located. These are; Gowanda Silver Area, Vol. XXV, Part 3, 1926, Pages 1-61 and Geology of the Miller Lake Portion of the Gowanda Silver Area, Vol. LXIV, Part 5, 1955. There is no specific reference to these claims in either report.

Old exploration pits were observed on the property, one in particular approximately 1,000' south on the east boundary of N.R. 49797 contained silver in an east-west trending fracture. The Ontario Department of Mines files contain the log of a 105' diamond drill hole just to the east of this pit which records a fracture containing cobalt arsenides at 75' and a 3/4" grey calcite vein containing cobalt arsenides at 76'.

The claims are totally in Nipissing diabase rocks.

RESULTS OF GEOMAGNETIC SURVEY

The results of the magnetometer survey portray a mild background northeasterly trend across the claims. Two faults have been outlined. They both trend northerly and are located at the west and east boundaries of M.R. 49797.

RESULTS OF ELECTROMAGNETIC SURVEY

The results of the VLF survey using Cutler, Maine as a power source showed minor conductors trending in a northeasterly direction.

The results of the VLF survey using Annapolis, Maryland as a power source showed minor conductors trending north northwesterly with the exception of one conductor of significance that was located approximately 150' east of the northeast corner of M.R. 49796. In addition there appears to be a build up along the east boundary of M.R. 49796 towards a conductor east of the claim boundary.

INTEGRATION OF GEOPHYSICAL RESULTS

Minor conductors trending northeast and north northwest coincide with the general northeast trend of the magnetic results and the faults outlined by magnetic methods. These minor conductors are assumed to represent fractures with the exception of the conductor east of N.R. 49796. The projection of this conductor is coincident with the fault along the west boundary of N.R. 49797.

SUMMARY AND CONCLUSIONS

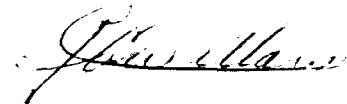
Two faults have been outlined on the claims. They trend north northwest and are essentially parallel. They are located at the east and west boundaries of M.K. 49797. One electromagnetic conductor of note projects and is coincident with the westerly located fault. An old exploration pit containing silver, cobalt arsenide and grey calcite is associated with the easterly located fault.

Sparsely spaced, minor electromagnetic conductors trending northeast coincide with the background trend of the magnetic results. Others of the same type and trending north northwest are parallel to the faults outlined. These conductors probably represent fractures.

RECOMMENDATIONS

It is recommended that a detailed geological survey be conducted on the claims with particular attention to shapes of outcrops, fracture orientation, topographic features in order to determine a fracture pattern to use as an aid to guide exploration.

Respectfully submitted,



J.G. Willars, B.A.Sc., P. Eng.

April 30, 1969,
New Liskeard, Ontario.

Amax Exploration, Inc.,
P. O. Box 277,
Kirkland Lake, Ontario.

KIRKLAND LAKE
ONTARIO

RECEIVED
JUL 9 1969
AM 7:09



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RECEIVED
JUL 9 1969
AM 7:09 10 11 12 1 2 3 4 5 PM

Mr. Fred W. Matthews,
Supervisor,
Mining Lands Branch,
Department of Mines,
Parliament Buildings,
TORONTO 2, Ontario.



PROJECTS SECTION
TEL: 416-365-6918

ONTARIO
DEPARTMENT OF MINES
Mining Lands Branch

PARLIAMENT BUILDINGS
TORONTO 2, ONTARIO


December 9, 1969.

Mr. P. Logee,
Mining Recorder,
4 Government Road E.,
Kirkland Lake, Ontario.

Dear Mr. Logee:

The geophysical (magnetometer and electromagnetic) *and geological* assessment work credits as shown on the attached list have been approved as of the date above. Please inform the recorded holder and so indicate on your records.

Yours very truly,


Fred W. Matthews,
Supervisor.

/lb

c.c. J. G. Willars,
127 Lakeshore Rd.,
New Liskeard, Ontario.

c.c. Mr. H. L. Lovell,
Resident Geologist,
4 Government Road E.,
Kirkland Lake, Ontario.

