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DETERMINATION OF MUSCOVITE AND KYANITE CONTENTS
OF CROCAN LAKE, CANADA ORE
PNS Project Proposal No. 11

Minerals Research Laboratory December 1972 Progress Report

Lab. No. 4110 - Book 188, pp. 59-68

by

Philip N. Sales

PURPOSE

Mr. Jack Brettler of Appalachian Resources Corporation submitted 20 samples of Crocan Lake, Canada ore. He requested that we determine the percent kyanite and muscovite in each sample and report to Arrowhead Silica Company.

PROCEDURE

Samples were received in small cloth bags. Each sample was passed through roll crusher one time and a 50-gram sample cut out by use of splitter. The 50-gram sample was screened on 35 mesh, and oversize was ground on a Bucking Board with frequent screenings to reduce all granular material to minus 35 mesh with minimum of fines. When the oversize was all micaceous, it was weighed and passed over Frantz Isodynamic Separator to separate biotite from muscovite. The muscovite fraction was weighed and percent muscovite was calculated.

A 25-gram sample was split from the minus 35 mesh fraction, and kyanite, and other high gravity material was separated in tetra-bromoethane (Sp. G. 2.96). Floats and sinks were washed, dried, and weighed. The sinks were passed over Frantz Isodynamic Separator to separate kyanite from magnetic heavies. Due to presence of pyrite,

it was necessary to heat the sinks to 500° F before this separation. Weight of magnetics and nonmagnetics was recorded, and the degree of separation was observed under binoculars. Sample weight was adjusted for oversize fraction, and percent kyanite was calculated. The floats at 2.96 Sp. G. were then separated in a mixture of tetrabromoethane and kerosene at a Sp. G. of 2.72. The sinks were washed, dried, and weighed. Sinks were passed over the Frantz Isodynamic Separator, and results were checked under binocular for separation of muscovite and biotite. Percent muscovite was calculated, added to percent muscovite in oversize, and reported as total muscovite.

RESULTS

Results of the tests are recorded in the attached table. Due to limitations of heavy liquid separation and magnetic separation, the results are considered accurate to $\pm 5\%$ of the recorded result.

RECOMMENDATIONS

If the percent kyanite and muscovite appear to have economical potential, it is recommended that flotation tests be made to determine the recoverable kyanite and muscovite and to evaluate the quality of the minerals that could be produced.

PERCENT KYANITE AND MUSCOVITE IN CROCAN LAKE ORE

<u>Lab. No.</u>	<u>% Kyanite</u>	<u>% Muscovite</u>
4110-1	9.6%	26.8%
2	11.0	27.9
3	9.2	18.8
4	11.5	15.2
5	14.9	10.4
6	15.3	11.1
7	15.6	21.4
8	16.7	14.9
9	10.8	12.2
10	11.6	19.4
11	16.2	12.8
12	13.0	14.4
13	16.8	8.7
14	18.1	9.7
15	27.0	7.0
16	15.8	4.2
17	16.4	12.7
18	14.3	14.6
19	17.4	7.4
20	14.3	11.1

NORTH CAROLINA STATE UNIVERSITY
MINERALS RESEARCH LABORATORY

Asheville, North Carolina

CHEMICAL ANALYSIS RECORD

Date: 12/1/72

Copies to: Mr Jack B. Brettler (2 copies)
Appalachian Resources

Analysis requested by: Arrowhead Silica

Kind of sample: (Project Proposal 11 continued)

Analyze for: Kyanite by heavy liquids and Frantz Isodynamic Separator

Sample No. 4110

Lab. No. As Below:

ANALYSIS

Note: This analysis is representative only of the sample submitted and is not to be construed to guarantee the integrity, quality, or size of any particular mineral deposit. This analysis is part of our regional studies and not to be used for private purposes.

<u>Sample No.</u>	<u>% Kyanite</u>	<u>Sample No.</u>	<u>% Kyanite</u>
21	12.9%	39	10.6%
22	18.6	40	9.2
23	12.6	41	15.8
24*	22.5	42	19.8
25	12.5	43	14.7
26	15.7	44	16.0
27	13.0	45	15.0
28	11.8	46	13.2
29	17.9	47	16.4
30	12.2	48	19.6
31	12.7	49	16.3
32	12.5	50	14.5
33	10.6	51	14.3
34	11.3	52	17.9
35	10.7	53	15.8
36	13.0	54	15.9
37	11.0	55	14.0
38	14.4	56	15.2

Date Completed: 12/15/72

Analyst: Philip N. Sales

Remarks

*Sample was much finer and contained sulfides.

