



41P10SW0106 2.1624 LEONARD

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PROJECTS UNIT

Geological Report on the Property
of
United Reef Petroleums Limited
Leonard Township, District of Temiskaming
Ontario

Toronto, Ontario
October, 1974

J. L. Tindale, P. Eng.
Geologist

Introduction

The 10 claim Leonard Township property of UNITED REEF PETROLEUMS LIMITED has been geologically mapped by the writer and plotted at a scale of 1 inch=100 feet on the accompanying map. The following report discusses the geological implication of our findings and future plans for the property.

Claims, Location and Access

The property is located in the southwestern portion of Leonard Township, District of Temiskaming, Northern Ontario.

Access to the property is provided by Highway No. 560 to the Otter Rapids hydro line west of Gowganda village. A rough truck road south along the line for 12 miles and a walking trail of 1.5 miles to the east leads on the property. An alternate route is via the Bay Lumber road southerly for 17.5 miles from Highway No. 560 west of Shiningtree Creek and then 4.4 miles north along the power line to the trail. This latter route is accessible by passenger car during the summer months.

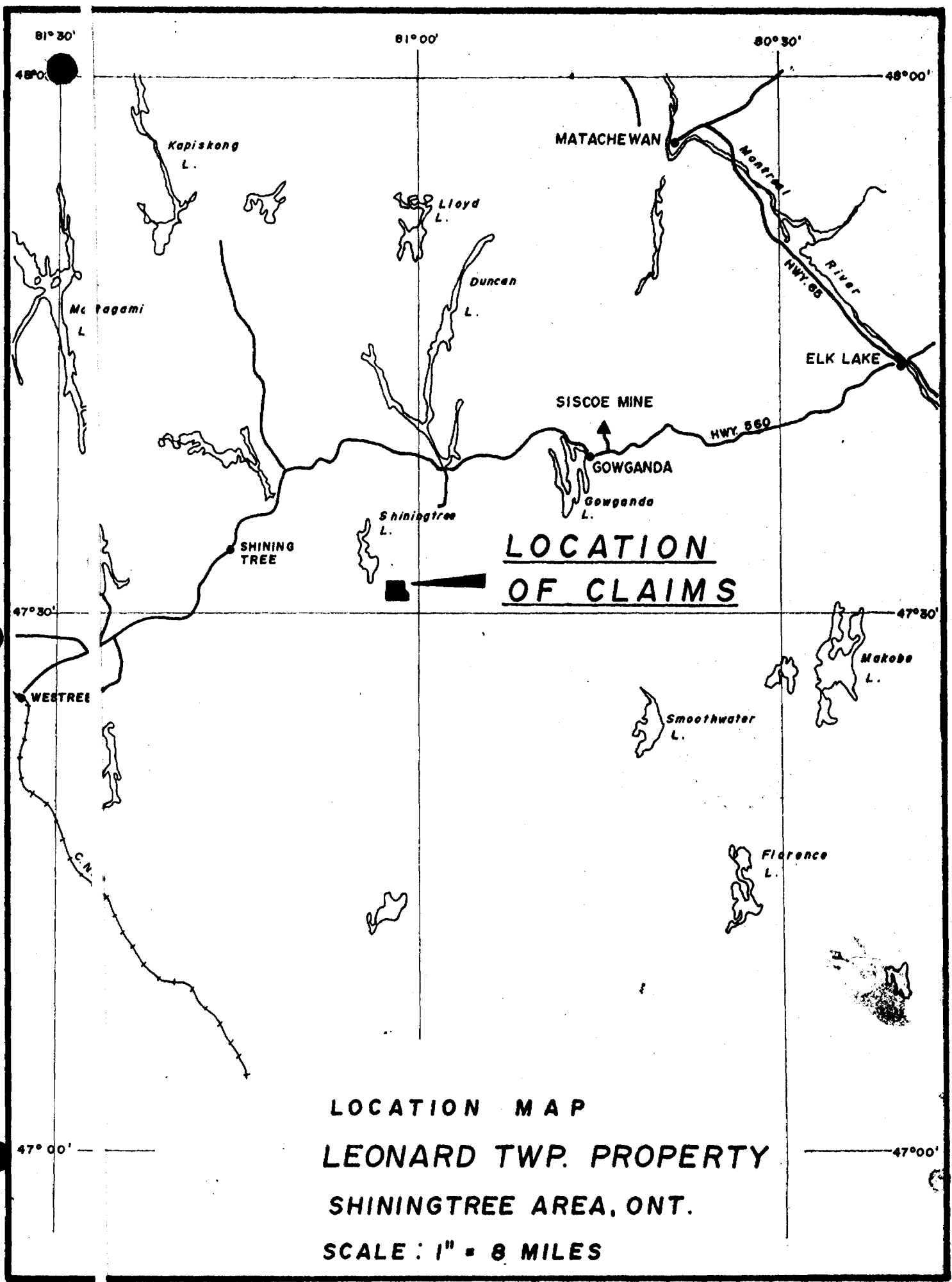
The claims are covered with second growth jackpine, spruce, birch, and poplar. Soil cover is generally thin. Swamp covers over one-half of the property.