Haultain Twp. - M.222

THE TOWNSHIP
OF
CLAIM MAP
NICOL

DISTRICT OF
TIMISKAMING

LARDER LAKE
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	Ⓞ

NOTES

400' Surface Rights Reservation around
all lakes and rivers

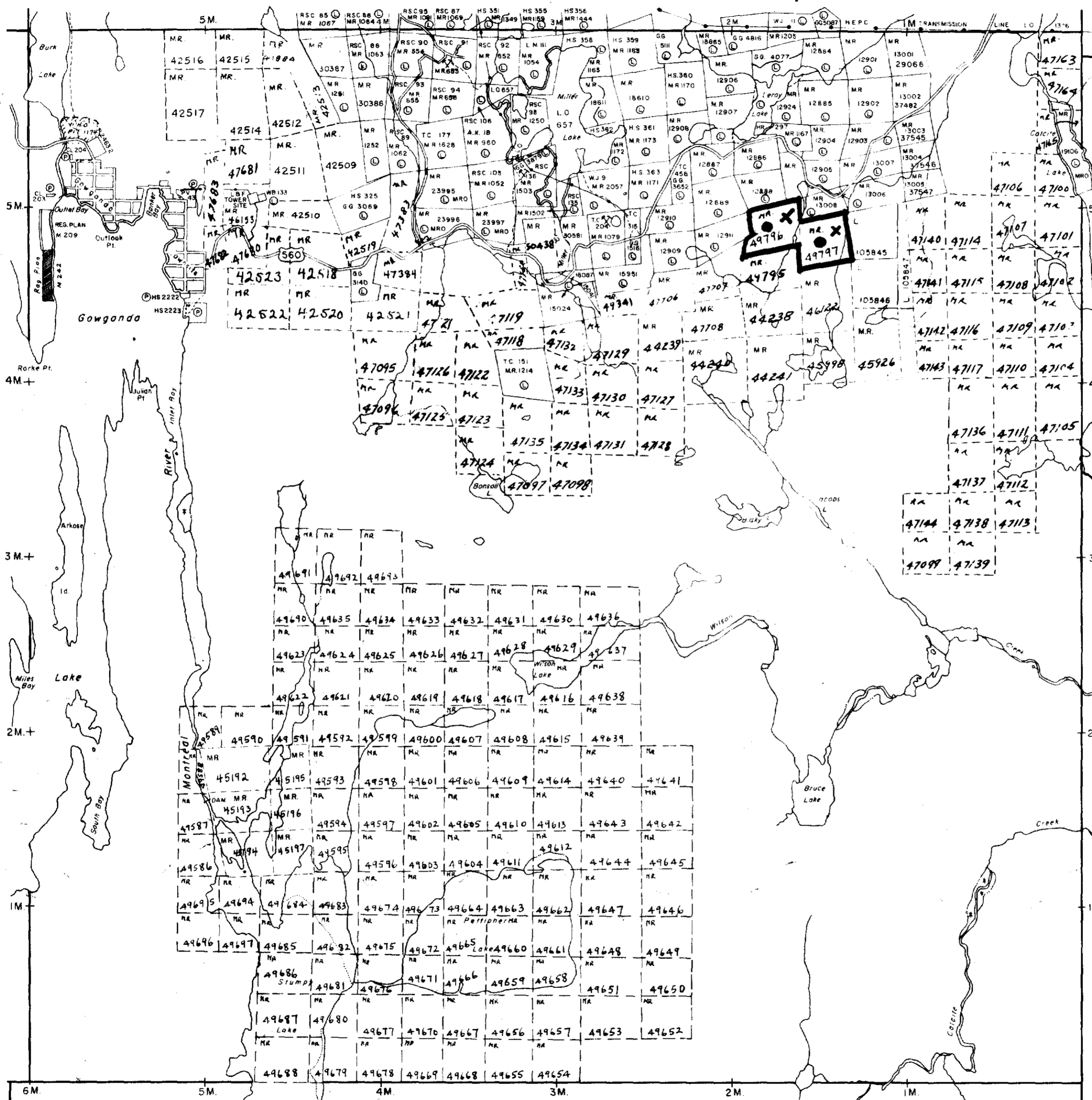
Flooding on Gowganda Lake to contour
elevation 103.74' File 33070

Flooding to contour elevation 1051' above
the first rapids on the Montreal River —
now known locally as Stumpy Lake

✕ - claims covered.
● - claims recorded.

