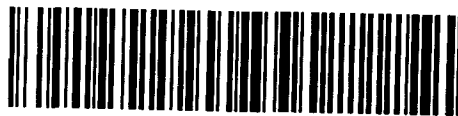


Report on the Work Programme for  
Guardian Mines Ltd.

Portage Bay Property, Cobalt

Temiskami

\* \* \*



31M05SW9449 2.239 COLEMAN

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INTRODUCTION

In the Fall of 1969, Guardian Mines acquired a group of three diverse properties in the Cobalt Area of Ontario, namely the Portage Bay (copper and silver), John Hughes (silver, cobalt), and Hebert ( $U_3O_8$ ).

The initial work programme was concentrated on the first of these, the Portage Bay.

HISTORY

The property was first discovered in about 1912 and over the years between extensive surface exploration was done, dependent upon metal prices and economic conditions.

A shipment of 50 tons of ore grading 16% Cu and 12 oz. silver was shipped in 1916 and at least 10 pits and shafts were opened, as well as many trenches.

These were in the main silver and cobalt seams with the noticeable exception of the one from which the copper was shipped. However, samples taken in November 1969 obtained copper values in all pits tested.

PROPERTY

The property comprises 7 claims, 4 unpatented and 3 patented, on the southeast shore of the Montreal River on Bay Lake, at the junction of Bay Lake and Portage Bay. This is four water miles northwest of the Town of Latchford and six miles west of Cobalt by road and boat.

The claims are on extension until December 1970.



The numbers are: P 247, P 268, P 1360, 60317, 60318, 60319, 60320.

### TOPOGRAPHY

The terrain is rugged and hilly, comprising a razorback ridge striking northwest-southeast up the point. Elevation differences are about 300 feet above water level. Several fault or contact valleys join or cut the ridge pattern. Tree cover is heavy on the soil-covered areas, comprising pine, spruce, balsam, birch and poplar.

Outcrop comprises 90% of the area with a thin surface cover to support tree growth.

### GEOLOGY

The regional geology indicates a gabbroic or Nipissing diabasic central zone bounded on the southwest by Lorrain quartzite and conglomerate and on the northeast by Gowganda arkose, slates and conglomerates.

Mineralization comprises chalcopyrite, pyrite, malachite, cobaltite, native Ag. and erythrite in calcite veins. These strike both parallel to the regional strike (northwest) and vertical to it (northeast) dependent upon the amount of fracturing present.

### WORK PERFORMED

Due to the very erratic nature of the Cobalt camp, it was felt that the property should be approached in a very careful manner. For this reason, a geological team was placed on the property in November and an attempt made to detect structure and old workings.

To more closely detail sub surface structures, it was felt that a VLF Radem EM Survey using continuous audio and spot visual readings over the claims could very well indicate narrow vein structures. In addition,

structural data and correlation would be obtained from a magnetometer survey. A geological map would also be prepared.

#### SURVEYS PERFORMED

A line grid of 200-foot separation with stations at 100-foot intervals was cut in a north-south direction, base and tie lines in an east-west direction. Lines were extended onto the ice over the lake and extended over intermediate claims not held. Due to the age of the staking, accurate boundaries were not possible to ascertain and idealized claims were used to encompass the scope of the survey.

#### RADEM E.M.

A Crone Radem E.M. VLF instrument was used tuning to Seattle, Washington (18.6<sup>k</sup>) In order to detect the presence of small vein structures the instrument was run continuously, visual and audio signals being observed. Readings were taken at 25-foot intervals where necessary. It was felt that the presence of even a small conductor would cause a change in signal observable on constant reading and thus any silver veins might be observed.

#### RESULTS

The survey indicated a number of strong continuous conductors and a large number of small fluctuations that could be caused by vein conductors.

The large conductors are presumed to be fault or contact caused and could be mineralized. The presumption of cause and recommended follow-up is shown below:

- A - Contact zone - probably mineralized - detail further
- B - Fault zone - drill and detail
- C - Fault - possible drill later

- D - Fault or Contact - hold off
- E - As above
- F - As above
- N - Mineralized Shear - drill and detail later
- O - Possible vein - trench and detail
- P - " " - " "
- Q - " " - " "
- R - Off land
- S - Possible vein - trench and detail

In addition, the fluctuation of the unit along lines O, 2W, 4W, 6W, 8W, and 28W should be prospected, trenched and detailed for silver or mineralized veins.

