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Report on the

GEOLOGICAL and GEOPHYSICAL SURVEYS

Mining Claims TB-59518, 59519, 59523, 59536 to  
59541 inclusive and TB-59545 to 59571 inclusive

PORT ARTHUR MINING DIVISION - ONTARIO

for

LEXINDIN GOLD MINES LIMITED

by

Simard and Knight

Toronto, Ontario

December 14, 1955

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GEOLOGICAL and GEOPHYSICAL SURVEYS  
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PROPERTY

The property includes thirty-six unsurveyed and unpatented mining claims numbered TB-59518, 59519 and 59523, TB-59536 to 59541 inclusive, and TB-59545 to 59571 inclusive.

The claims form a contiguous group containing 1440 acres more or less.

LOCATION, ACCESS, ETC.

The property is situated in the Port Arthur Mining Division in the Province of Ontario, approximately sixteen miles southwest of Manitowadge Lake and twenty-four miles north of the town of Heron Bay on the Canadian Pacific Railroad. The property is accessible by aircraft from Geraldton to Little Joe Lake, three-quarters of a mile to the north of the property, and thence by foot trail. There is a private bush road from Stevens on the Canadian National Railway to Camp 12 of the Marathon Pulp and Paper Company which passes seven miles to the northeast.

Big Joe Creek crosses the property from northeast to southwest and this, with its tributaries, provides the only source of water in the immediate vicinity of the claim group. However the Pick River with a substantial flow of water passes some three miles to the east.

The westerly portion of the property is irregular with steep hills and ridges trending in a northeast, southwest direction. Outcrops are numerous in this vicinity. The eastern edge of the high ground is marked by a steep cliff which closely follows the west bank of the Big Joe Creek. To the east of

the creek the surface area is flat lying and covered with numerous swamps and bogs. Outcrops occur infrequently over this portion of the property.

#### PURPOSE OF THE SURVEYS

The surveys were proposed to determine as far as possible the economic merits of the claim group by means of surface exploration.

#### PROPERTY GEOLOGY

The oldest rocks which outcrop on the property include hornblende biotite feldspar quartz gneiss (HBFQ gneiss) and interbanded impure quartzite and mica schist. This rock series occurs in the central part of the property and has been mapped from the north to south boundaries of the property across an apparent width of 2000 feet. The approximate regional strike of these rocks is N-20°-E (ast.). The central 600 feet of width is composed chiefly of quartzite and mica schist, the whole being flanked on either side by granite.

The granite has apparently invaded the older series of rocks and those portions of the HBFQ gneiss approaching their contact with the granite are composed principally of remnant areas of the gneissic rocks within the granite mass.

The granite mass has been intruded by a network of pegmatite dykes. The thickness of individual dykes varies from a few inches to upwards of 15 feet. The strike direction of these dykes is inconsistent. Diabase dykes intrude all of the formations described above. These strike approximately N-20°-E (ast.).

#### Hornblende Biotite Feldspar Quartz Gneiss -

These rocks are probably derivatives of an older lava. Hornblende and biotite are the predominant minerals with lesser amounts of feldspar and quartz. The series is banded in places and occasionally grades into hornblende schist and mica schist.

Quartzite-Mica Schist -

The quartzites are composed of bands of generally impure material, frequently yellow to brown in color on the weathered surface. These are inter-banded with mica schist which attains exposed widths of up to 30 feet. The bedding in the quartzite varies from 1/32 of an inch or less to about 1 inch in width, strikes N-20°-E (ast.) and dips to the west at approximately 50°.

Granite -

The granite varies in color from pink to gray. It is fine to medium in texture and in places exhibits gneissic characteristics. Toward the contact with the HBFQ gneiss, it grades into a distinct granite gneiss. The principal accessory minerals are hornblende and biotite, and minor magnetite. In places hornblende and biotite appear to make up possibly 50% of the mass.

Pegmatite Dykes -

The pegmatites are exposed in the granitic areas on the property. They vary in width from a few inches to upwards of 15 feet. The composition is pink feldspar and quartz. The only accessory mineral observed was an occasional small flake of biotite.