<u>Claim No.</u>	<u>Date Recorded</u>	<u>Good Standing To</u>	<u>Extended To</u>
267270	Oct 20, 1970	Oct 20, 1974	Aug 29, 1975
369583-84	May 22, 1973	May 22, 1975	----
369585-86	May 22, 1973	May 22, 1974	Dec 31, 1974
369587-88	May 22, 1973	May 22, 1975	----
369589-90	May 22, 1973	May 22, 1974	Dec 31, 1974
369591	May 22, 1973	May 22, 1975	----

History of Exploration

the first staking in the area was in 1908 when prospectors from Gowganda recognized the similarity of the two areas. Silver was discovered on several claims, and this led to considerable activity during the years 1910 to 1912. Very little has been done in the area since this time aside from sporadic staking and prospecting.

The Saville Exploration Syndicate originally staked the subject property in 1909. Trenching and pitting by the Saville group exposed silver and cobalt bearing veins, the most important of which are present on current claim 267270.



LOCATION
OF CLAIMS

LOCATION MAP
LEONARD TWP. PROPERTY
SHININGTREE AREA, ONT.
SCALE: 1" = 8 MILES

During 1971 United Reef drilled 6 short x-ray holes under the trenches to verify the existence of the veins and mineralization. Results of this drilling will be discussed below under the section on Mineralization.

Geological Mapping

In order to obtain detailed information on the outcrop, veining and trenching distribution on the claims, lines were cut 200 feet apart in an east-west direction off of a north-south baseline in the central portion of the property and 400 feet apart on the northern and southern areas.

The claims are entirely underlain by diabase of probable Keweenawan age - part of the Nipissing diabase sills which host the native silver occurrences at Gowganda and Cobalt. The diabase is dark green in colour and varies in grain size from medium to coarse. The coarser phases are most common on the property and are notable by their obvious content of red feldspar and large laths of black hornblende.

Underlying the diabase are Keewatin volcanics and metasediments exposed to the east of the property. A search of the area east of the United Reef group located Keewatin "greenstone" outcrops approximately 900 feet east of the eastern boundary on line 20 south. West of the claim group Huronian sediments, quartzites and arkoses of the Cobalt series are exposed and may possibly underlay the diabase along our western boundary. Outcrops of arkosic sediments occur 700 feet west of the western claim boundary on line 0+00.

The property topography is formed by the diabase distribution as two outcropping ridges striking generally north-south. The main ridge strikes through the centre of the property and is characterized by a steep eastern face on claim 369587 and the southern part of claim 267270. To the west the ridge is more gently sloping. On claims 369585 and 369584 the second major ridge has a very pronounced cliff facing to the west and a gentle easterly slope. The west face cliff is over 100 feet in height in places.

The diabase exhibits good columnar jointing, particularly well exposed along the above mentioned cliff faces. The joints are mainly vertical though a suggestion of a northeasterly plunge is apparent in some areas. Fracturing of the diabase is common with serpentinized coatings along the fracture planes evident.

In the main diabase is identical to the other Nipissing diabasites prevalent throughout the Temiskaming area.

Mineralization

Well exposed calcite veining is present in the south-east corner of claim 369591 at the location known as the "Saville Showing". Several grey calcite veins are exposed in the main trench along a length of approximately 150 feet. The veins strike northeasterly and dip to the northwest at 70-80°. Vein widths vary from ½ inch to 3 inches. Mineralization within the grey calcite consists of fine rosettes of green chlorite, partly replaced by a grey cobalt mineral, probably safflorite (CoAs₂) and lollingite (FeAs₂). Native silver has been noted by the writer in these veins. Also present in the vein are traces of pyrite and chalcopyrite, often along the edges of the veins and in the nearby host diabase. Minor bleaching of the diabase is evident adjacent to the veins. Cobalt bloom is widespread along the trench walls and within the veins exposed.

