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REPORT ON GEOPHYSICAL SURVEYS  
OF  
SCHOLDS GROUP, EMERALD PROPERTY  
FOR  
ABEK MINES LIMITED

REPORT ON GEOPHYSICAL SURVEYS

OF

SCHOLES GROUP, EMERALD PROPERTY

FOR

ABEX MINES LIMITED

INTRODUCTION

The Scholes Group, which is a part of the Emerald Property of Abex Mines Limited, consists of 16 unpatented claims including T-30758 to T-30775 inclusive. The present report covers geophysical work done on the property including aeromagnetic work and a magnetometer survey of the entire group, followed by a detailed self-potential survey of a small area.

LOCATION AND ACCESS

EAGLE ROCK L.

The claim block is located in the western part of Scholes Township, which lies west of Lake Temagami in the District of Nipissing. Access is most readily achieved by the use of float-equipped or ski-equipped aircraft from the town of Temagami which lies approximately twenty miles to the east. The property can also be reached by a trail leading west from the Emerald Lake road in Afton Township.

CHARACTER OF THE REGION

The Emerald Lake - Temagami Region is characterized by generally rugged topography. Within the area covered by the present report, the sections underlain by diabase are marked by particularly high relief. A prominent north-south scarp follows the eastern edge of the diabase near the west boundary of the property. Several zones of silicification in the sedimentary rocks in the southern part of the claims have topographic expression as steep sided ridges.

Overburden appears to be shallow over much of the property, but

good rock exposures are rare. There is a heavy forest growth consisting mainly of red pine.

### GENERAL GEOLOGY

A reconnaissance geological survey was made prior to the geophysical work, as part of a regional study.

#### Table of Formations:

##### Quaternary

Pleistocene

Glacial drift

##### Precambrian

Upper Huronian (?)

Nipissing diabase

Middle Huronian

Cobalt Series:  
Gowanda formation  
conglomerate & arkose

Pre-Huronian

Intrusives:  
Feldspar porphyry

Sedimentary volcanics series:  
Conglomerate, arkose, gray-  
wacke; minor limestone, chert;  
chlorite schist, chloritic  
amphibolite, iron formation,  
chert.

#### Sedimentary Volcanic Series:

Outcrops of the Pre-Huronian sedimentary-volcanic series observed on the property consist predominantly of clastic sedimentary rocks. These are quite highly altered and somewhat schistose. Minor amounts of a crystalline lime-rock of probable sedimentary origin and bedded chert were observed. The limestone is locally garnetised. North and west of the property iron formation containing large amounts of silica and amphibole and varying amounts of magnetite, occurs, generally in association with highly schistose chloritic rocks. Thin-section examination suggests that the latter are highly altered.

basic volcanic rocks.

Pre-Huronian Intrusives:

Red and grey feldspar porphyry occur in several masses in the northern part of the property. The composition of the rock appears to be intermediate between granite and syonite.

Cobalt Series:

Conglomerate, arkose, and greywacke which resemble Cobalt sedimentary rocks found elsewhere in the area, outcrop on the east shore of Eagle Rock Lake, a short distance from the property boundary.

Nipissing Diabase:

Several remnants of the great diabase sill occur on the property.

GEOPHYSICAL SURVEY

Picket lines for the magnetometer survey were turned off north and south from a base-line in the northern part of the group. Readings of vertical magnetic intensity were taken at intervals of 100 feet along the picket lines and base-line. The instrument used was an Askania magnetometer with a sensitivity of 23.4 gammas per scale division.

The self potential survey was carried on along north-south picket lines turned off at intervals of 100 feet from two short base lines near the southern part of the property. Readings of self-potential were taken at 50 foot intervals along the lines.

An aeromagnetic survey of the area has been completed.

INTERPRETATION

The contacts between major rock types as indicated on the accompanying map have been interpreted with the aid of reconnaissance geological mapping. Susceptibility tests on the porphyry and sediments indicate only a very small magnetic property contrast. The susceptibility of the Nipissing

diabase varies considerably. Most of this intrusive has a susceptibility approximately the same as that of the sediments and porphyry, with local zones of high susceptibility. This factor, as well as the flat-lying attitude of the diabase, make it very difficult to determine the contact magnetically. It will be noted from the trend of the contours that there is a general decrease in the magnetic "background" toward the southeast. This is due to the effect of a regional magnetic anomaly the cause of which has not been determined.