MINERALIZATION

A number of mineralized zones were mapped toward the north end of the property on claims 7B-59553 and 59548. These are composed of disseminated magnetite, pyrrhotite and pyrite in the bedded impure quartzite. The sulphides are marked by gossans on surface outcrops. These gossan zones of which there are several, occur along a total length of some 1400 feet and across a width of 300 feet. The individual zones average about 10 feet in width and less than 100 feet in length, although one zone was followed for a length of 1200 feet and showed a maximum width of 30 feet on one exposure. No commercial sulphides were observed on surface.

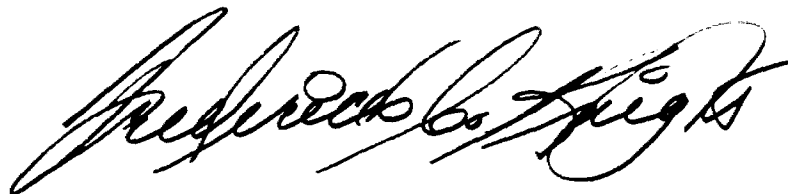
MAGNETIC ANOMALIES

Four anomalous areas were outlined by the geophysical survey. The most westerly of these follows along the strike length of the impure quartzite exposures. The most intense portions of this anomaly occur in the vicinity of the gossan exposures on claim TB-59553. A second anomaly parallels the first some 700 feet to the east. This overlies an area mapped as HBFQ gneiss. Examination of surface outcrops in the immediate vicinity divulged the presence of small localized disseminations of magnetite but no sulphides. The third anomaly, another 1200 feet to the east, overlies a diabase dyke. The fourth anomaly is located at the south side of claim TB-59570. Again an examination of surface outcrops showed the presence of disseminated magnetite but no sulphides.

The conclusions reached from a study of the magnetic survey plan is that the more westerly anomaly represents the magnetite sulphide zones confined to the impure quartzite horizon. The other anomalies represent disseminated magnetite only. Surface outcrops were found along all four anomalous areas and thus by surface examination the cause for the anomaly could be ascertained.

Respectfully submitted,

SIMARD and KNIGHT

A handwritten signature in cursive script, reading "Frederick C. Knight". The signature is written in dark ink and is positioned above the typed name.

Frederick C. Knight, B.Sc., P.Eng.

## APPENDIX I

### FIELD PROCEDURES

A base line striking approximately north-south (astronomic) was cut across the central part of the property. Picket lines spaced at intervals of 400 feet were cut east and west from this base line to the property boundaries. These lines and the property boundaries were chained and marked chainage pickets placed on all lines at intervals of 100 feet to provide field control for the surveys.

Field mapping was conducted by traverses, between picket lines. All data shown on the geological plan (accompanying this report) was located with respect to chainage markers on the picket lines by pace and compass methods.

The Magnetometer survey was conducted with two Sharpe D1-M magnetometers measuring magnetic intensities. Station readings were taken at intervals of 100 feet on all picket lines. Magnetic values so obtained were corrected for diurnal and daily variation and converted to gamma equivalents.