Paralleling the main Saville trench are two shallow trenches, mainly caved and filled with earth, located approximately 75 and 125 feet to the south. Calcite veins up to 4 inches wide are exposed in the rubble next to these trenches. Cobalt bloom is evident in the vein material.

During July of 1971 the present Company undertook to test the Saville showing with a number of x-ray drill holes. This program confirmed the presence of a strong vein system being present over a width of at least 150 feet. Mineralization in the form of "cobalt" was encouraging and low values of silver indicated the minerals' presence. Results of this drilling are tabled below.

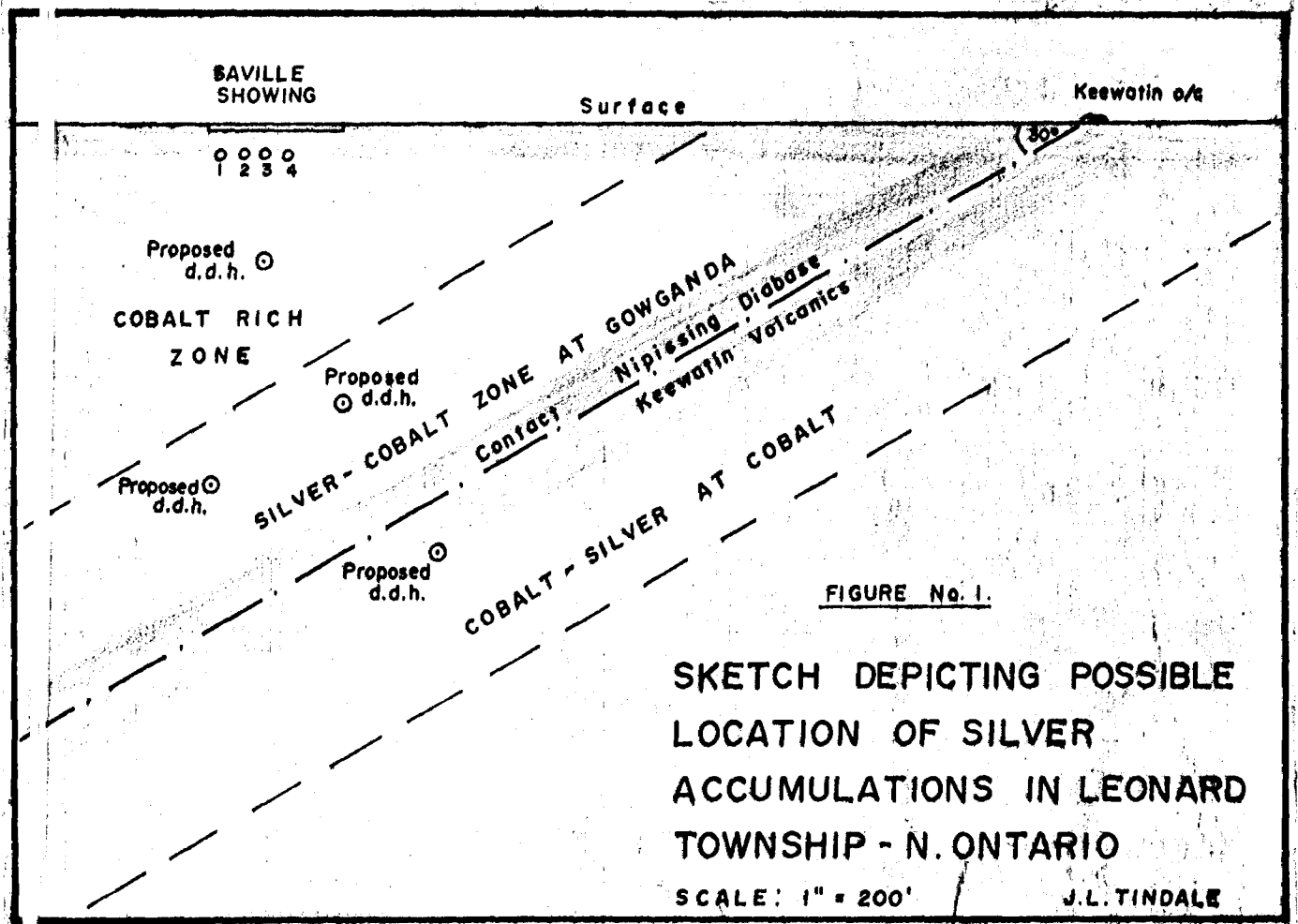
Hole No.	Location	Main Vein	Width	Assays	
				Ag ounces/T	Co%
URX-71-1	W.end Saville Tr	@51.2 Feet	1"	0.36	----
URX-71-2	25' E of URX-71-1	@54.1 Feet	4"	7.50	0.38
URX-71-3	25' E of URX-71-2	@57.9 Feet	5"	2.00	0.25
URX-71-4	25' E of URX-71-3	@50.7 Feet	1½"	0.03	----
URX-71-5	50' S of URX-71-4	@35.5 Feet	2"	0.15	0.34
URX-71-6	50' S of URX-71-5	@27.4 Feet	6"	0.17	0.25

