

GEOLOGICAL REPORT

on

Claims S-119634, S-119635, Hutton Township

Sudbury Mining Division

by

G. D. Markland, B.Sc., P. Eng.
Mine Geologist - Lowphos Ore, Ltd.

June 4, 1964

Location

The two claims are located in lot 7, conc. 3 of Hutton Township, Sudbury Mining Division, and lie on the south east border of the Lowphos Ore, Ltd. mine property.

The claims may be reached from Capreol by following the Milnet and mine access roads respectively.

Owners

Owner of the claims is Lowphos Ore, Ltd., Box 310, Capreol, Ont. by right of transfer from the writer.

The owner submits this survey as assessment work.

Claim Numbers

The claims on which this survey was performed are numbered S-119634 - 5 respectively. Any work shown beyond claim limits to show continuity or to establish survey control has not been included in work breakdown.

Dates of Survey

The work done represents a part of an overall investigation of Lowphos mine property, and was carried out by the mine staff in conjunction with other duties. This will explain the interrupted dates of the investigation and the part days work recorded.

Line cutting on the claims was done Nov. 29 and 30, 1963.

Geophysical survey and plans were made intermittently from Feb. 5 to Apr. 17, 1964.

Geological survey and plans were made intermittently from Apr. 27 to June 3, 1964.

Table of Formations

Algoman	Acid Intrusives	Granite	Agr.
		Pegmatite	Apeg.
Matachewan	Basic Intrusives	Diabase	Bdb
or older		Basalt	Bb
Keewatin	Basic Volcanics	Tuff	VBt.
		Flow	VB, VB(amp) amphibolitized
	Acidic Volcanics	Tuff	ShVB sheared
		Flow	VAt
	Iron Formation		VA
			IF

411145E0013 0031A1 HUTTON

010

Description of Formations

The claims lie in a belt of Keewatin volcanics which strike generally north-west and dip generally steeply to the east. This belt is flanked on the south west by granite which forms an irregular intrusive contact marked by altered volcanic inclusions in granite and by numerous granite and pegmatite dykes and sills in the volcanics. The north east border of the volcanic formation lies approximately 3000 feet east of the claims and is in contact with faulted and folded quartzite of the Huronian sediments. The granite contact falls across the southwest corner of claim S-119635.

The Keewatin volcanics are a greenstone complex of dark green tuffs and flows, generally basalt in composition, fine grained in texture and may show massive, pillowed, or poorly banded structure in flows or well banded structure in tuffs. All are generally somewhat sheared and amphibolitized, which gives a planar foliation usually parallel to bedding where observed. It is possible that some of the banded tuffaceous rocks mapped may be attenuated pillowed flows. Lighter colored acid to intermediate tuffs and flows which are dacitic to Rhyolitic in composition, are found intermittently within and conforming with the green flows.

Basic intrusives, dark green medium grained diabase and dense basalt, are found in both cross-cutting and conforming relations. Both acidic and basic intrusives appear to have a random orientation.

Banded magnetite-chert iron formation occurs in lenses within the volcanic complex, a short distance to the north of the claims. One such lense is indicated at the west border of the map area, on the granite contact, well beyond the claims.

Structure

The belt of Keewatin volcanics is believed to form a single monoclinial fold which strikes northwesterly and dips generally steeply to the east. Lithological tops and bottoms are unknown. The belt is also believed to have been gently cross folded in a north east direction with a low angle plunge to the south east.

Outcrops in the claims area are too few to trace detailed structure but the prevalent planar foliation striking east-west and dipping south confirms this broad cross fold pattern.

Mineralization

There are two locations of economic interest on the claims.

In the center of claim S-119634 there is one small magnetic anomaly (the only one found) which almost certainly represents iron formation and is judged to be approximately 40 ft. wide by 200 ft. long. This is likely to be too small to be minable even in a more convenient location. It should, however, warrant one diamond drill hole to check character and size.

In the south east corner of Claim S-119634, an old open cut has uncovered a rusty brecciated contact zone between granite and volcanics, which is roughly 2 ft. in width. This zone contains brecciated quartz with minor calcite, pyrite, sphalerite and chalcocite. The contact zone is seen to fade out within 35 ft.

A diamond drill hole, drilled by previous owners was directed on strike at -41° and apparently intersected no appreciable mineralization. 270 feet further to the south, two other holes on file as assessment work, were drilled from the same location at -85° and -55° to intersect one other subh zone in granite. The dominant pyrite mineralization is associated with a weak, one foot fracture which strikes NW and dips 80° NE. The -55° hole, collared on this zone, apparently intersected 18.5 ft. of pyrite mineralization. No assays are recorded.

These mineralized zones, although very small and erratic, should be ;check sampled for gold. An E.M. survey should also be considered in the area covering the granite contact.

Summary of Exploration to Date

Diamond Drilling

1957 Claim 119634 (previously 66008) 1 hole 560 ft. in volcanics
1957 Claim 119635 (" 66012 3 holes 580 ft.

Open Cuts

Presumably 1957 - one small cut.

Magnetometer Survey.

1964 - at 50 foot intervals on 200 foot lines.
(25 ft. interval on one small anomaly)

Geological Survey

1964 - compass, tape and pacing from 200 ft. interval control lines.
Area mainly overburden and swamp.

