



42A08NW0076 2.1724 HISLOP

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PROJECTS UNIT

GEOLOGY

of

HISLOP GROUP #1

filed for assessment

February 28, 1975

P. J. Bateman

## S U M M A R Y

The property is comprised of three contiguous claims between the Ross Mine and New Kelore ground in eastern Hislop Township, District of Timiskaming. It is underlain by a layered volcanic sequence ranging in composition from andesite to dacite. Intercalated with these lavas are several units of sill-like basic intrusive rocks. The sequence is intruded by two subconcordant syenite sills. The principal types of alteration are widespread but minor chloritization, with hematization and bleaching along syenite margins.

The volcanic rocks have an ESE trend and represent a homoclinal succession isoclinally folded around fold axes parallel to the strike. A small flexure of the main syenite body and adjacent volcanic units indicates second phase cross folding with an axial trend of N30°E. Of the faults and lineaments interpreted, those striking NNW to NNE may represent the earliest stage, and those striking NE to ENE the latest.

Potential gold-bearing shoots are probably in a New Kelore-type environment. Previous Hollinger drilling failed to intersect any encouraging mineralization.

An additional drill hole is recommended to explore for gold-bearing zones and to test some of the conclusions stated herein.

BEATTY TWP.

HISLOP TWP.

HISLOP TWP.

GUIBORD TWP.

6

5

4

3

2

1

VI

IV

III

II

*pike*

*River*

Scale: 1" = 40 chains

HOLTYRE



572

572



## Introduction

The purpose of this report is to describe the geology of Hollinger's Hislop No. 1 Group, investigated during several stages of mapping between July 20, 1973 and August 1, 1974. Mapping was conducted by the writer, with assistance of Dale R. Alexander, on a 6.4 mile grid of cut lines spaced 200' apart. Claim lines, particularly the outside boundary of the group, were also traversed.

## Property Description and Location

The property consists of three contiguous mining claims, L-372632 to L-372634 inclusive, occupying the middle third of Lot 1, Concession 3 in the township of Hislop, Larder Lake Mining Division. These claims adjoin the Ross Mine property to the south, and New Kelore ground to the north.

## Accessibility, Climate and Topography

Access to the claim group is provided from the north via Highway 572 and Highway 101 from Timmins. From the south, access from Timmins can be had via Highways 101 and 11 to Ramore, then Highway 572 east and north through Holtyre. Highway 572 is an all-weather gravel road and forms the eastern boundary of claim L-372632.

Snowfall tends to be somewhat heavier than Timmins although similar climactic conditions generally prevail. The southern open parts of the property are exposed to dust from the Ross Mine tailings dam in a strong south wind.

The greater part of the claim-group is flat-lying as it is underlain by varved clays and stratified silt deposits of glacial lake Barlow-Ojibway. Low areas of outcrop are exposed in the north half of the property whereas the south and northeast sections are swampy and covered by a dense growth of alders.

## History

One of the earliest discoveries of gold in Ontario was made in Playfair township to the south of Hislop township in 1905. Since that time numerous prospectors have passed through the area and gold discoveries in Beatty and Munro townships sparked considerable regional interest.

Following determination of good gold values in a small outcrop in southeast Hislop township, a prospector, Frank Tremblay, staked the claims later known as the Brennan-David, and subsequently developed into the Hollinger Ross Mine. The Ross Mine went into production in 1935.

A mile and a half to two miles north of the Ross Mine, exploration by McIntyre Porcupine Mines Limited led to the establishment of the Kelrowe Gold Mines Limited property, and initial shaft sinking in 1939. After World War II, development was resumed under Kelwren Gold Mines Limited and then Kelore Gold Mines Limited until 1949. This property is presently part of New Kelore Mines Limited and under option to Hollinger Mines Limited.

The three claims featured in this report represent the old 'Rysack', 'Guertin' and 'Bush' claims. In 1938, Hollinger (Ross Mine) completed a diamond drill program consisting of 10 holes totalling 8,216 feet. The only significant gold assay obtained was 0.36 oz/2' in a hole drilled to the southwest of the centre of the group. A number of trenches and pits have been sunk in past years around the north-central outcrops. Assay results are unknown.