Milner Twp. - M.236

Lawson Twp. - M.229

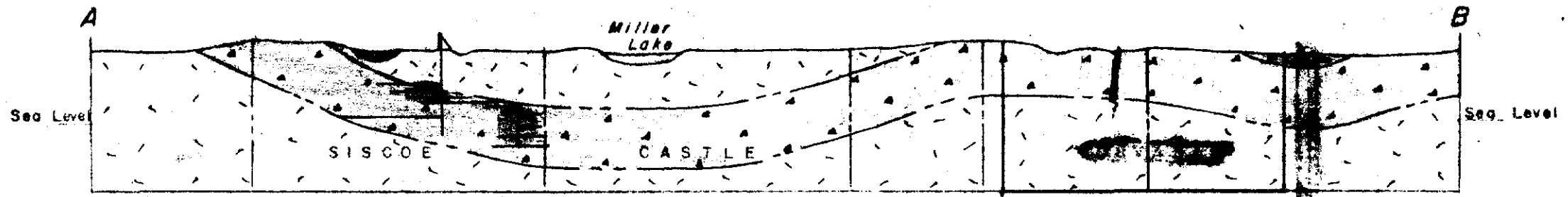


Charters Twp. - M.212

PLAN NO. **M.239**

DEPARTMENT OF MINES
— ONTARIO —

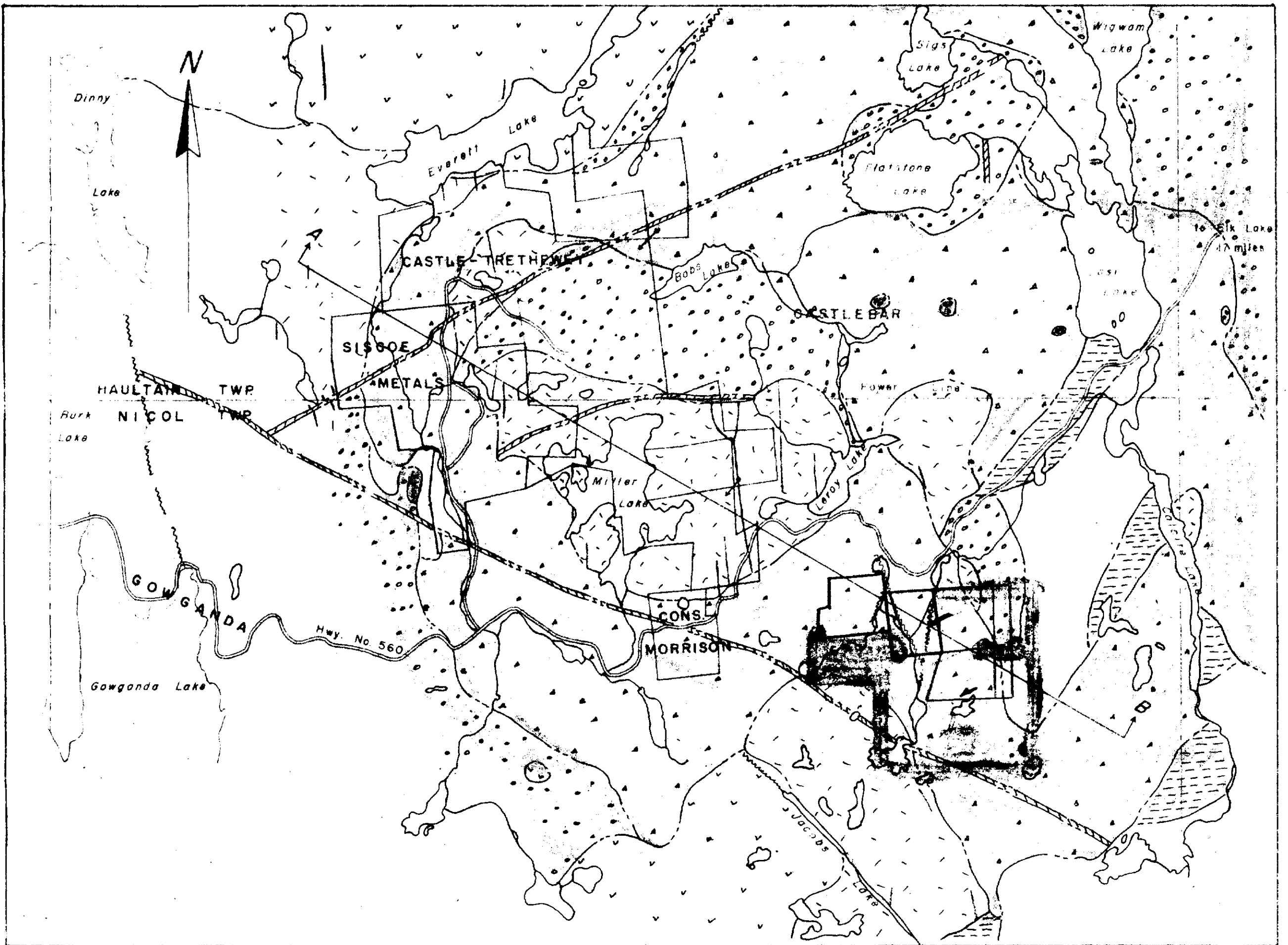




STRUCTURAL SECTION ALONG LINE A-B

(looking north)

Scale: 1 inch = 1/2 mile



AREA GEOLOGY MAP

Scale: 1 inch = 1/2 mile

Geology from Ont Dept. of Mines Map No. 1955-3

LEGEND

CENOZOIC

Overburden

PRECAMBRIAN

Keweenaw

Olivine diabase

Quartz diabase

Nipissing diabase etc.