Record of Personnel, Dates and Function

Charles D. Camsell, Box 544, Capreol, Ont.
April 27, 29, May 19, 23, 25, 28, June 4 - 7/8, 6/8, 4/8,
5/8, 4/8, 6/8, 1 respectively, total 5 days.
Total 3 days field mapping assistant
2 days draughting

George D. Markland, Box 566, Capreol, Ont.
April 27, May 19, 23, June 2,3,4 - 7/8, 4/8, 3/8, 4/8,4/8, 1, respectively, total 4 days.
Total 2 days field mapping
2 days preparation of report

Total man days worked 9
Assessment days credit per claim = $\frac{9 \times 4}{2} = 18$

$9 \times 7 = \frac{63}{2} = 31 \text{ days per claim}$
G. D. Markland

Dated: June 5 1964

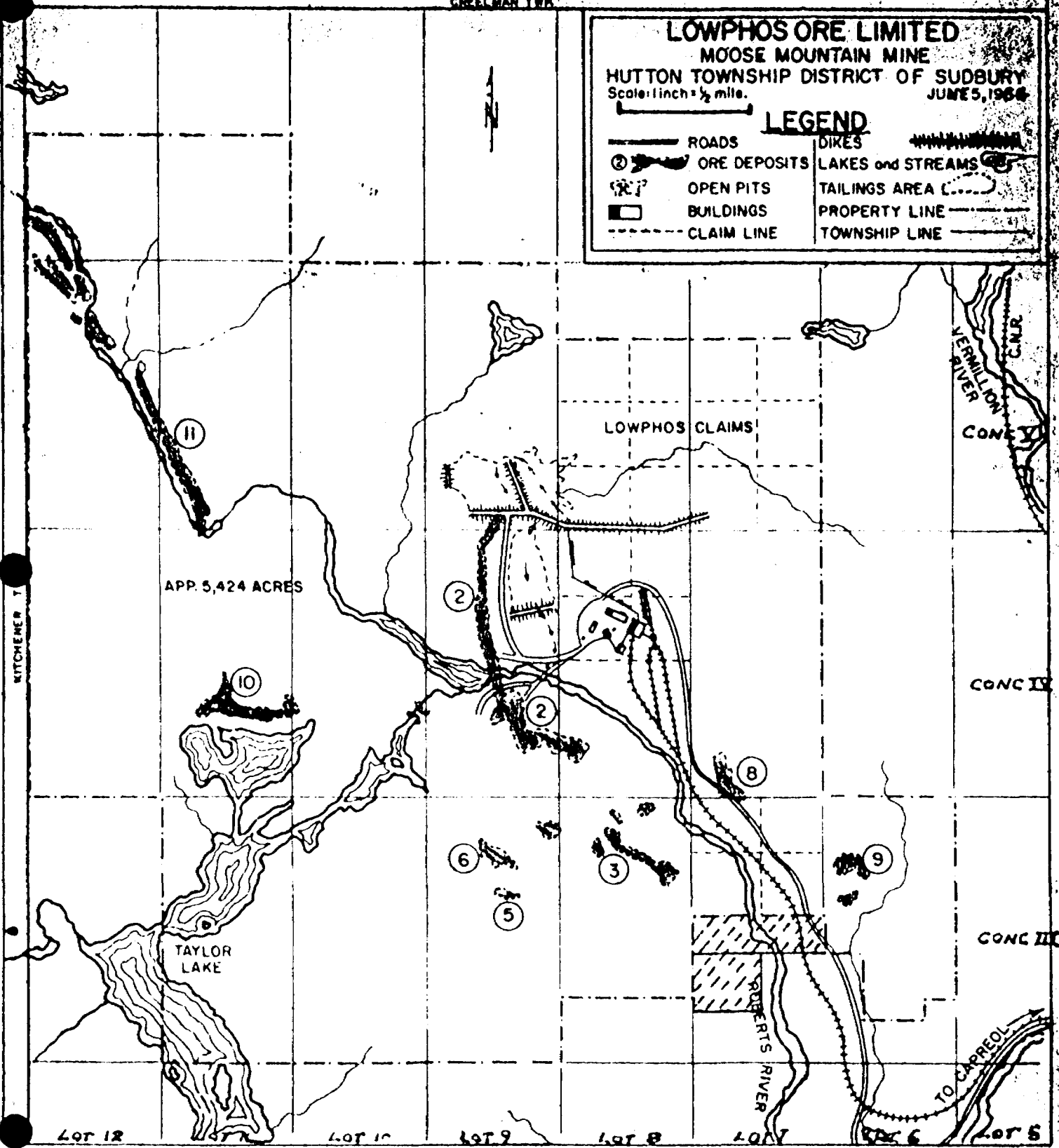
G. D. Markland B.Sc. P. Eng.

GREEN HAW TWP.

LOWPHOS ORE LIMITED
MOOSE MOUNTAIN MINE
HUTTON TOWNSHIP DISTRICT OF SUBURRY
Scale: 1 inch = 1/2 mile.
JUNE 5, 1966

LEGEND

- ROADS
- ORE DEPOSITS
- OPEN PITS
- BUILDINGS
- CLAIM LINE
- DICES
- LAKES and STREAMS
- TAILINGS AREA
- PROPERTY LINE
- TOWNSHIP LINE



APP. 5,424 ACRES

LOWPHOS CLAIMS

TAYLOR LAKE

ROBERTS RIVER

VERMILION RIVER

CONC IV

CONC III

TO CARREOL

LOT 12

LOT 11

LOT 10

LOT 9

LOT 8

LOT 7

LOT 6

LOT 5

HUTTON TWP.



GEOPHYSICAL REPORT

ON

Claims S-119634, S-119635 Hutton Twp.

Sudbury Mining Div.

By

G.D. Markland, B.Sc., P. Eng.
Mine Geologist, Lowphos Ore, Ltd.

June 4, 1964

General

The following report is submitted for assessment work credit in conjunction with a geological report of the same date. It is part of a program of general assessment of the Lowphos mine property.

Details of location, access, owners, claim numbers, and summary of exploration to date are as described under these headings in the geological report.

Dates of Survey

Line cutting and chaining on the claims was done during Nov. 29 and 30, 1963.

Ground magnetometer survey and plans were made intermittently from Feb. 5 to Apr. 17, 1964.