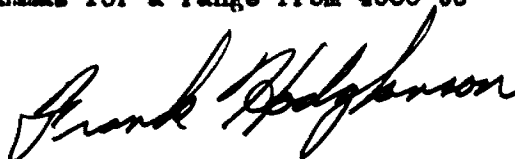
### SURFACE MAPS

Two surface maps accompany the report. These are -

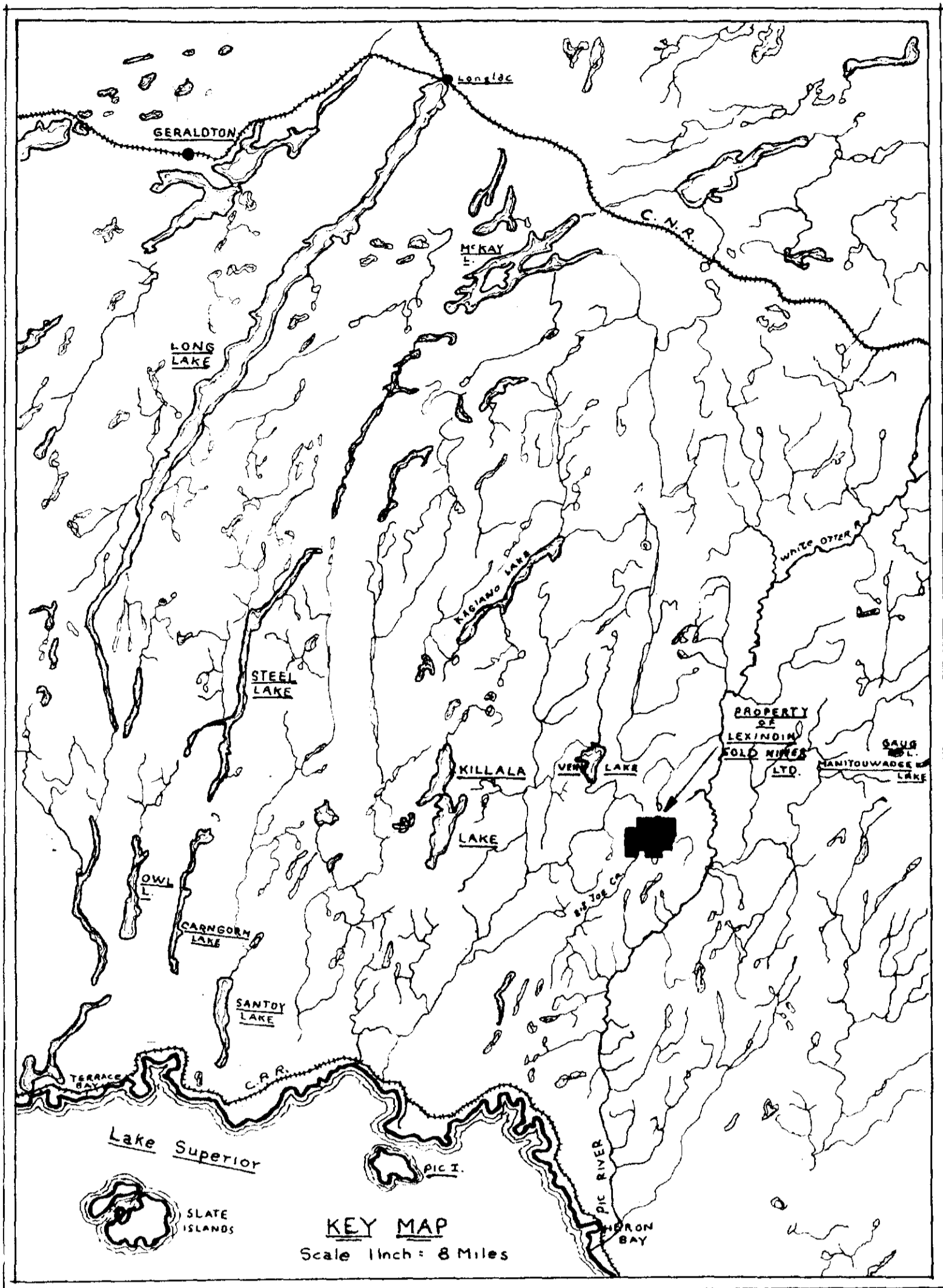
1. plan of "Surface Geology", and
2. "Magnetometer Survey" plan.

Both plans show the complete property, claim posts, claim numbers, etc. and are plotted on a scale of 1 inch equals 300 feet.

