

5580

93 F / 15 W

1975

Geological Report on the CALEDONIA PROPERTY
Claims Caledonia 1-27 incl., 29, 31, 33,
Cal 1-10 incl., and Cal 14

Located 9 miles SSW of Fraser Lake
Latitude 53°56'N Longitude 124°54'W
Omineca Mining Division 93 F 15

By F.R. Harris
for AMAX Potash Limited

Work was carried out during June 15 to
July 9, 1975

CLAIM: CALEDONIA

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 5580 MAP

1975 Assessment Report

TITLE	Caledonia Property - Geological Report
AUTHOR	F.R. Harris
DATE	August, 1975
COMMODITY	Mo
LOCATION-Area	Fraser Lake
-Mining Division	Omineca
-Coordinates	Longitude 124°54'W Latitude 53°56'N
-NTS	93 F 15

AMAX Vancouver Office

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SUMMARY

The Caledonia Molybdenum property of 30 Caledonia and 11 Cal Claims is located nine miles south-southwest of Fraser Lake in Central British Columbia. The claims are under option from Mr. and Mrs. E. Thomson of Vanderhoof, B.C.

Work performed on the property in 1975 includes line-cutting, I.P. and magnetometer surveys, geological mapping, and 5,790 feet of percussion drilling.

The vicinity of the property is underlain by phases of the Topley intrusions, the Takla Group, acid volcanics of the Ootsa Group, and basalt flows belonging to the Endako Group.

Caledonia quartz monzonite - a grey-pink medium grained rock - underlies most of the property. It has been intruded by numerous dark green diorite dykes and several aplite dykes.

Extensive gravel, sand, and silt deposits of the Nithi River Valley and an ancestral lake cover the northern part of the property. Remnant glacial features such as eskers, kames, and kettles are also common.

The rocks are generally fresh and unaltered except locally where minor potassium feldspar alteration is observed.

Two northwest-striking steeply dipping faults with right lateral movement were mapped. A number of ribboned quartz-molybdenite veins have similar attitudes.

INTRODUCTION

Location and Access

The Caledonia Molybdenum property is located nine miles south-southwest of Fraser Lake. The Francois Lake road and Nithi River logging road (see Figure 1) connect the property with Highway 16 approximately two miles west of Fraser Lake.

Property

The Caledonia #1-27 incl., 29, 31, and 33 claims are optioned from Mr. and Mrs. E. Thomson of Vanderhoof, B.C. The Cal 1-10 incl., and Cal 14 are owned by AMAX Potash Limited.