1142 HOWARD STREET

SAN FRANCISCO, CALIFORNIA 94103

AREA CODE 415 863-8575

Spectrographic Analysis (Semi-quantitative)

Submitted by Arrowhead Silica Corporation
P. O. Box 561
Franklin, North Carolina 28734

Date November 10, 1972
Sample of Mineral Crocan Lake

P. O. No.

Lab. No. 1944

SAMPLE MARK →	Gneiss			SAMPLE MARK →	Gneiss		
IRON %	8.00			SODIUM %	0.18		
COPPER	0.0003			POTASSIUM	1.00		
NICKEL	0.001			STRONTIUM	0.01		
CHROMIUM	0.06			ZIRCONIUM	0.03		
ALUMINUM	10.00			BORON	0.002		
LEAD	0.001			BARIUM	0.03		
TIN	0.001			RARE EARTHS			
ZINC *	0.01						
COBALT *	0.001						
MANGANESE	0.18						
MOLYBDENUM							
SILICON	Major						
SILVER							
VANADIUM	0.02						
MAGNESIUM	2.30						
CALCIUM	2.10						
TITANIUM	0.30						
BISMUTH							

*LESS THAN

**CHEMICAL DETERMINATION

@256342

METALLURGICAL LABORATORIES, INC.

By

Robert J. Davis
SPECTROCHEMIST



RECORD	THE NAME OF Terrance V. Davis	LICENCE NO. C.31054	1-50154	November 1 / / 71
ADDRESS 19650 Fort St. Riverview Michigan			DATE AND TIME OF STAKING Nov. 16/71 @ 1:30 pm	

ASSESSMENT WORK CREDITS ASSIGNED TO OTHER CLAIMS	OFFICE USE ONLY	DAYS RECORDED	BALANCE	DESCRIPTION OF CLAIM
		Arrowhead Silica	13	3987
Lease will include the land under the water of Crocan Lake. 400' Surface Rights Reservation is waived along Crocan Lake.				Water 7.19 ac. Land 31.15 ac. Total 38.34 ac. (S.323926)

RECEIVED
MAY 15 1973
PROJECTS SECTION

DATE	DAYS W/HA	DESCRIPTION	RECEIPT NO.
Nov. 26/71		Transfer all interest to Cononaco Mines Limited A.38428 (S.323926)	1-50242
Mar. 1/72		Cononaco Mines Limited transfers 100% interest to Arrowhead Silica Corp. T.485. (T.56635) (S.323926)	1-50599
Sept. 20/72		Permission to survey Simpson and Taylor Ltd. O.L.S.	
Nov. 16/72	40	Survey plans received. (S.323926)	
Nov. 17/72		Order of the Mining Recorder re: post and tag adjustment (S.323926)	
Jan. 11/73		Order of the Mining Recorder complied with (S.323926)	
Mar. 15/73		Statement of first year's rental - mining and surface rights - \$38.34 (S.323926)	
Mar. 15/73	23	Mechanical (S.323926)	
March 15/73	0	Assays & Analyses (13 days performed on (S.323927)	

This Abstract is a copy of the entries in the Record Book and is not to be considered as assurance of the validity of the claim.