The survey indicated several areas of interest that should be further checked.

#### GEOLOGICAL SURVEY

The geological survey was performed over the above grid. It was determined that the entire point was basically outcrop covered with a thin soil cover that permits tree growth. Not all trenches were plotted as the age of the previous work make identity as to natural or man-made structure difficult.

A contact between the Nipissing diabase, which is gabbroic in appearance, and the Lorrain quartzites lies along the top and west side of the ridge. This contact appears to be resistant to erosion and is not expressed topographically. The majority of the west shore on Bay Lake is quartzite and greywacke.

The eastern expression comprises slates and siltstone of Gowanda age, grey and very fine-grained and platy, along the shore of the small bay and



along the south part of Portage Bay. This grades into arkose and conglomerates.

The faulting system appears to generally follow the contact strike and is indicated by valleys, depressions or swamp zones. Mineralization is expressed by bornite, chalcopyrite, pyrite, copper pyrite, erythrite, cobaltite and native Ag. Most of these occur in calcite veins, generally striking perpendicular to the general strike. Only one has been cleared and plotted to date, on Claim P 268.

Other areas indicate the presence of more vein structures but these must be cleared and plotted.

#### MAGNETOMETER SURVEY

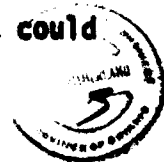
The magnetometer survey was conducted over the grid cut using a McPhar M 700 Fluxgate magnetometer with a scale sensitivity as indicated by the manufacturer of  $\pm 2$  gammas and read to  $\pm 10$  gammas.

All readings were taken and corrected to a previously set up control grid of 7 base stations for temperature and diurnal drift. Values were plotted and contoured and anomalous areas selected.

Seven areas of prime interest were located, all of which coincided to some extent with E.M. conductors. Particular interest is placed on readings going from a low negative to high positive, as this usually indicates a metallic interface. Three of these of significance were observed numbered 1, 2 and 3. The other anomalous areas, 4, 5, 6 and 7, are also worthy of further examination.

#### CONCLUSIONS

The surveys indicated the presence of several large structural bodies confirmed by Mag., E.M. and geology, as well as several areas that could suggest mineralized bodies underlying the surface.



Sufficient surface work has been done to indicate many mineralized areas which could relate to the surveys results found.

The survey results are of prime interest and are most encouraging.

During the course of the survey a series of four drill holes were drilled to test the initial shaft location and the calcite copper vein indicated and located there. These holes indicated the structure to be either sharply displaced to the northwest or to pinch out at depth.


#### RECOMMENDATIONS


A knowledgeable prospector should be put on the ground to examine, clear, strip and blast all old trenches, shafts and showings, and also all anomalous and conductive features located by the surveys. This is to be done using a plugger, pump, hose and E.M. equipment on a spot basis. Based on the results of this work, including samples, particularly geochemical, further drilling should be undertaken. The above programme should take two months at \$1500.00 per month wages and supplies and up to \$500.00 special services. The balance of the Summer and Fall should be utilized.

Respectfully submitted,

Toronto, Ontario

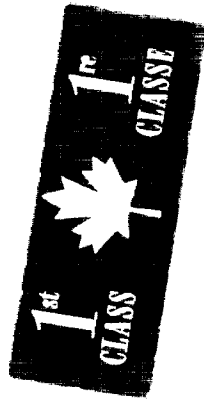
July 22, 1970.

  
H. H. Sutherland, B.A.Sc., P.Eng., M.E.

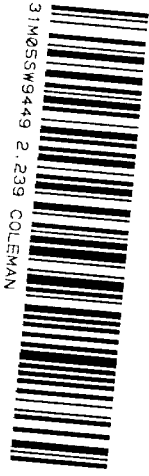


EARTH SCIENCES INTER.  
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Mr. Fred Matthews,  
Supervisor, Projects, Section  
Dept. of Mines, Whitney Block  
QUEEN'S PARK, TORONTO.