A fairly strong negative anomaly on the northwest corner of the property near the contact of the porphyry and sediments, is probably caused by banded iron formation. A continuous zone of iron formation was noted on the adjoining claims a short distance to the west. It appears probable that this horizon has been cut off by the porphyry intrusive close to the west boundary of the property.

There is considerable magnetic relief in the southern part of the property. A number of rather local magnetic anomalies have been defined. One of these anomalies has been investigated by self potential survey (Map 2). This indicated a zone of high (negative) self-potential along the zone of high magnetic intensity. Geological examination and some stripping in part of this section show that the anomalies are due to a zone of highly silicified rocks, probably sedimentary in origin, locally containing large amounts of magnetite and pyrite. The magnetite is quite coarse-textured in contrast with the fine texture of the banded iron formations farther north. The other magnetic anomalies have not been examined in detail. Float containing large quantities of pyrite is abundant close to the anomaly located west of the lake on claim T-30789, but there is no indication of the cause of this anomaly.

A fault trending slightly west of north in the centre of Eagle Rock Lake is indicated by the magnetic survey, as well as by a strong linear depression which may be noted on aerial photographs of the area. Further confirmation of the presence of this fault is afforded by the presence of several shears parallel to the line of strike of the interpreted structure, a short distance north of the property.

#### ECONOMIC GEOLOGY

There is no record of the results of previous prospecting activity, although a number of shallow trenches were observed. These were put down on silicified and mineralised zones in the sediments, and on the lower contact of the diabase with sheared porphyry.

Chalcopyrite is present in small amounts disseminated through the sedimentary formations west of Eagle Rock Lake. There is a good possibility that chalcopyrite may also occur in larger amounts with the magnetite-sulphide bodies indicated by the magnetic and self-potential surveys. The magnetite observed in the southern part of the property appears to have been introduced.

#### CONCLUSIONS & RECOMMENDATIONS

A number of magnetic anomalies have been outlined in the southern part of the property. One of these anomalies has been shown to be a good electrical conductor as well. The geophysical results are explained in part of this body at least, by the presence of magnetite and pyrrhotite in a silicified zone in sedimentary rocks. The cause of the other anomalies is not known but it is probable that they are due to other zones containing magnetite along with associated sulphides. All anomalies should be examined in detail to test the possibilities of the occurrence of economic sulphide

bodies in association with the introduced magnetite.

It is recommended that a more detailed geophysical survey be made of claims T-30768, 69, 71, and 72. This would include a magnetometer survey with stations 80 feet apart or less to define the magnetic anomalies more closely, followed by an electrical survey. It is further recommended that detailed geological mapping be done on this section of the property, and that diamond drilling be guided by the interpretation of the geophysical and geological surveys.

Respectfully submitted,

MINING GEOPHYSICS CORPORATION LIMITED



W. R. Bergy



N. B. Keevil

Toronto,  
December 31, 1951.

APPENDIX TO RPT. 316

Property: Sixteen claims held by Apex Mines Limited, T-30758 to T-30773 inclusive, Scholes Township, District of Temiskaming, Province of Ontario.

Type of Survey: Magnetic and self-potential

Instrument Used: Askania-type magnetometer, sensitivity 25.4 gammas per scale division, and M.G.C. self potential unit.

Miles of Line: (Magnetic and self-potential) - 18

Technical Staff:

|                                       |             |
|---------------------------------------|-------------|
| N.B. Keevil, Aug. 3-4, Dec. 10-15     | 8 man days  |
| W. R. Bergoy, July 20 - Aug. 4        |             |
| Dec. 10 - 15                          | 22 man days |
| J.C. Frantz, March 1 - 20, July 20-24 | 25 man days |
| A.R. Clark, July 20 - Aug. 4          | 16 man days |
| S.L. Spafford, March 1 - 20,          |             |
| May 20 - June 4,                      |             |
| July 20 - Aug. 4, 1951                | 37 man days |

Line Cutting:

|                                |             |
|--------------------------------|-------------|
| D. W. Cornell, July 20-30      | 11 man days |
| T.M. Church, July 20 - 30, 31, |             |
| Aug. 1 & 4, 1951               | 16 man days |
| L. Hurst, March 1 - 20         | 16 man days |