## Regional Geology

The area lies within the Abitibi orogenic belt and is part of the Noranda-Benoit volcanic complex (Goodwin and Ridler, 1970). It is underlain by a layered sequence of Keewatin volcanic rocks ranging in composition from basalt and andesite to rhyolite. Thin discontinuous, generally conformable units of volcanogenic sediments occupy higher stratigraphic positions in the volcanic

sequence. Within the sequence and especially within the mafic lava accumulations, are mafic sheets, sills and dykes, many of which are magnesia-rich and which probably represent intrusive phases of the volcanism. Of the granitic plutons within the Noranda-Benoit complex, the largest are distributed along the northern, southern and eastern boundaries of the complex. Many of these are closely associated with felsic volcanic rocks and may represent coeval intrusive equivalents. Felsic alkalic sub-concordant sills and small plugs, also found along the margins of the complex, may typify late stages of 'granitic' intrusion. The latest intrusive event is represented by diabase and quartz diabase dykes with northerly strikes.

The property lies within a triangular-shaped fault block bounded on the west by the northwesterly-trending Hislop Fault, on the southeast by a set of northeasterly-trending faults in Guibord township, and on the north by the Porcupine-Destor 'break' (Prest, 1956). The Porcupine-Destor 'break' is thought to pass through a series of carbonatized lavas and talc-chlorite and actinolite schists coincident with the general trend of the Pike River on the Hislop-Guibord township boundary. A wide zone of talc-chlorite schists (probably altered ultrabasic rocks) has been found to strike parallel to the Porcupine-Destor 'break' across the New Kelore property, just south of the shaft. This zone may represent a subsidiary of the Porcupine-Destor 'break'.

Within the fault block, stratigraphic units are steeply-dipping and exhibit a west-north-west to north-west strike. Isoclinal folding along north-west axial trends is indicated from outcrop structural data, diamond drill logs, and underground relationships at the Ross Mine.

The table of formations for the area is as follows:

Table of Formations

Cenozoic

Recent

Peat; lake and stream deposits

Pleistocene

Glacial till, boulders, gravel, sand, varved clay

--- Great Unconformity ---

PRECAMBRIAN

Proterozoic

Late Mafic Intrusive Rocks (Nipissing or Keweenaw)

Diabase, olivine diabase

-- Intrusive Contact --

Metasediments (Cobalt?)

Conglomeratic and Trachytic Rocks

-- Unconformity --

Alkalic Intrusive Rocks\*

Syenite, porphyritic syenite, aplite dykes, lamprophyre

-- Intrusive Contact --

Archean

Mafic Intrusive Rocks (Matachewan?)

Diabase, quartz diabase and porphyritic diabase

-- Intrusive Contact --

Felsic Intrusive Rocks (Algoman?)

Granite, syenite\*, hornblende syenite\*, granodiorite

-- Intrusive Contact --

Early Mafic Intrusive Rocks (Haileyburian?)

Diorite, gabbro, peridotite, dunite

-- Intrusive Contact --

Metasediments (Timiskaming?)

Conglomerate, volcanic conglomerate, greywacke,  
quartzite, trachytic clastic rock

-- Unconformity --

Felsic Volcanic Rocks (Keewatin?)

Rhyolite, rhyodacite, flow breccia, felsic tuffs  
and agglomerates, interflow sediments (usually  
volcanogenic), iron formation

Intermediate Volcanic Rocks (Keewatin?)

Dacite, dacite porphyry, flow breccia,  
pyroclastics, pillow lava

Mafic Volcanic Rocks (Keewatin?)

Andesite, massive lava, pillow lava, flow breccia,  
pyroclastics, variolitic lava, chlorite and  
talc-chlorite schist, basalt

\* it is uncertain to which age the syenitic rocks of  
eastern Hislop Township belong.