Method

Lines were cut at 200 ft. intervals from base lines which are tied in to the Lowphos mine survey control system. The lines run north-south and conform with the mine grid coordinate system. Stakes were set at 100 ft. intervals.

Ground magnetometer readings were then taken along these lines at 50 ft. intervals. Where readings above background were encountered, 25 ft. spacing was employed in all directions. Magnetic Intensities plotted represent actual readings in gammas. Diurnal variations vary approximately 100 gammas from background of 54700 and are neglected.

Results and Conclusions

Results of the survey show one small anomaly located at the center of claim S-119634 which by experience of the district is judged to be caused by a lense of magnetite iron formation approximately 40 ft. wide by 200 ft. long.

One other location of local above background intensity was found at the south east corner of the same claim and is seen to coincide with sparse pyrite-pyrrhotite mineralization in granite. This area has been previously drilled with negative results.



020

Statement of Assessment Work

1. Type of survey - magnetometer.
2. Township - Hutton
3. Claim Numbers - S-119634, S-119635.
4. Miles of line cut - 2.46
5. Instrument: Sharpe A-3.
6. Sensitivity - 100 gammas.
7. Stations established - 500.
8. Summary of days worked -
 - (a) Total Technical - 8
 - (b) Total line cutting - 6
 - (c) Total man days worked - 14.
 - (d) Assessment days credit per claim - $\frac{14 \times 4}{2} = 28$

Breakdown

Technical Work (incl. Draughting)

Charles D. Camsell, Box 544, Capreol, Ont.

Field readings, draughting and contouring,

Feb. 5, 6, Mar. 7, 10, 12, 13, 16, 17, 23, 24, Apr. 15, 16, 17

-- 4/8, 4/8, 1, 5/8, 4/8, 4/8, 1-1/8, 4/8, 2/8, 1/8, 4/8, 1, 7/8 respectively

Total 8 days

Line Cutting

Valley Crest Construction, 164 Elm St.E., Sudbury

3 men @ 8 hrs. Nov. 29, 1963

3 men @ 8 hrs. Nov. 30, 1963 -- Total 6 days

Typing, etc. -- not claimed

Date: 5 June 1964



G. D. Markland, B.Sc., P.Eng.

Teach - $8 \times 7 = 56$
less
 $\frac{6}{62 \div 2 = 31 \text{ days per claim}}$

63.1279

GEOPHYSICAL REPORT

on

Claims S-119634, S-119635 Hutton Township

Sudbury Mining Division

by

G. D. Markland B. Sc., P. Eng.
Mine Geologist, Lowphos Ore, Limited

June 6, 1966



030

General

The following report is submitted for assessment work credit and is a continuation of the program of examination by Geological and Magnetometer surveying reported on in 1965.

Location

The two claims are located in lot 7 concession 3 of Hutton Township, Sudbury Mining Division. They lie on the south east border of the Lowphos Ore Limited Property.

Owners

Owner of the claims is Lowphos Ore, Limited, Box 310, Capreol, Ontario by right of transfer from the writer.

The owner submits this survey as assessment work.

Claims numbers

The claims on which this survey was conducted are numbered S-119634-5 respectively.

Dates of Survey

The survey was carried out by Lowphos Mine Staff Personnel in conjunction with other duties which explains the interrupted dates and the part days worked. The ground E-M Induction survey was made intermittently from October 4, 1965 to April 6, 1966. The report was finally prepared on June 4, 1966.

Summary of Exploration to Date

- 1957 Diamond Drilling (S-119634) one hole 560 feet in volcanics.
- 1957 " " (S-119635) 3 holes 500 feet.
- 1957 - one small open cut.
- 1964 - Magnetometer and Geological survey.
- 1965 - Surface stripping.
- 1966 - Ground E.M. Induction survey.

Method and Equipment

The ground E.M. Induction survey was carried out along lines previously cut in a North-South direction at 200 Foot intervals with stakes at 100-foot spacing. In addition, 3200 feet of line was cut and surveyed to make a 100 foot spacing over areas of known

Iron formation and pyritic occurrences. All lines are tied into the Lowphos Mine survey control system.

The Swedish made ABEM-E.M. gun used for the induction survey was operated by two men, one handling the transmitting units while the other operated the receiving units. The 200 feet separating cable gives a depth range of about 140 feet.

The transmitting unit consists of a battery operated oscillator which operates at high or low frequency of 1760 and 440 C.P.S. and a transmitting staff (a transmitter coil wound on a ferrite core).

The receiving unit is composed of a receiving staff, a compensator-amplifier and a set of stethoscope headphones. Audio and visual null methods are used for obtaining field readings. The compensator is calibrated so that the readings on the two scales correspond to the in-phase (Real) and out-of-phase (Imaginary) components of the field vector expressed as percentages of the primary field strength as delivered through the connecting cable.

If an electrical conductor is present between the two units of the gear, it is subjected to the primary alternating field so that a secondary current is induced. This current produces a secondary alternating field which together with the primary field produces a resultant field of different amplitude and phase from the applied primary. These differences as measured by the out-of-phase or "Imaginary" scale compensation will be greater than zero and so will indicate the conductor. The strength of the conductor so found will be indicated by the magnitude of difference between the out-of-phase and the in-phase readings.

The out-of-phase (Imaginary) readings which are near zero % and the in-phase (real) readings which are near 100%, have been plotted for each station, on a geological plan at a scale of one inch equals 100 feet. The figures recorded, represent high frequency operation, but occasionally, checks are made with low frequency. These figures are recorded below the station occupied.

Results and Conclusions

Results of the survey showed all Imaginary readings to be at or near zero % thus indicating no conducting bodies. The real readings varied slightly from 100% but these variations were due mainly to topographic relief. There were no areas considered worthy of contouring or profiling.

It is concluded that the claims contain no conductors worthy of further investigation.