Office:

|                               |            |
|-------------------------------|------------|
| R.B. Evis, Dec. 14 - 21, 1951 | 7 man days |
| M.G. Hooper, Dec. 19 - 21     | 3 man days |

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Total man days

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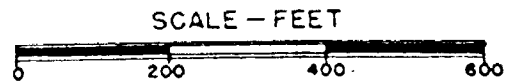
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N.B. Keevil

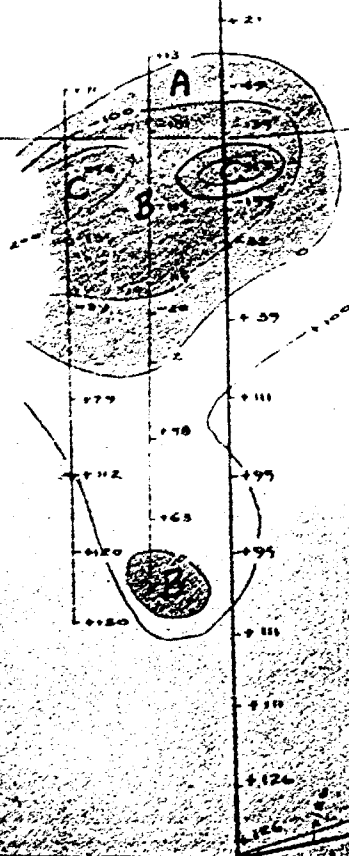
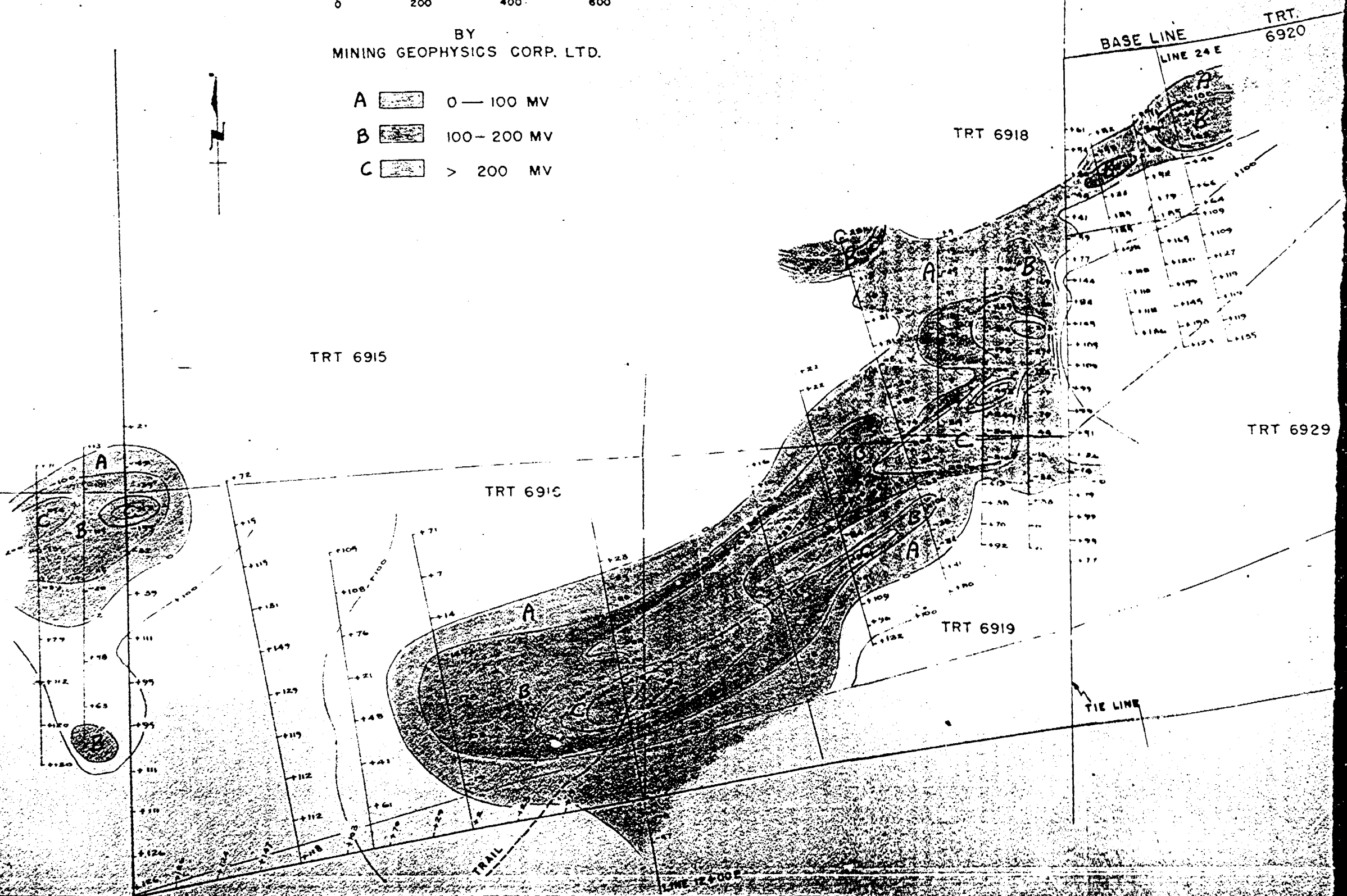