## Geology of Property

### Rock-types and Distribution

The geology of the property is presented on the accompanying map (1" = 200') (see back folder). Interpretation is based on mapping of outcrops and diamond drill logs of old Hollinger drilling (core unavailable). The oldest rocks exposed are a sequence of mafic volcanic lavas which strike ESE across the entire claim-group and apparently have steep dips. Flow units are from 40' to 300' wide and are continuous across and beyond the property (minimum strike length of 3000 to 4000 feet). The lavas are generally fine-grained, weakly to strongly magnetic



andesites that are dark green to grey-green on fresh surface and may be massive, pillowed, variolitic, or brecciated. Many of the pillow units grade downward and laterally into massive flow units. Pillows are elliptical in shape and from 1 to 3 feet in diameter. Pillow selvages are dark green to grey-green, up to 2 inches thick and weather grey to rusty-orange. Fragmental units, except for pyroclastic rocks off the northeast corner of the group, consist of narrow lenses of flow-top breccia and thin units of lithic and/or crystal tuff. Two additional units, both of which have been recognized on the neighbouring New Kelore and Ross Mine properties, are outlined on the basis of drill log descriptions. One is a widespread unit of dark green fine-grained andesite in which are scattered numerous tiny white to cream specks of 'leucoxene'\*(1). The other, labelled as andesite with mafic laths, features numerous tiny, felted, dark green to black, lath-like to acicular amphibole(?) grains.

Intercalated with these lavas, particularly in the south half of the property, are units of basic flow or dioritic rocks which may, in part, be sill-like basic intrusives. These units vary from 15 to 150 feet in thickness. The rocks are dark green to green-black, medium- to coarse-grained, and generally massive.

Narrow flows or flow-units of dacite commonly over-lie separate andesite flow-units within the lava sequence. These units have thicknesses ranging from 5 to 100 feet. They are commonly gradational laterally and vertically to bleached andesite. The dacite is fine-grained, pale green to pale yellow-grey, variably carbonatized, and non-magnetic. Units are either massive, pillowed, locally amygdaloidal, tuffaceous, or, in the case of syenite wall-rock, brecciated.

The volcanic sequence is intruded by two \*(2) subconcordant

\*(1) log description without petrographic or other corroboration.

\*(2) there may be 3 separate syenite bodies, although structural interpretation is somewhat nebulous (see Structure).

syenite sills. Seemingly equivalent dacite units north of the largest syenite body in the western half of the property are south of the same body farther east. This implies a sill which crosscuts the general trend of the volcanic rocks at a small acute angle - a case similar to that observed underground at New Kelore. The sills are from 40 to 160 feet wide and appear to 'pinch out'\*(3) to the west. They are continuous into Guibord Township on the east where they are found in outcrop and drill holes. The syenite is medium- to coarse-grained, bright red to purplish-red, and locally contains feldspar phenocrysts. It differs from the main syenite body at New Kelore in being less silicified and tough but is similar in the presence of purplish porphyritic phases and local yellowish-green sericitic(?) matrix. This suggests a syenite classification rather than that of feldspar porphyry.

Narrow zones of quartz-carbonate stringers were intersected by previous drilling. Relationships to geology remain obscure except for a crude correspondence with faults and lineaments on the accompanying map.

#### Alteration

Volcanic rocks, particularly andesite, adjacent to the syenite sills exhibit a characteristic purplish-red alteration. This most likely represents pervasive hematization resulting from partial alteration of magnetite (these rocks are still moderately to strongly magnetic). Where the rocks occur very close to syenite bodies, it can be difficult to distinguish between feldspathization and hematization, so that the term 'syenitization' has been applied in old drill logs and maps of the area. This term is retained here to provide continuity with numerous company

\*(3) see Structure for discussion of this interpretation.

plans. 'Syenitized' andesite is not extensive on this claim group, but is in the New Kelore workings. It is commonly deep wine-red, and well-fractured with extensive buff bleaching and fine pyritization marginal to fractures.

