GEOLOGICAL REPORT

on

Shining Tree I Property

Shining Tree

Larder Lake Mining Division

District of Sudbury

by

Patino Mines (Quebec) Limited

Chibougamau, Quebec

October 1980

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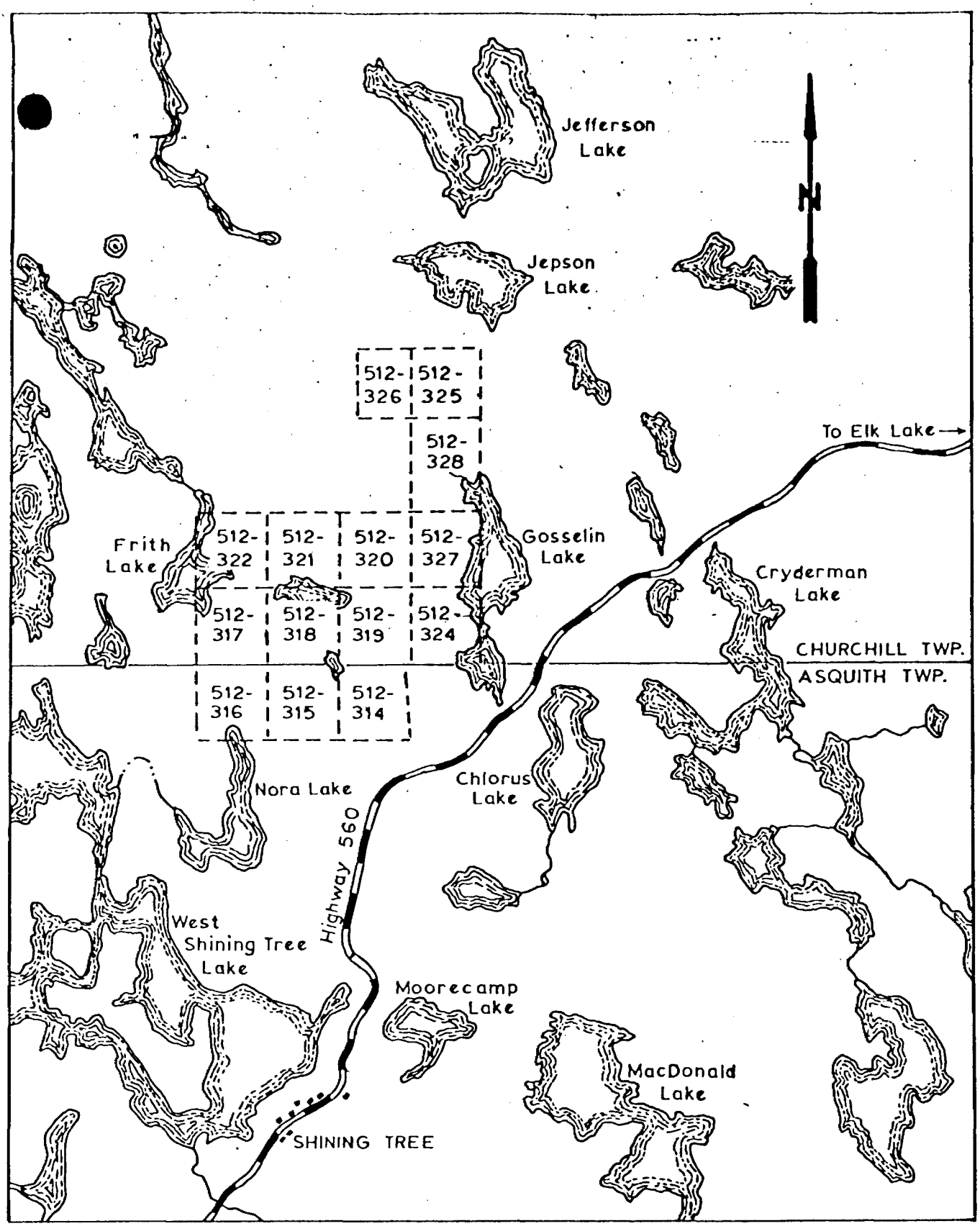

PATINO MINES (QUEBEC) LTD

LOCATION MAP - SHINING TREE I PROPERTY

CHURCHILL AND ASQUITH TOWNSHIPS

DISTRICT OF SUDBURY

SCALE : 1" = 40 chains

Oct. 1980

Introduction

The Shining Tree I Option is situated just to the north of highway 560, approximately two kilometers to the north east of the hamlet of Shining Tree.