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**LEGEND**

- ⊙ PATENTED LAND
- ⊙ LOCATED LAND
- ⊙ LOCATED LAND
- ⊙ MINING RIGHTS ONLY
- ⊙ SURFACE RIGHTS ONLY
- ⊙ IMPROVED ROADS
- ⊙ KING'S HIGHWAYS
- ⊙ RAILWAYS
- ⊙ LAKES
- ⊙ MARSH OR MUSKES
- ⊙ MINES

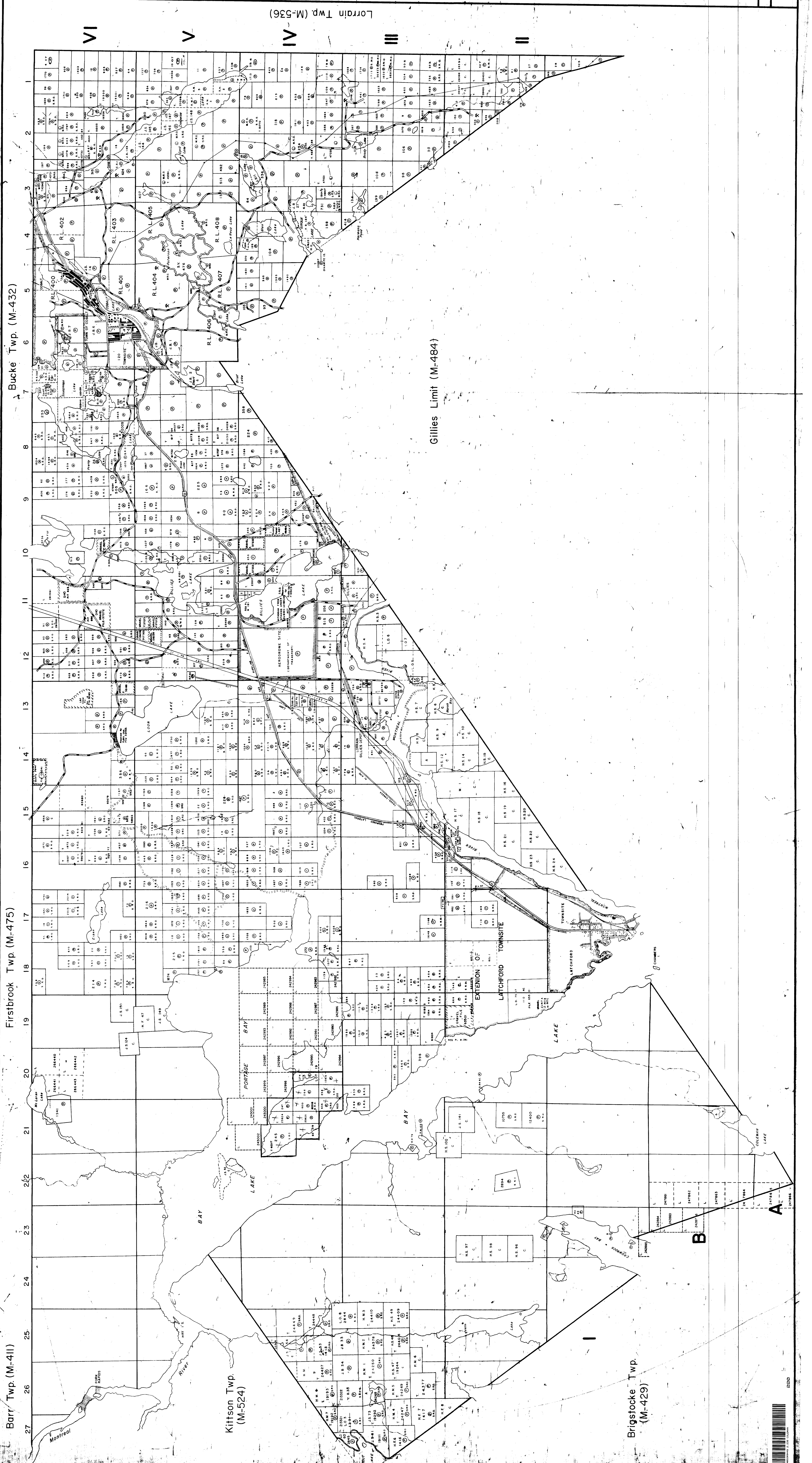
**NOTES**

400' Section Lines Reservation  
 ground 100' Lateral 10' Vertical.