Chlorite is prevalent as an alteration mineral throughout the volcanic sequence. Epidote is present in some of the more mafic andesite units, and very fine-grained sericite with or without traces of fuchsite (or mariposite) is quite common in both the dacite units and syenite sills. Narrow shear zones are usually marked by rusty weathering.

### Structure

The volcanic flow-units and subconcordant sills have trends varying from 095° az. to 110° az. Dips are either vertical or steeply south, whereas top determinations from pillowed lava and from grain gradation in diamond drill core indicate tight folding. The sequence, therefore, represents a homoclinal succession isoclinally folded around fold axes parallel to the volcanic flow-unit strike.

Only one synclinal and one anticlinal axis are shown on the accompanying map, through the north half of the property. However, repetition of units implies an additional synclinal axis across the south half of the claim group. It is not clear just what effect the folding had on the syenite intrusions, or vice versa -- even so, the proximity of the major syenite body to the anticlinal axis suggests that folding and intrusion were closely related. A second phase of folding is evidenced by a small flexure of the main syenite sill and adjacent volcanic units on L14W. The axis of this cross fold is at 030° az. to 035° az. and may be an extension of cross-folding on the Ross Mine property.

An alternative fold interpretation presents itself if the syenite intersections in DDH No. 1000 are considered to be part of the same body. In this case, the outcrop area on L14W

becomes the nose of a tight anticlinal fold which plunges west. The syenite in outcrop on L24W and at the base of DDH No. 1016 would then represent the nose of a second folded body. Volcanic units can be matched to fit both interpretations; however, the second was rejected for the following reasons:

1. It is difficult to envisage such tight folding of the syenite rather than rupture and dislocation.
2. There is no sign of such folding in the syenite sill of New Kelore (1500 to 2000 feet north).
3. There is a crude relation between syenite bodies and magnetic 'lows', so that correlation between L14W and DDH No. 1016 across such a 'low' is plausible.

Faulting is interpreted on the basis of ground magnetics, aerial photograph lineaments, and projection of known faults on the New Kelore ground. The faults shown are post-folding, and most are probably normal. A NNW 'sinistral' fault on the east side of the property may represent the earliest stage of faulting, although the relative age of strong NNE faults through the 'Bush' claim is unknown. A NE 'dextral' fault through the centre of the group may represent the youngest phase of faulting (similar to the Ross Mine).

Variance between the accompanying map and that of Prest (ODM Map 1955-5) derives mainly from the lack of recognized pillows in the andesite outcrop on L28W. Also, no syenite outcrops were found in the same vicinity.

#### Economic Geology

Previous drilling by Hollinger encountered only one gold intersection of interest on the property - 0.36 oz. Au per ton over 2 feet in DDH No. 1004. In addition, low gold values were hit in DDH 1372 below the southern claim boundary. A number of trenches are scattered around the claim-group, but assay results are unknown. Both drill intersections are associated with 5% to 10% quartz-carbonate stringers within relatively unaltered mafic

flow-units, unlike the ore shoots of New Kelore and Ross Mine. Both intersections are also close to a NNE lineament through the west-central part of the group, which may have had some influence on the site of gold mineralization.

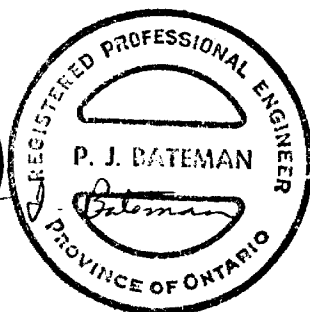
The environment for gold deposition appears to be most similar to that of New Kelore. There, gold is found in a highly siliceous to silicified, brecciated 'dacite' unit containing variable quartz stringers and pyrite along the south contact (footwall) of the main syenite sill. Gold values, probably controlled by NE to E fractures, are also found in pyritic 'syenitized' andesite north of the syenite sill.