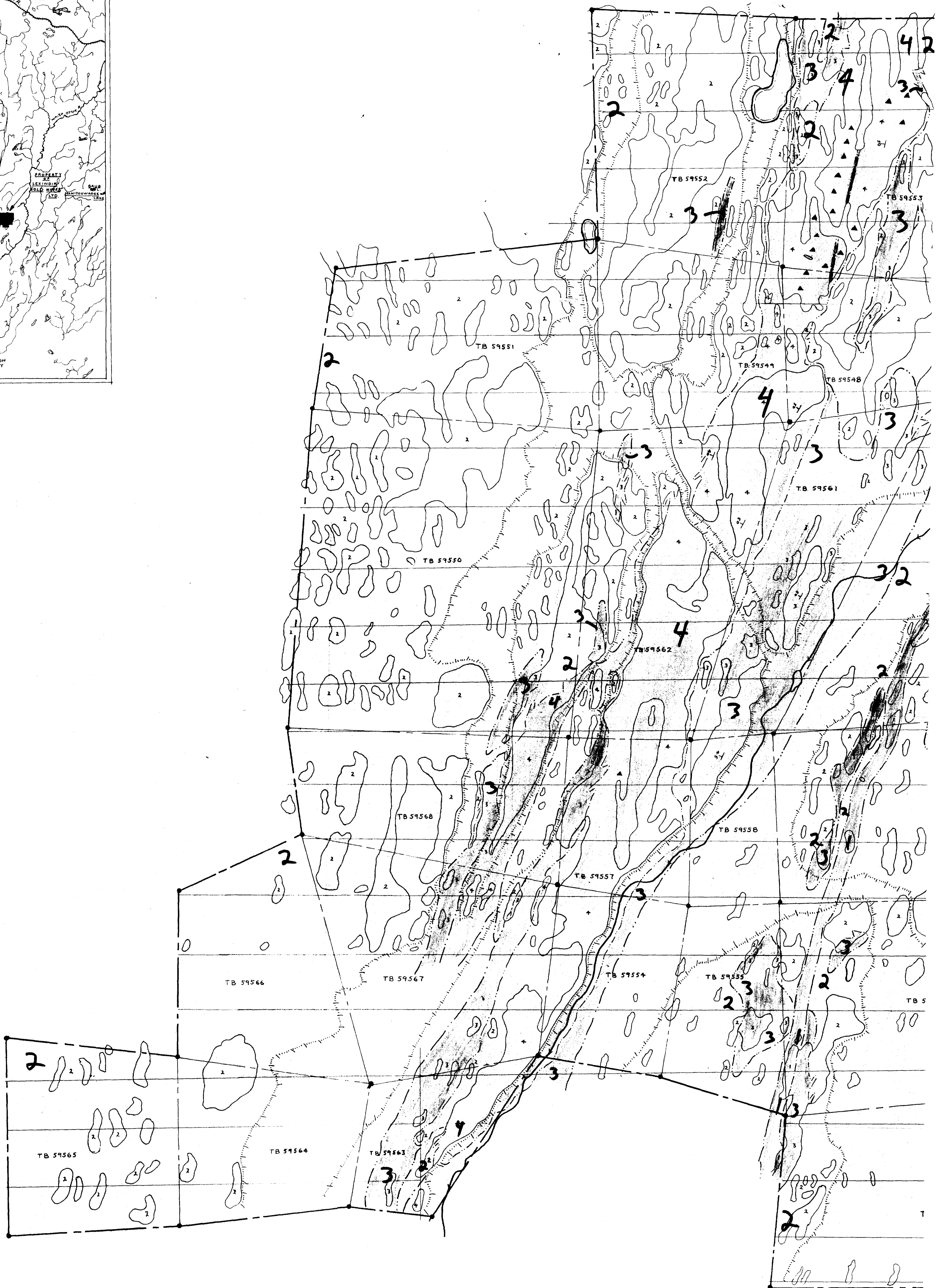
For the Magnetometer Survey, the converted gamma equivalents are plotted and contoured at intervals of 500 gammas for a range from 4000 to 6500 gammas.