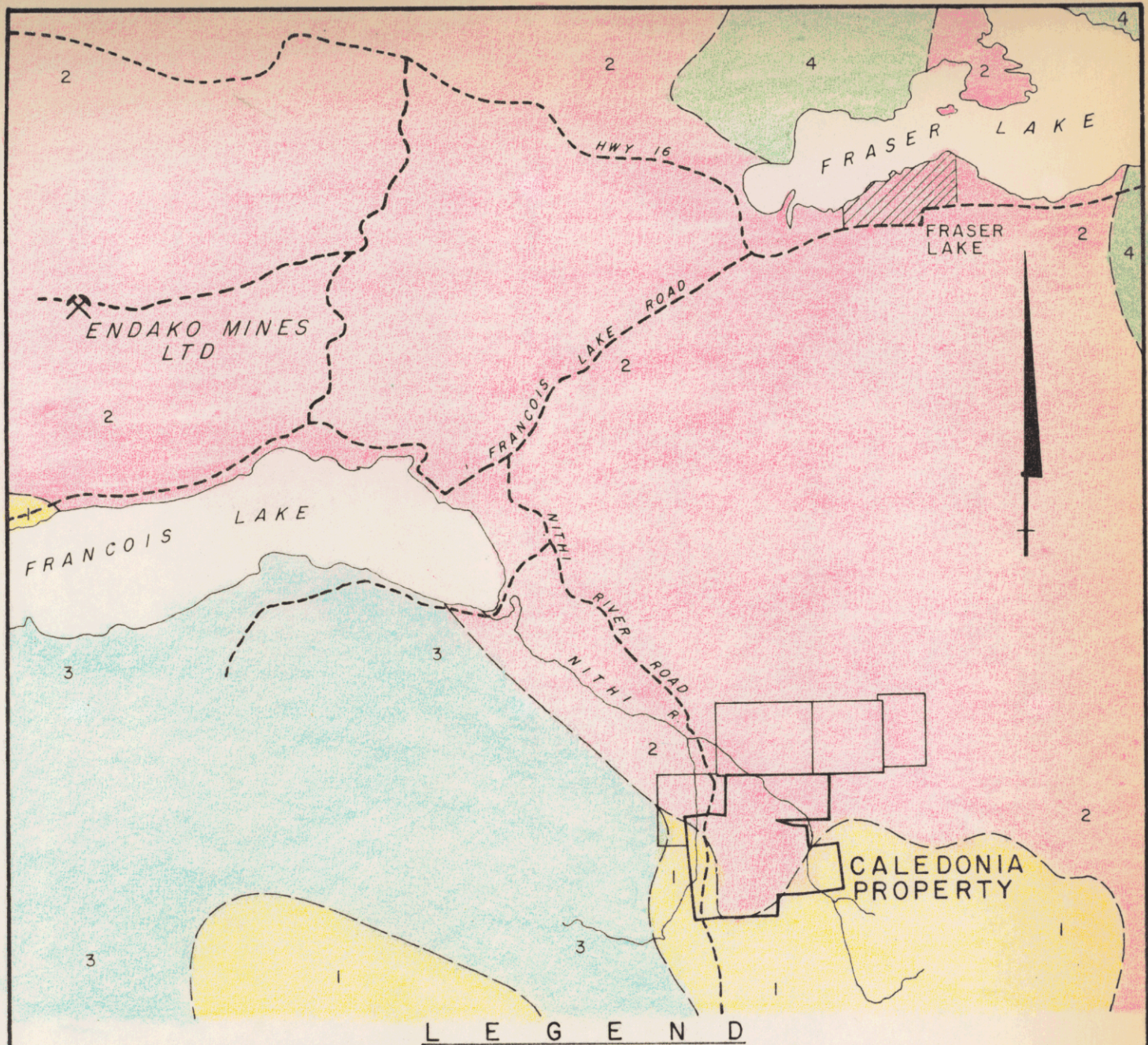
Location of the claims is shown on Figure 2 and a list of claims is given in Appendix III.

Work Done

From June 1 to July 23, 1975 the following work was done on the Caledonia Property.

1. A 15 line mile grid was cut, chained, and picketed at 100 foot intervals by G. Auger of Smithers, B.C.
2. Ground magnetometer and induced polarization surveys were carried out on the grid.
3. Geological mapping of the property was completed.
4. A total of 5,790 feet in 22 percussion holes was drilled.

This report covers the geological mapping carried out between June 15 and July 9, 1975.



L E G E N D

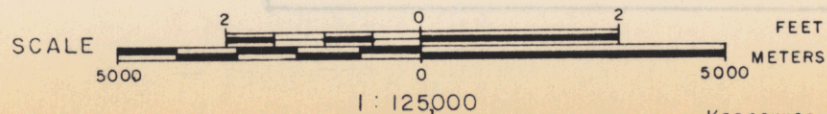
- | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 4 | Endako Group volcanics. | 2 | Topley intrusions. |
| 3 | Ootsa Group volcanics. | 1 | Takla Group volcanics. |

AMAX POTASH LIMITED

CALEDONIA PROPERTY
OMINECA M. D. — B. C.