At the Ross Mine, gold is primarily found within narrow 'envelope' systems (trend  $110^{\circ}$  az.) of an echelon quartz stringers (trending about  $140^{\circ}$  az.). These systems are with or without Cu, Pb and Zn sulphides and occur with felsic volcanic rocks that could represent a small volcanic vent.

#### Conclusions and Recommendations

The claim-group is underlain by a layered volcanic sequence that has been isoclinally folded, and intruded by several syenite sills. Previous Hollinger drilling failed to find any significant gold mineralization. It is thought that any potential gold ore-bearing shoots on the property would be found in a New Kelore-type environment -- although a NNE lineament through the central claim may have some control.

The writer recommends that one diamond drill hole be drilled to test the contacts of the main syenite sill, and the existence and possible influence of the NNE lineament. The tentative location for such a hole is @ 21+00W, 19+50S. At this spot the hole would be drilled at an azimuth of  $160^{\circ}$  @  $-45^{\circ}$  for a total length of 850'.



P. J. Bateman.

February 28, 1975.

References

1. Goodwin A.M. and Ridler R.H., 1970, The Abitibi Orogenic Belt: Geol. Surv. of Canada Paper 70-40, pp 1-30.
2. Moore E.S., 1936, Geology and Ore Deposits of the Ramore Area: Ontario Department of Mines, Annual Rept. XLV, Part 6, pp 1-37.
3. Prest V.K., 1956, Geology of Hislop Township: Ontario Department of Mines, Annual Rept. LXV, Part 5, pp 1-51.



Show instrument technical data in each space for type of survey submitted or indicate "not applicable"

**GEOPHYSICAL TECHNICAL DATA**

**GROUND SURVEYS**

Number of Stations \_\_\_\_\_ Number of Readings \_\_\_\_\_

Station interval \_\_\_\_\_

Line spacing \_\_\_\_\_

Profile scale or Contour intervals \_\_\_\_\_  
(specify for each type of survey)

**MAGNETIC**

Instrument \_\_\_\_\_

Accuracy - Scale constant \_\_\_\_\_

Diurnal correction method \_\_\_\_\_

Base station location \_\_\_\_\_

**ELECTROMAGNETIC**

Instrument \_\_\_\_\_

Coil configuration \_\_\_\_\_

Coil separation \_\_\_\_\_

Accuracy \_\_\_\_\_

Method:             Fixed transmitter             Shoot back             In line             Parallel line

Frequency \_\_\_\_\_  
(specify V.L.F. station)

Parameters measured \_\_\_\_\_

**GRAVITY**

Instrument \_\_\_\_\_

Scale constant \_\_\_\_\_

Corrections made \_\_\_\_\_

Base station value and location \_\_\_\_\_

Elevation accuracy \_\_\_\_\_

**INDUCED POLARIZATION – RESISTIVITY**

Instrument \_\_\_\_\_

Time domain \_\_\_\_\_ Frequency domain \_\_\_\_\_

Frequency \_\_\_\_\_ Range \_\_\_\_\_

Power \_\_\_\_\_

Electrode array \_\_\_\_\_

Electrode spacing \_\_\_\_\_

Type of electrode \_\_\_\_\_



Beatty Twp.

Northern Ontario  
Natural Gas  
Pipe Line

THE TOWNSHIP  
OF 2.1724

HISLOP

DISTRICT OF  
COCHRANE

LARDER LAKE  
MINING DIVISION

SCALE: 1-INCH= 40 CHAINS

LEGEND

- PATENTED LAND (P)
- CROWN LAND SALE (S or C.S)
- LEASES (L)
- LOCATED LAND (Loc.)
- LICENSE OF OCCUPATION (L.O)
- MINING RIGHTS ONLY (M.R.O)
- SURFACE RIGHTS ONLY (S.R.O)
- ROADS (—)
- IMPROVED ROADS (—)
- KING'S HIGHWAYS (—)
- RAILWAYS (—)
- POWER LINES (—)
- MARSH OR MUSKEG (—)
- MINES (—)
- GEODECTIC STATION (Δ)

NOTES

- Holtvre Townsite Shown Thus: (shaded box)
- Gravel Reserve Shown Thus: (dotted box)
- 400' Surface rights reservation around all lakes and rivers.

