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REPORT ON
MAGNETIC AND ELECTROMAGNETIC SURVEYS
OF THREE CLAIM GROUPS
IN
ROBB TOWNSHIP, KAMISKOTIA LAKE AREA
FOR
KIRKLAND MINERALS CORPORATION LIMITED

Summary and Recommendations

The magnetic surveys of three of the claim groups outlined several north - south striking quartz diabase dikes which are shown on the summary map. In addition the following anomalies were located:

Group 2: Three magnetic zones were outlined, of which zones A and C each have an associated electromagnetic conductor, while B has not.

Group 3: A broad band of high magnetics has two electromagnetic conductors present. Conductor 3, on the northeast flank of the band, appears to be the more interesting.

The magnetic and electromagnetic anomalies are, in general, not strong but this is characteristic of the sulphide mineralization in the area.

A diamond drilling programme is recommended to test magnetic zones A and B and conductor 3 for the presence of sulphide mineralization.

II Introduction

In Robb and Jamieson Townships, chalcopyrite is a common constituent of quartz veins, and is associated often with pyrrhotite, some of which is nickel bearing. Recent reopening of the Kam-Kotia Porcupine Mines and encouraging drilling results have aroused an interest in the area.

During August and September 1959, magnetic surveys were carried out over three of the five claim groups of Kirkland Minerals Corporation Limited. The vertical loop electromagnetic survey which followed covered groups 2 and 3.

III Discussion of Geophysical Surveys

Group 1: The magnetic survey of group 1 confirmed that this group is mainly underlain by gabbro. This information ruled out an electromagnetic survey on the group.

The main magnetic features of the group are a series of local highs and lows that correlate with north - south striking diabase dikes. These interpreted dikes are outlined on the maps. The magnetic anomalies in the

southwest corner of claim P 44331 and southeast corner of P 44334 could indicate the presence of Keewatin greenstones along the property boundary.

Group 2: The magnetic survey of group 2 revealed two features, which appear to be diabase dikes since they strike parallel to the known dikes of the area.

In addition, three magnetic zones, A, B and C, were outlined. Zone C could be an extension of the diabase dike that lies on strike.

Following the magnetic survey, a vertical loop electromagnetic survey was carried out on the group and three conductors were located. Conductor 1 (29+75E, Line 24N) lies on strike with magnetic zone A. Zone B has no conductor associated with it. Zone C shows indications of a conductor (conductor 2) running parallel to it. Additional conductor axes are located at 3+75E, Line 3N and 10+00E, Line 21N.

The three magnetic zones, A, B and C, strike parallel to the Keewatin greenstones.

Group 3: A wide band of high magnetics is outlined on the map striking N20°W. This band could be Keewatin

greenstones or a diabase dike. Lying within the magnetic high is a single electromagnetic conductor (conductor 4) and on the northeast flank there is a second conductor (conductor 3). Both of these electromagnetic conductors strike parallel to the magnetic trends.

Conductor 3 lying on the flank of the magnetic high appears to be associated with local highs and is therefore more interesting.

Other magnetic anomalies on the eastern edge of the map area suggest additional bands of magnetic greenstones.

IV Conclusions and Recommendations

The magnetic surveys of the three claim groups outlined several quartz diabase dikes. In addition three magnetic anomalies were located on group 2, two of which have electromagnetic conductors associated with them. In group 3, conductor 3 running along the flank of a magnetic high appears interesting.

It is recommended that magnetic zone A (and conductor 1), zone C (and conductor 2) and conductor 3 be drilled to test for the presence of sulphide mineralization.

<u>Drill Hole</u>	<u>Group</u>	<u>Magnetic Zone</u>	<u>Conductor</u>	<u>Line</u>	<u>Station</u>	<u>Direction</u>	<u>Dip</u>	<u>Depth</u>
1	2	A	1	24+00N	32+00E	Grid West	45°	350'
2	2	B		19+00N	19+00E	Grid N60°E	45°	350'
3	3		3	25+00S	8+50E	Grid N55°W	45°	300'

SULMAC EXPLORATION SERVICES LIMITED

Tom Gledhill

T.R. Gledhill,
Chief Geophysicist.

Toronto, Ontario

October 19, 1959



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GEOLOGY REPORT
NO. 4 CLAIM GROUP
KIRKLAND MINERALS CORPORATION LIMITED
ROBB TOWNSHIP, ONTARIO

Summary

A group of 20 claims was acquired by Kirkland Minerals Corporation Limited in the south central portion of Robb Township overlying a basic intrusive. A detailed geological examination and mapping programme was recommended and carried out during the summer of 1959 on 12 of these claims to investigate the merits of the ground.

The results of the surface examination on the property did not disclose mineralization of interest. It is recommended that additional investigation be withheld pending results of prospecting and exploratory work in the vicinity.