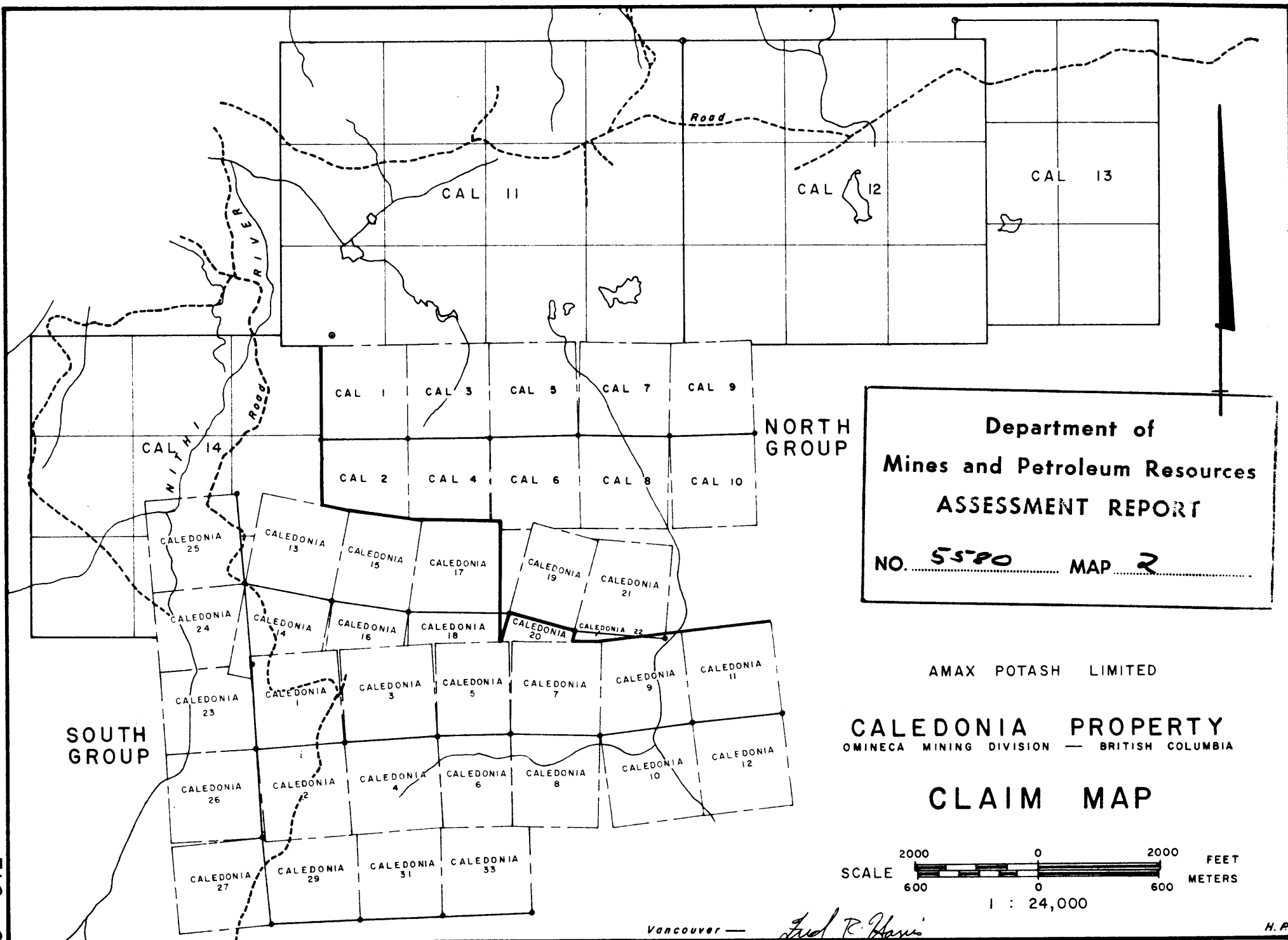
REGIONAL GEOLOGY
AND LOCATION MAP

5580
MAP 1



Vancouver — *Paul R. Harris* H.P.

FIG. 2



REGIONAL GEOLOGY

The property and surrounding area is underlain by Topley intrusions which intrude Triassic-Jurassic Takla Group volcanics. Takla volcanic rocks and Topley intrusions are overlain by Upper Cretaceous to Lower Tertiary felsic volcanic rocks of the Ootsa Group and Tertiary basalt flows of the Endako Group. The regional geology is shown in Figure 1.

Topley intrusions are divisible into four groups. From oldest to youngest these are:

1. Diorite
2. Quartz monzonite
3. Granite
4. Granodiorite

Molybdenum prospects and one major ore deposit - the Endako Mine - are associated with quartz monzonite or granitic phases of the Topley intrusions.

PROPERTY GEOLOGY

Lithology

The property is on the southwestern margin of the Topley intrusions, near the contact between Topley quartz monzonite and Takla volcanic rocks.

Volcanic breccia exposed in the southwestern corner of the map area (See Figure 3) may belong to the Takla Group volcanics and is assumed to be the oldest rock on the property. It commonly consists of dark red volcanic fragments ranging from $\frac{1}{4}$ to 4 inches across set in a grey tuffaceous matrix. The fragments which make up to 5 to 50% of the rock contain phenocrysts of feldspar 1 to 2 mm long.

A second type of volcanic breccia which contains light green volcanic fragments in a grey matrix outcrops along the Nithi River.

The phase of the Topley intrusions exposed on the property is a porphyritic quartz monzonite called the Caledonia quartz monzonite. It is a grey to pink medium grained rock which consists of approximately equal amounts of quartz, plagioclase and potassium feldspar, 5 to 10% biotite, and a trace of disseminated magnetite. Feldspars are anhedral to subhedral and 1 to 2 mm across. Quartz occurs as grey oval grains averaging 5 mm across. The rock is characterized by 1 to 10% of pink subhedral potassium feldspar phenocrysts from 5 to 60 mm long.

