



52J02SE8666 2.9490 SQUAW LAKE

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FALCONBRIDGE LIMITED

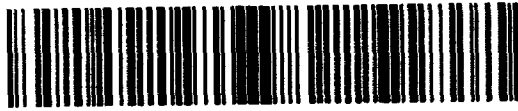
Geology Report of the
SA'KELD PROPERTY
Northwest Ontario
NTS: 52J/2SE

RECEIVED

OCT 23 1986

MINING LANDS SECTION

Falconbridge Limited
J.L. DaCosta
October 21, 1986
Winnipeg, Manitoba



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1.0 SUMMARY

The Salkeld group of claims located in the Savant Lake area of Northwest Ontario consist of mafic metavolcanics, a dioritic intrusive as well as numerous felsic quartz porphyry dykes. Within the dioritic intrusive there are several gold-bearing quartz veins some of which contain promising high grade values. The emphasis of the 1986 exploration program completed by Falconbridge Limited was to determine the feasibility of a small, high grade deposit. The 1986 program failed to substantiate the existence of such a deposit, but did not discount it. The ground still requires further examination.

2.0 INTRODUCTION

The Salkeld property is located in the Savant Lake area of Northwest Ontario approximately 1/2 mile south of Belmore Bay, on the northeast arm of Sturgeon Lake. The property consists of three unpatented claims, numbered 816312, 816313 and 816314 on the Squaw Lake claim map. The three claims are under option agreement from Alan Best, a local prospector from Savant Lake, Ontario.

3.0 LOCATION AND ACCESS

Access to the property can be achieved year round by an all weather logging road that comes to within 3/4 mile of the property. This logging road is accessible from Savant Lake via Great Lake Forest's Beckington Lake Road. The property is also accessible from Savant Lake by an 18 mile boat trip from Trapper's Point landing to Belmore Bay on Sturgeon Lake. From Belmore Bay there is a 1/2 mile trail leading to the property. Savant Lake, Ontario is located on Provincial Highway 599 approximately 130 km north of Ignace, Ontario.

4.0 PREVIOUS WORK

Work on the Salkeld group of claims has been done since the 1930's.

This work has resulted in ten trenches which have uncovered small (less than 1m wide) quartz veins. Included in these trenches, there are numerous pits which appear to have either not uncovered any outcrop or have "caved" in with time.

A total of 25 drill holes by various workers have been completed on the property. Due to the poor quality of the information it is not possible to determine the exact location of these holes but the information does suggest that the holes were drilled in the area of trenches 1 and 2.

The first drill holes undertaken on the property were completed by Coniagas Mines Ltd. in January 1936. A minimum of 3 x-ray holes were drilled. The information for these 3 holes was of a poor quality (see Appendix A). The assay values and widths for these holes show some promising results. Hole number 1 has no mention of an actual assay but was said to be "a fine sample". The assay values for Coniagas hole number 3 are slightly confusing but suggest that the drill hole intersected 7 feet of quartz vein and 7 feet of quartz porphyry and assayed 14.3 oz/ton over 7 feet (or possibly 14 feet). The last hole has an assay of 4 oz/ton over an unknown width. The exact locations of these holes are not known; however, it appears that they were collared in the immediate area of trenches 1 and 2 (see geology map, sheet B).

Prior to the summer of 1937 (exact date not known) a minimum of 3 x-ray drill holes were undertaken by a Mr. Anderson. The locations, directions and depth of these holes were not discovered at the time this report was written but assay values and intersection widths were found (see Appendix A). Drill hole number 1 intersected 5.2 feet assaying 0.54 oz/ton; number 2 intersected 3.0 feet assaying 2.0 ounces/ton, and drill hole number 3 intersected 4.1 feet assaying 2.4 ounces/ton. No

mention was given as to the host rock of these samples but considering the nature of mineralization in the area the assays were likely to be the result of quartz vein material. Again no mention was given as to the precise location of the holes; however, it can be assumed that these holes are located in the immediate area of trenches 1 and 2.

During the months of September and October 1954 ten EX diamond drill holes totalling approximately 1400 feet were completed by a Mr. L. Anderson. Although the drill logs accompanying these holes are rather sketchy, they do exhibit some general trends (see Appendix A). The quartz veins intersected in these holes were on average 3 to 5 feet wide with one vein in hole number 6 being as much as ten feet wide. The assay values were not found for these intersections but there is mention of a 3 foot wide quartz vein with megascopic free gold in drill hole No. 3. A sketch map accompanying these drill logs show that the approximate locations of the holes were in the vicinity of trenches 1 and 2. Since 1954 little work has been accomplished on the property.