Muronian

Lorrain quartzites

Gawganda conglomerate, greywacke

Matachewan

Wapiti bottom diabase

Wapiti

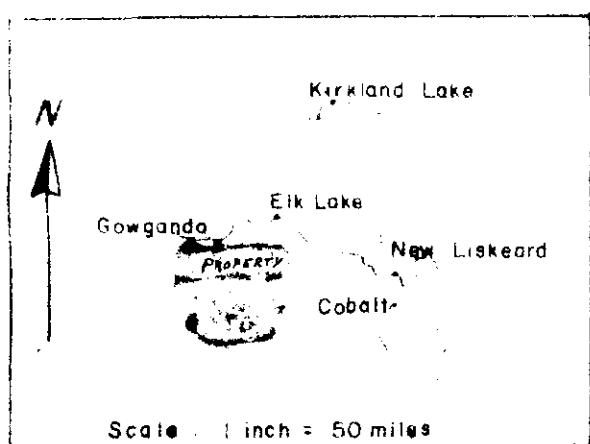
Wapiti

Wapiti

Wapiti

Wapiti

Wapiti



INDEX MAP

SYMBOLS

Foot

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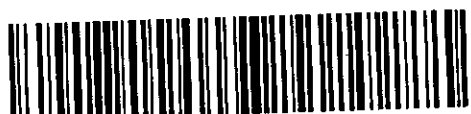