The holes, 1 through 4 successfully traced the main vein structure for 100 feet to an average depth of 37 feet below surface. The obvious presence of silver mineralization the strength of the veining and the high associated cobalt content are favourable aspects to this structure. Similarly, the large veins to the south with numerous small veinlets between are promising. The coarse cobalt minerals present indicates to the writer that these southerly veins

will carry silver values either along strike or down dip.

The second area of interest on the property is a strong vein located between 4N and 6N east of the base-line on claim 369591. Old trenching has exposed a strong calcite vein striking north-south and dipping steeply to the east for a distance of 125 feet. Cobalt bloom is evident in the vein which varies from 1 to 4 inches in width. Branching off the main structure is a north-easterly striking grey calcite vein which is poorly exposed but appears to average 2 inches in width and also carries cobalt mineralization.

Several caved trenches and pits within the intervening ground between the two major showings indicates veins have also been located in these areas. There exists, therefore, an area 700 x 500 feet which contains a concentration of veining and mineralization worthy of further testing.



The O.D.M. map of Leonard Township, unpublished May 1973, shows an outcrop of Keewatin volcanics approximately 700 feet east of the above area. I was unable to locate this significant occurrence. If this outcrop is real, then a fold in the diabase contact is indicated in this area which may explain the intensity of veining and mineralization. Also it would probably indicate that the lower contact of the diabase sill in some 500 feet below the "Saville Showings". At Gowganda the most prolific mineralization has been found within 200 feet of contact between diabase and Keewatin rocks, with the intervening section being cobalt and arsenic rich. The accompanying figure #1 shown above depicts the suggested distribution at our Leonard Township location.

Future Exploration

Silver exploration for Cobalt-type veins has to start at a strong surface indication. I have examined all the showings in Leonard Township and it is my opinion that the Saville showing is the best location in the area. With this in mind, I recommend the drilling of a minimum of four drill holes to intersect the downward projection of the Saville zone at various elevations as depicted on figure #1 above. This drilling will prove or disprove the theory that the mineralization will improve at depth as it approaches the underlying contact as suggested by the known geological facts and comparison.

Two holes should also be drilled under the more northerly occurrence between lines 4N and 6N and should be spotted to intersect the junction of the north striking leader with the northeasterly branch vein.

A strong intersection of native silver in any of the planned holes would necessitate further close spaced drilling to delineate the zone and outline potential tonnage and grade.

The estimated cost of the above drilling is itemized as follows:

Diamond Drilling 2,000' @ \$12/Foot	\$24,000
Supervision	3,000
Assays	1,000
Travel and Lodging	1,000
Contingency @15%	<u>4,000</u>
	\$33,000
Less Ont. Gov't Assistance	<u>11,000</u>
	\$22,000

Respectfully submitted,

Toronto, Ontario
October, 1974

J. L. Tindale

J. L. Tindale, P. Eng.





41P10SW0106 2.1624 LEONARD

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DEC 27 1974

PROJECTS UNIT

ASSESSMENT WORK DETAILS

Type of Survey GEOLOGY A separate form is required for each type of survey

Chief Line Cutter or Contractor _____

Party Chief J. L. TINDALE 1601-8 KING ST. E. TORONTO, ONT.
Name Address

Consultant _____
Name Address

COVERING DATES Line Cutting SEPT. 6-9, 1973 JUNE 18-21, 1974
Field Geology or Geophysics OCT. 11-14, 1974
Office OCT. 30-31, 1974

INSTRUMENT DATA Make, Model and Type _____
Scale Constant or Sensitivity _____
Or provide copy of instrument data from Manufacturer's brochure.

Total Number of Stations Within Claim Group _____ Number of Miles of Line cut Within Claim Group _____

ASSESSMENT WORK CREDITS REQUESTED Geological Survey 20 Days per Claim
Geophysical Survey _____ Days per Claim

MINIMUM CLAIMS TRAVERSED 369590 & 369591

Jan 15 May 14/73
Recorded May 22/73

TOTAL 2 CLAIMS

DATE Dec. 17th 1974 SIGNED UNITED DEEP PETROLEUMS LIMITED

Special provision credits do not apply to Radiometric Surveys.