5.0 WORK CARRIED OUT DURING 1986

The property was optioned by Falconbridge Limited in 1985. Since that time, the following work has been completed by or for the Company.

1. Establishment of 10.6 line kilometers of picket line grid over the three claims, 816312, 816313, and 816314.
2. Geological mapping over the entire property at 1:1000 scale.
3. Cleaning out of the old trenches and chip sampling as well as saw sampling of the trenches.

6.0 GEOLOGY

6.1 General Geology

The property lies within the Squaw Lake - Sturgeon Lake area in the district of Thunder Bay. The area consists of a metavolcanic-

metasedimentary sequence bounded by intrusive granitic and alkalic complexes and is situated within the Wabigoon Belt of the Superior Province of the Canadian Shield. The metavolcanic-metasedimentary sequence has been regionally metamorphosed under greenschist and amphibolite facies conditions (Trowell, 1983) as well as having been complexly folded and faulted.

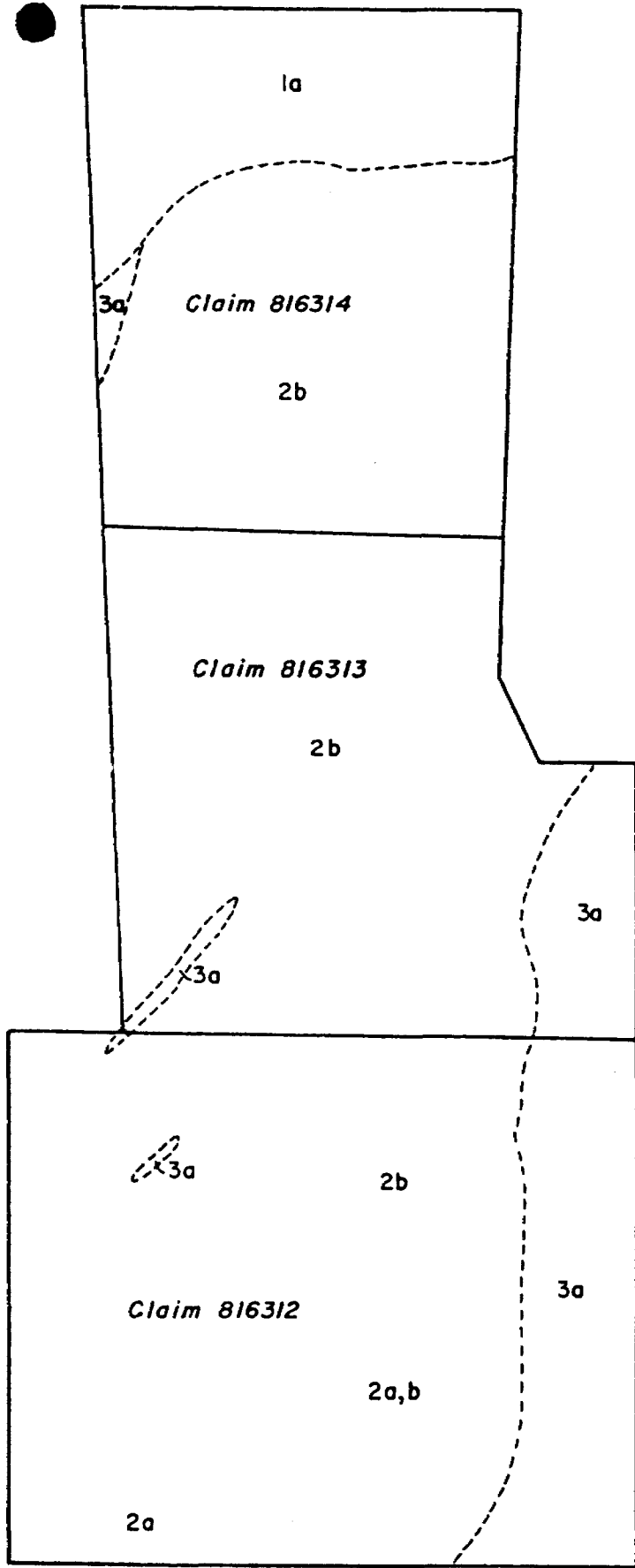
The area contains numerous old gold, silver and copper showings, the most notable of which would be the St. Anthony Mine. The mine produced, between the years 1929-1941, approximately 63,300 ounces of gold as well as approximately 16,300 ounces of silver (Trowell, 1983).