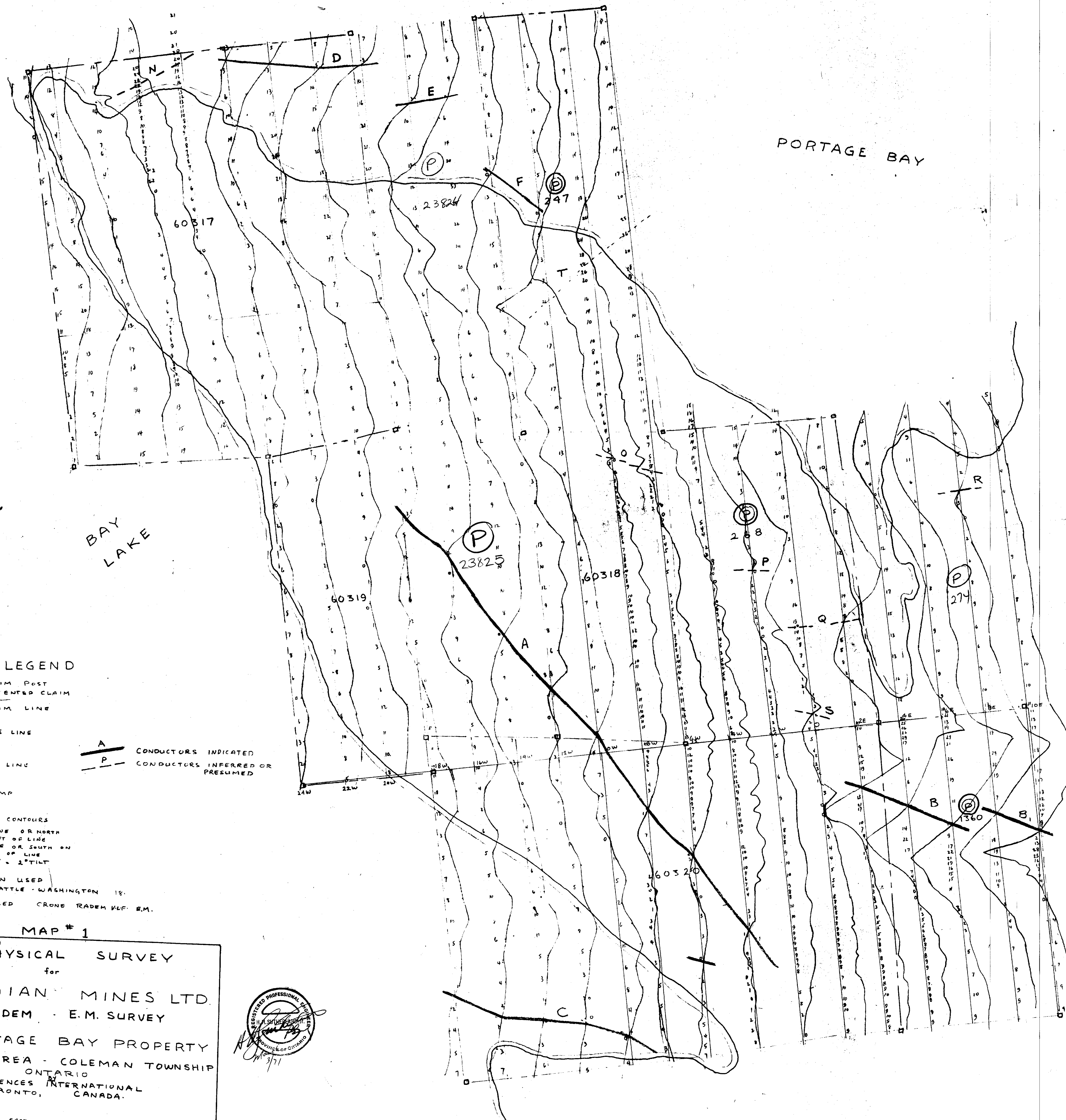
L.O. 7191 Covers Floating Rights on  
 Montreal River in H.E.P.C.  
 Mining Claims in One Lake Subject to  
 the provisions of the Mining Act,  
 Statutes of Ontario, Chapter V, 1977 Code 87.

DATE OF ISSUE  
 JAN 25 1971  
 ONT. DEPT. OF MINES  
 100 RYAN STREET, TORONTO, ONT.