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey Geological
Township or Area Leonard Twp.
Claim holder(s) United Reef Petroleums Limited
Author of Report J. L. Tindale
Address 1601-8 King Street East, Toronto, Ont.
Covering Dates of Survey Sept. 6-9, 1973, June 18-21, 1974
Oct. 11-14, 1974 (putting to office) Oct. 30-31, 1974
Total Mile of Line cut _____

MINING CLAIMS TRAVERSED List numerically

L	267270
L (prefix)	369589 (number)
L	369584
L	369585
L	369586
L	369587
L	369588
L	369589

SPECIAL PROVISIONS CREDITS REQUESTED	DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical --Electromagnetic _____ --Magnetometer _____ --Radiometric _____
ENTER 20 days for each additional survey using same grade.	--Other _____ Geological <u>20 days</u> Geochemical <u>20 days</u>

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: October 31, 1974 SIGNATURE: J. L. Tindale
Author of Report or Agent

PROJECT SECTION 63.2846

Res. Geol. _____ Qualifications to on this file

Previous Surveys Geochemical included in cutting 1973

63.704 - geophysical survey 1956

Checked by _____ date _____

GEOLOGICAL BRANCH _____

Approved by _____ date _____

GEOLOGICAL BRANCH _____

Approved by _____ date _____

TOTAL CLAIMS 8

If space insufficient, attach list

OFFICE USE ONLY

TYRRELL TWP. - M.253

THE TOWNSHIP OF

LEONARD

DISTRICT OF TIMISKAMING

LARDER LAKE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
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	Ⓞ