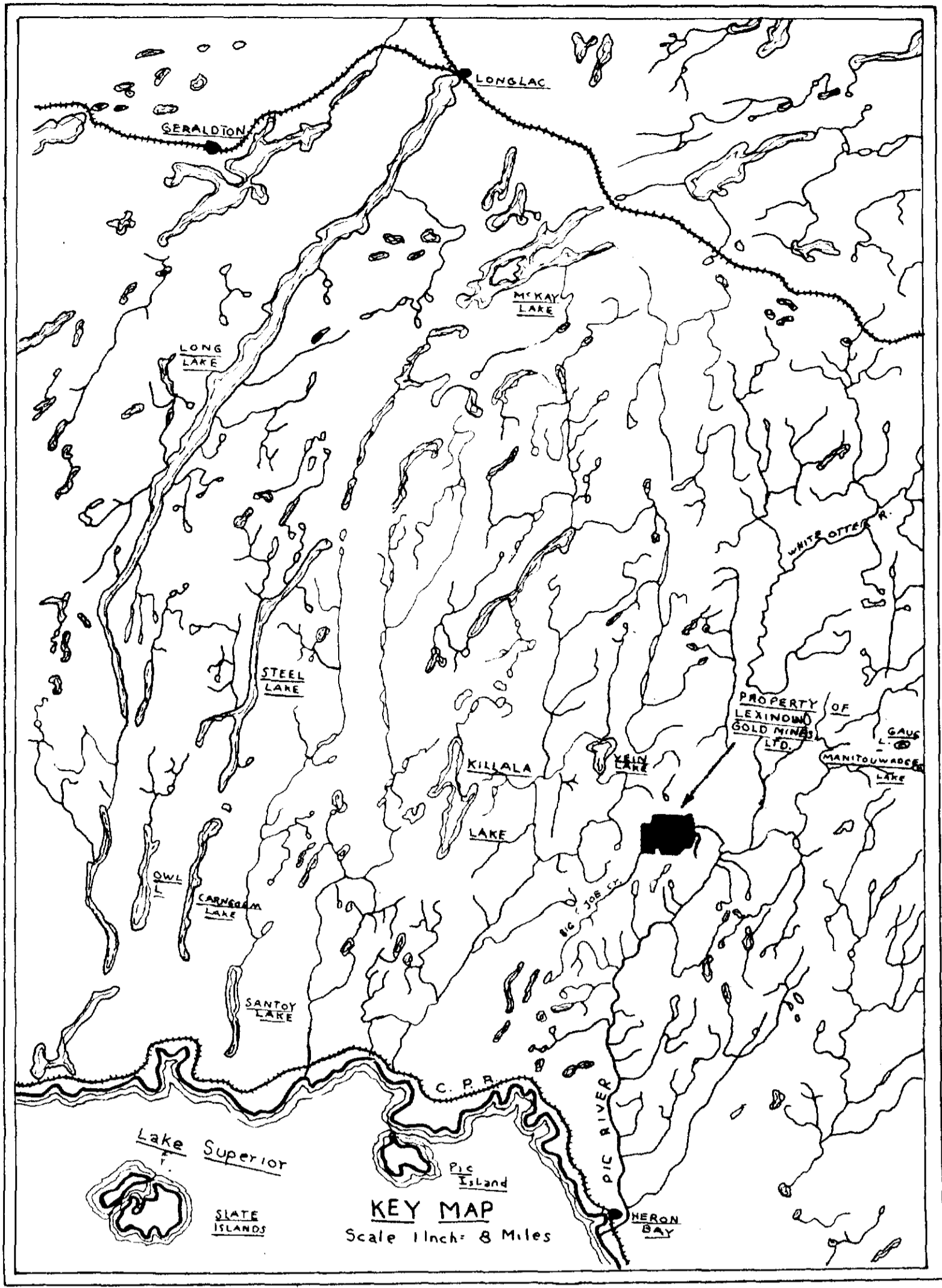
Frank Hodgkinson  
Resident Engineer.