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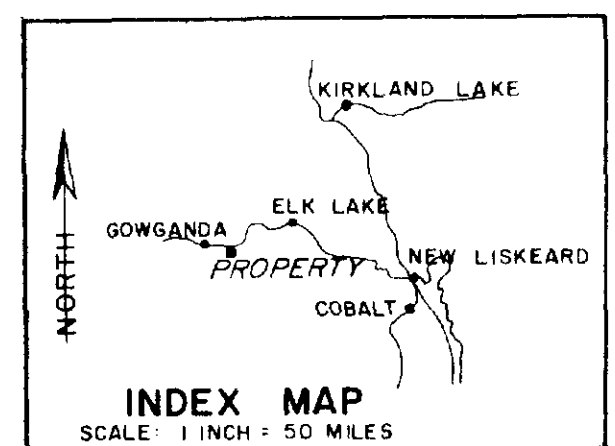
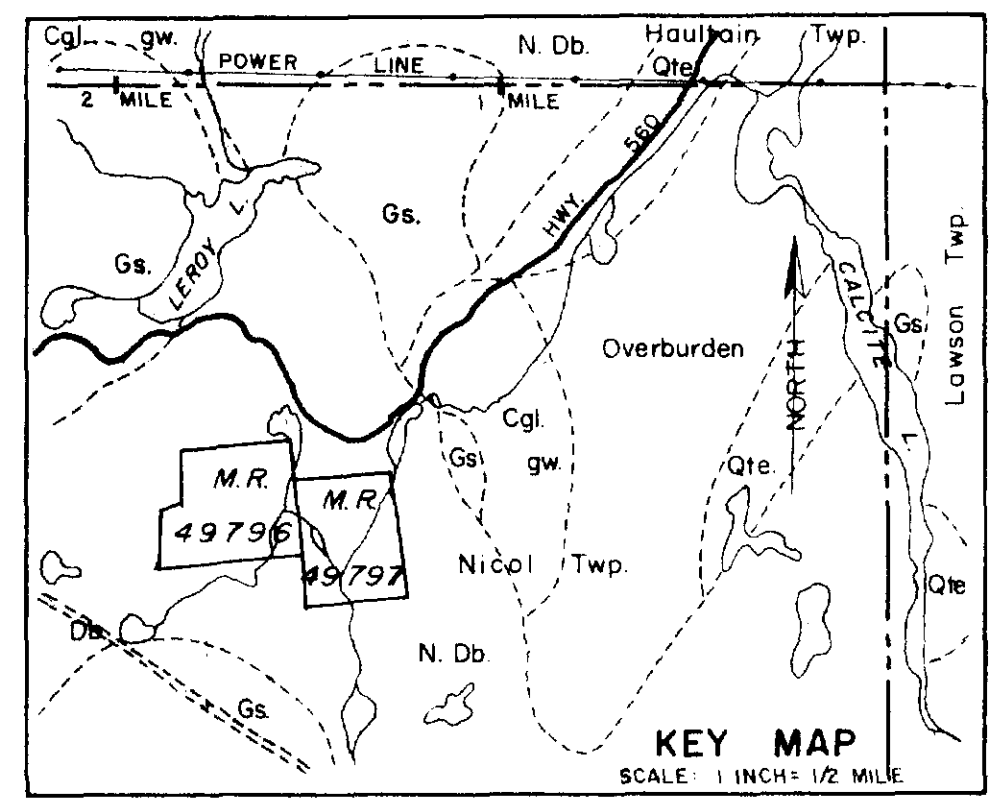
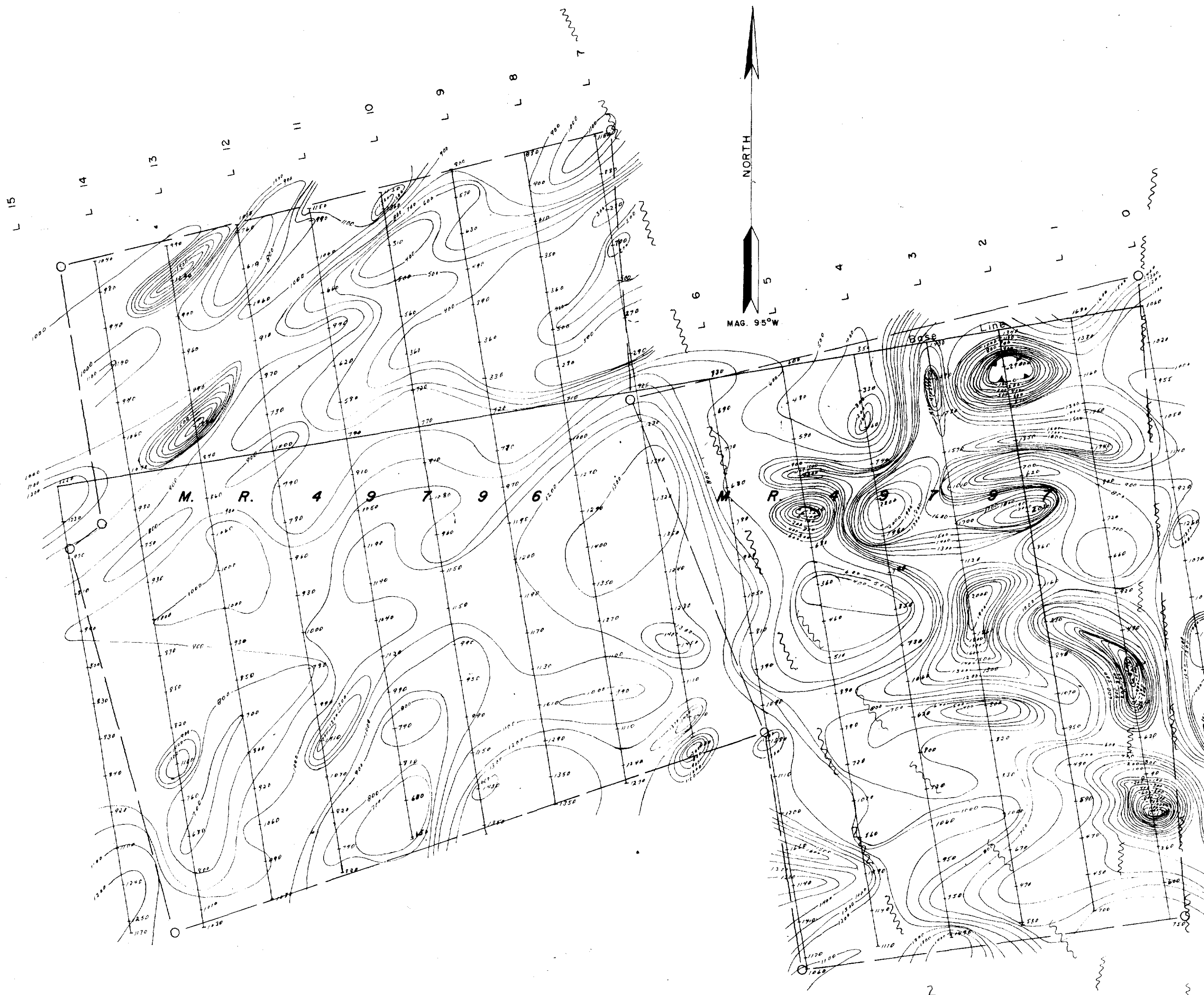
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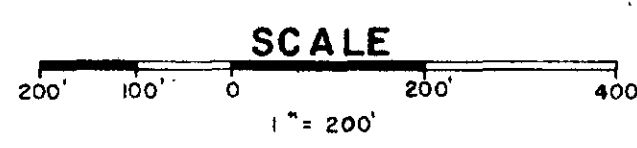
41P10NE0045 63.2538 NICOL

J. C. ...
June, 1969.



GEOMAGNETIC MAP
CLAIMS M.R. 49696 & 7

NICOL TWP., ONT.