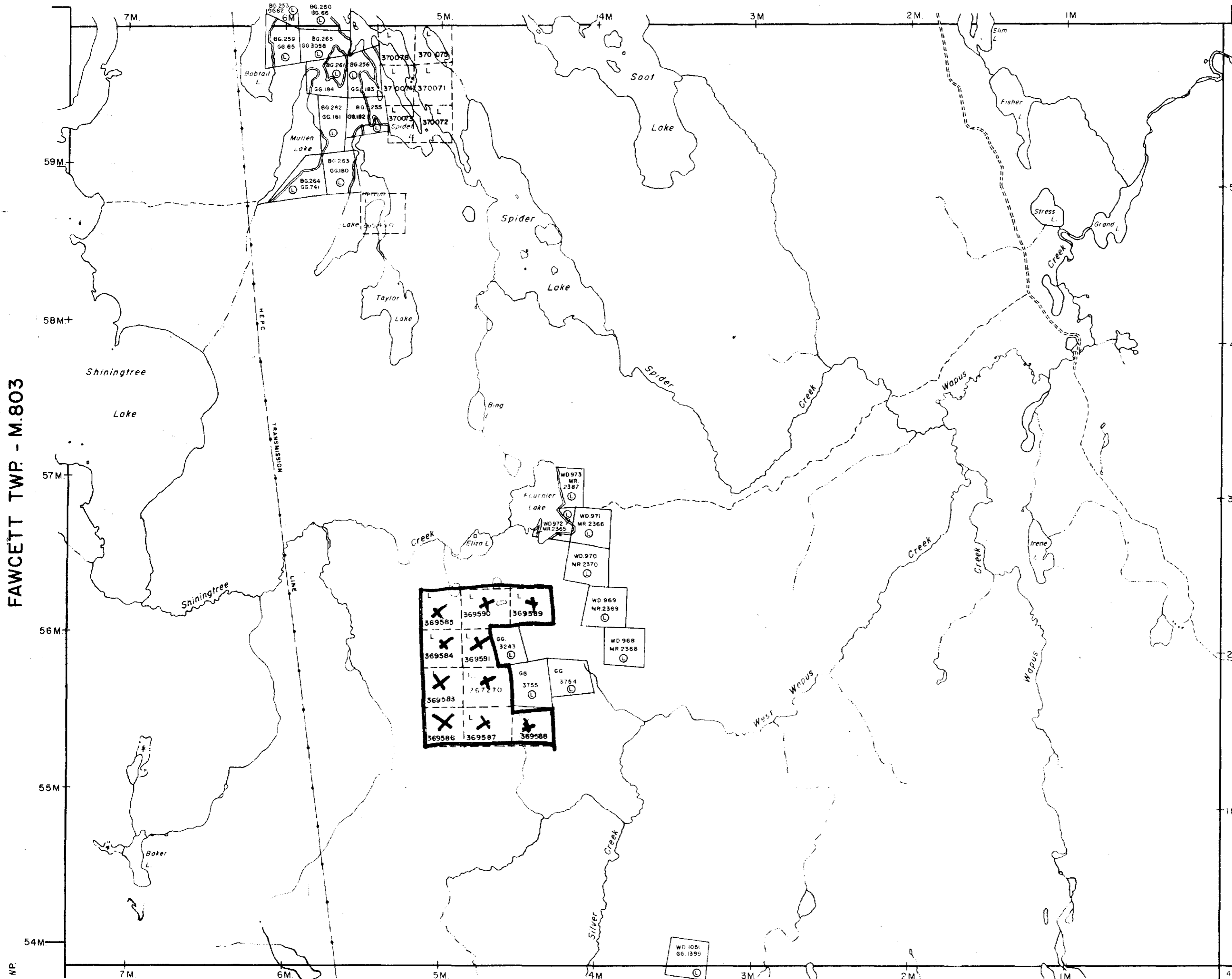
NOTES

400' surface rights reservation around all lakes and rivers.

MINING LANDS
DATE OF ISSUE
NOV 18 1974
MINISTRY OF NATURAL RESOURCES

PLAN NO. M.232

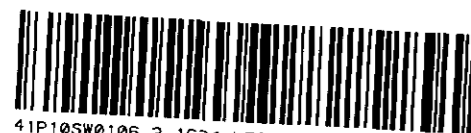
ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