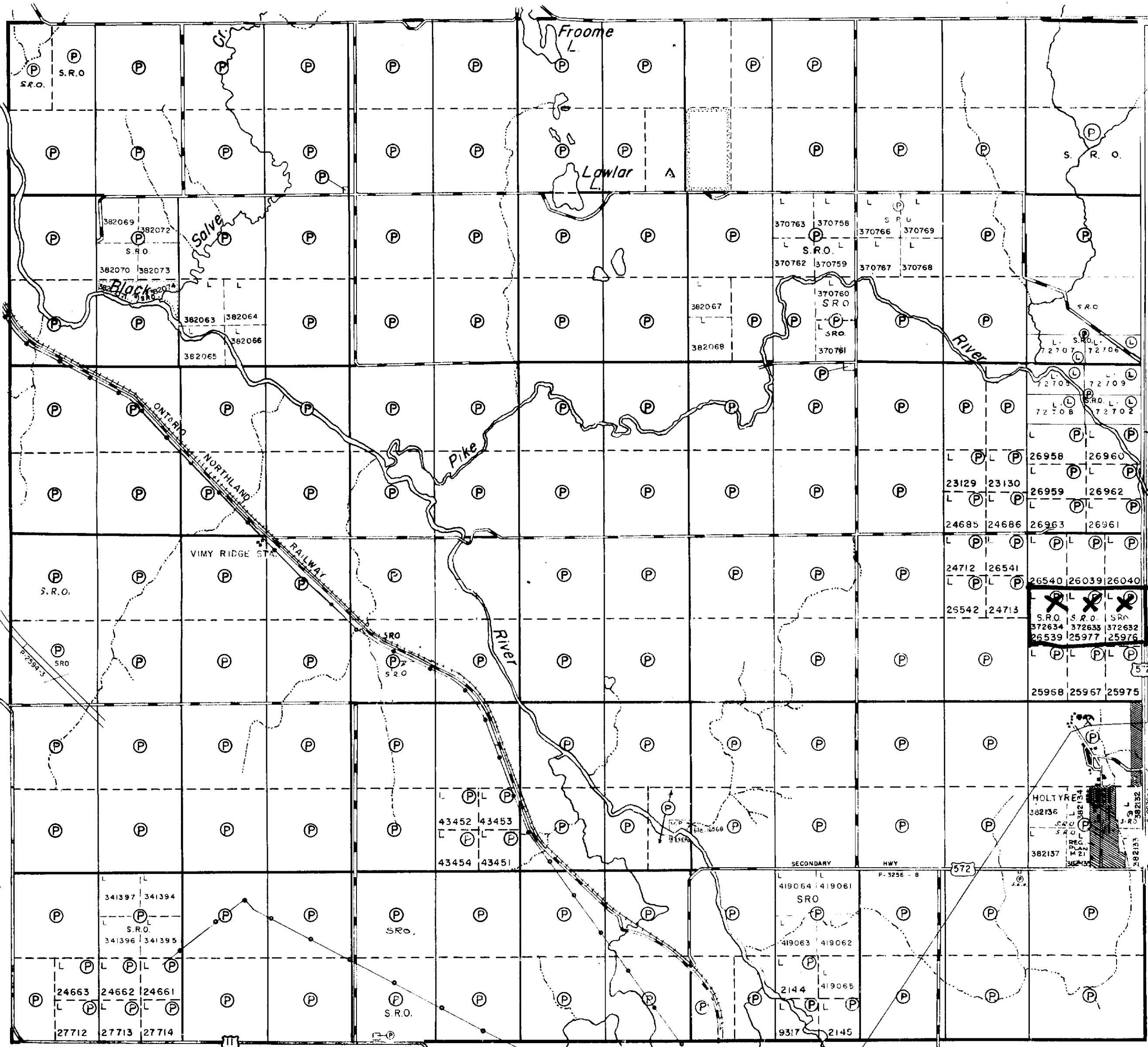
MINING LANDS +  
DATE OF ISSUE  
MAR - 7 1975  
MINISTRY  
OF NATURAL RESOURCES

PLAN NO.- M-355

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

Bowman Twp.