MAY 5 1973

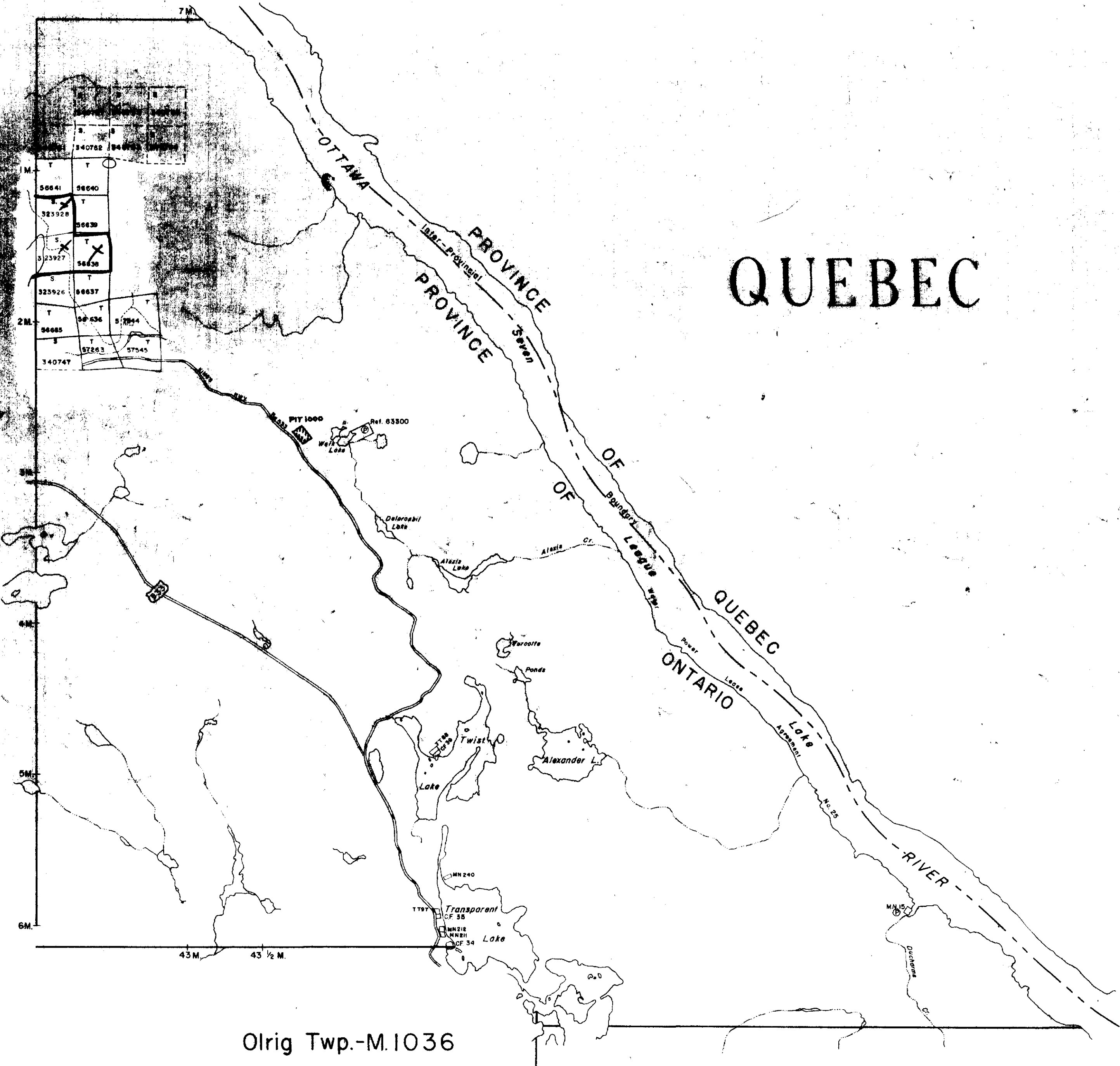
RELIEF MINING RECORDER SUPERVISOR *J. Craig*

Eddy Twp.-M.778

Butler Twp.-M.630

Olrig Twp.-M.1036

Mattawan Twp.-M.859



THE TOWNSHIP OF

ANTOINE

DISTRICT OF NIPISSING

SUDBURY
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

- PATENTED LAND
- CROWN LAND SALE
- LEASES
- LOCATED LAND
- LICENSE OF OCCUPATION
- MINING RIGHTS ONLY
- SURFACE RIGHTS ONLY
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKIE
- MINES
- CANCELLED

NOTES

400' Surface rights Reservation around all Lakes and Rivers.

La Caver and Fournier Development.
Water Power Lease Agreement No. 88.
All the unalienated part of the bed of the Ottawa River (Ontario side) in the Township of Antoine, including unalienated islands therein, together with the right to raise the water level and flood Crown Land up to a station 588 feet above mean sea level, according to survey of Canada Deform.