6.2 Lithology

A one week mapping program was undertaken by J.L. DaCosta of Falconbridge Limited, at which time the property was mapped at a 1:1000 scale. Exposure over the property was found to be fairly poor, where a significant portion (20%) of the claims were covered with cedar swamps and ponds. The outcrops themselves comprise approximately 30% of the property and were predominantly moss covered and overlain with less than 0.60m of overburden.

The property is underlain by mafic metavolcanics and intrusives (see Figure 1). The northernmost end of the property contains a sequence of mafic metavolcanic flows. These flows were found to be predominantly fine grained and massive in texture. No mafic pillowed or tuff sequences were found on the property. The massive flows are consistently light green to green in colour and consists of plagioclase feldspar, hornblende, pyroxene, biotite, chlorite and in some cases minor quartz. The flows were noted to contain a moderate to well defined foliation.

The southernmost end of the property is dominated by a dioritic intrusion. The intrusion is present in two phases, a porphyritic phase and a finer grained massive phase. No contact was observed between



— LEGEND —

- 1a 1a Mafic Volcanics
- 2 2 Diorite
- 2a 2a Porphyritic
- 2b 2b Massive
- 3a 3a Quartz - Feldspar Porphyry

- Claim Boundary
- - - Lithologic Contact

FIGURE 1

FALCONBRIDGE LIMITED

SALKELD PROJECT
SIMPLIFIED GEOLOGY MAP

SCALE	1:5000	DRAWN	VCH
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these two phases, as a result it is not known if these two phases are two distinct intrusive bodies or components of a single intrusive body. However, considering that the two phases appeared to be virtually identical in composition, it is likely that the porphyritic phase and the more massive phase are components of a single body. The units are green to dark green in colour, with a fine to medium grained texture. The groundmass for the two units consists of pyroxene, plagioclase feldspar, biotite, chlorite and minor quartz. In the porphyritic phase the phenocrysts are generally 1.5 mm in size and consists predominantly of pyroxene and plagioclase. Both phases exhibited a poor to moderate foliation. It is more than likely that the dioritic intrusion is the intrusive counterpart of the mafic metavolcanics found on the property.

Numerous quartz-porphyry dykes that intrude the above host rocks are located throughout the property. These units were found to be white to buff in colour and generally fine to medium grained. They consist of quartz, feldspar, biotite and minor chlorite and contain 2-3mm quartz phenocrysts that comprised approximately 10% of the rock's volume. The unit is generally poorly foliated.

Primary structures and textures which could be used as top indicators were not discovered during the course of the mapping program. As a result it is not known if the units are right side up or overturned.

6.3 Structural Geology

The metavolcanics in the claim group area have reportedly undergone three phases of folding. In the first phase of folding the rocks were isoclinally folded about subhorizontal axes resulting in a major north-trending synformal fold (Trowell, 1977). It was this phase of folding that produced a prominent foliation on the property bearing 030-060° and dipping 50-70° east. The second phase of folding is exhibited by the generation of

small folds along generally subvertical fold axes. These folds have developed both along and across the primary foliation created by the first phase of folding (Trowell, 1977). Both the second and the third phase, which resulted in the generation of small kink folds are generally minor in extent and origin. The mapping program undertaken on the property failed to produce any evidence of these latter phases.

Small, minor faults were observed in the course of the mapping program. The most notable of these was uncovered in trench 6. The shear is approximately 10 cm wide and has a bearing of 150° and a dip of 79° to the east. The apparent sense of motion reveals that the hanging wall of the fault have moved down relative to the footwall thus classifying the shear as a normal fault. The magnitude of displacement of the shear is approximately 10cm.

6.4 Trench Results and Mineralization

The 1986 mapping and sampling program underlined the fact that the most important factor controlling gold mineralization on the property was the presence of quartz veining. The results of the sampling program revealed that the quartz veins were the only host rock to yield economic grades. The wallrock, which in all cases was a slightly altered dioritic intrusion, failed to yield any impressive gold values.