Guibord Twp.



Playfair Twp.

Lot 2

Lot 1

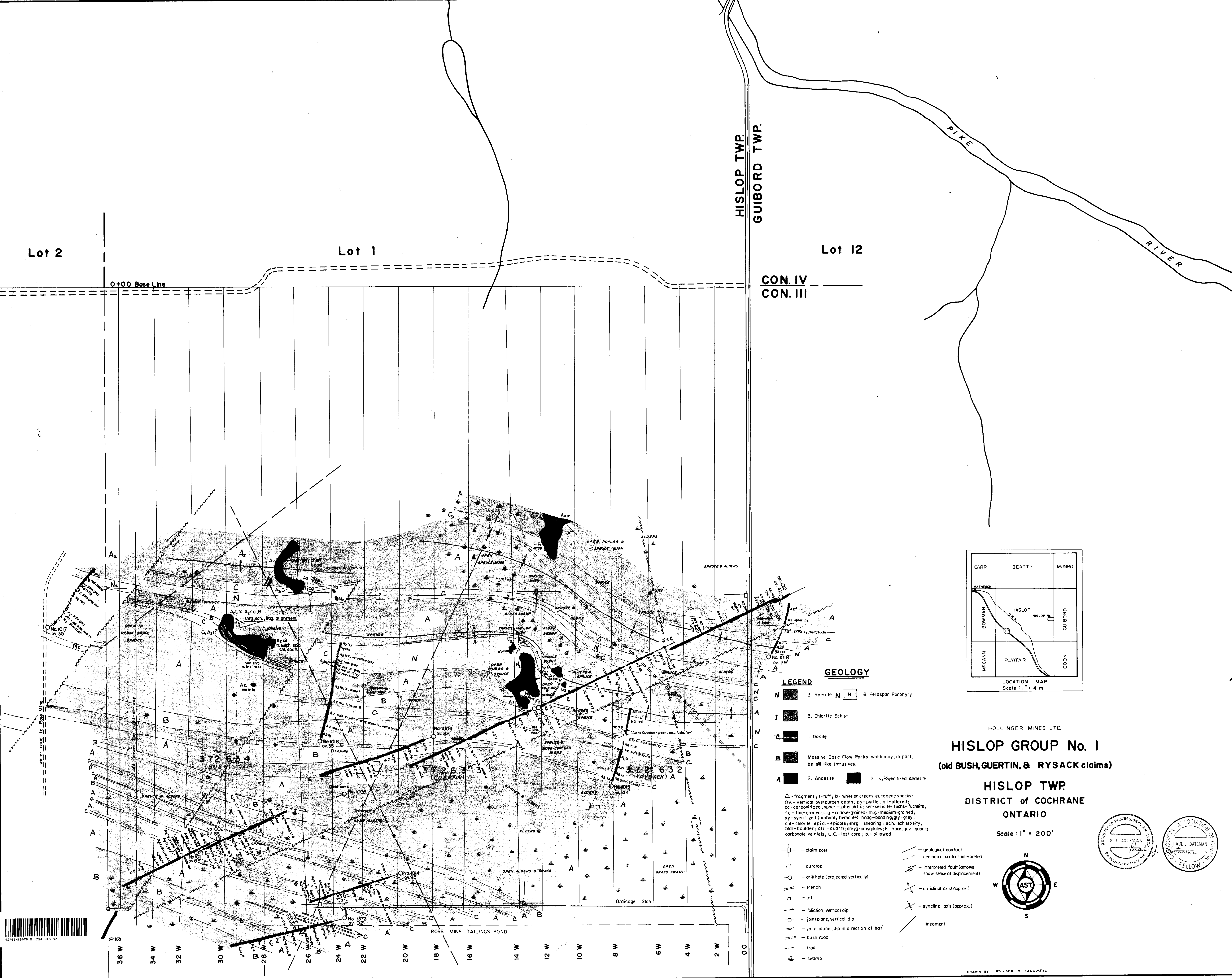
Lot 12

0+00 Base Line

CON. IV  
CON. III

HISLOP TWP.  
GUBORD TWP.