MINING LANDS -
DATE OF ISSUE
MAR 20 1973
MINISTRY
OF NATURAL RESOURCES

PLAN NO. - **M.630**

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH



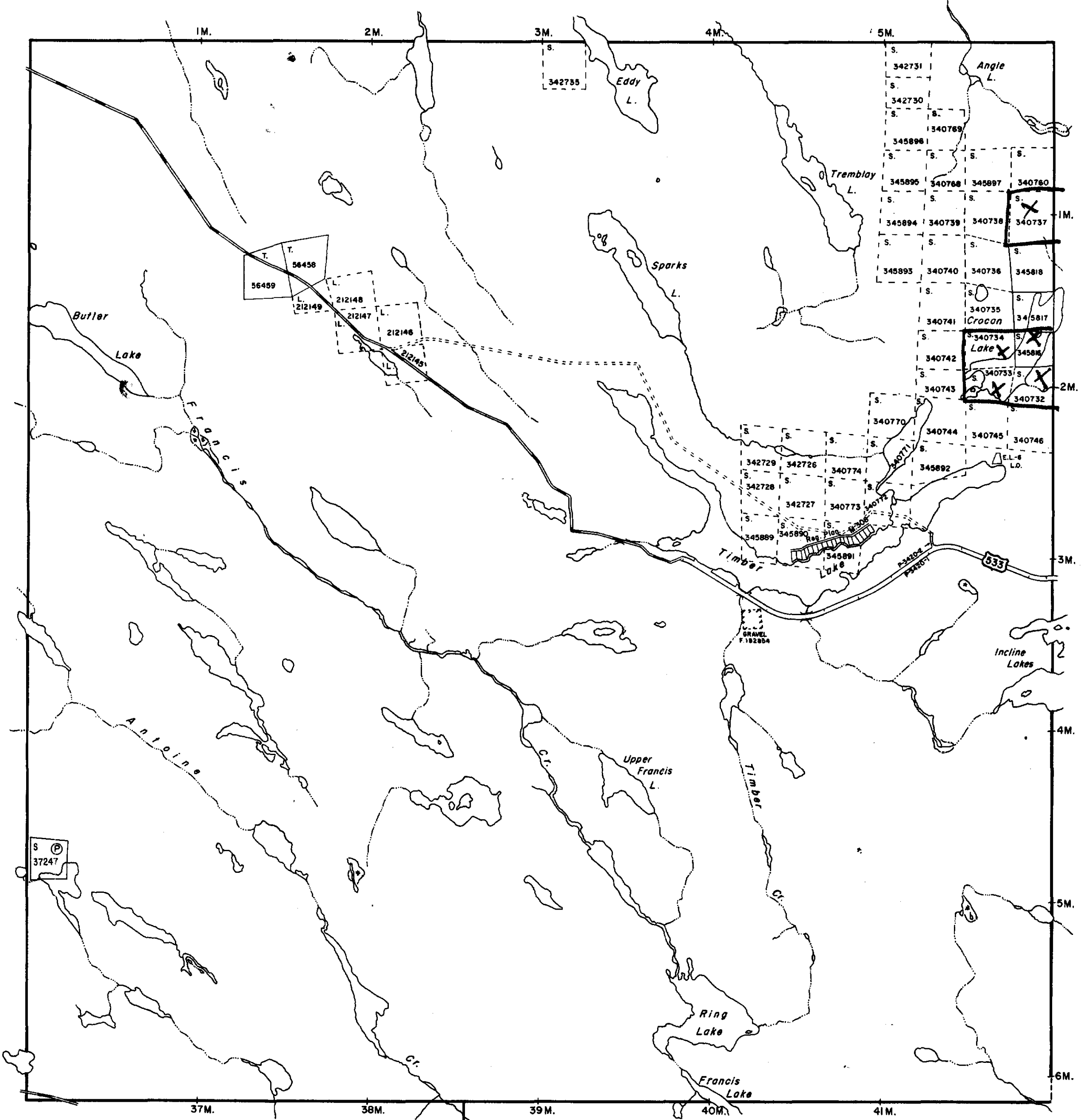
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W.023

BUTLER TP. M.818

W.023

EDDY TP. M.778



THE TOWNSHIP OF
 BUTLER
 DISTRICT OF NIPISSING
 SUDBURY MINING DIVISION
 SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	● or ⊕
CROWN LAND SALE	C.S.
LEASES	⊙
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	—
CANCELLED	—
PATENTED S.R.O.	—

NOTES
 400' surface rights reservation along the shores of all lakes and rivers.

MINING LANDS -
 DATE OF ISSUE
 MAR 20 1973
 MINISTRY OF NATURAL RESOURCES

Contra 2 250

PLAN NO.- M.693
 ONTARIO
 MINISTRY OF NATURAL RESOURCES
 SURVEYS AND MAPPING BRANCH



W.023

BUTLER TP. M.818

W.023