Introduction

Kirkland Minerals Corporation Limited acquired a 20 claim group in Robb Township overlying a basic intrusive of a type commonly related to deposits of economic sulphides.

Due to the abundance of rock exposures known to exist on the property, it was recommended that the merits of the ground could be best determined by a detailed geology examination and mapping programme.

This survey started on August 14, 1959 and was completed September 22, 1959. A two man party was used with D. J. Olson, B.Sc. as party chief.

Base line and 400 foot picket lines were used as control.

Accompanying this report is a geology map on a scale of 200 feet = 1 inch, covering 12 of the 20 claims.

The 12 claims mapped are as follows:

PP 47249 - 54 inclusive	6 claims
PP 47257 - 59	3
PP 47261 - 63	3
	<u>3</u>
	12 claims

Property - Location and Access

The property consists of 20 claims:

PP 47243 - 65 inclusive	18 claims
PP 47277 - 78	2
	<u>2</u>
	20

rocks of the area consist of early Pre-Cambrian lavas and fragmentals which have been tightly folded and intruded by basic igneous rocks, granite and related acid dikes and later diabase dikes.

Prospecting has occurred intermittently since the early history of the Porcupine Camp. Chalcopyrite and pyrrhotite are common associated minerals in numerous quartz veins found in the area and a limited amount of production of copper was obtained from the Kam-Kotia Mine in Robb Township during the war.

Considerable geophysical prospecting has followed the discovery of copper - nickel float in Loveland Township to the north of Robb though the source of the float has not been found.

Outcrops of a gabbroic type rock are widespread in the south central portion of Robb Township and underlie this 20 claim group.

This basic intrusive consists principally of gabbro and hornblendite, with some diorite and coarse pegmatitic phases.

This claim group is the westernmost of a series of four claim groups belonging to Kirkland Minerals Corporation Limited and located in the southeast section of Robb Township, Porcupine Mining Division, Ontario.

This group lies approximately one-half mile southwest of Kamiskotia Lake, to which access may be made by plane.

Alternatively the property may be reached by a 22 mile road from Timmins to George Jamieson's property (3/4 mile south of Kamiskotia Lake) and thence by trail to Kamiskotia Mountain lying within the claim group.

During the examination and mapping of the property, the party operated out of a camp on the nearest shore of Kamiskotia Lake.

Geology - Regional

Information on the geology of the surrounding area is best obtained from the Ontario Department of Mines Report Vol. LIII, Part IV, 1944.

The geology map accompanying the above report (Map No. 530) includes Robb Township. The consolidated

Geology - Local

TABLE OF FORMATIONS

GENOZOIC

Pleistocene: Clay, sand, gravel, boulders.
(Great unconformity)

PRE-CAMBRIAN

Keweenaw(?): Olivine diabase.
(Intrusive contact)

Matachewan: Quartz diabase.
(Intrusive contact)

Algoman: Granite, quartz porphyry, aplite.
(Intrusive contact)

Haileyburian: Gabbro, hornblendite.
(Intrusive contact)

Keewatin: (Transition zone: indeterminate
(rocks between normal Keewatin
(types and normal gabbro.
(Rhyolite.
(Greenstone, pillow lava,
(volcanic fragmentals.
(Iron formation.

The area of the claims was prospected and mapped on a 200 feet to 1 inch scale using an east - west base line with 400 foot interval picket lines and 100 foot stations.

The rock types conform closely to that indicated by the Ontario Department of Mines Map No. 53C.

All the rocks mapped within the claim group form phases of one intrusive gabbro mass. An attempt was made to differentiate the diorite portions of the mass as indicated on the map with this report.

The gabbro is a dark gray, medium grained rock with, in places, ilmenite and pyrite as accessories. Numerous small aplite and coarse pegmatite dikes intrude the rock. Banding is prominent at 320 degrees

The diorite varies from a gray, medium grained quartz diorite to a green, coarse grained hornblende diorite.

A test pit is located on claim PP 47261 where a large amount of fine grained crystalline pyrite occurs.

A composite sample from the pit assayed as follows:

<u>Gold</u>	<u>Copper</u>
Nil	0.15%

No other mineralization of significance was found.



KAM KOTIA PORCUPINE MINES

GROUP 3

KAMISKOTIA LAKE

GROUP 2

GROUP 1




CHRISTMAS LAKE




ROBB

JAMIESON

GODFREY

TO TIMMINS

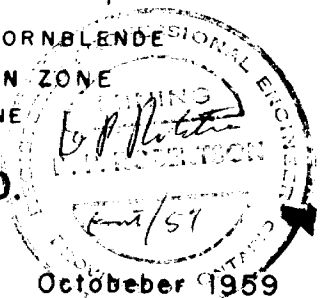
-  - SAND, GRAVEL
-  - QUARTZ DIABASE
-  - GRANITE, PORPHYRY

-  - GABBRO, HORNBLENDE
-  - TRANSITION ZONE
-  - GREENSTONE

SUMMARY MAP
KIRKLAND MINERALS CORPORATION LTD.
 ROBB TOWNSHIP
 ONTARIO

Scale 1" = 2640'

October 1959



Conclusions and Recommendations

Outcrops are prevalent within the claim group, sufficiently so that, since no mineralized zones, shears or other geological structures of interest were located, it may be concluded that the chances of finding economic bodies of basic sulphides are slim.