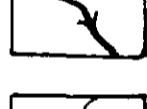



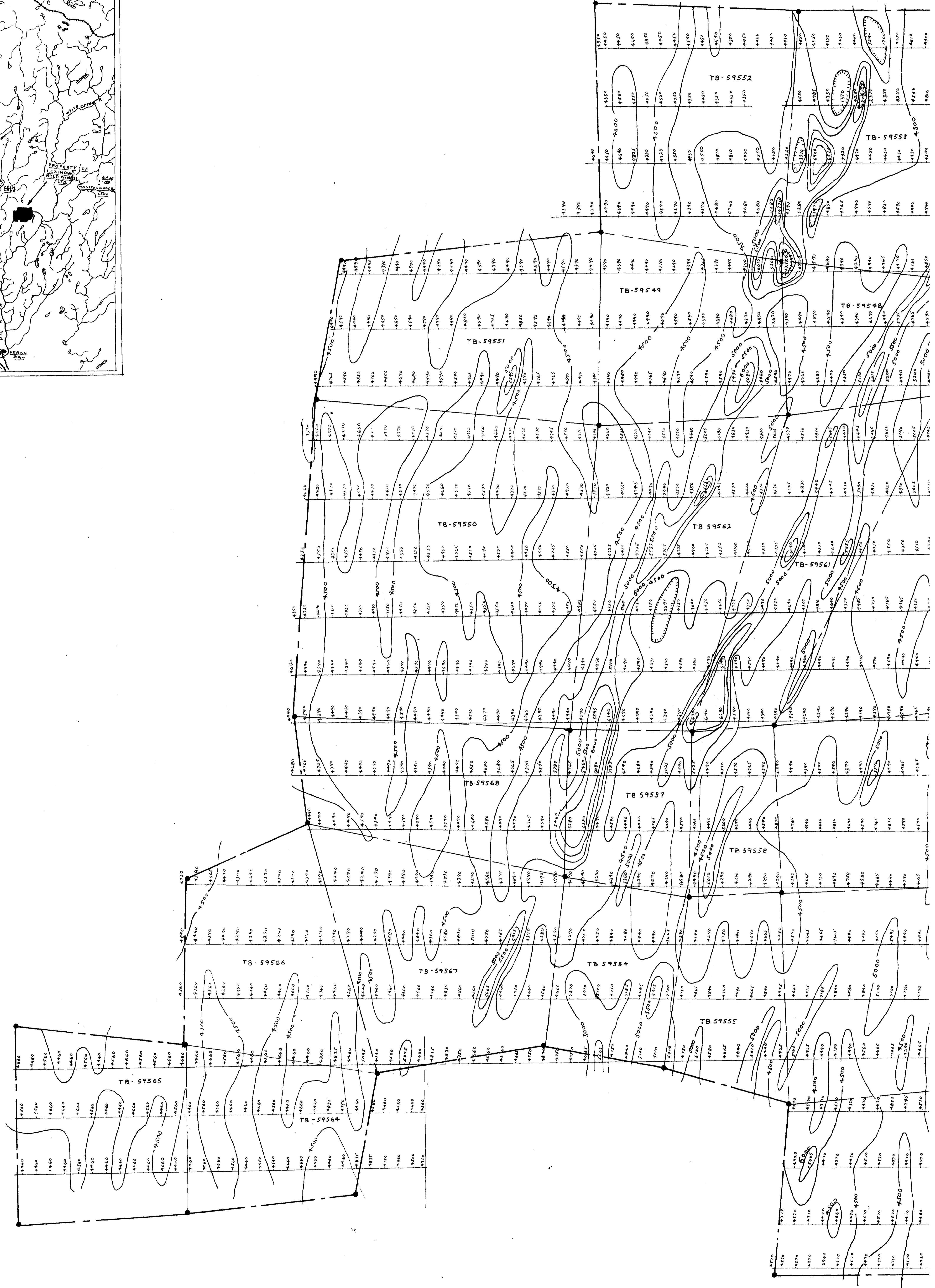
- SYMBOLS**
- Geological Contact - Assumed
  - Geological Contact - Defined
  - Strike & Dip
  - Rock Outcrop
  - Picket Lines
  - Claim Posts
  - Creek
  - Base of Hill
  - Swamp
  - Lake Contour
  - Rock Trench
  - Sulphides