Three rubbly outcrops of aplite were found. They probably represent dykes which cut the quartz monzonite.

Dark green aphanitic to fine grained diorite dykes from 1 to 50 feet wide cut the Caledonia quartz monzonite. They strike northeast to north and may be related to Tertiary basalt flows of the Endako Group.

Surficial Pleistocene features indicative of the melting of stagnant ice - eskers, kames and kettles - are common on the property and the general surroundings.

Pleistocene drift covers bedrock north of the base-line except along the Nithi River and the creek east of the grid. Drift cover thickens to the north as shown in Figure 3.

South of 20+00N drift is exclusively sand and gravel. North of 20+00N sand, gravel and silt are found. In a road cut northwest of the property gravel lies on top of silt and clay. A Pleistocene lake is believed to have deposited silt and clay up to the 2,700 foot level of the valley. Silt and clay were then covered with sand and gravel from glacial streams.

Structure

The Caledonia quartz monzonite is weakly foliated. The alignment of ovoid quartz grains in the Caledonia quartz monzonite impart a weak foliation to the rock which, where measured, strikes northeast.

Within the grid only two northwest striking steeply south dipping faults were traced for any distance. The fault at 4+00N on Line 16E has displaced a basic dyke approximately 40 feet in the right lateral sense.

Quartz and molybdenum-quartz veins strike northwest and dip south.

Mineralization and Alteration

Three molybdenum-quartz veins are exposed in old trenches on the property (Figure 4 in pocket). The largest is a 16 inch ribbon molybdenum-quartz vein at 5+00N on Line 4W. The vein contains magnetite, pyrite and a trace of chalcopyrite as well as molybdenite. It thins to four inches 200 feet to the southeast.

A similar six inch chalcopyrite-molybdenum-magnetite-quartz vein is exposed in a trench at 3+00N on Line 1E. At 4+00N on Line 16E fault gouge contains fragments of a molybdenum quartz vein.

Salmon-pink potassium feldspar alteration in veins was noted in the trenched area (Figure 4). At 2+00N on Line 8E a 30 foot wide zone of quartz potassium feldspar veins with a trace of specular hematite strikes northwest and dips 65° to the south.



F.R. Harris

APPENDIX I
STATEMENT OF COSTS

Period of Work June 15 - July 9, 1975

Summary of Work Geological Mapping

Personnel

F.R. Harris - 601-535 Thurlow Street, Vancouver		
Staff Geologist	24 days @ \$93.50/day	\$2,244.00
<u>Room and Board</u>	24 days @ \$20.00/day	480.00
<u>Vehicle</u> 4x4 Truck	20 days @ \$25.00/day	500.00
<u>Drafting & Report Preparation</u>		500.00
		<hr/>
		\$3,724.00
		=====

Work to be applied to 2 years Caledonia 19 and 21
 1 year Caledonia 22, 23, 25, 27, and 29

Fred R. Harris

APPENDIX II

STATEMENT OF QUALIFICATIONS

F.R. Harris

B.Sc. Honour Geology, University of Western Ontario 1961.

M.Sc. Geology, University of New Brunswick 1964.
Experience includes; student summer employment with Geological Survey of Canada and New Brunswick Department of Lands and Mines 1960-1964, party chief for Ontario Department of Mines at Thunder Bay 1964 to 1970. Currently staff geologist with AMAX Exploration, Inc.

APPENDIX III

LIST OF CLAIMS

Name	Record Number	Expiry & Rental Date	Group
Caledonia 1	93864	October 5, 1975	South
2	32042	August 13, 1975	South
3	93865	October 5, 1975	South
4	32044	August 13, 1975	South
5	93866	October 5, 1975	South
6	32046	August 13, 1975	South
7	93867	October 5, 1975	South
8	32048	August 13, 1975	South
9	93868	October 5, 1975	South
10	32050	August 13, 1975	South
11	93869	October 5, 1975	South
12	32052	August 13, 1975	South
13	93870	October 5, 1975	South
14	32054	August 13, 1975	South
15	93871	October 5, 1975	South
16	32056	August 13, 1975	South
17	93872	October 5, 1975	South
18	32058	August 13, 1975	South
19	93873	October 5, 1975	North
20	32060	August 13, 1975	South
21	93874	October 5, 1975	North
22	32062	August 13, 1975	North
23	93875	October 5, 1975	South
24	32064	August 13, 1975	South
25	93876	October 5, 1975	South
26	32066	August 13, 1975	South
27	93877	October 5, 1975	South
29	93878	October 5, 1975	South
31	93879	October 5, 1975	South
33	93880	October 5, 1975	South
CAL 1-10 incl.	133603-133612 incl.	January 7, 1976	North
14	24	June 16, 1976	South