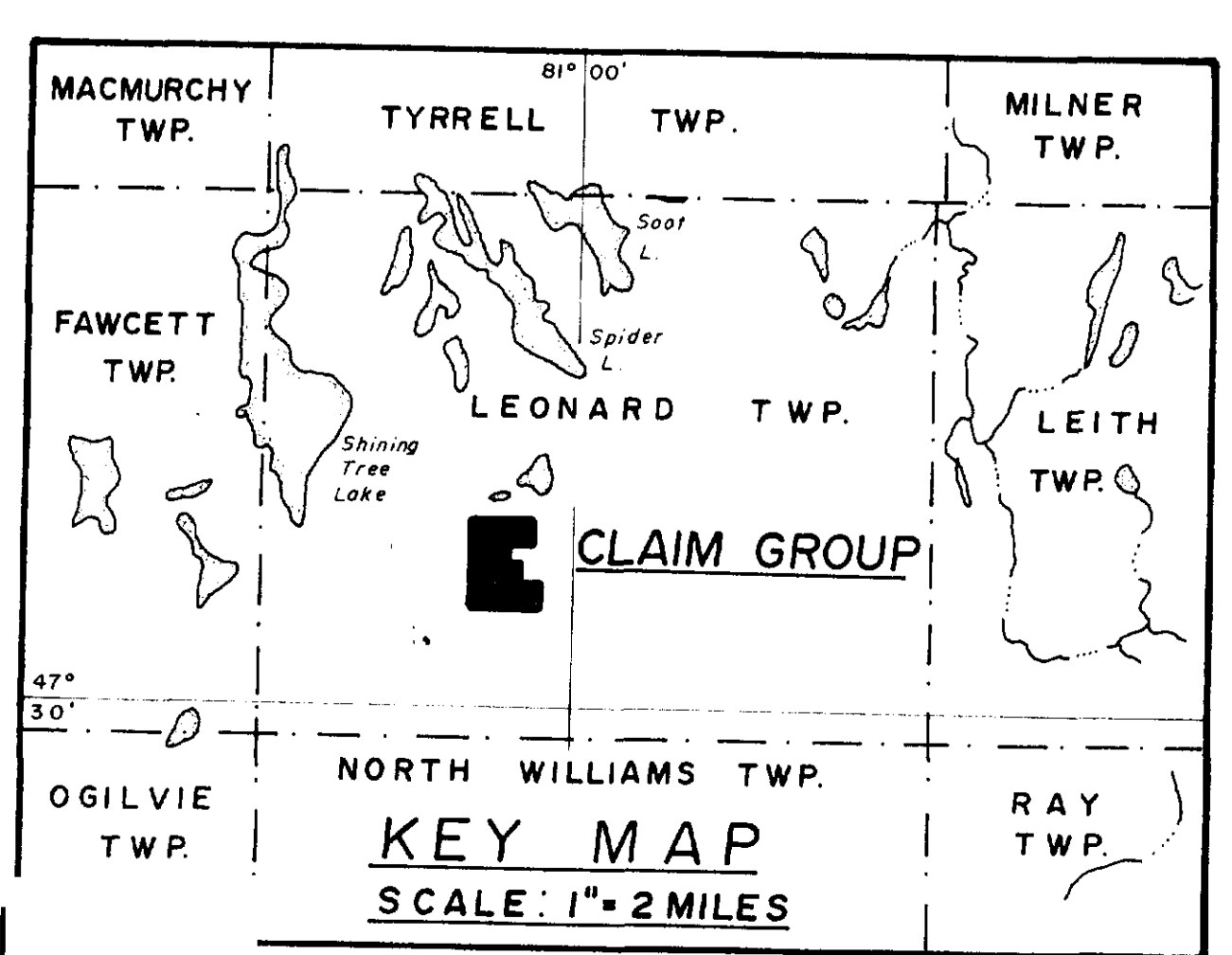
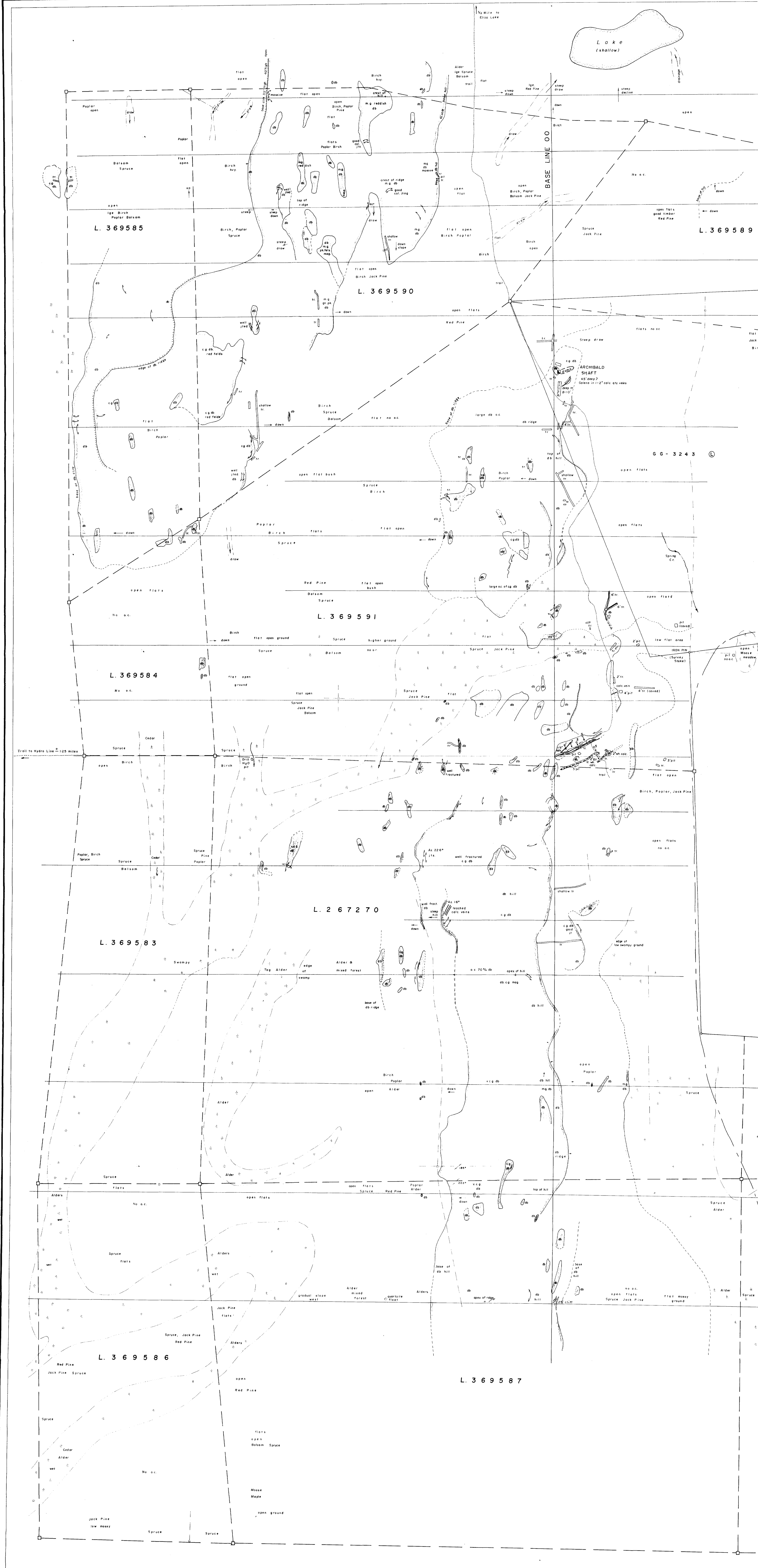