A total of ten previously excavated trenches were cleaned out and re-examined. All the trenches uncovered quartz veins that are generally white to milky white in colour, and contain little or no sulphide mineralization. Trenches 3, 4, 5 and 6 uncovered a 1.0m wide white quartz vein that is flat lying and at times dipping slightly to the east. The vein was found to be barren in sulphides containing less than 2% pyrite. The flat lying vein is hosted within a massive dioritic intrusion. The host rock exhibits a minor carbonate alteration halo along quartz vein edges.

The prominent alteration product was found to be ankerite with minor calcite resulting in a reddish Fe-stained weathering rind. The wallrock generally contains less than 2% sulphides and exhibits very little shearing. Due to this fact it is likely that the vein material is infilling small tensional fractures rather than following a major shear structure. This would, in turn suggest a limited strike length for the vein. Assay values for the vein are generally of subeconomic grade with one notable exception. Most of the values from trenches 3, 4, 5 and 6 are generally less than 2.0 grams/tonne but sample AC 5431 (see Appendix B) contains 46.0 grams/tonne (1.34 oz/ton) over a sample width of 0.75 metres.

Trenches 1 and 2 both revealed quartz veins set within a narrow (less than 1.0m wide) sheared fracture system. The veins have a bearing of 020-070° with a vertical to subvertical dip to the west. The veins are either small (less than 5 cm) veins and stringers as in trench 2 or as a single (40 cm wide) quartz vein with minor carbonate and mafic inclusions (see trench maps 1 and 2 in Appendix B). The wallrock was found to be ankeritized fine grained dioritic intrusion that is partially silicified and sericitized. The host rock contains minor shearing, generally 5cm in width, on either side of the quartz vein walls, with a foliation direction generally subparallel to the strike of the veins. This type of sheared fracture system would be more conducive to establishing a longer strike length than with the flat lying veins in trenches 3 to 6. To date, the vein in trenches 1 and 2 have been traced along strike for a distance of 20m. (See geology map, sheet B.) The most significant assay value taken from these trenches was from the quartz vein in trench 1 which returned a value of 28.45 grams/tonne (0.83 oz/ton) over a sample width of 0.4 metres (see appendix C).

Trenches 7, 9 and 10 (see Appendix B) all contain milky white quartz veins that are generally less than 0.30m wide. The veins were found to be predominantly barren of all sulphides and mafic inclusions; however, there are minor exceptions to this. The host rock for these veins was an ankeritized, sericitized, massive, fine grained dioritic intrusion. Along quartz vein contacts there is also some minor silicification but no shearing. The veins in the three trenches all appear to be small distinct veins with no appreciable strike length. The values from these trenches were found to be anomalous but generally of subeconomic grade, ie. less than 2.0 gms/t. (see appendix C).

Trench 8 contained a quartz vein that returned the most promising assays to date. The vein is milky white in colour and generally less than 0.30m in width. The vein has bearing of 172° and an 82° dip to the west. The vein is consistently barren in sulphides but does contain numerous mafic inclusions. The host rock is a massive dioritic intrusion, which is ankeritized and silicified and contains trace - 5% sulphides. Assay values (see appendix C) from this vein yielded results of 4.75 gms/t, 1.50 gms/t, 6.43 gms/t and 366.0 gms/t (10.7 oz/ton). The quartz vein was observed in trench 8 only and was not uncovered in outcrop elsewhere. The host rock does not appear to be sheared thus the vein is likely to be the result of siliceous fluids infilling dilational fractures. This has resulted in the quartz vein having a pinch and swell appearance, (see plan section for trench 8 in Appendix B).

7.0 CONCLUSIONS AND RECOMMENDATIONS

The objective of the 1986 exploration program on the Salkeld group of claims was to establish the feasibility of a high grade, small tonnage gold deposit. The parameters of such a deposit would be on the order of 100,000 to 150,000 tons of ore with a grade of 1 oz/ton over a 2 meter mining width. The minimum strike length necessary for such

a deposit would be 400 metres. To date the program has failed to yield such results. The likelihood that such a deposit exists on the property is questionable. However, there are targets that require further assessment. The most notable of these would be the quartz vein uncovered in trench 8 (see appendix B). Samples from this vein returned values ranging from 366.0 gms/t to 1.50 gms/t. The strike length of the vein to date is rather minimal (less than 50m). Another target that may require some examination would be the quartz vein uncovered in trenches 1 and 2 (see appendix B). Although a total of 25 shallow drill holes completed between 1936 and 1954 appear to have tested the vein system, the assay values encountered in these holes still remain promising. At the present time the strike length of this quartz vein is also rather minimal (less than 50m).