L E G E N D

- TERTIARY
ENDAKO GROUP
3a Diorite dyke.
3b Andesite porphyry dyke.
- JURASSIC
TOPLEY INTRUSIVE ROCKS
2a Aplite dyke.
2b Caledonia quartz monzonite.
- TRIASSIC - JURASSIC
TAKLA GROUP
1a Volcanic breccia with red fragments.
1b Volcanic breccia with green fragments.

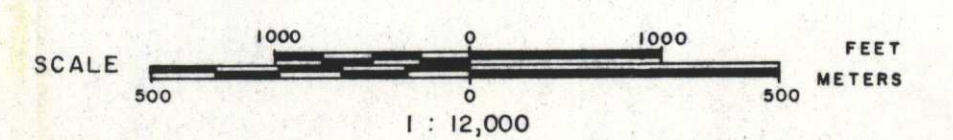
S Y M B O L S

- o12 Percussion drill hole, drill hole number (complete would be CP-75-12P).
- o2b Percussion drill hole showing rock type wherever bedrock was reached.
- Road and/or trench.
- Legal corner post, claim boundary.
- Claim unit boundary.
- Claim post, claim location line.
- Claim boundary.
- Topographic contour (contour interval 25').
- Stream.
- Swamp, swamp boundary.
- Outcrop or suboutcrop and/or boulders.
- Geological contact.
- Fault.
- Slickensides.
- Attitude of bedding or contact.
- Jointing attitude.
- Attitude of vein.
- Quartz - molybdenum vein.

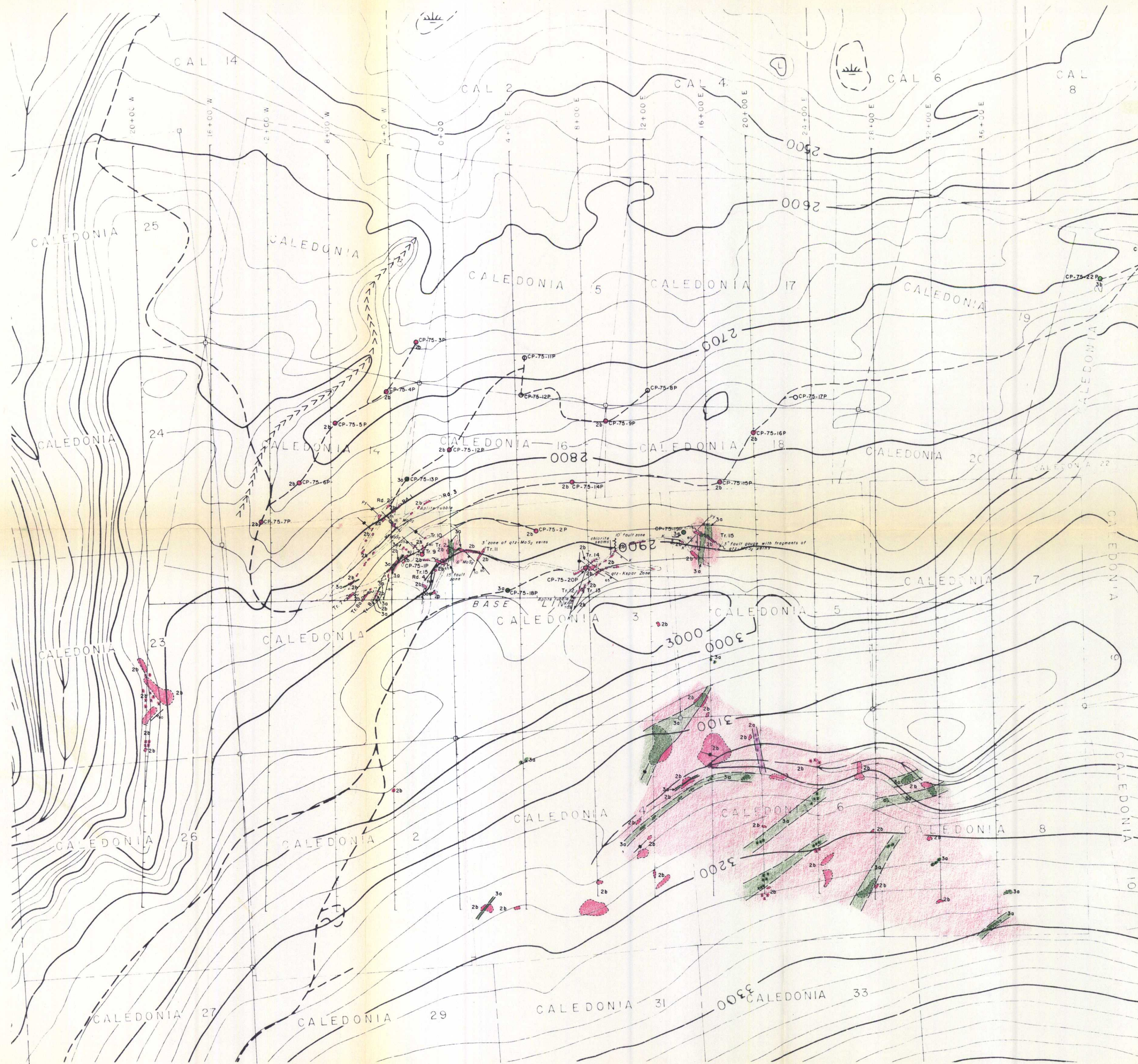
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5580 MAP J