**ABEX MINES LTD.**  
**SELF POTENTIAL SURVEY**  
 OF  
 PART OF  
**EMERALD PROPERTY**  
 AFTON & SCHOLLES TWPS.



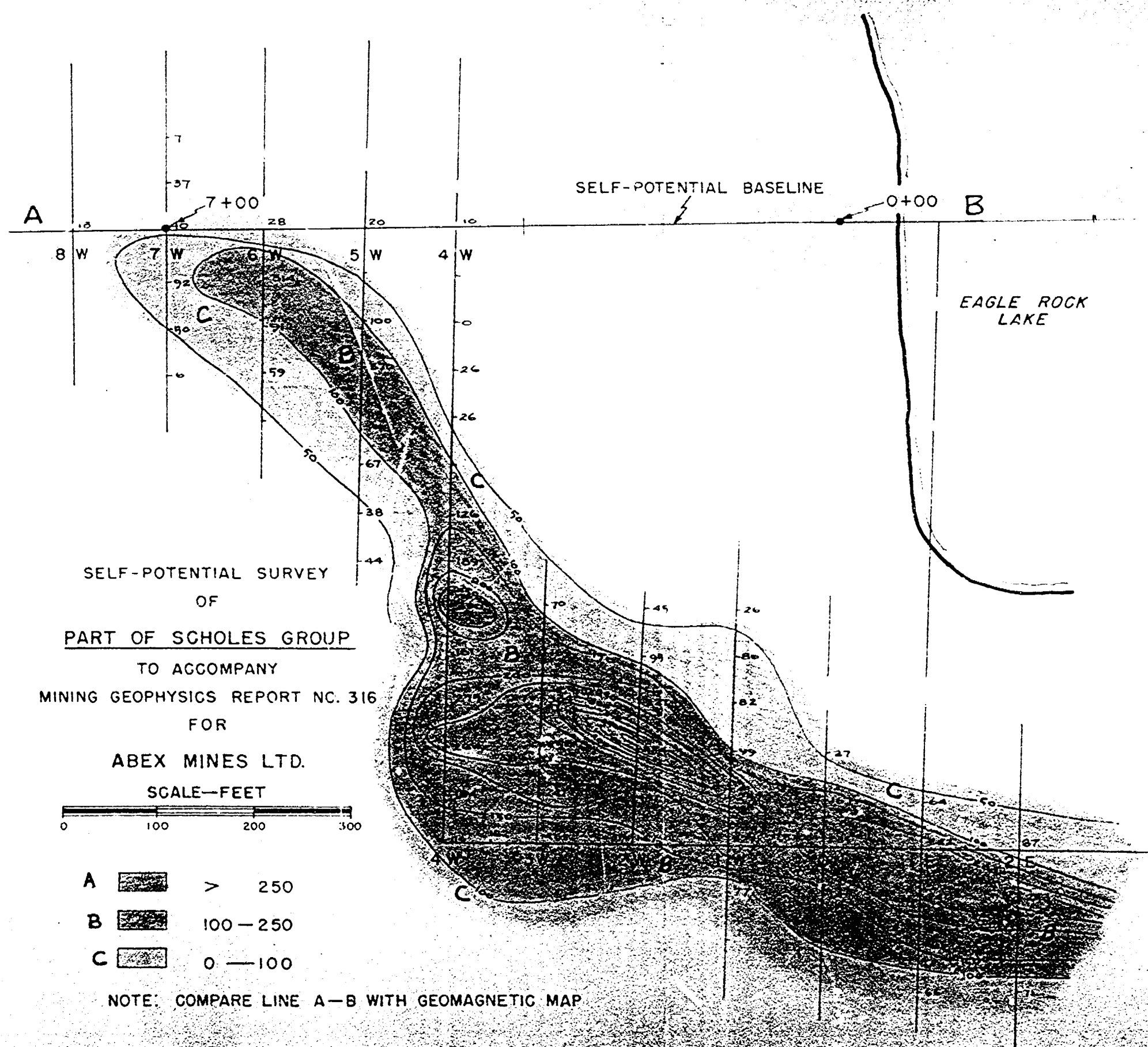
BY  
 MINING GEOPHYSICS CORP. LTD.