MAGNETIC DATA

Instrument: Sharpe MF-1 fluxgate.
 Normal correction: plus 1000 gammas
 Contour interval = 100 gammas
 Lines of equal relative magnetic intensity

Lower values red
 Higher values blue

Magnetic low

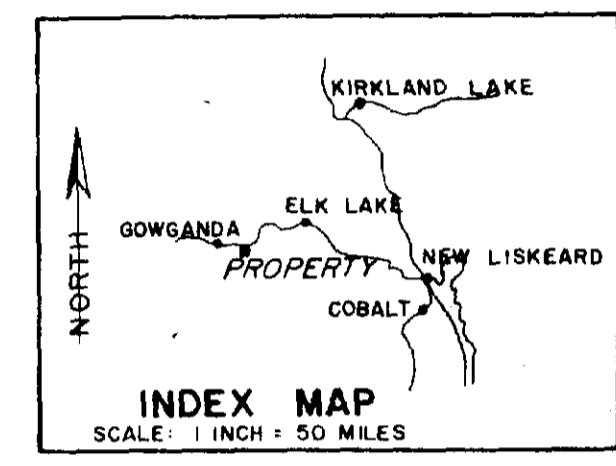
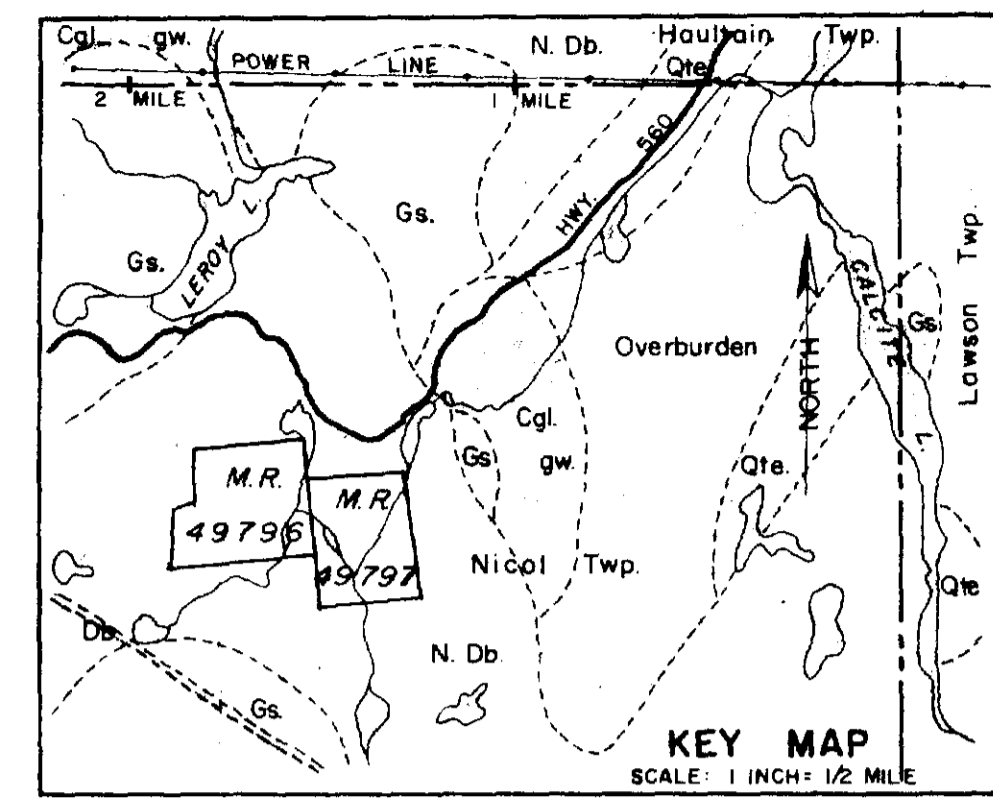
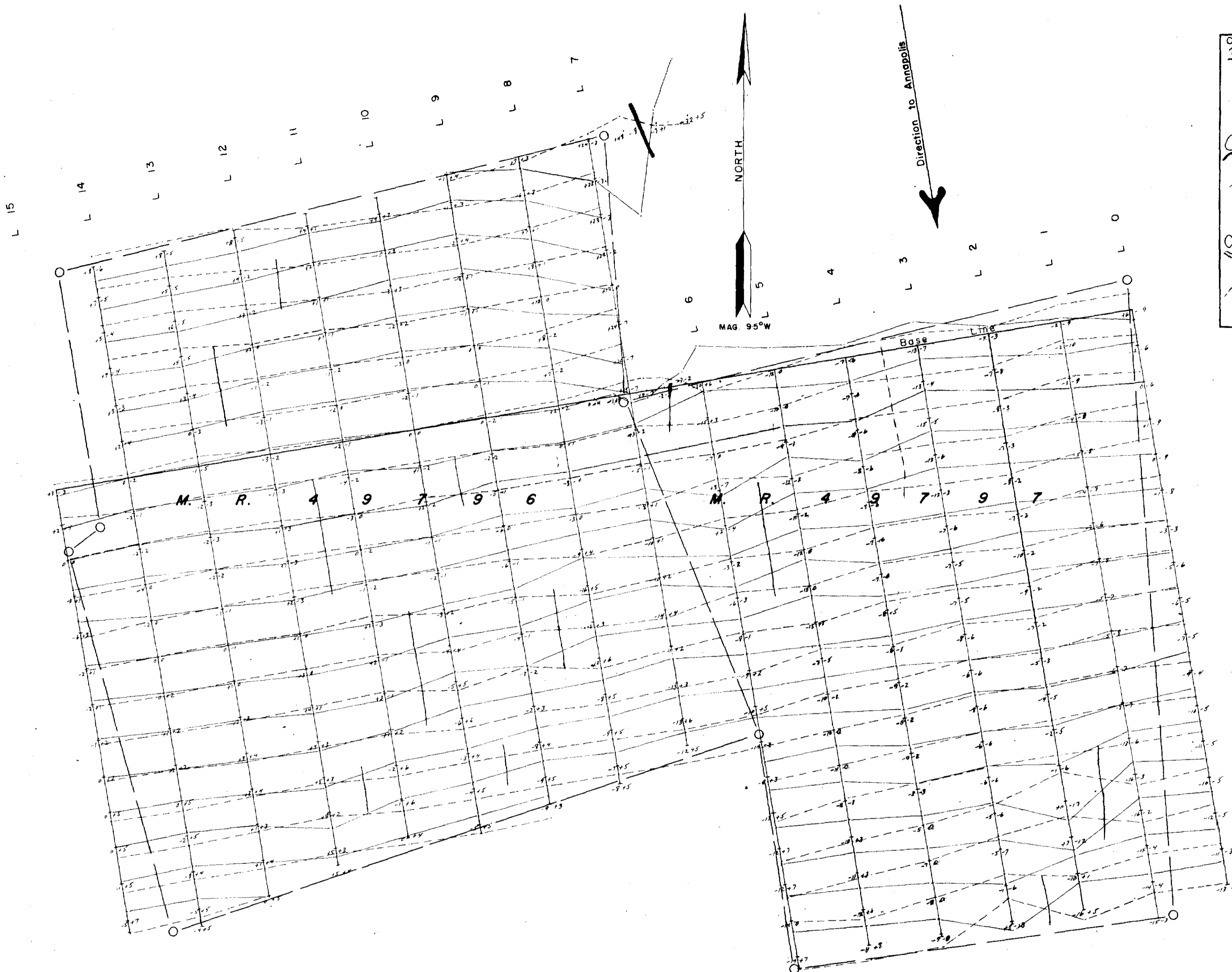
LEGEND