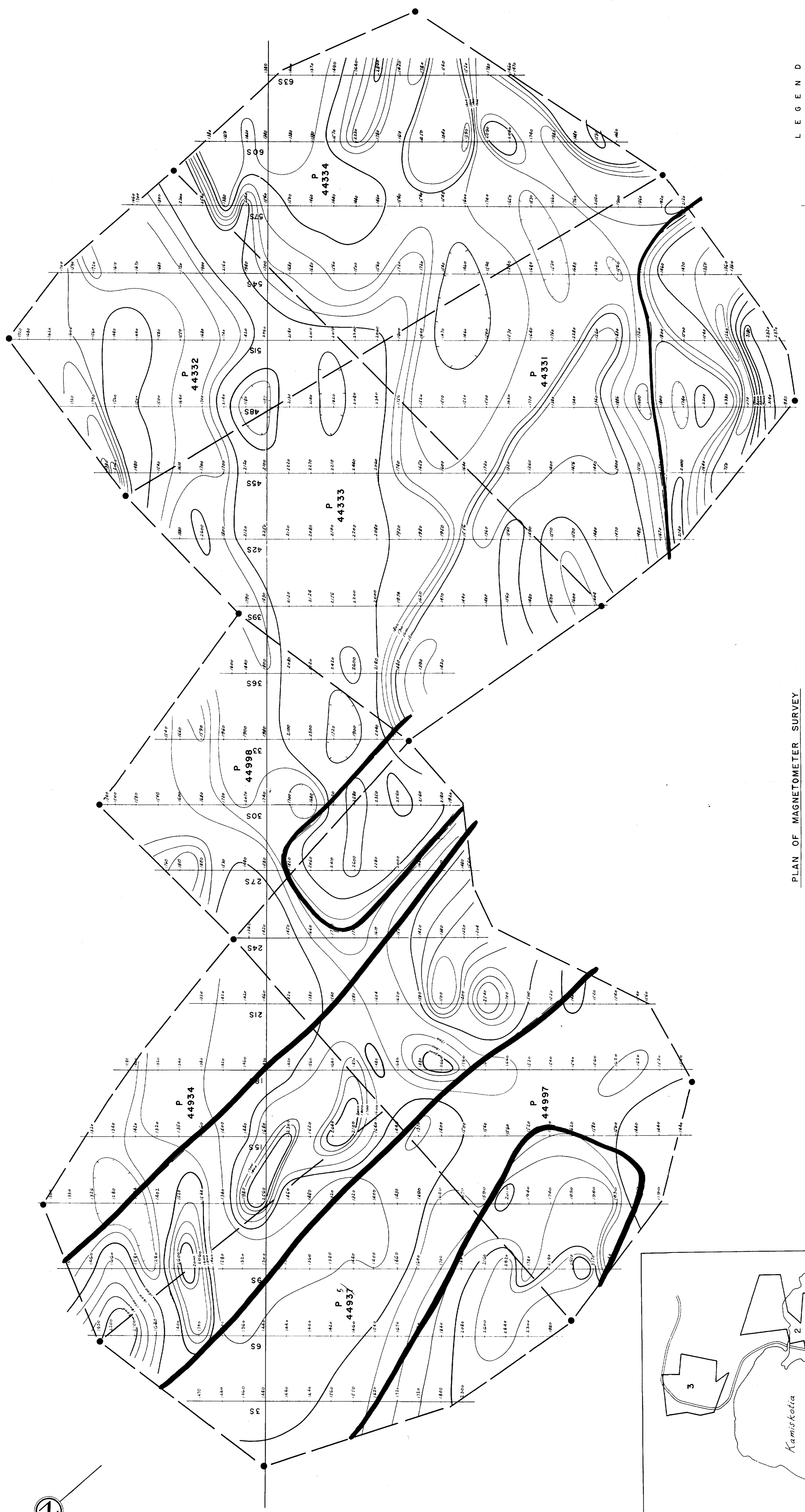
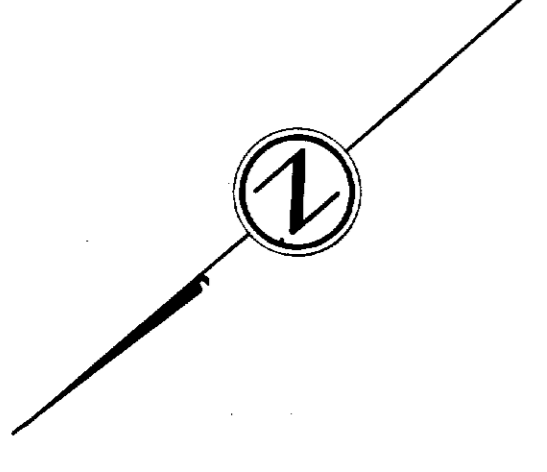
It is therefore recommended that additional investigation on the property be withheld pending the results of prospecting and exploratory work in the vicinity of these claims.