The next phase of the exploration program should emphasize the development of the following three aspects of a deposit.

A) To increase the strike length of the gold-bearing veins to a minimum of 400 metres.

B) To establish the continuity of the grade of these veins along the entire strike length.

C) To establish the continuity of these veins at depth.

To accomplish this, I recommend Falconbridge Limited perform the following.

1) Establish a soil grid with the cross-lines trending perpendicular to the strike of the veins and approximately 30 metres apart. Soil sampling should be performed with a "tight-spacing", ie. 10 metres apart and the samples should be analysed for Au ppb. The soil survey should give a representative indication of the strike length of the veins at a minimal cost.

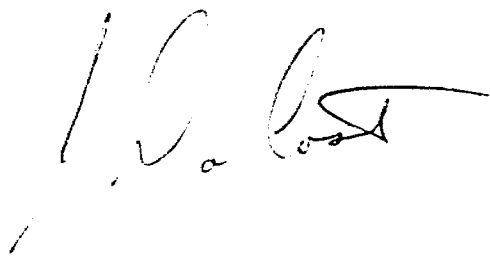
2) If the results of the soil geochemistry are disappointing or inconsistent then a decision could be easily made to return the property to it's owner. If, however, the results are promising then a small (approx. 1000m) drill program should be completed to follow-up the soil geochemistry results.

8.0 REFERENCES

TROWELL, N.F., 1977: Geology of the Squaw Lake - Sturgeon Lake Area, District of Thunder Bay, Ontario Geological Survey, OFR 5225, 230p, 14 tables, 58 photos, 7 figures, 4 maps.

TROWELL, N.F., 1983: Geology of the Squaw Lake - Sturgeon Lake Area, District of Thunder Bay, Ontario Geological Survey, Report 227, 114 p, accompanies by map 2420, scale 1:31680.

Respectfully submitted.....



J.L. DaCosta

APPENDIX A

PREVIOUS WORK

52 J/02SE-0054-D1

-d.p.: 16mm

Extracts from Owner's report follow:

3 claims TS-34278, 79,80 staked and held in name of C. D. Salkeld, owner. 3 claims BG-164,165, & 166 are patented and held by Salkeld under option. Located on east side of Belmore Bay of Sturgeon Lake.

Reached from Savant Lake Station by 3 mile government road to Trapper's Landing on N.W. arm and 17 miles deep water to Belmore Bay.

Country rock mostly massive andesites with diorite bosses and quartz and feldspar porphyries.

A quartz vein has been traced for 700 ft. striking N.E., dip to S.E., surface width 2 ft. (Claim it has not been exposed across full width).

Six X-Ray holes (Salkeld says information obtained from Anglo-Huronian) cover 200 ft. in length

#1 Anderson \$18.90/5.2
#2 Anderson \$70.00/3.0
#3 Anderson \$87.00/4.1

#1 Drilled by Hutchinson of Coniages, not sure of actual assay but a fine sample.

#3 Cut 3 vein at 39 ft. cut 7 ft. plus 7ft. of quartz porphyry, check assays of \$497.00 and \$505.00 at 80 - 85' \$6.25/6.0, at 158" 0.80/4.1

In addition to above records show that another hole placed near last #3 intersected \$140.00, (width not given)

8 + 10 test pit started to 10 ft. deep at #3 D.D.H. to intersect high grade indicated by #3 hole



165 Carlton St.
TORONTO. ONT.

Sylvanite Gold Mines Ltd.
P.O.B. 670
KIRKLAND LAKE.
ONTARIO.

Attention EXPLORATION Department.

Gentlemen,

Thank you for yours of the 4th inst. addressed
to Box 935. Northern Miner.

Enclosed herewith please find brief preliminary
report covering the LEONORA GROUP of mining claims in the
Sturgeon Lake area. I hope that you will find this brief
of interest to you and that I will hear further from you.

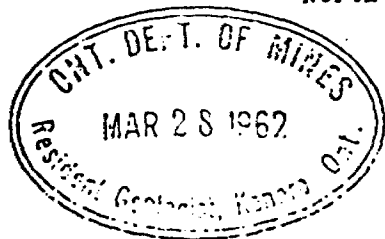
On the other hand, should you not be interested
would you kindly return at least all the enclosures, as maps
are not altogether easy to obtain.