Statement of Assessment Work

1. Type of survey - E.M. induction.
2. Township - Hutton.
3. Claim numbers S-119634-5.
4. Miles of Line cut - 0.6 Miles but not claimed.
5. Instrument - ABEM E.M. gun.
6. Sensitivity - 140 Feet approximate depth range.
7. Stations established - 125.
8. Summary of days worked.

a. Total technical 6

b. Assessment days credit per claim = $\frac{6 \times 7}{2} = 21$ *JK*

JK

Breakdown of Assessment Work

Technical Work Incl. Draughting

D. DeBosco 439 Maple St., Sudbury, Ontario.

G. D. Markland 29 Lincoln Crescent, Capreol, Ontario.

Field readings, draughting and report preparation.

1965 October 25, November 24 - 1/2 and 1/2 day each.

1966 April 5, 6, June 4 - 1, 1/2 and 1/2 days each, respectively.

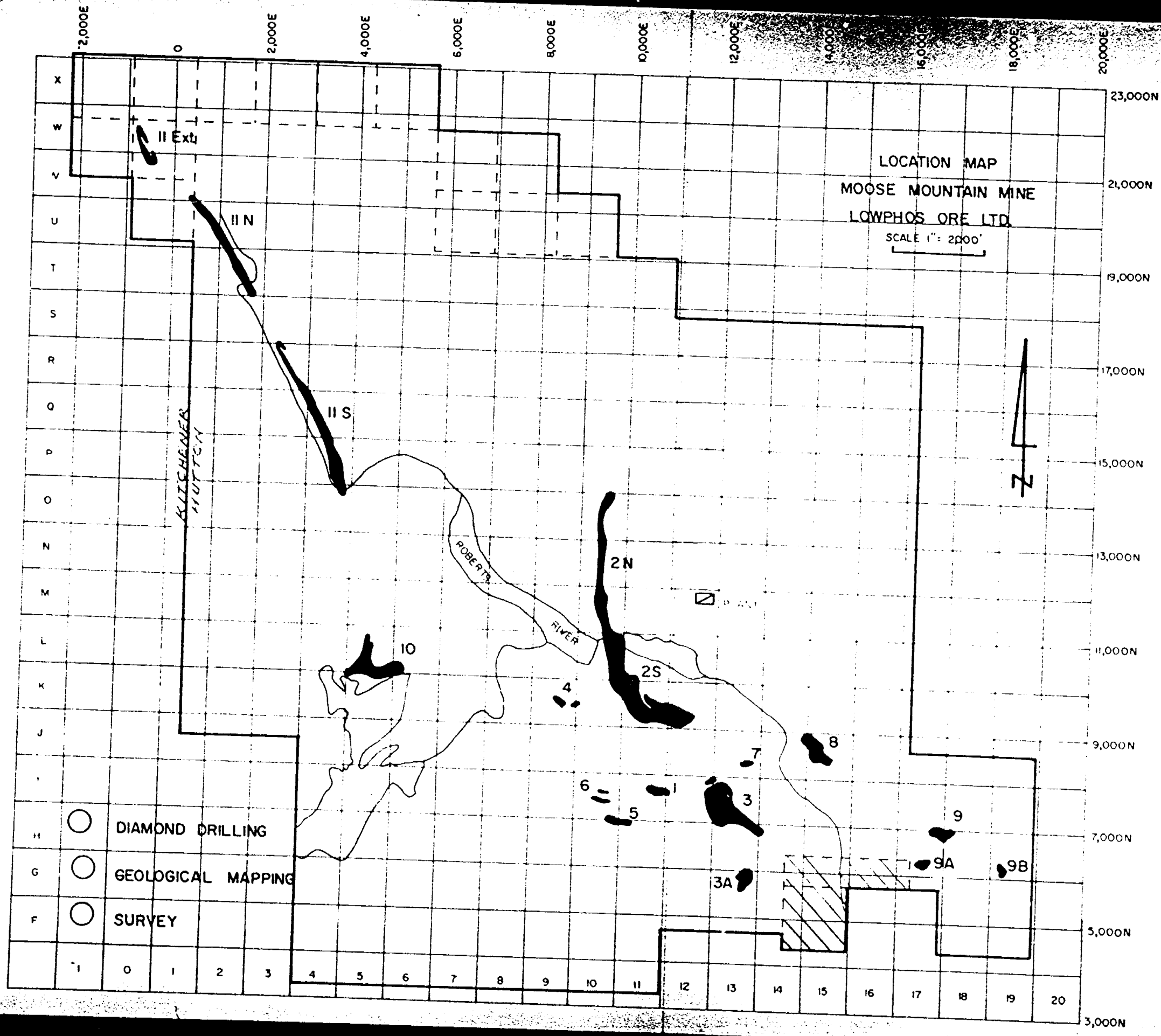
Total - 6 days

Typing Etc. - not claimed.

Date 6 June, 1966.



G. D. Markland, B. Sc., P. Eng.



2,000E

2,000E

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6,000E

8,000E

10,000E

12,000E

14,000E

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18,000E

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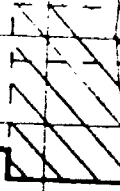
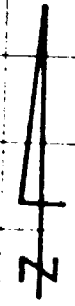
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LOCATION MAP
MOOSE MOUNTAIN MINE
LOWPHOS ORE LTD.
SCALE 1" = 2000'

BLISSHEMER
HUTTON

ROBERTS
RIVER

- DIAMOND DRILLING
- GEOLOGICAL MAPPING
- SURVEY





ONTARIO
DEPARTMENT OF MINES
Mining Lands Branch

PARLIAMENT BUILDINGS
TORONTO 2, ONTARIO



411145E0013 0031A1 HUTTON

File

63.1279
63.1279

900

THE MINING ACT

Assessment Work Credits

Name: LOPHOS ORE LTD.

Township or Area: HUTTON TWP.