SULMAC EXPLORATION SERVICES LIMITED


D.P. Robertson, P.Eng.

Toronto, Ontario

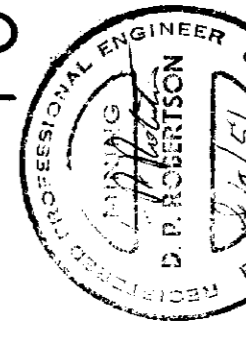
November 6, 1959



PLAN OF MAGNETOMETER SURVEY

KIRKLAND MINERALS CORPORATION LIMITED

PORCUPINE MINING DIVISION
ROBB TOWNSHIP
ONTARIO

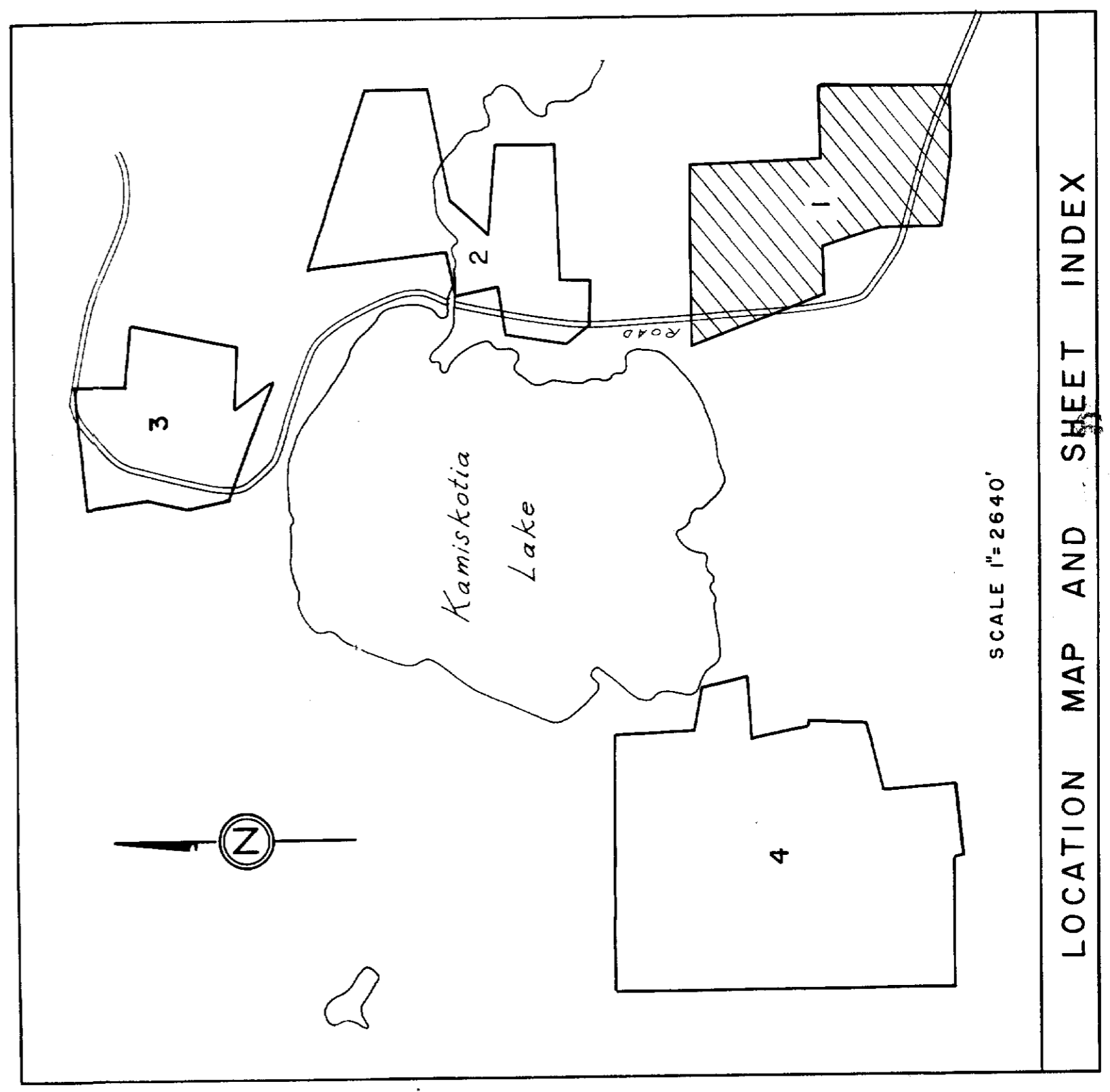


SCALE 1" = 200'