PLAN NO-454  
 ONTARIO  
 DEPARTMENT OF MINES  
 AND NORTHERN AFFAIRS







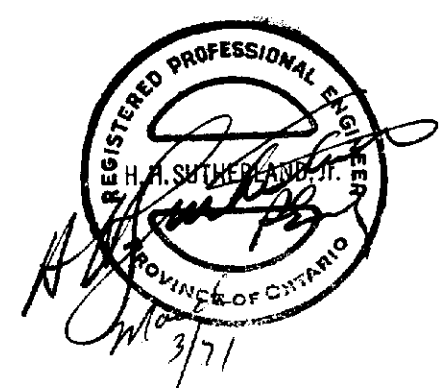
LEGEND

- CLAIM POST
- ⊙ PATENTED CLAIM
- CLAIM LINE
- SHORE LINE
- - - PICKET LINE
- ~ SWAMP
- 5 RADEM CONTOURS
- 3 NEGATIVE OR NORTH ON LEFT OF LINE
- 2 POSITIVE OR SOUTH ON RIGHT OF LINE
- 1/10 INCH = 2 FT TILT
- STATION USED SEATTLE - WASHINGTON 18.
- INST USED CRONE RADEM VLF. E.M.

- A CONDUCTORS INDICATED
- P CONDUCTORS INFERRED OR PRESUMED

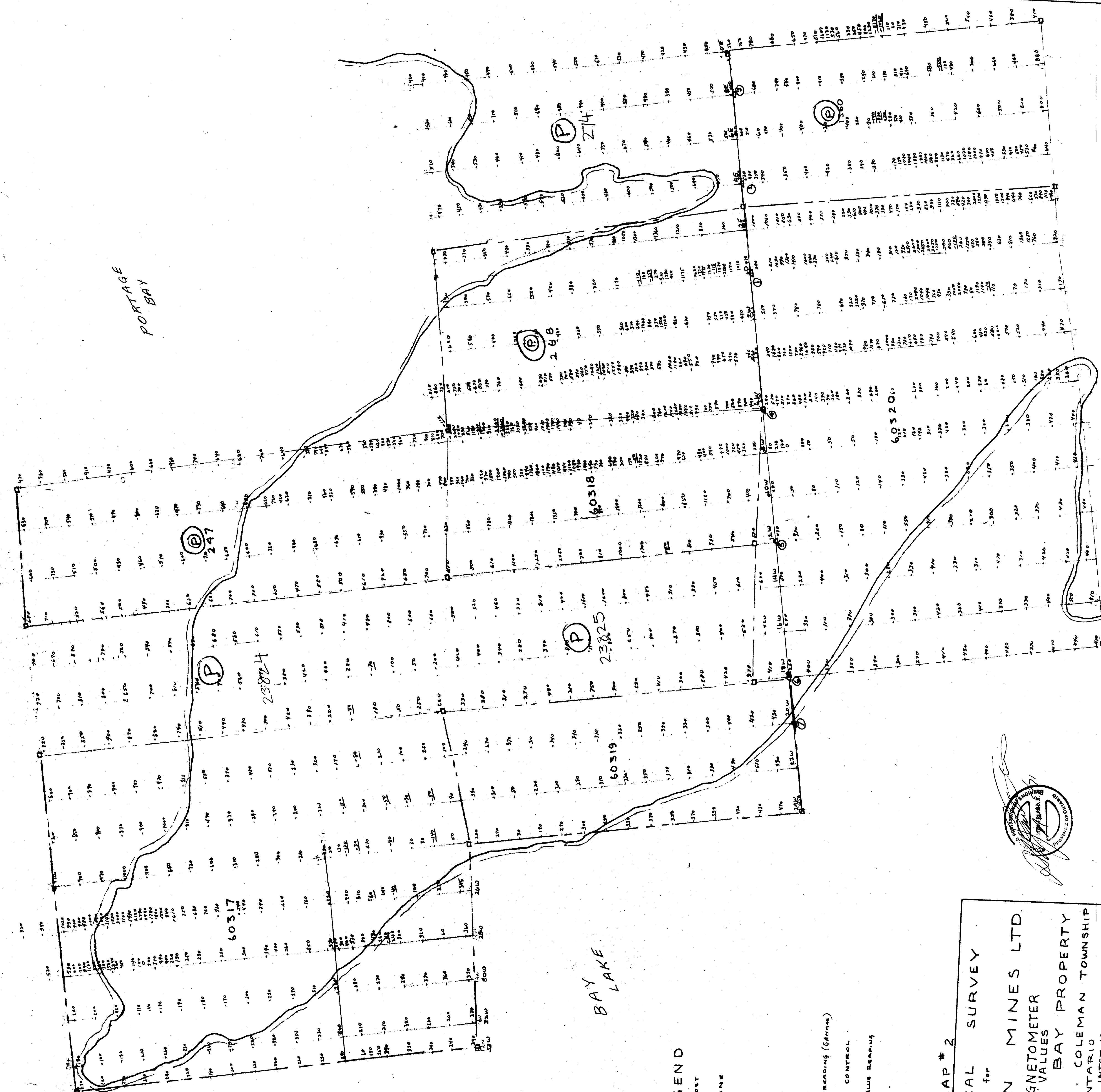