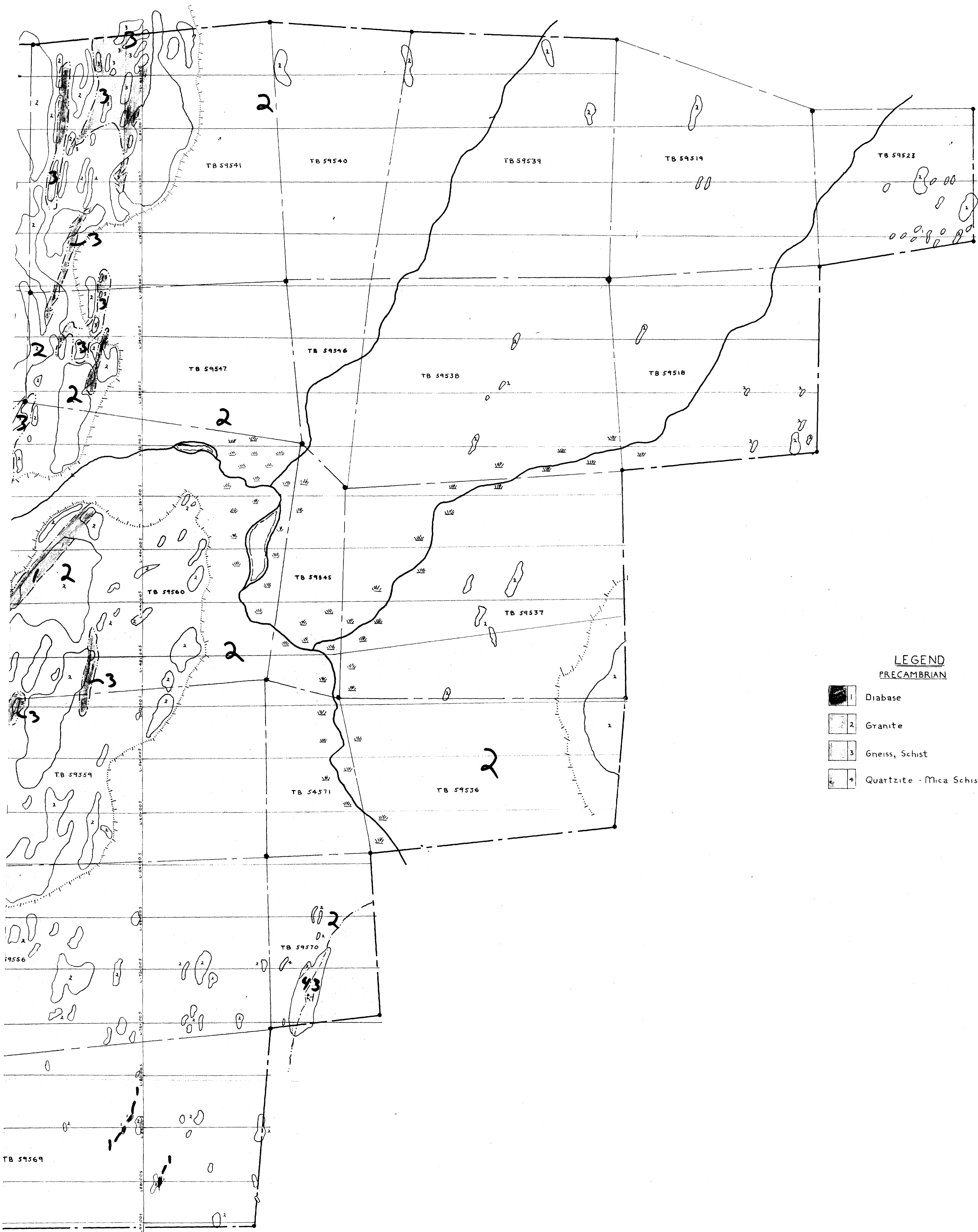




- SYMBOLS**
-  Picket Lines
  -  Clam Posts
  -  Lake Contour
  -  River
  -  Magnetic Contour