Assumed fault

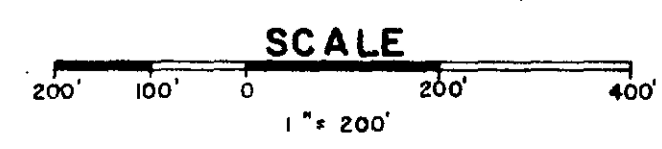
J. G. Willars

J. G. Willars April, 1969.





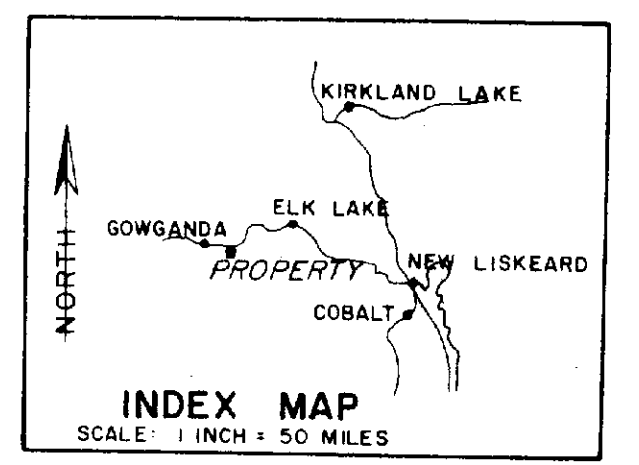
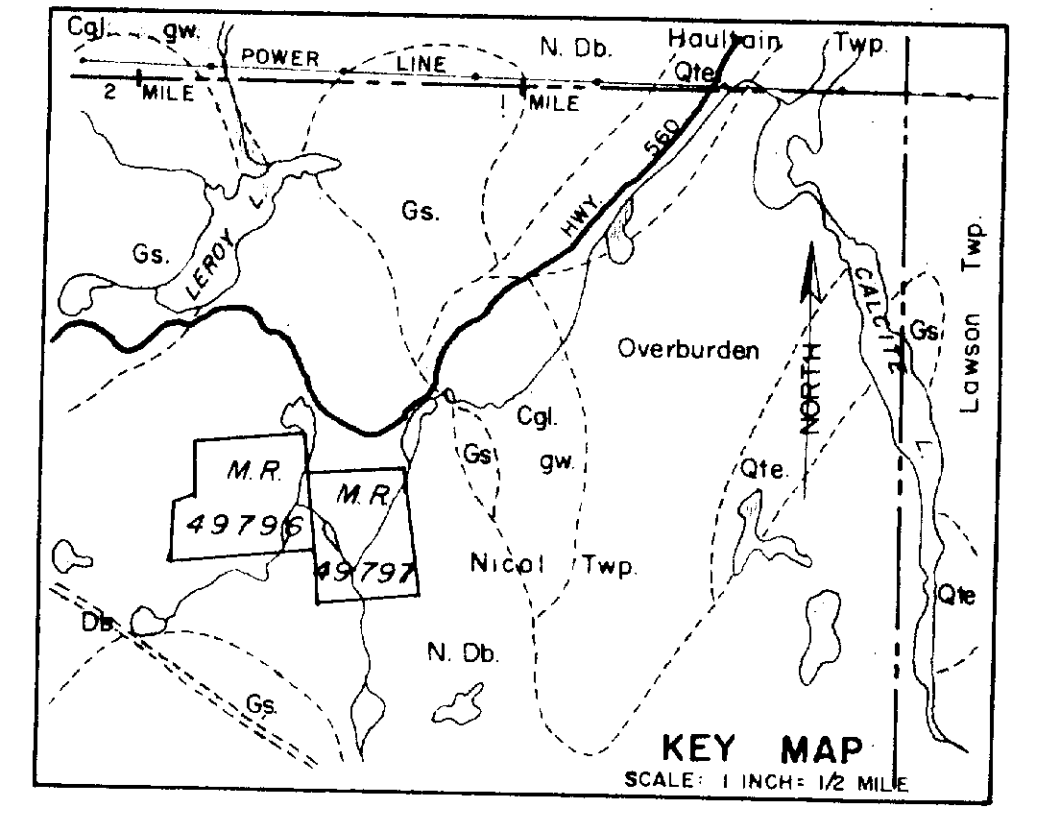
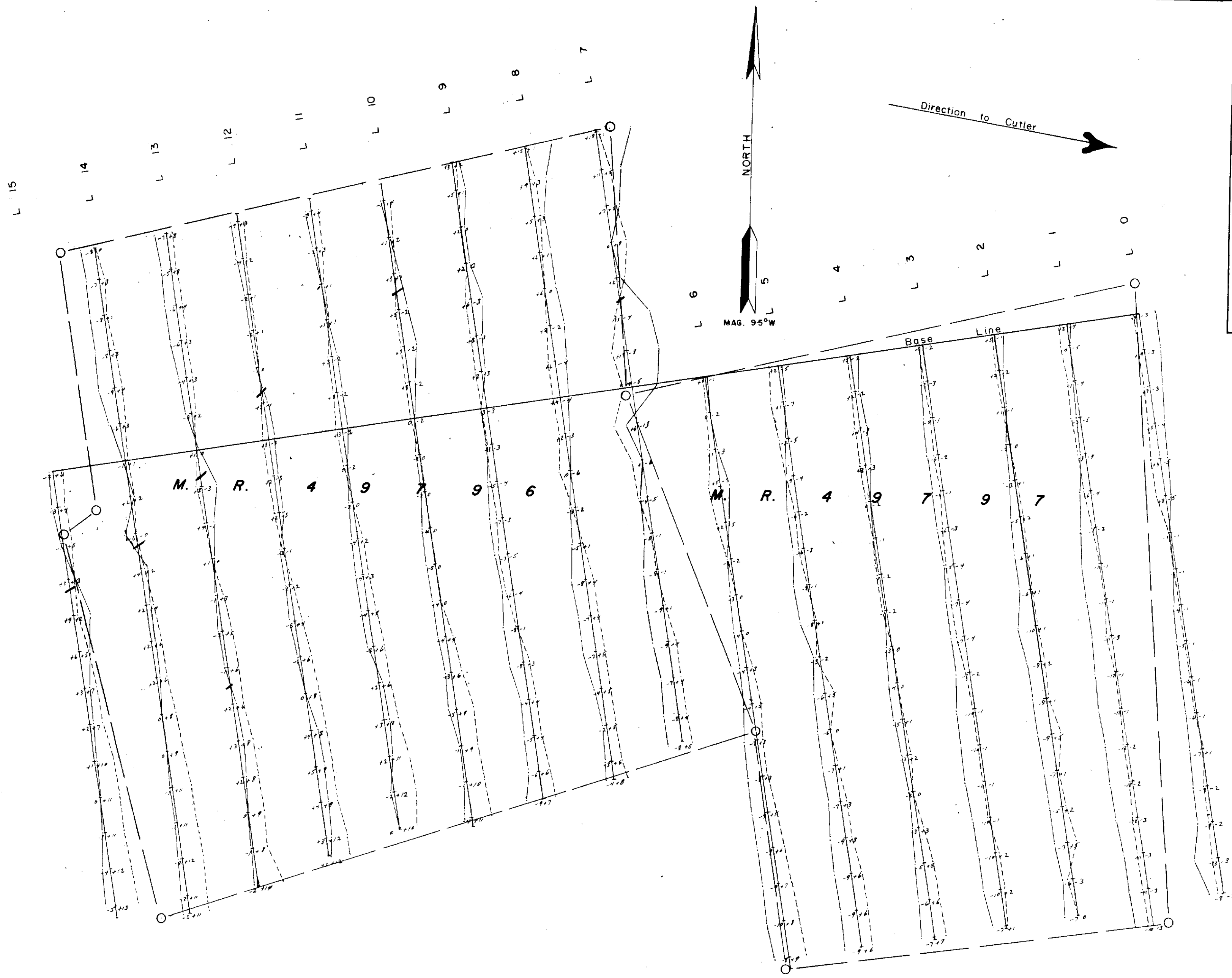
ELECTROMAGNETIC MAP
 VLF SURVEY
 CLAIMS M.R. 49696 & 7
 NICOL TWP., ONT.