MAP # 1

GEOPHYSICAL SURVEY  
 for  
 GUARDIAN MINES LTD.  
 RADEM - E.M. SURVEY  
 PORTAGE BAY PROPERTY  
 COBALT AREA - COLEMAN TOWNSHIP  
 ONTARIO  
 EARTH SCIENCES INTERNATIONAL  
 TORONTO, CANADA.



SCALE 1 INCH = 200 FEET      July 1970





PORTAGE BAY

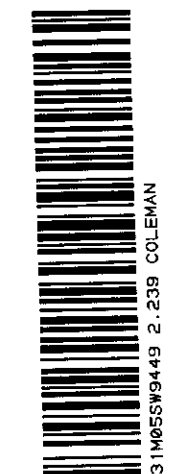
BAY LAKE

LEGEND

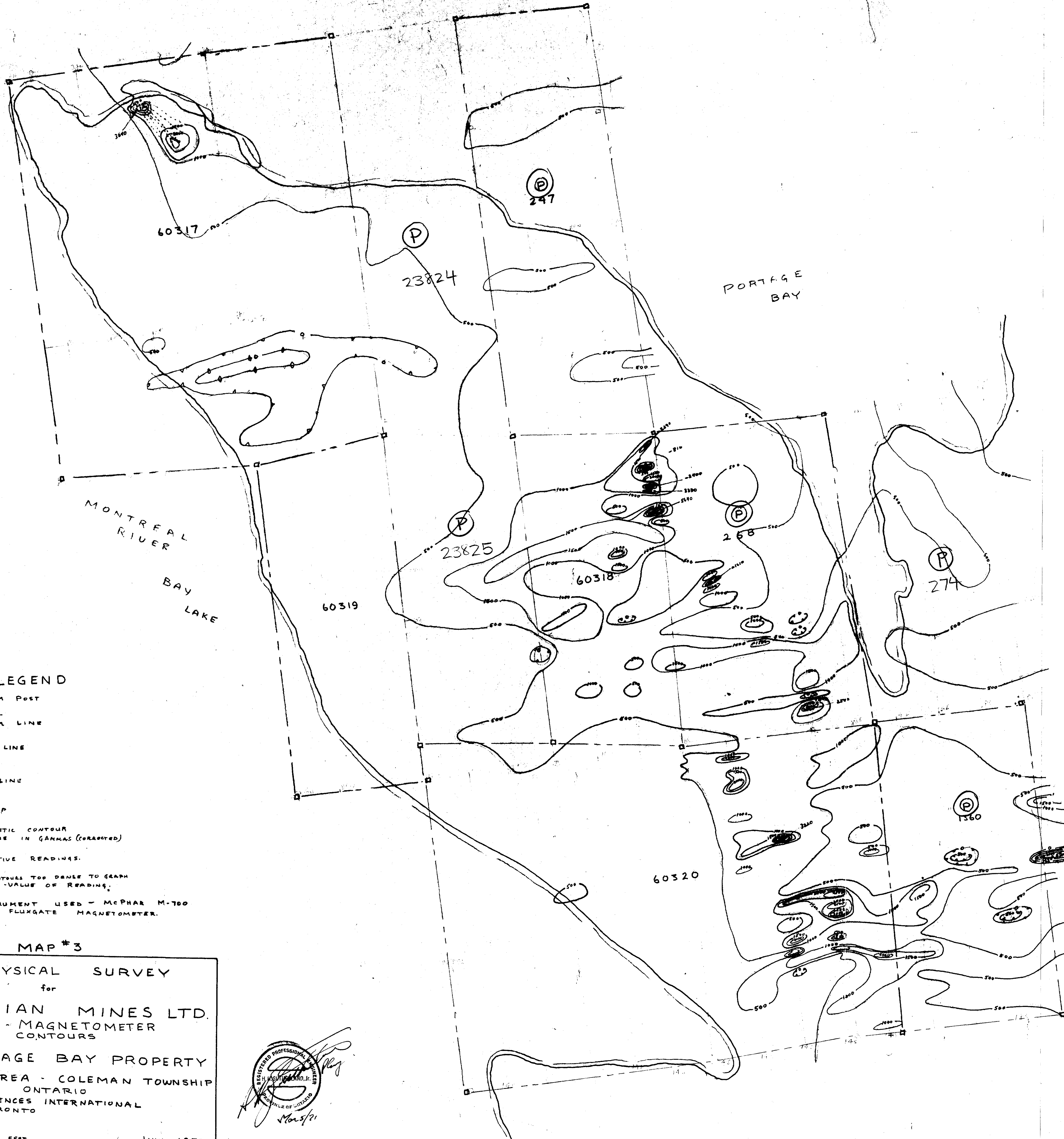
- CLAIM POST
- CLAIM LINE
- ~ SHORE LINE
- | PICKET LINE
- ≡ SWAMP
- ⊕ MAGNETOMETER READINGS (GAUSS)
- ⊙ BASE STATION CONTROL
- 1000 NEGATIVE VALUE READING