Gold was originally discovered in 1911 by Fred Gosselin and others. Sporadic work was conducted on the property between 1913 and 1939. In 1973 Noranda Exploration Company Limited, conducted an exploration program consisting of 345 linear feet of diamond drilling, a magnetometer survey; geological mapping and sampling. They returned the property to the owners in 1974.

Tri-Bridge Consolidated Gold Mines Limited optioned the property in 1975 and under the direction of J.D. McConnell a program of 1065 linear feet of diamond drilling, sampling and mapping was undertaken. Although McConnell's report was favourable and various recommendations were given, the claims, however, were allowed to lapse and were subsequently re-staked.

In October, 1979 Patino Mines (Quebec) Limited took an option on the ground. Work commenced in early 1980 with an EM-16 and magnetometer geophysical surveys. These were followed by a geological mapping program which was completed in late September of 1980.

The rocks underlying the property consist of Archean mafic metavolcanics which are extremely altered within zones of faulting and shearing in the area of Speed and Beaver Lakes. Locally beds of tuffs, lapilli tuffs and agglomerates are present, however the majority of the metabasalts are probably massive flows. There are numerous intrusives within the volcanics and these consist mainly of feldspar porphyries, syenites, diabase and at least one peridotite-dunite body.

The major structure on the property is a north-west trending zone of faulting and shearing known as the "Gosselin Rift Zone". This is offset to the west, just south of Speed Lake, by a secondary structure known as the "Speed Lake Fault Zone".

The rocks within the zones have undergone intense alteration as indicated by the presence of carbonates, sericite, fuchsite and chlorite. The zones also contain numerous quartz veins. There are two predominant trends for this veining, the first is a north-south trend and the second an east-west trend. Many of these quartz veins are auriferous, although the distribution of the gold appears to be erratic. There are indications that the extremely altered metabasalts, themselves, contain auriferous zones.

The distribution of the gold is probably associated with the zones of intense alteration. This alteration consists of CO_2 - K - Mg - and Cr - enrichment. These zones therefore delineate potential exploration targets.

To identify the zones of intense alteration associated with the auriferous bearing rocks will require a detailed mapping program of the Gosselin Rift Zone and the Speed Lake Fault Zone. This should be done in conjunction with a program of stripping, trenching and sampling. Once these zones have been delineated, the favourable zones can be investigated by diamond drilling.

Location and Access:

The property described in this report covers fourteen contiguous claims held under option by Patino Mines (Quebec) Limited. Eleven of these claims

are located in Churchill Township while the remaining three are located in the Township of Asquith. The claim numbers are as follows:

Churchill Township:	512137 - 512322	inclusive
	512324 - 512328	inclusive
Asquith Township:	512314 - 512316	inclusive

The claim group is situated 100 meters to the north of highway 560, approximately 2 kilometers to the north-east of the hamlet of Shining Tree. Highway 560 connects the hamlet with Elk Lake, 100 kilometers to the east and highway 144, 40 kilometers to the west. Several old bush roads traverse the property and since these are still in fairly good condition they facilitate access to most of the property by four wheel drive vehicles.

Topography

The physiography of the claim group consists of gently undulating terrain. There are no extensive deposits of glacial till. In general only a thin blanket of humus and glacial till covers the whole area, consequently exposures of the underlying bedrock are quite abundant although each individual outcrop is not usually very extensive. These outcrops constitute 10% to 15% of the total surface area covered by the property.

There are three small lakes located on the claim group, the largest of which is known as Speed Lake. The group also covers part of Gosselin Lake, on its eastern boundary and Frith Lake on the western boundary. The area covered by water therefore represents between 15% and 20% of property.

The majority of the claim group is covered by a native mixed forest of jackpine, spruce, cedar, poplar and birch, with a small quantity of scrubs, maple and tag alder undergrowth. The forest is occasionally broken by local areas of swamp covered by a dense growth of cedar and tag alder.

Previous Work:

The original discovery of gold was made by Fred Gosselin and others in 1911 on what is now claim number 512318. The first exploration work was undertaken in 1912 by V. Pakowsky, of Duluth. The work consisted of hundreds of feet of trenching, sinking of seven test pits and systematic sampling of the quartz veins. A 15 meter shaft was sunk on a narrow east-west trending quartz vein on claim 512315. It was reported that gold occurred in various places throughout the shaft but that the distribtuion was erratic.

In 1913, Gosselin Gold Mines Limited was formed to develop the "Gosselin Gold Zone". The company's exploration work was confined to surface prospecting and trenching. Presumably no significant auriferous zones were located and the final fate of the company is unknown.