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- B 100 — 200 MV
- C > 200 MV



BASE LINE  
 LINE 24 E

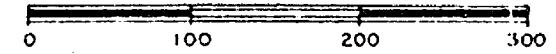
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SELF-POTENTIAL SURVEY  
 OF  
 PART OF SCHOLES GROUP  
 TO ACCOMPANY  
 MINING GEOPHYSICS REPORT NO. 316  
 FOR

ABEX MINES LTD.

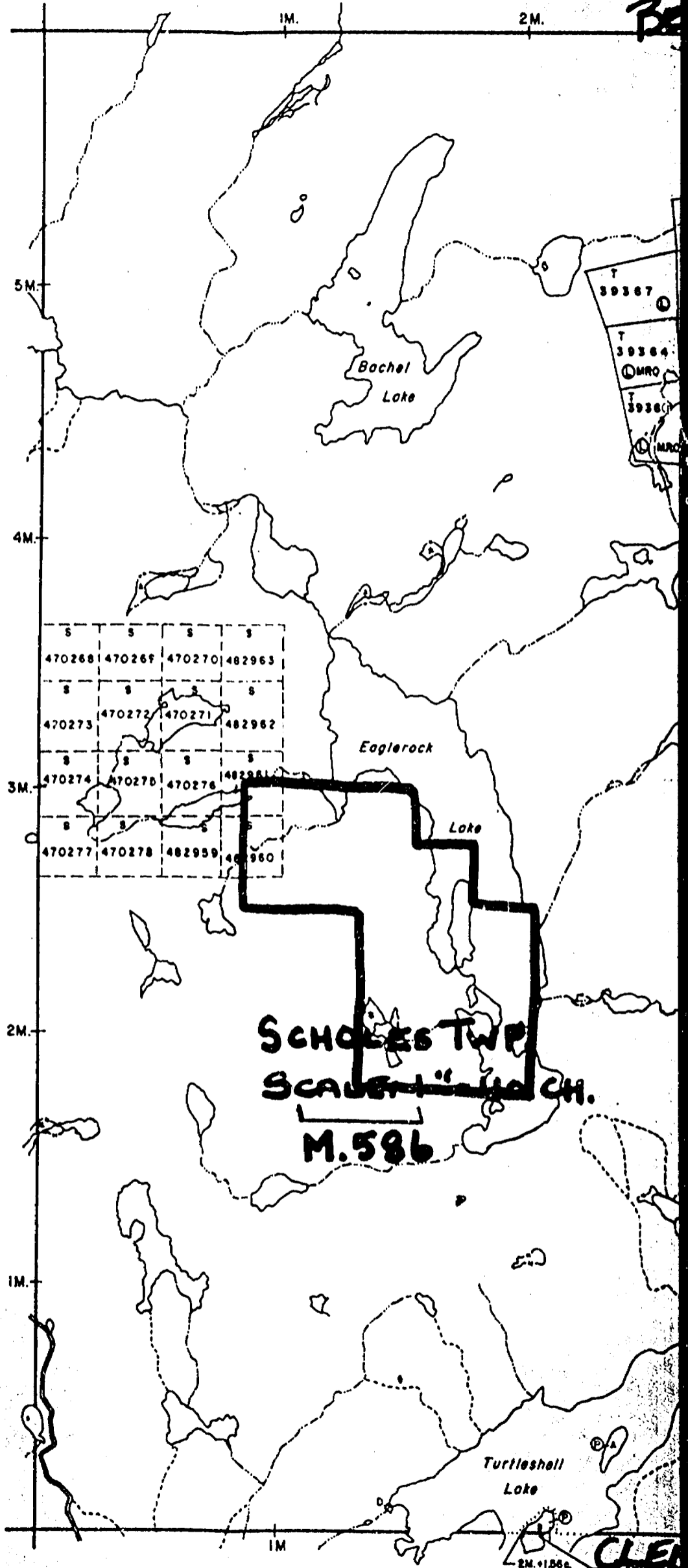
SCALE—FEET



- A > 250
- B 100 — 250
- C 0 — 100

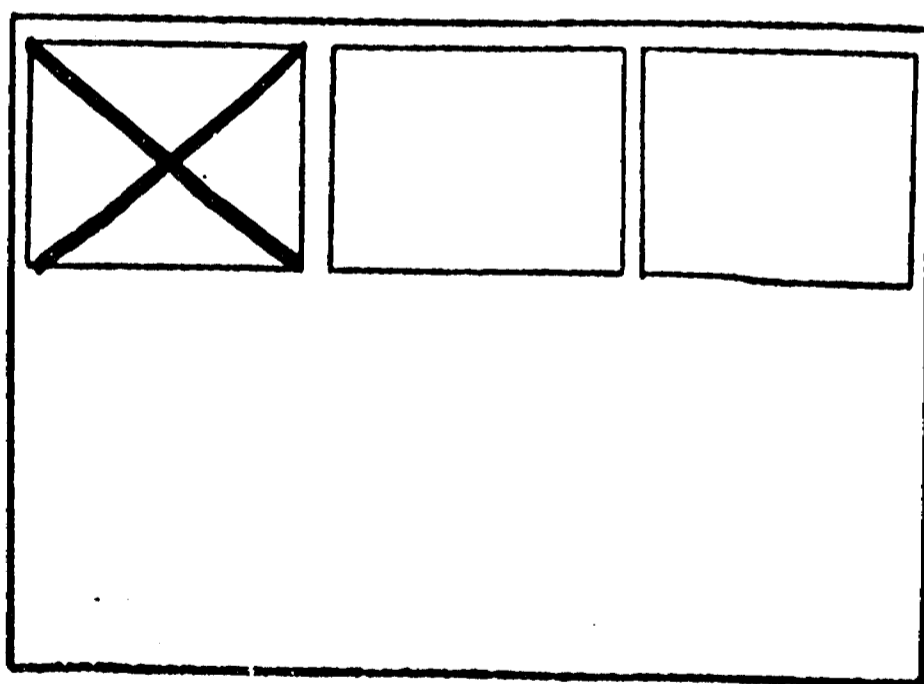
NOTE: COMPARE LINE A-B WITH GEOMAGNETIC MAP