MAP # 2  
 GEOPHYSICAL SURVEY  
 for  
 GUARDIAN MINES LTD.  
 MAGNETOMETER  
 PORTAGE BAY PROPERTY  
 COBALT AREA - COLEMAN TOWNSHIP  
 ONTARIO  
 BY EARTH SCIENCES INTERNATIONAL  
 TORONTO

SCALE 1" = 200 FEET  
 JULY 1970





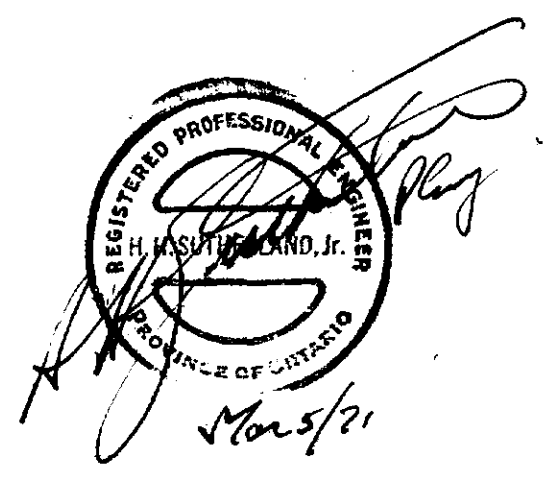


LEGEND

- CLAIM POST
- CLAIM LINE
- SHORE LINE
- | PICKET LINE
- ≡ SWAMP
- MAGNETIC CONTOUR  
VALUE IN GAMMAS (CORRECTED)
- NEGATIVE READINGS.
- CONTOUR TOO DAMER TO GRAPH  
- VALUE OF READING.
- INSTRUMENT USED - MCPHAR M-700  
FLUXGATE MAGNETOMETER.