AMAX POTASH LIMITED
CALEDONIA PROPERTY
OMINECA MINING DIVISION — BRITISH COLUMBIA

GEOLOGICAL MAP



To accompany "CALEDONIA PROPERTY — GEOLOGICAL REPORT"
by: F. R. Harris.
Vancouver — Aug. 1975 H.P.



LEGEND

TERTIARY ENDAKO GROUP

- 3a Diorite dyke.
- 3b Andesite porphyry dyke.

JURASSIC TOPLEY INTRUSIVE ROCKS.

- 2a Aplite dyke.
- 2b Caledonia quartz monzonite.

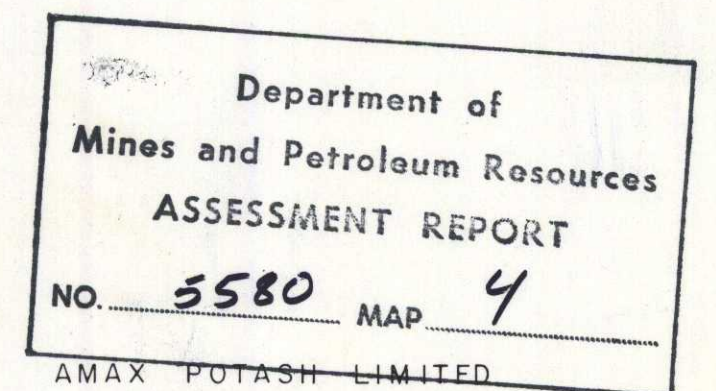
TRIASSIC - JURASSIC TAKLA GROUP

- 1a Volcanic breccia with red fragments.
- 1b Volcanic breccia with green fragments.

SYMBOLS

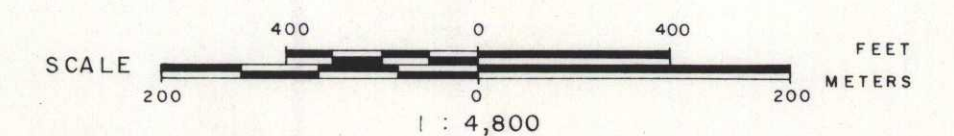
- x x x Outcrop, suboutcrop and/or boulders.
- Geological contact.
- Fault (showing dip).
- Jointing attitude (inclined, vertical).
- Foliation (showing dip).
- Foliation (dip unknown).
- Vein (inclined, vertical).
- Potassium feldspar vein.
- Quartz vein.
- Pyrite bearing vein.

- CP-75-16P Percussion drill hole, drill hole number.
- O 2b Percussion drill hole showing rock type wherever bedrock was reached.
- Esker.
- Tr 12 Road and/or trench, showing number.
- Road.
- Claim post, claim location line.
- Claim boundary.
- Topographic contour (contour interval 25').
- Stream.
- Swamp.



CALEDONIA PROPERTY
OMINECA MINING DIVISION - BRITISH COLUMBIA

GEOLOGICAL MAP



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and R. Harris
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