You will note on the claim blueprints the new
stakings (numbers) in the King's Bay section, there is also
activity at Six Mile Lake, these interests, together with the
Red Lake road and the development in the Pickle-Crow area, as
well as the activity in the Kenora area show the interests in
North-western Ontario.

I am,
Yours very truly,



C.D. Salkeld.

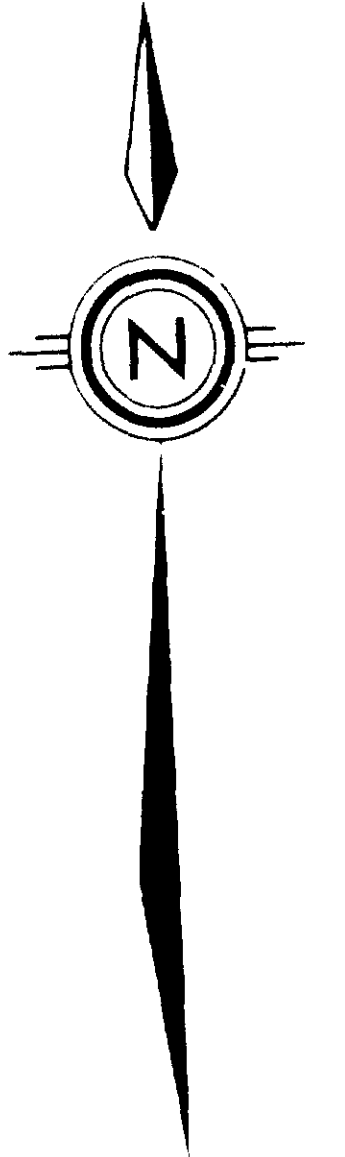


Midway 5580

52J/01NW-0011-B1

LOAD: 16mm

DD13



SYMBOLS

- POINT
- DEAD SWAMP
- CLAIM BOUNDARIES
- CLAIM POST
- PIT
- TRENCH
- FOLIATION
- OUTCROP
- LITHOLOGIC CONTACT

GEOLOGY LEGEND

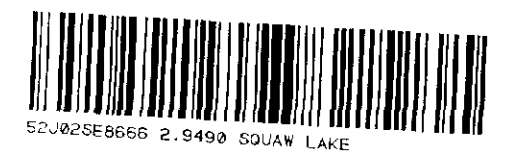
- 1a MAFIC VOLCANICS
- 2 DIORITE
- 2a PORPHYRITIC
- 2b MASSIVE
- 3a QUARTZ-FELDSPAR PORPHYRY
- 3b QUARTZ-FELDSPAR PORPHYRY