AFTON TWP. M.622

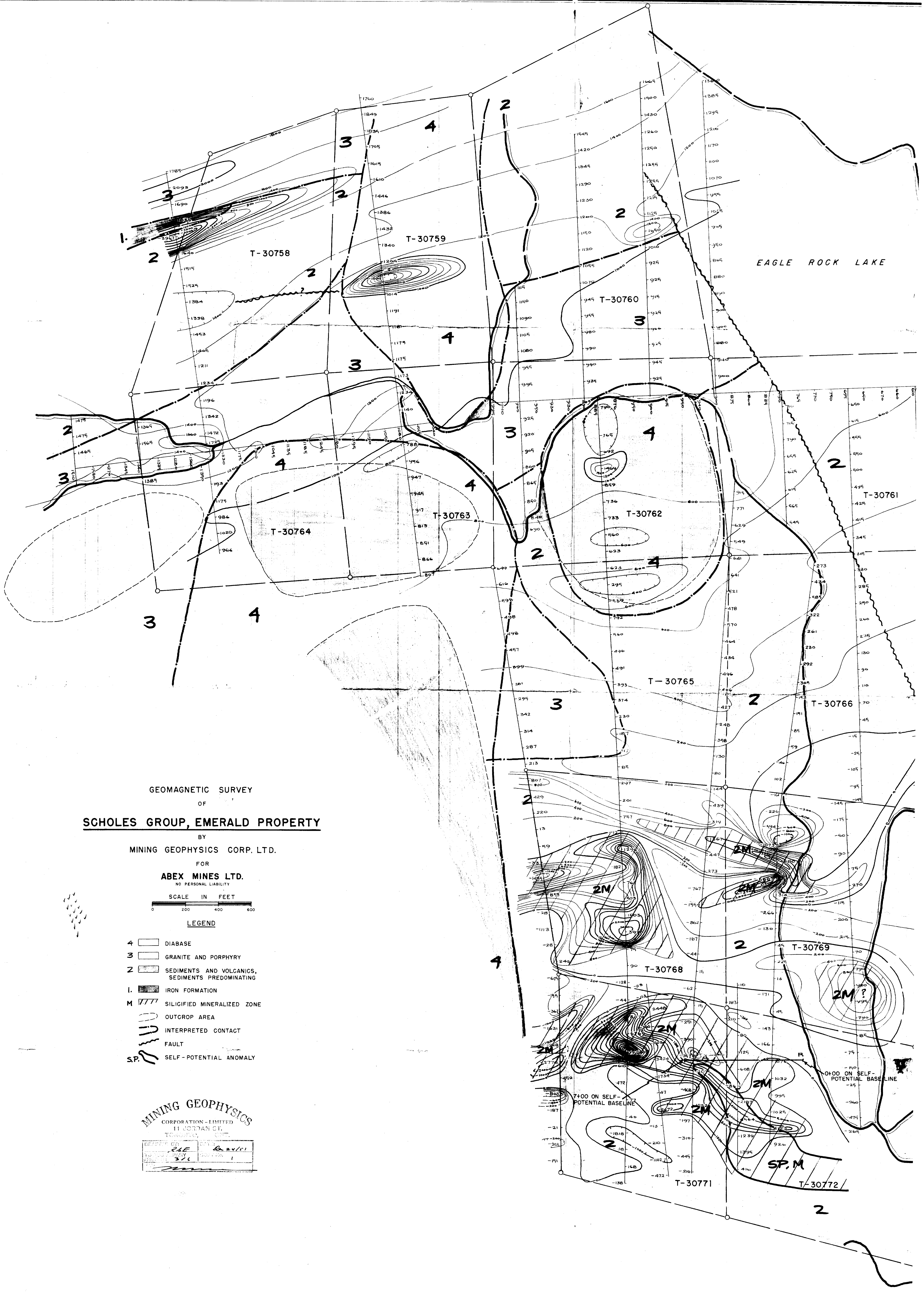


SEE ACCOMPANYING  
MAP(S) IDENTIFIED AS  
8CHOLES-0015-A1-#1

LOCATED IN THE MAP  
CHANNEL IN THE FOLLOWING  
SEQUENCE (X)

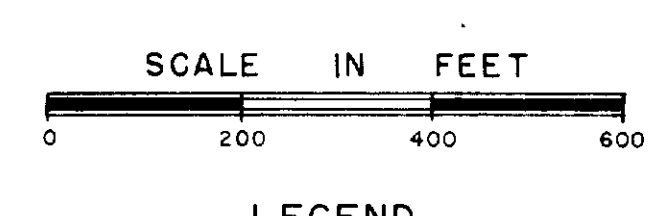


SLC-89



GEOMAGNETIC SURVEY  
OF  
**SCHOLES GROUP, EMERALD PROPERTY**

BY  
MINING GEOPHYSICS CORP. LTD.  
FOR  
ABEX MINES LTD.  
NO PERSONAL LIABILITY



- LEGEND**
- 4 [Symbol] DIABASE
  - 3 [Symbol] GRANITE AND PORPHYRY
  - 2 [Symbol] SEDIMENTS AND VOLCANICS, SEDIMENTS PREDOMINATING
  - 1 [Symbol] IRON FORMATION
  - M [Symbol] SILICIFIED MINERALIZED ZONE
  - [Symbol] OUTCROP AREA
  - [Symbol] INTERPRETED CONTACT
  - [Symbol] FAULT
  - S.P. [Symbol] SELF-POTENTIAL ANOMALY

MINING GEOPHYSICS  
CORPORATION - LIMITED  
11 JORDAN CIRCLE  
TORONTO, CANADA

DATE: 2/15/51  
BY: [Signature]  
JOB NO: 31