ELECTROMAGNETIC DATA
 Station: Annapolis, Md. - 2140 kHz
 Readings taken facing east.
 Dip profile: 1/40" = 1%
 Quadrature profile: 1/40" = 1%
 Dip values recorded to left.
 Quadrature values recorded to right.
 Positive values plotted to right.
 Negative values plotted to left.
 Conductor axis

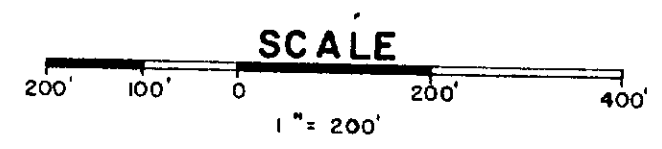
J. G. Willars
 J. G. Willars April, 1969.

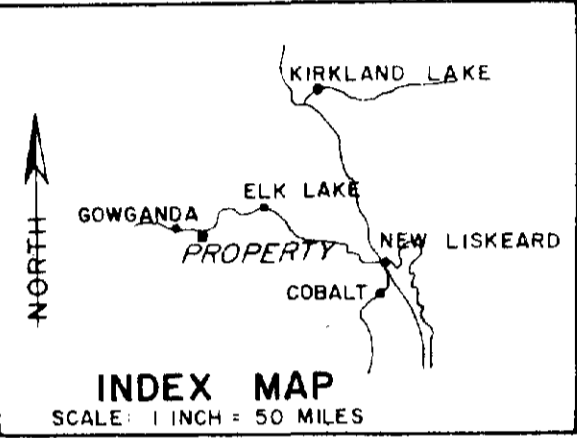
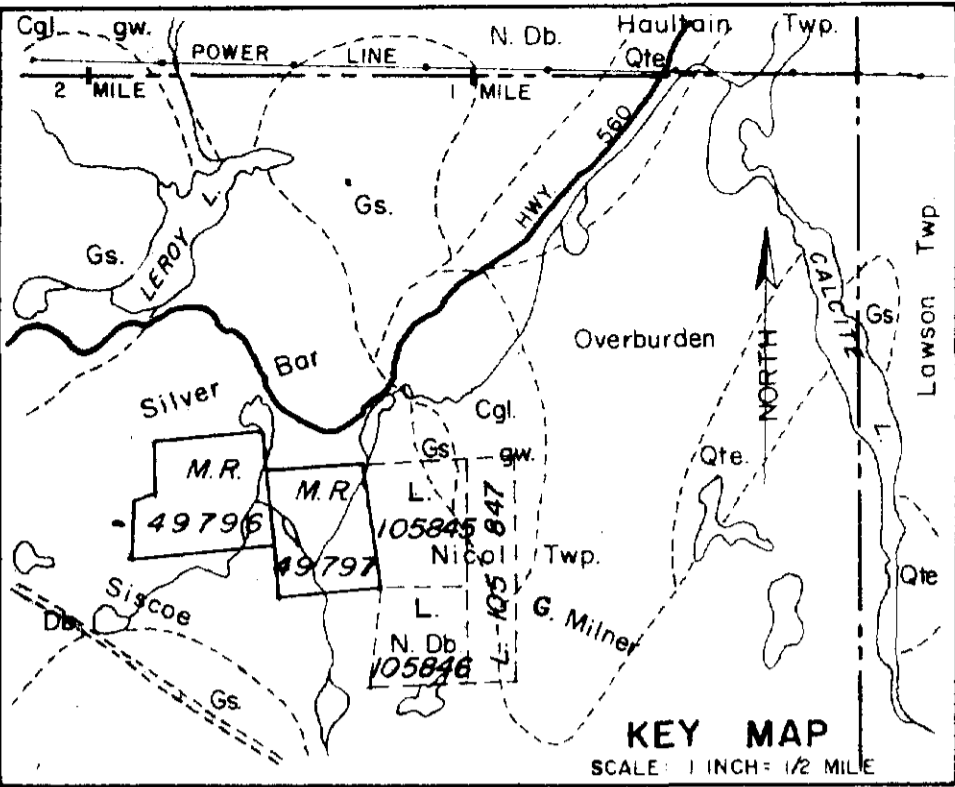
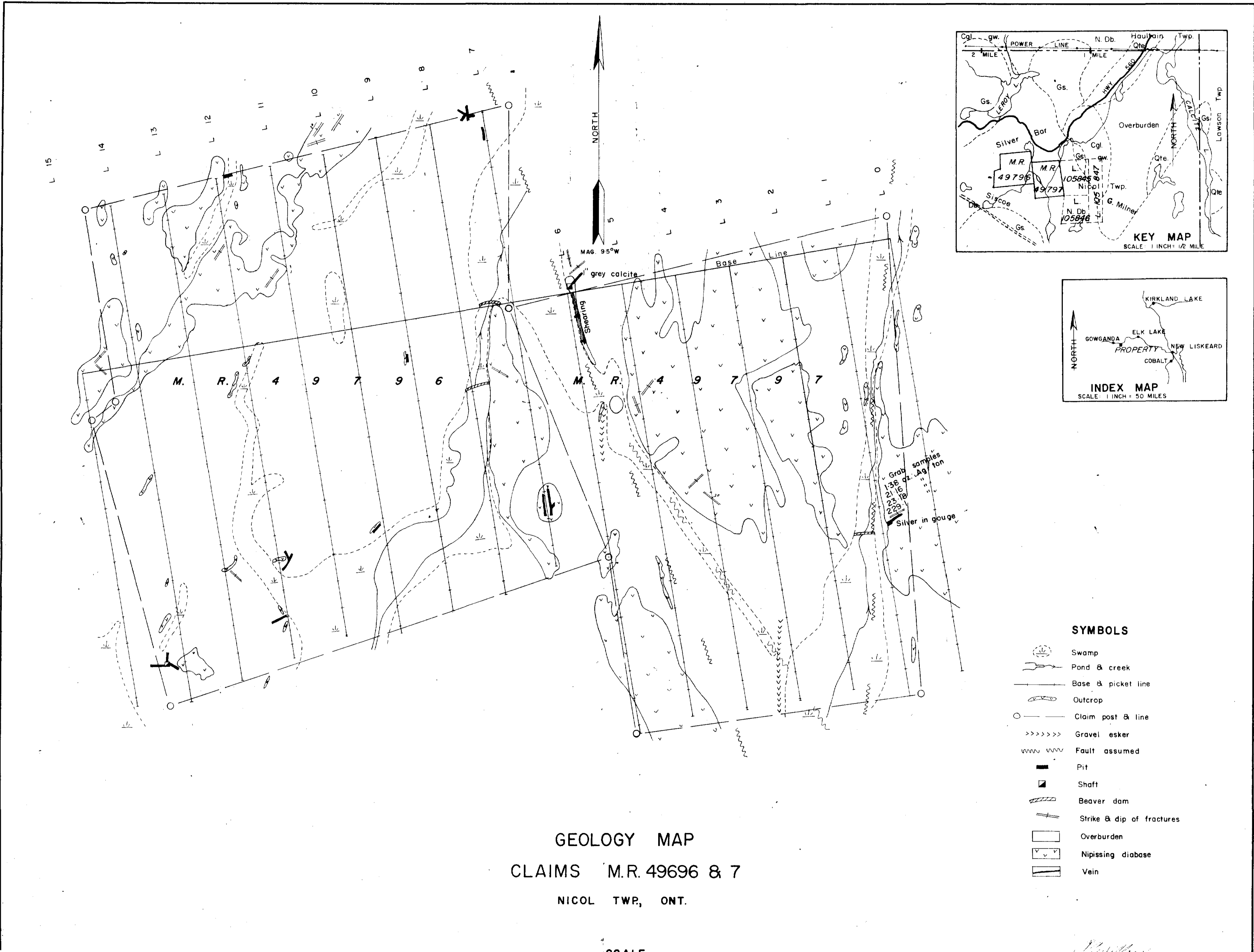




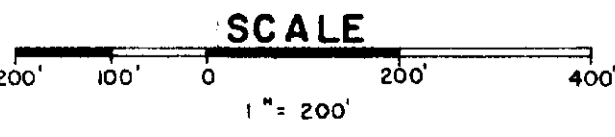
ELECTROMAGNETIC MAP
 VLF SURVEY
 CLAIMS M.R. 49696 & 7
 NICOL TWP., ONT.

ELECTROMAGNETIC DATA
 Station: Cutler, Maine - 1780 kHz
 Readings taken facing north.
 Dip profile: 1/40" = 1%
 Quadrature profile: 1/40" = 1%
 Dip values recorded to left.
 Quadrature values recorded to right.
 Positive values plotted to right.
 Negative values plotted to left.
 Conductor axis





GEOLOGY MAP
CLAIMS M.R. 49696 & 7
NICOL TWP., ONT.



- SYMBOLS**
- Swamp
 - Pond & creek
 - Base & picket line
 - Outcrop
 - Claim post & line
 - Gravel esker
 - Fault assumed
 - Pit
 - Shaft
 - Beaver dam
 - Strike & dip of fractures
 - Overburden
 - Nipissing diabase
 - Vein

J. G. Willars
 J. G. Willars June, 1969.