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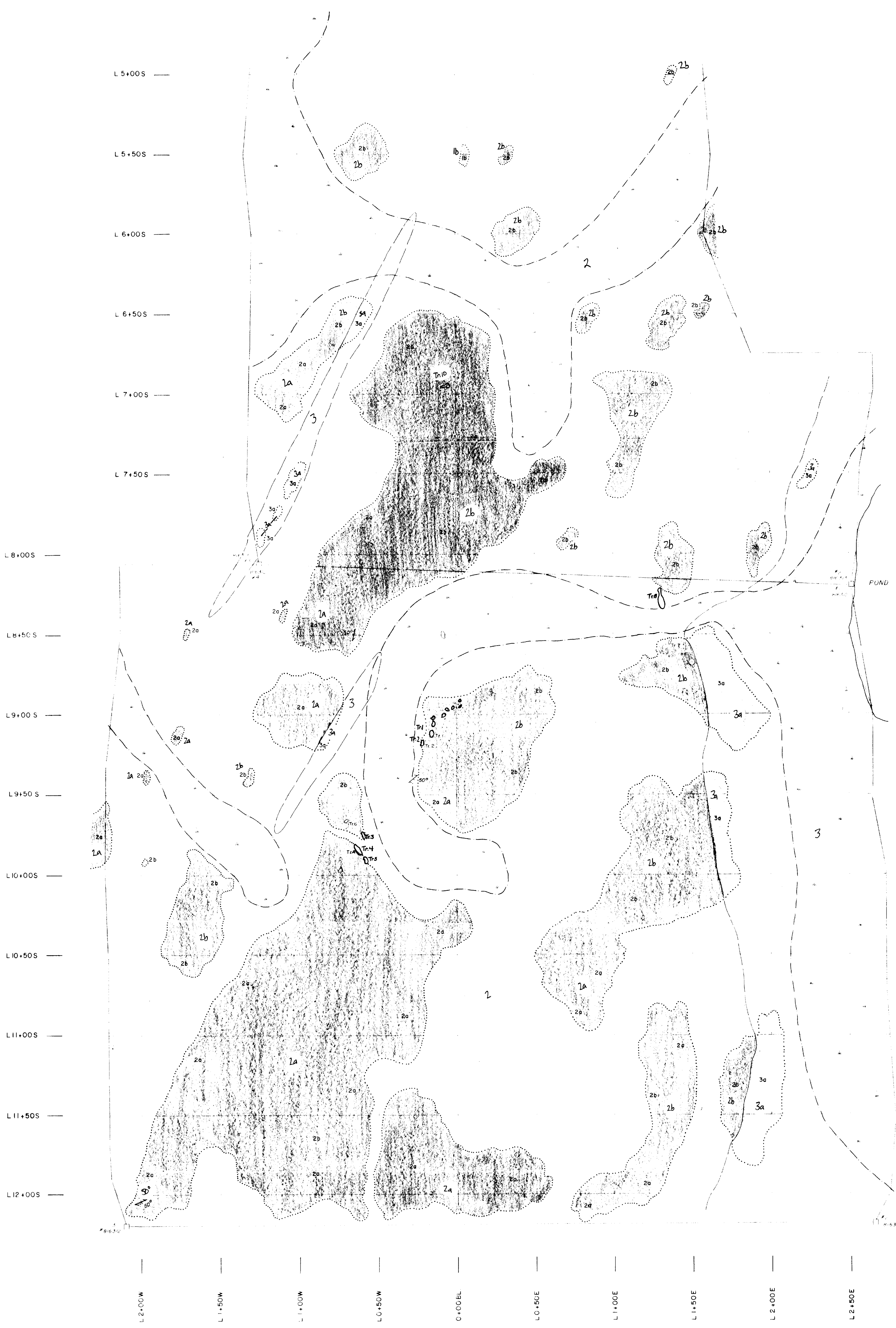
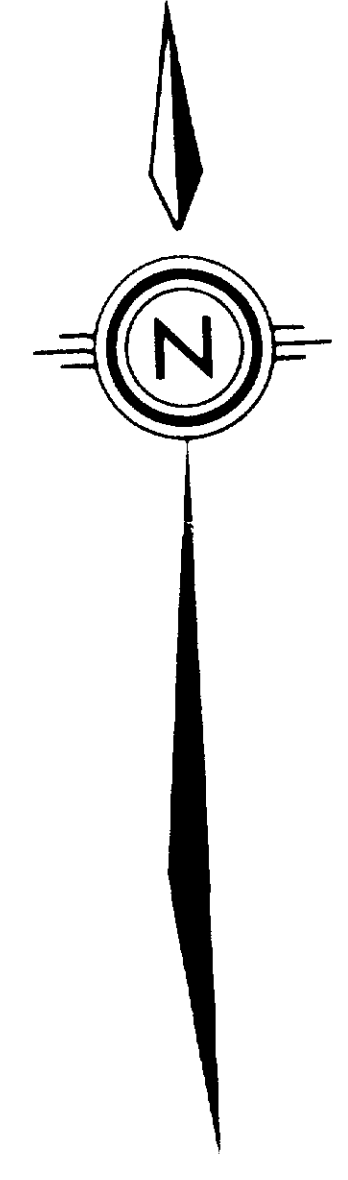


GEOLOGY LEGEND

1a	1b	MAFIC VOLCANICS
2		DIORITE
2a	2b	PORPHYRITIC
2b		MASSIVE
3a	3b	QUARTZ-FELDSPAR PORPHYRY

SYMBOLS

	POND
	CEDAR SWAMP
	CLAIM BOUNDARIES
	CLAIM POST
	PIT
	TRENCH
	FOLIATION
	OUTCROP
	LITHOLOGIC CONTACT



GEOLOGY LEGEND

1a	1b	MAFIC VOLCANICS
2		DIORITE
2a	2b	PORPHYRITIC
2b		MASSIVE
3a	3b	QUARTZ-FELDSPAR PORPHYRY

SYMBOLS

	POND
	CEDAR SWAMP
	CLAIM BOUNDARIES
	CLAIM POST
	PIT
	TRENCH
	FOLIATION
	OUTCROP
	LITHOLOGIC CONTACT

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