PIKE RIVER

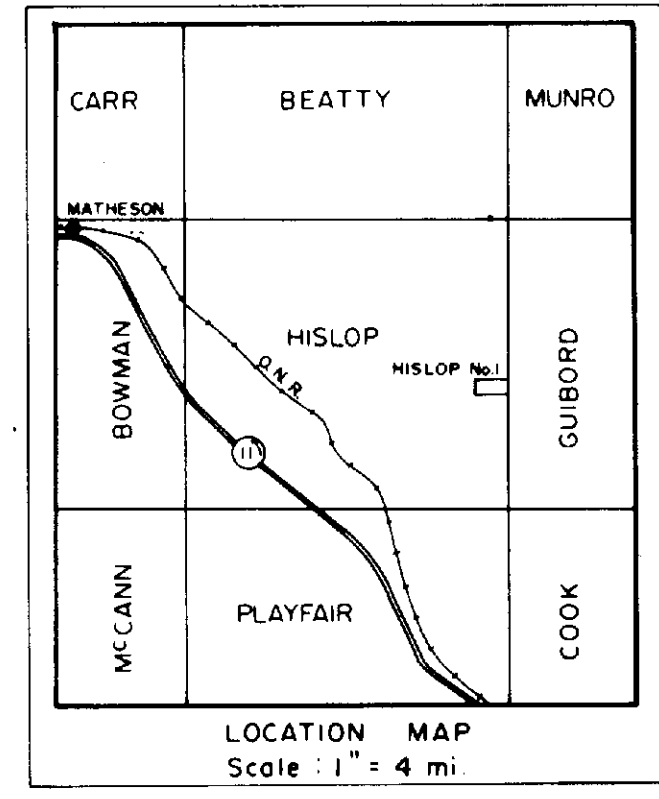


**GEOLOGY**

- LEGEND**
- N 2. Syenite
  - I 3. Chlorite Schist
  - C 1. Dacite
  - B Massive Basic Flow Rocks which may, in part, be sill-like intrusives.
  - A 2. Andesite
  - N 8. Feldspar Porphyry

△ - fragment; 1 - buff; 1k - white or cream leucosecne specks;  
 OV - vertical overburden depth; py - pyrite; alt - altered;  
 cc - carbonitized; spher - spherulitic; ser - sericite; fuchs - fuchsite;  
 fg - fine-grained; c.g. - coarse-grained; m.g. - medium-grained;  
 sy - syenitized (probably hematite); bndg - banding; W - grey;  
 chl - chlorite; epid - epidote; shrg - shearing; sch - schistosity;  
 bldr - boulder; qtz - quartz; amyg - amygdules; tr - trace; qcv - quartz carbonate veinlets; L.C. - lost core; p - pillowed.

- - claim post
- - outcrop
- - drill hole (projected vertically)
- — — — — trench
- - pit
- ↑ - foliation, vertical dip
- — — — — joint plane, vertical dip
- — — — — joint plane, dip in direction of 'ho'
- — — — — bush road
- — — — — trail
- — — — — swamp
- — — — — geological contact
- — — — — geological contact interpreted
- — — — — interpreted fault (arrows show sense of displacement)
- — — — — anticlinal axis (approx.)
- — — — — synclinal axis (approx.)
- — — — — lineament



HOLLINGER MINES LTD  
**HISLOP GROUP No. 1**  
 (old BUSH, GUERTIN, & RYSACK claims)  
**HISLOP TWP.**  
 DISTRICT of COCHRANE  
 ONTARIO

Scale: 1" = 200'