Number of Assessment work days per claim

Geophysical 21

Geological nil

Mining Claims: **S 119634, 119635**



ONTARIO
DEPARTMENT OF MINES
Mining Lands Branch

File: 63.1279

PARLIAMENT BUILDINGS
TORONTO 2, ONTARIO

1

October 5th, 1966.

Dear Sir:

Subject: Geophysical and Geological Surveys

The assessment work credits as shown on the attached list have been approved as of the above date. Please inform the recorded holder and so indicate on your records.

Yours truly,

A handwritten signature in dark ink, appearing to read 'R. V. Scott', written over a horizontal line.

R. V. Scott,
Director.

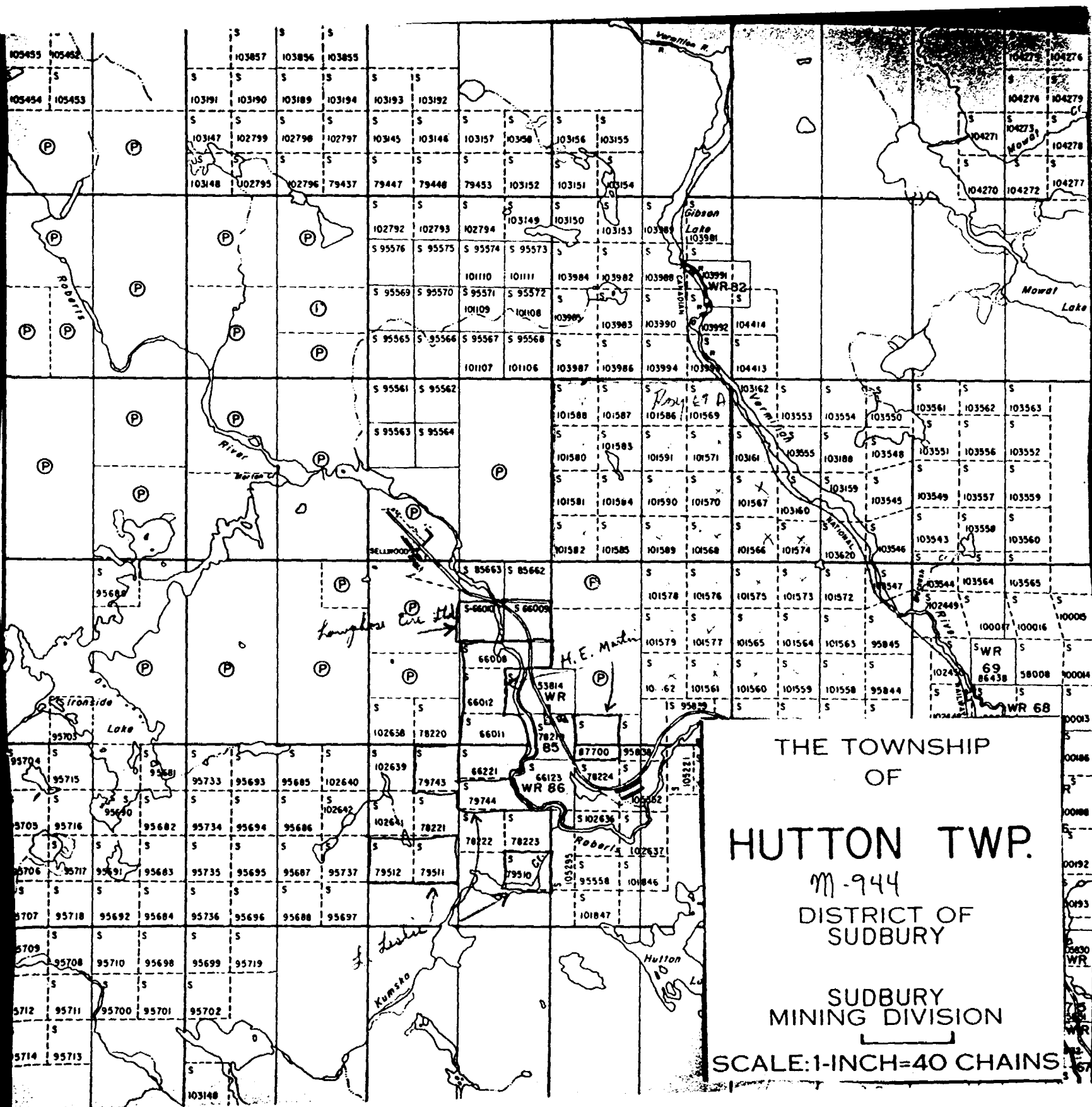
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cc

Lowphos Ore Ltd

Dr. J. F. Donovan

Mr. K. M. Hallock,
Mining Recorder,
Sudbury, Ontario.