SEPTEMBER, 1959

SULMAC EXPLORATION SERVICES LIMITED

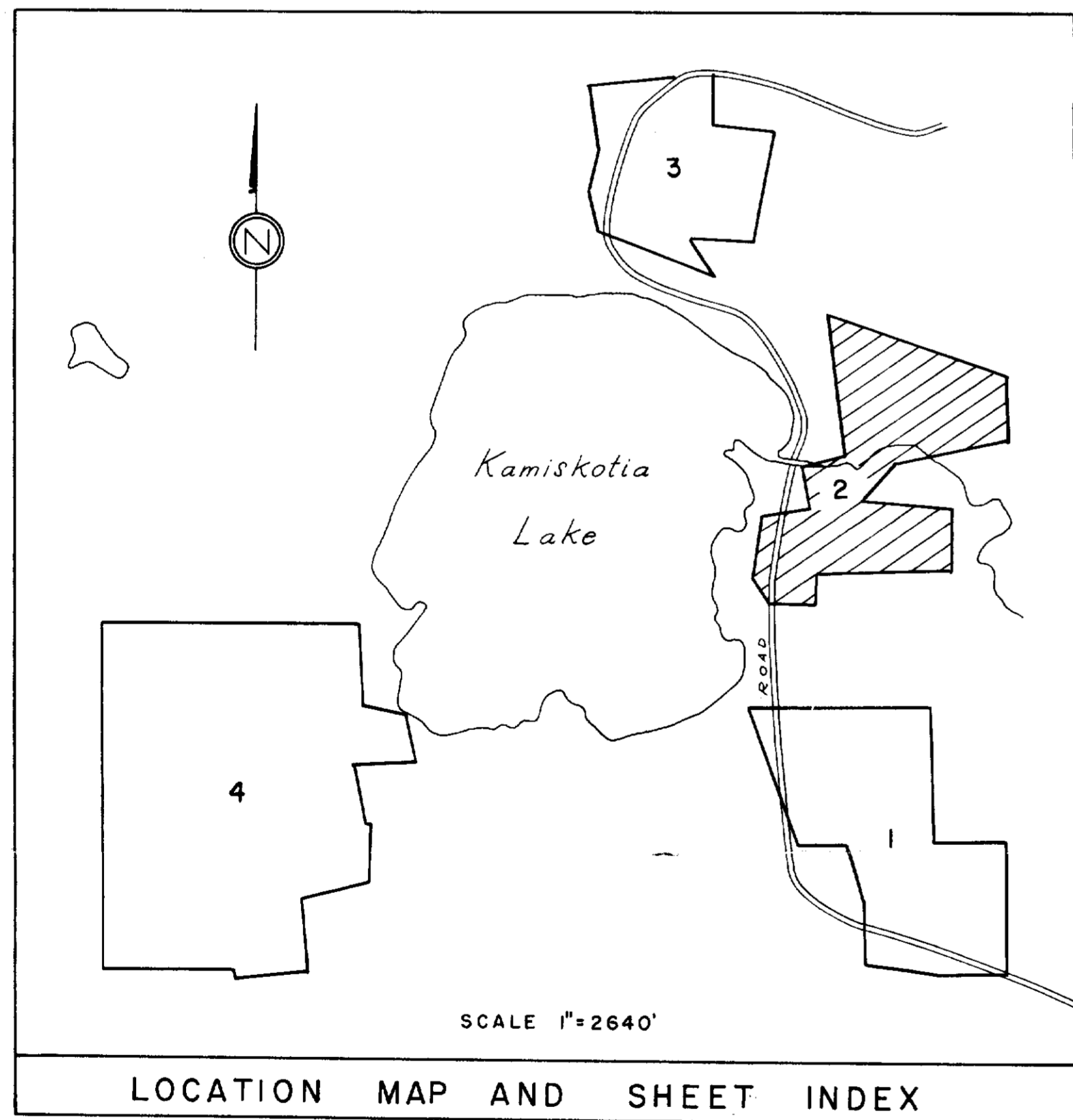
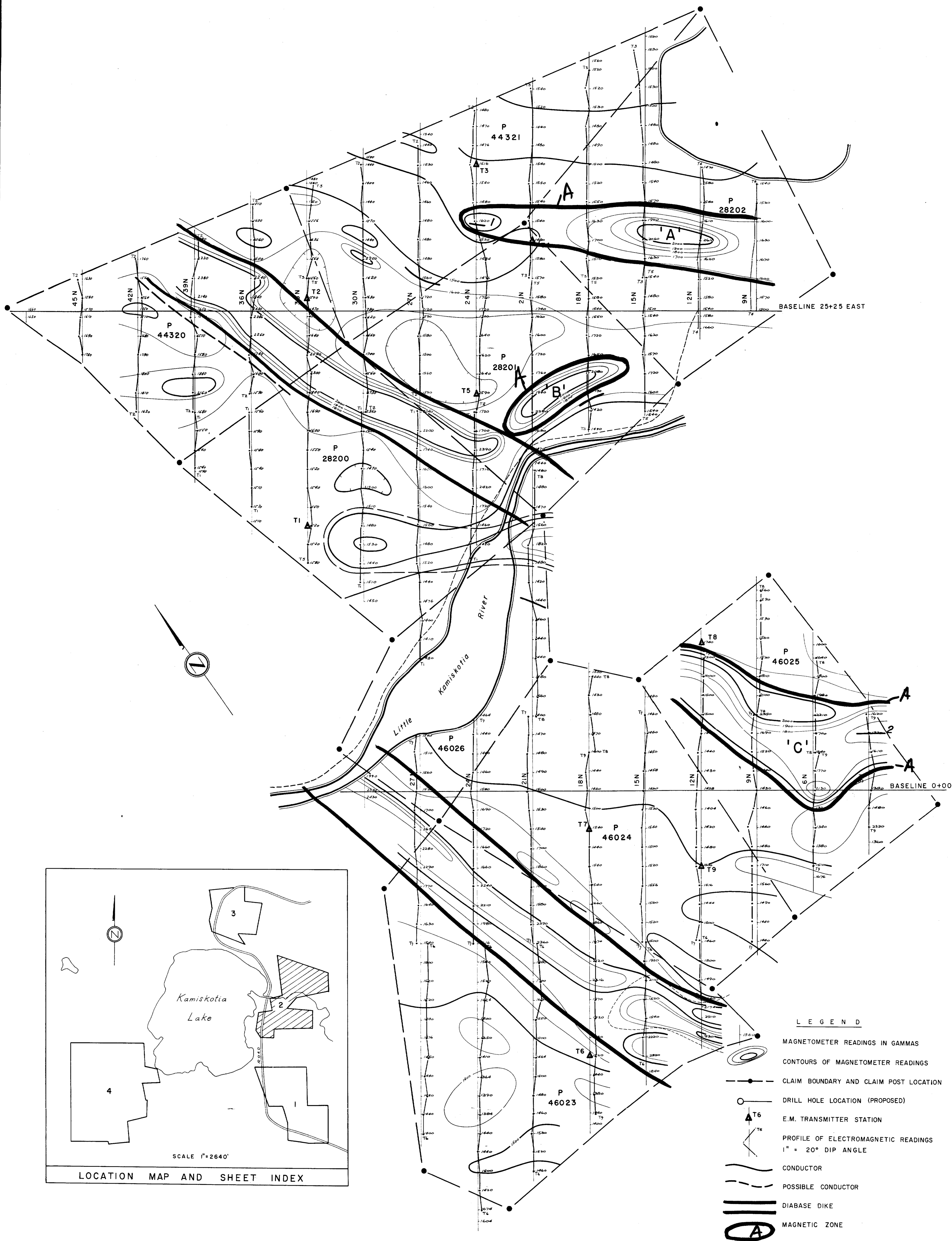
SURVEY BY