FAWCETT TWP. - M.803

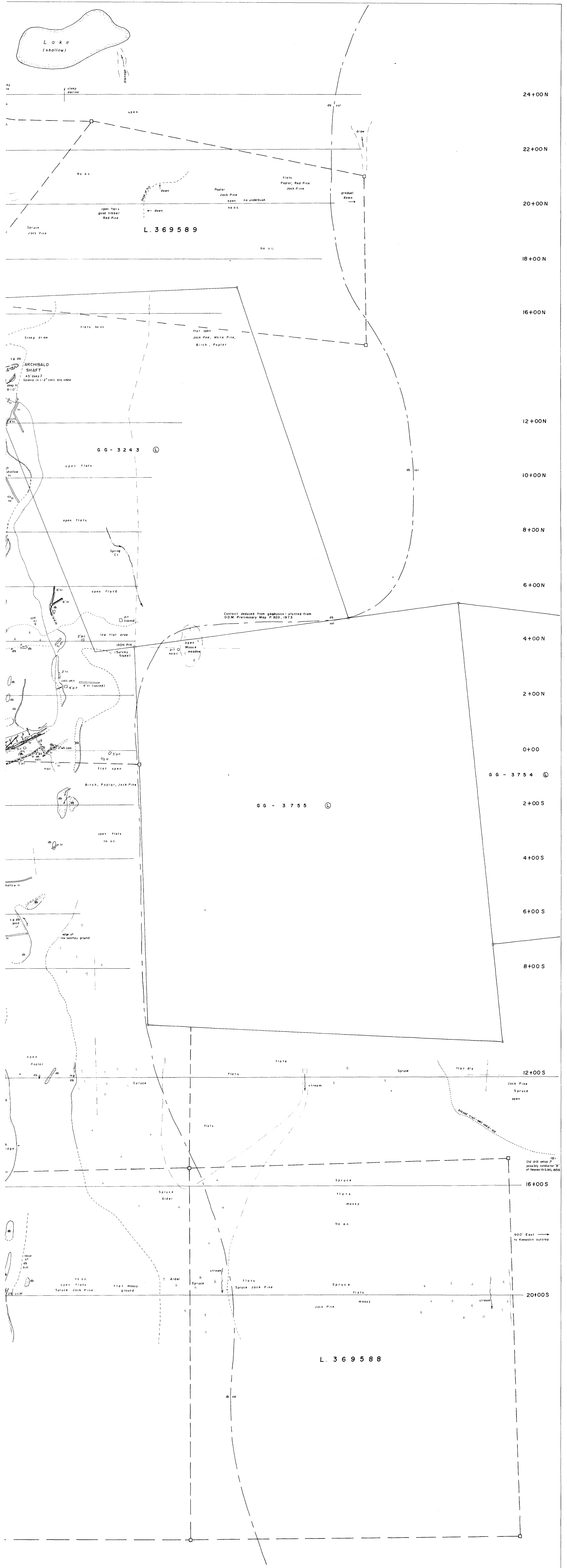
LEITH TWP. - M.231

NORTH WILLIAMS TWP. - M.240





- LEGEND
- db Diabase
 - vol Volcanics
 - Calcite veins
 - Geological contact (from O.D.M. map P.20)
 - Outcrop, defined, assumed
 - Columnar jointing
 - Slope
 - Swampy ground
 - Trail
 - Trench, pit
 - Stream
 - Diamond drill hole
 - Shaft
 - Claim post, new, old
 - Claim line
 - Surveyed claim line
 - Old claim line
 - Flood
 - Lake



GEOLOGICAL MAP
 UNITED REEF PETROLEUMS LIMITED
 LEONARD TWP., ONTARIO
 SCALE: 1" = 100'
 J. L. TINDALE
 SURVEY DATES: SEPT. 6-9, 1973
 JUNE 18-21, 1974
 OCT. 11-14, 1974

1" diamond drill hole
 4" tr
 1/4" post, new, old
 2" line
 1/2" dashed claim line
 1/4" solid claim line
 1/8" dot
 1/16"

Old drill setup P.
 possibly conductor B.
 of Newnorth G.M.L. 9556

900' East →
 to Keweenaw outcrop

005/31/74