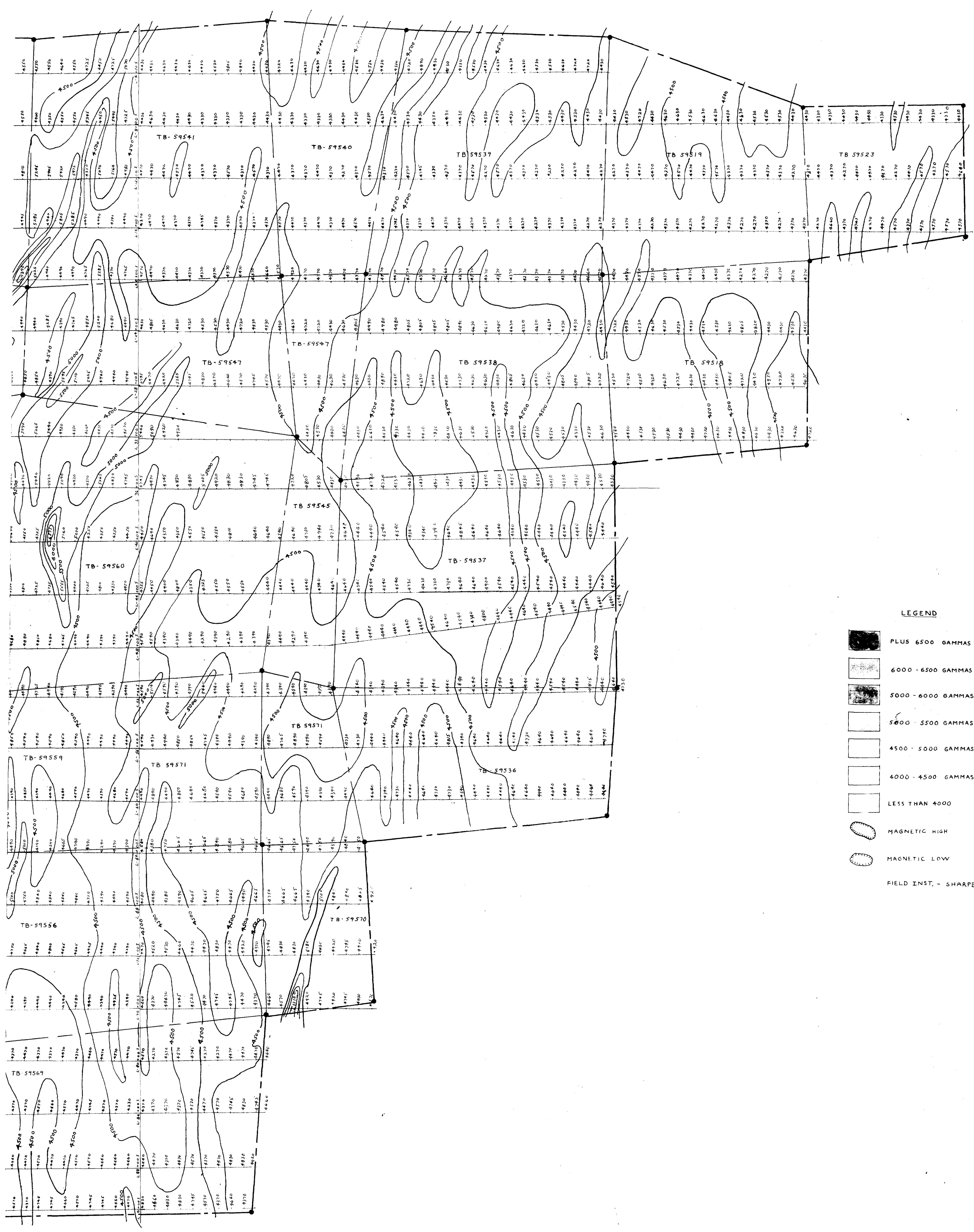




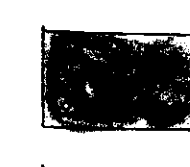

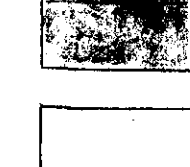
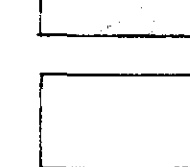
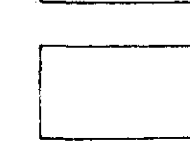
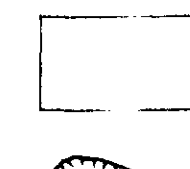
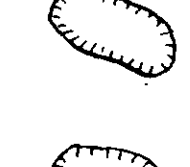
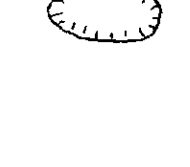



- LEGEND**  
**PRECAMBRIAN**
- 1 Diabase
  - 2 Granite
  - 3 Gneiss, Schist
  - 4 Quartzite - Mica Schist

**LEXINDIN GOLD MINES LIMITED**  
 VEIN LAKE AREA - DISTRICT OF THUNDER BAY - ONTARIO  
 PORT ARTHUR MINING DIVISION  
**SURFACE GEOLOGY**  
 Scale - 1 inch = 300 feet



LEGEND

-  PLUS 6500 GAMMAS
  -  6000 - 6500 GAMMAS
  -  5000 - 6000 GAMMAS
  -  5000 - 5500 GAMMAS
  -  4500 - 5000 GAMMAS
  -  4000 - 4500 GAMMAS
  -  LESS THAN 4000
  -  MAGNETIC HIGH
  -  MAGNETIC LOW
- FIELD INST. - SHARPE D1-M MAGNETOMETER

LEXINDIN GOLD MINES LIMITED  
 VEIN LAKE AREA - DISTRICT OF THUNDER BAY - ONTARIO  
 PORT ARTHUR MINING DIVISION  
**MAGNETOMETER SURVEY**  
 Scale - 1 inch = 300 feet