- LEGEND**
- MAGNETOMETER READINGS IN GAMMAS
 - CONTOURS OF MAGNETOMETER READINGS
 - CLAIM BOUNDARY AND CLAIM POST LOCATION
 - DRILL HOLE LOCATION
 - DIABASE DIKE
 - KEEWATIN GREENSTONE (HIGH MAGNETIC RELIEF)

(2/3) C. G. H.





- LEGEND**
- MAGNETOMETER READINGS IN GAMMAS
 - CONTOURS OF MAGNETOMETER READINGS
 - CLAIM BOUNDARY AND CLAIM POST LOCATION
 - DRILL HOLE LOCATION (PROPOSED)
 - E.M. TRANSMITTER STATION
 - PROFILE OF ELECTROMAGNETIC READINGS
1" = 20° DIP ANGLE
 - CONDUCTOR
 - POSSIBLE CONDUCTOR
 - DIABASE DIKE
 - MAGNETIC ZONE

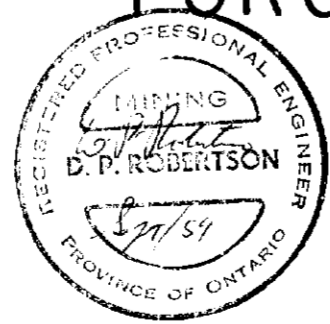
PLAN OF MAGNETOMETER AND ELECTROMAGNETIC SURVEY

KIRKLAND MINERALS CORPORATION LIMITED

PORCUPINE MINING DIVISION

ROBB TOWNSHIP

ONTARIO



SURVEY BY

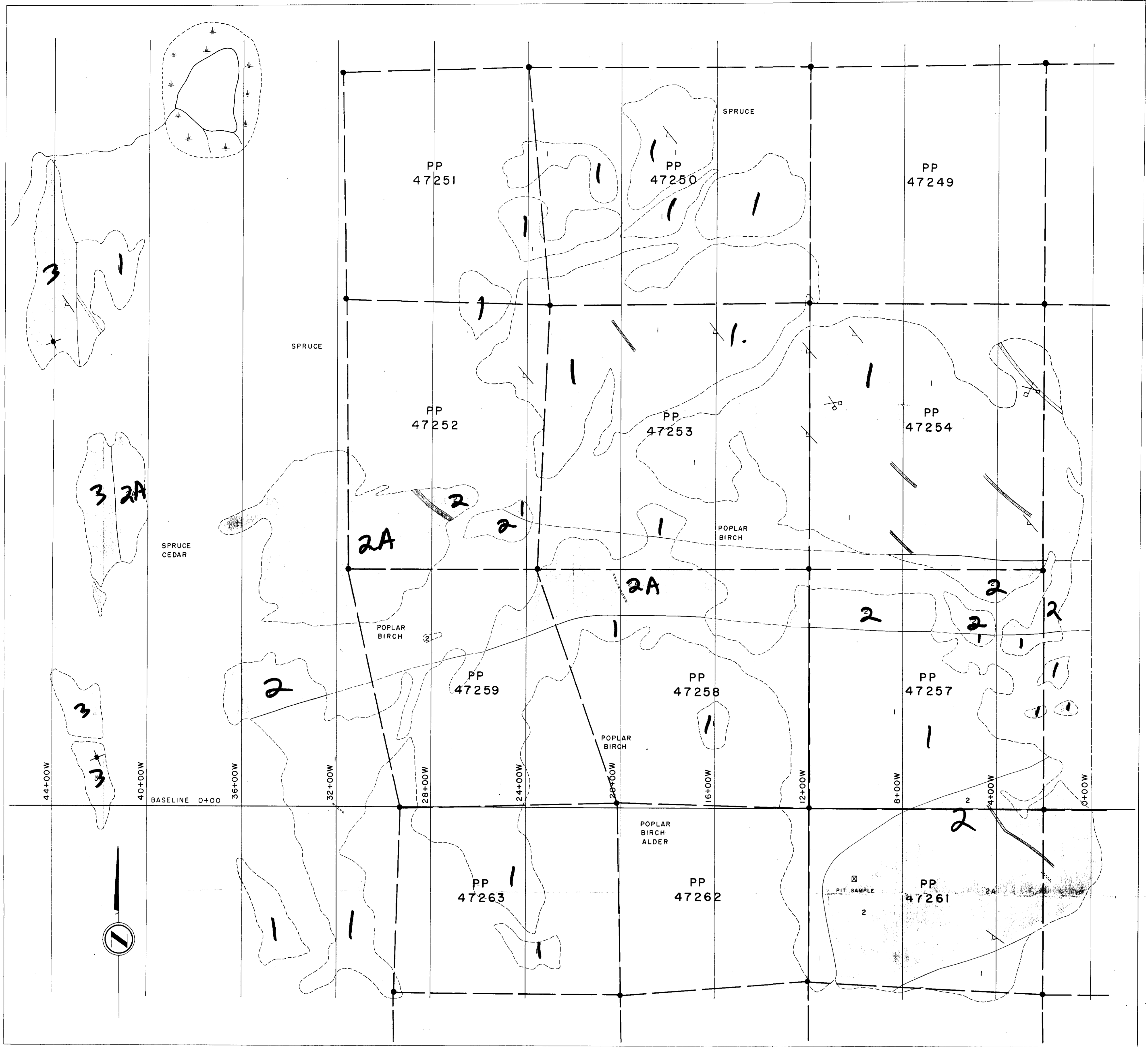
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SEPTEMBER, 1959