MAP #3

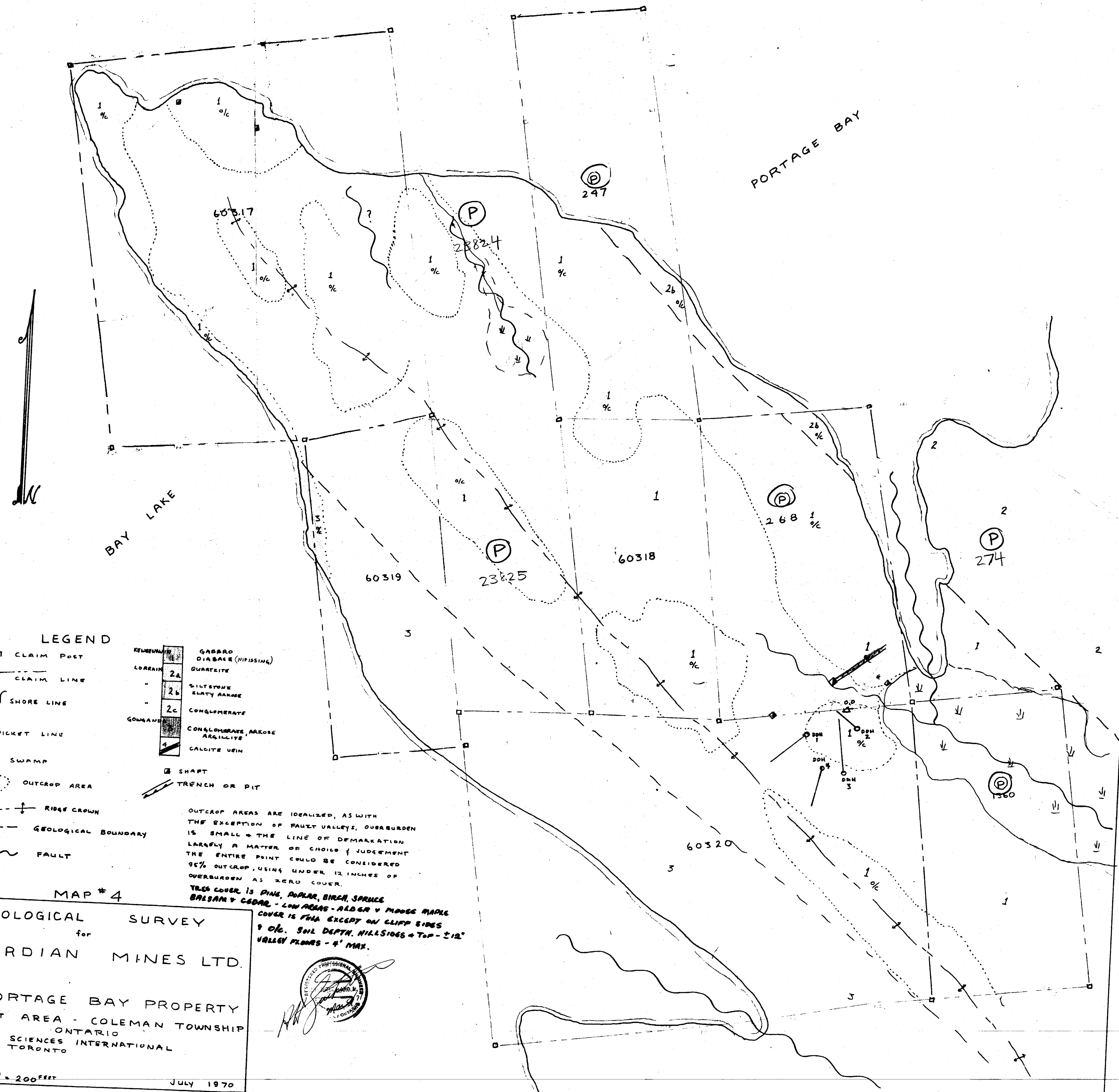
GEOPHYSICAL SURVEY  
for  
GUARDIAN MINES LTD.  
M-700 - MAGNETOMETER  
CONTOURS  
PORTAGE BAY PROPERTY  
COBALT AREA - COLEMAN TOWNSHIP  
ONTARIO  
EARTH SCIENCES INTERNATIONAL  
TORONTO



SCALE 1 INCH = 200 FEET

JULY 1970





**LEGEND**

- CLAIM POST
- CLAIM LINE
- ~ SHORE LINE
- - - PICKET LINE
- ≡ SWAMP
- OUTCROP AREA
- ↑ RIDGE CROWN
- - - GEOLOGICAL BOUNDARY
- ~ FAULT

NEWBURN	GABRO DIABASE (HIPISSING)
COARRIN	QUARTZITE
"	SILTSTONE SLATY SANDS
"	CONGLOMERATE
GOWMAN	CONGLOMERATE SANDS ARGILLITE
"	CALCITE VEIN

OUTCROP AREAS ARE IDEALIZED, AS WITH THE EXCEPTION OF FAULT VALLEYS. OVERBURDEN IS SMALL & THE LINE OF DEMARCATION LARGELY A MATTER OF CHOICE & JUDGEMENT THE ENTIRE POINT COULD BE CONSIDERED 90% OUTCROP, USING UNDER 12 INCHES OF OVERBURDEN AS ZERO COVER.  
 TREE COVER IS PINE, ASPEN, BIRCH, SPRUCE  
 LOW MEAS - ALDER & PAPER MAPLE  
 COVER IS FINE EXCEPT ON CLIFF SIDES & O.C. SOIL DEPTH, HILLSIDES + TOP - 2" VALLEY FLOORS - 4" MAX.

MAP # 4

**GEOLOGICAL SURVEY**  
 for  
**GUARDIAN MINES LTD.**  
 PORTAGE BAY PROPERTY  
 COBALT AREA - COLEMAN TOWNSHIP  
 ONTARIO  
 BY EARTH SCIENCES INTERNATIONAL  
 TORONTO  
 SCALE 1 INCH = 200 FEET  
 JULY 1970