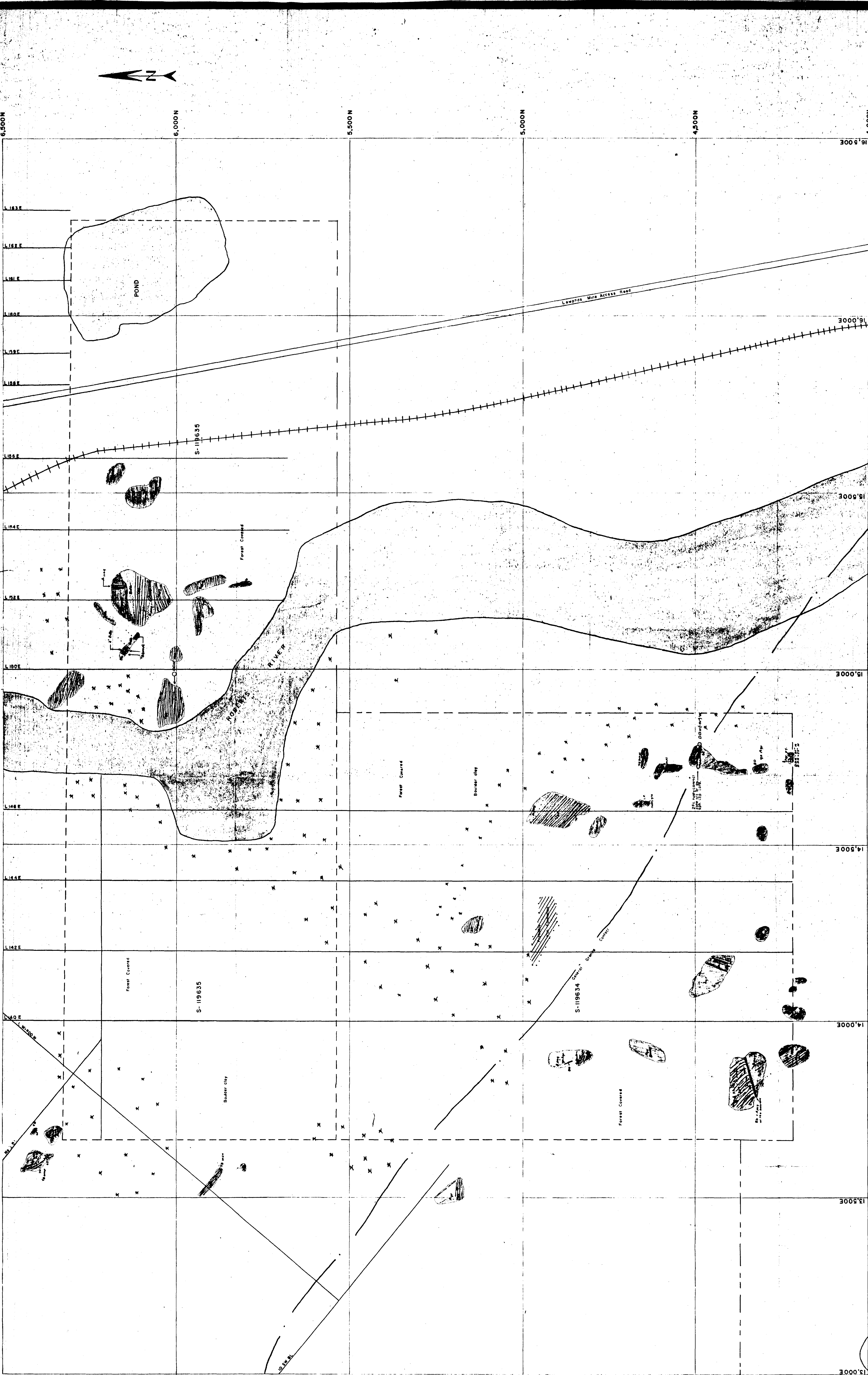


THE TOWNSHIP
 OF
HUTTON TWP.
 M-944
 DISTRICT OF
 SUDBURY
 SUDBURY
 MINING DIVISION
 SCALE: 1-INCH=40 CHAINS

FOR ADDITIONAL
INFORMATION

SEE MAPS:

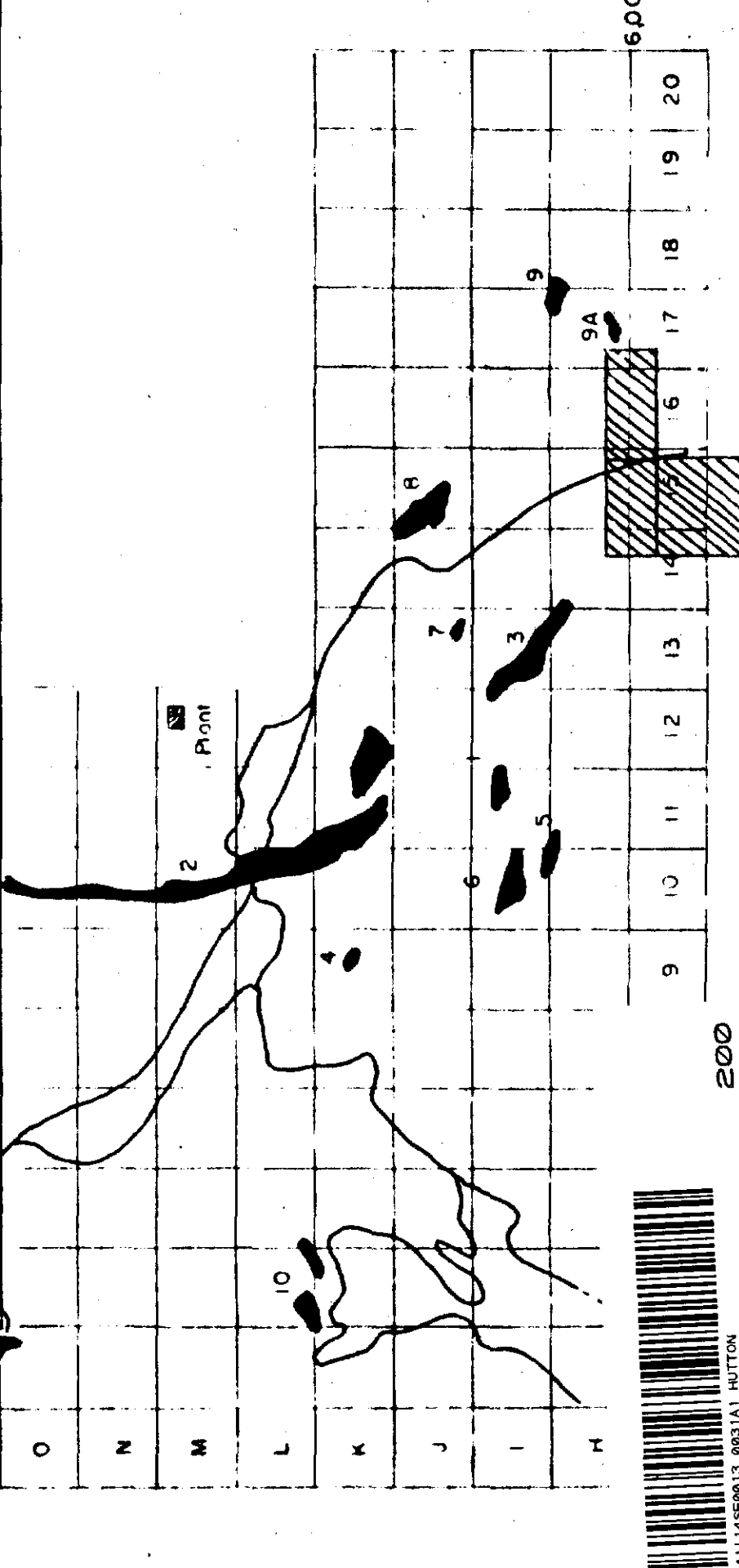
HUTTON-0031-A1 # 1-4

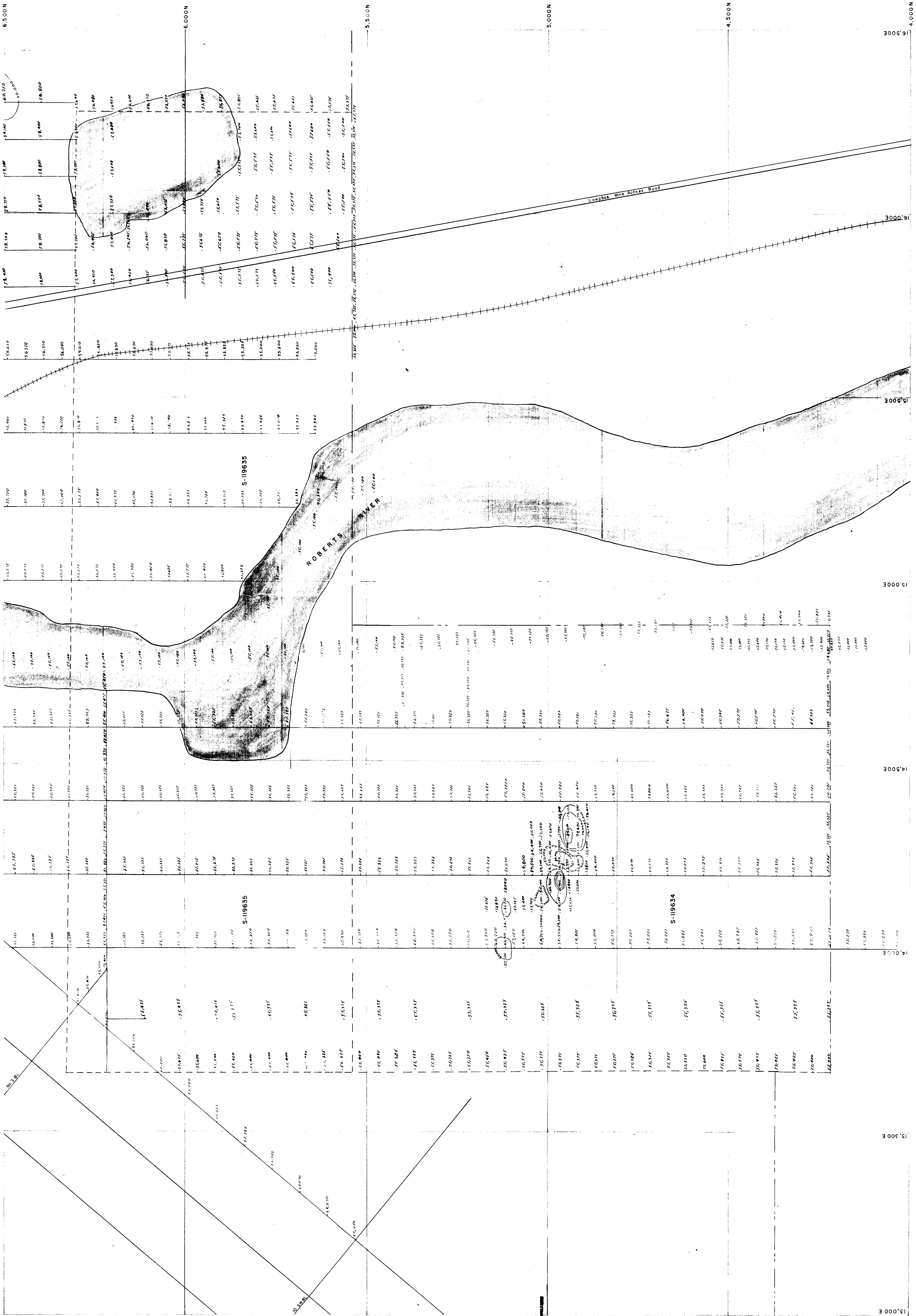


LOWPHOS ORE LIMITED
 MOOSE MOUNTAIN MINE
 SURFACE GEOLOGIC MAP
 CLAIMS S-119635
 S-119634 SCALE 1"=100'
 SHEET NO. 631279 DATE 5/1/68
 GEOLOGY BY Edwards

HUTTON-0031-A1 #1

- LEGEND**
- /// Bedding attitude
 - /// Schistosity & Gneissosity
 - /// Jointing attitude
 - /// Contact/Intrusion
 - Fault
 - Dike
 - Dredged & Plunge
 - Change of inclination
 - Anticline axis
 - + + + Synclinal axis
 - Diamond Drill Hole
 - Shovel
 - Trench
 - Pit
- SEDIMENTS**
- S₁ Greywacke
 - S₂ Quartzite
 - S₃ Chert
 - S₄ INTRUSIVES (BASIC)
 - S₅ Cobble
 - S₆ Basalt
 - S₇ Granite
 - S₈ Pegmatite
- IRON FORMATION**
- IF₁ 25% Mag Fe
 - IF₂ 15%
 - IF₃ 10%
 - IF₄ 10% VOLCANICS (BASIC)
 - IF₅ Basalt
 - IF₆ Turf
 - IF₇ High Shear
 - IF₈ Flow
 - IF₉ Turf
- INTRUSIVES (ACIDIC)**
- IA₁ Granite
 - IA₂ Pegmatite