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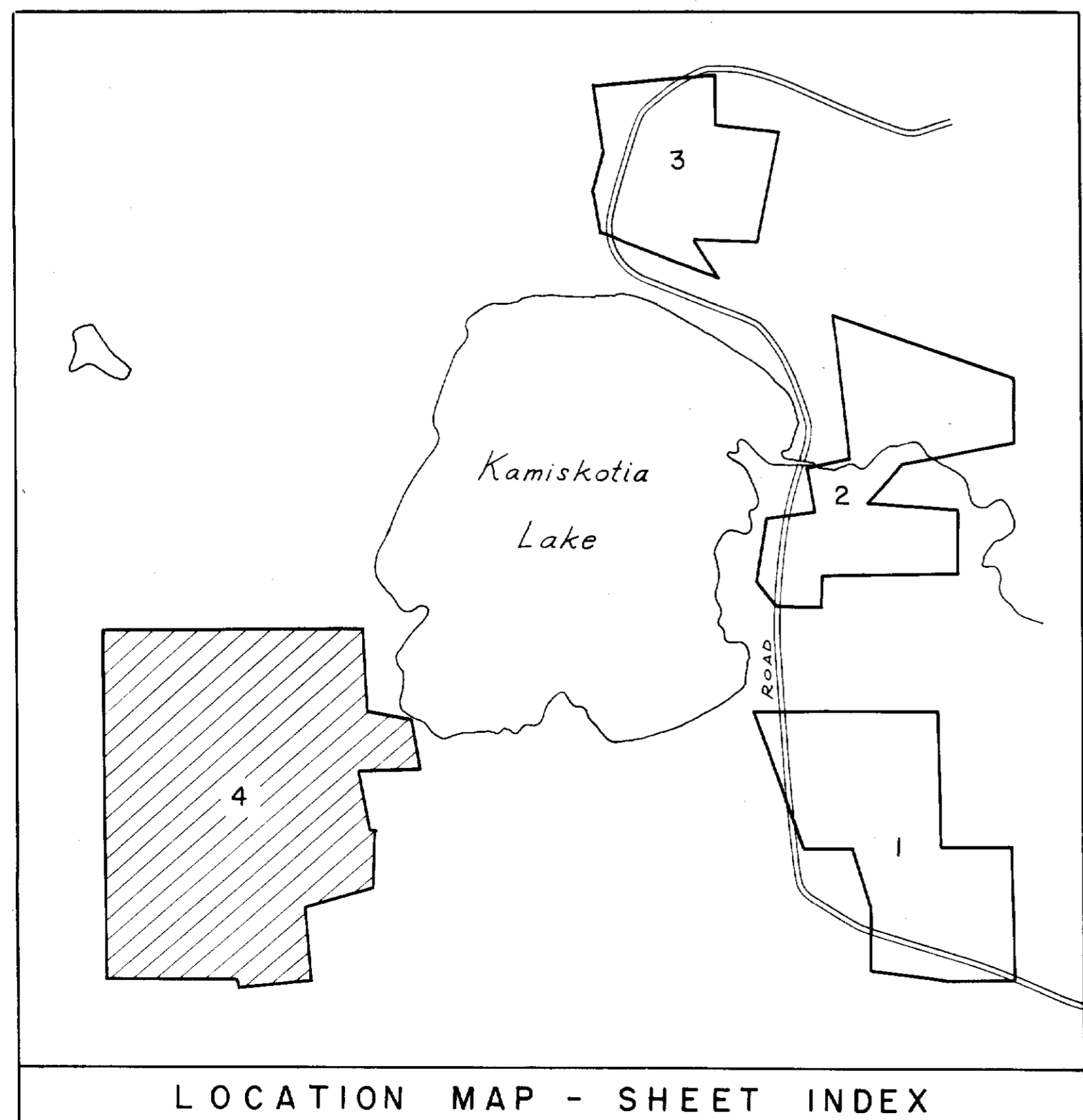


LEGEND

- | | | | |
|--|--|--|---|
| | APLITE DIKES | | QUARTZ DIABASE DIKE |
| | QUARTZ DIORITE, HORNBLENDE DIORITE, HORNBLENDE DIORITE, GABBRO | | QUARTZ GABBRO, HORNBLENDE DIORITE WITH BASIC PEGMATITE INCLUSIONS |

SYMBOLS

- | | | | |
|--|---------------------------------|--|-----------------------------|
| | STRIKE OF BANDING | | STRIKE OF JOINTING |
| | QUARTZ STRINGERS | | SILICIFIED ZONE |
| | GEOLOGICAL BOUNDARY ASSUMED | | GEOLOGICAL BOUNDARY DEFINED |
| | BOUNDARY OF ROCK OUTCROP | | SWAMP WITH BOUNDARY |
| | CLAIM LINES, ASSUMED CLAIM POST | | TEST PIT |



PLAN OF GEOLOGICAL SURVEY

KIRKLAND MINERALS CORPORATION LIMITED

PORCUPINE MINING DIVISION
ROBB TOWNSHIP
ONTARIO



SURVEY BY

SCALE 1" = 200'

SEPTEMBER, 1959

SULMAC EXPLORATION SERVICES LIMITED