LEGEND

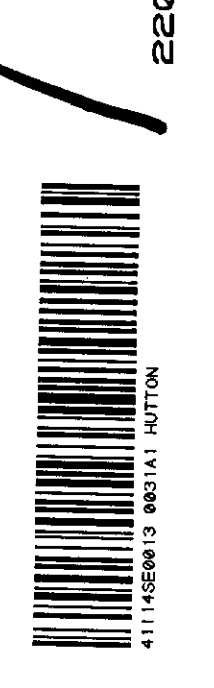
- Open Ore Outline
- - - - - inferred
- Contour
- 5,000 N. LOWPHOS MINE COORDINATES

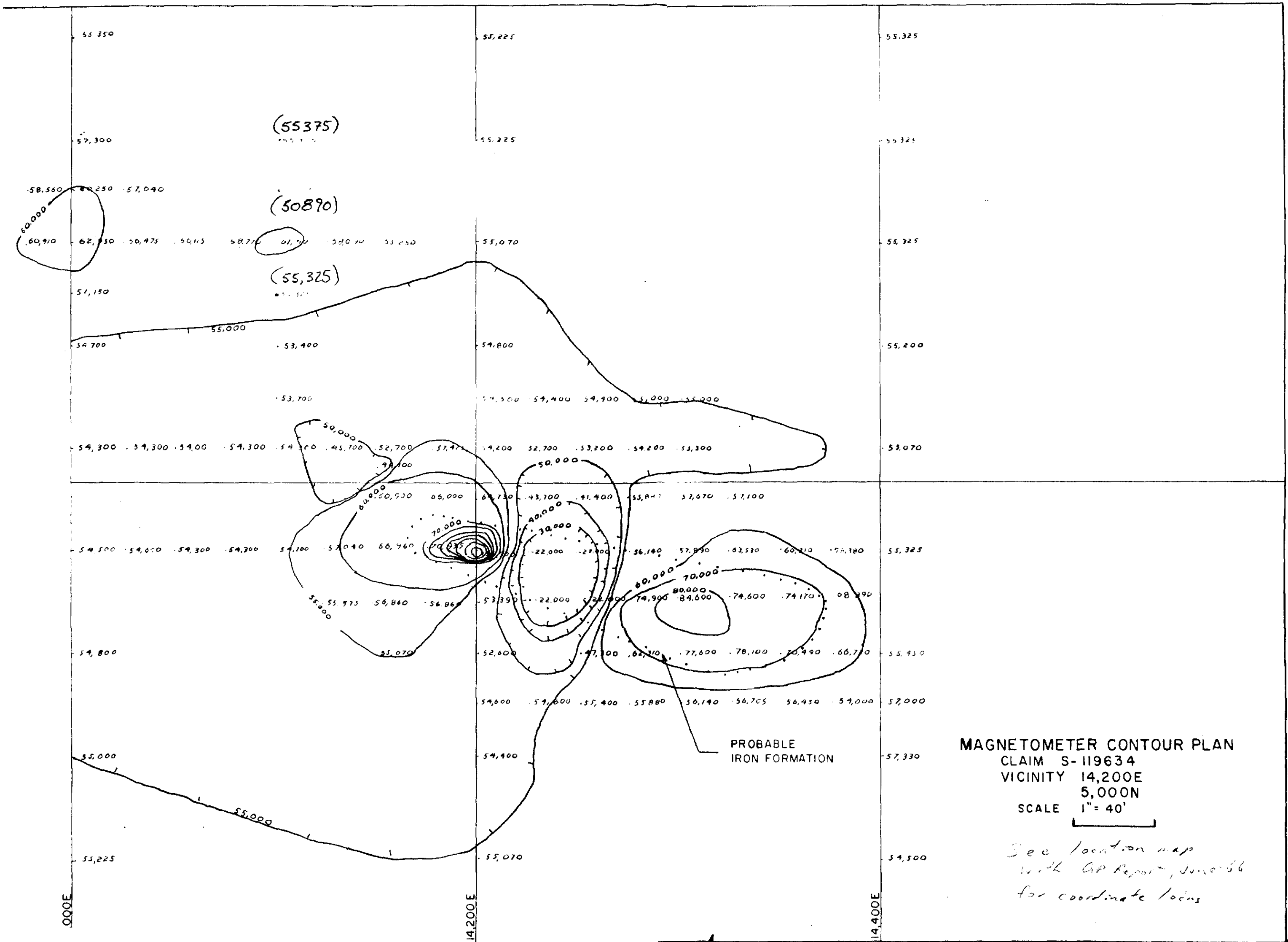
LOWPHOS ORE LIMITED
 MOOSE MOUNTAIN MINE
 GROUND MAGNETOMETER SURVEY
 CLAIMS S-119635 SHEET
 S-119634

SCALE 1"=100' CONTOUR INTERVAL 10,000 GAMMAS
 DATE FEB-88B INSTRUMENT SHARPE A-3
 INTERPRETATION BY [Signature]

BASE STATION ON HILL 200' WEST OF LOWPHOS ENG OFFICE

HUTTON-0031-A1 #3





MAGNETOMETER CONTOUR PLAN
 CLAIM S-119634
 VICINITY 14,200E
 5,000N
 SCALE 1" = 40'

*See location map
 with GP Report, June 66
 for coordinate locus*



HUTTON-0031-A1 #4

1964?