Consolidated Gold Mines Limited incorporated the Gosselin claims with a number of other adjacent areas, in 1933. Little or no attention was directed at the Gosselin ground and in 1939 the company forfeited their property due to lack of proper financing.

It was not until 1973, when Noranda Exploration Company Limited obtained an option on ten claims, which included the Gosselin Zone, that serious exploration of the property was undertaken. The work conducted

by Noranda consisted of a magnetometer survey, geological mapping and a sampling program. In addition they drilled five holes which, in total, constituted 345 linear feet. The drilling was done utilizing a Packsack drill and recovery seems to have been quite poor. All the holes were drilled on claim number 512315 and presumably the objective of the drilling was to intersect the east-west trending quartz veins in the immediate vicinity of the old shaft. The best assay obtained from this drilling was a value of 0.18 ounces of gold per ton over 1.4 linear feet. In 1974 Noranda Exploration Company Limited relinquished their option.

In 1975 Tribridge Consolidated Gold Mines optioned the ten claims from W. McBride, R. Annett and S. Saville. Their surface exploration work consisted of geological mapping, sampling and the drilling of three diamond drill holes which totalled 1065 linear feet. All three holes were drilled to intersect the north-south trending "Gosselin Rift Zone".

The first hole (T-1) was drilled on line 6+00N: 0+85W (Patino Grid). The hole was drilled to a depth of 354 linear feet. The majority of gold values obtained from this hole were low, the best assay being 0.07 ounces of gold per ton over 1.85 linear feet.

The second hole (T-2) 800 feet to the north-west on line 14+00N; 0+40W (Patino Grid) was drilled to a depth of 365 feet. This hole cut a zone of 0.06 ounces of gold per ton over a length of 28 linear feet or 0.052 ounces of gold per ton over 55 linear feet.

The third and final hole (T-3) was located 600 feet to the north-west of number 2 on line 20+00N: 0+00 (Patino Grid). The core from this hole contained no significant gold values.

Tribridge Consolidated Gold Mines allowed the claims to lapse and they were subsequently restaked by T. Saville. In 1979, Patino Mines (Quebec) Limited, took an option on a claim group consisting of 14 contiguous claims described herein, which covers part of the Gosselin Zone.

General Geology of The Shining Tree Property

The area is mainly underlain by a sequence of Early Precambrian mafic to felsic metavolcanic and metasedimentary rocks, all of which are intruded by felsic plutonic rocks and diabase. Minor Huronian conglomerates of the Cobalt Group can be observed in the northwest corner of Churchill township. Pleistocene and recent deposits consist mainly of sandy till, muskeg and alluvium.

The south-west half of Churchill and the north-west half of Asquith township consists mainly of northwest trending metabasaltic flows and pillows with minor flows of felsic to intermediate metavolcanic rocks. Minor peridotite and dunite as well as dioritic to syenitic porphyritic rocks can be observed in the vicinity of Gosselin Lake.

The northeast half of Churchill township contains predominately north-west striking subalkalic felsic to intermediate flows with minor pyroclastic phases. The metasediments consist of argillite and chert with local iron formation.

The entire area has been intruded by northwest trending Early to Late Precambrian (Matachewan?) diabase dykes. Nipissing diabase of Middle Precambrian age, occurs in the southwest and southeast corners of the township.

Folding of the metavolcanic and metasedimentary rocks occurs about a northwest trending fold axis in almost the entire area except for the northwestern part of Churchill township where folding occurs about a west-trending fold axis.

Geology of the Shining Tree I Property

The oldest rocks in the map area are represented by the Archean mafic metavolcanics (2) and their extremely altered equivalents (2A). Locally, beds of tuffs, lapilli tuffs and agglomerates (3) can be observed within the mafic volcanic rocks. A peridotite-dunite body (1) appears to be intrusive into the mafic volcanic rocks, however this relationship is uncertain. Feldspar porphyritic and syenitic rocks (4) are intrusive into the mafic metavolcanics and post-date them. This relationship is demonstrated by the presence of felsic dykes cross-cutting the volcanic units.

The youngest rocks present on the property are the numerous diabase dykes that cross-cut all the units, described above. They are probably of early to late Precambrian age as suggested by Carter (1980) and may represent Matachewan dyke sets.

Mafic and Altered Metavolcanic Rocks (2 and 2A)

The mafic metavolcanic rocks are believed to be basaltic in composition with variation in modal percentage of feldspar and the degree of alteration. The rocks generally weather to a light to medium red-brown colour and have a

dark to medium green fresh surface. They are aphanitic to medium-grained, massive to schistose and locally vesicular. Primary structures are rarely preserved. The basalts probably represent massive flows.

The unaltered metabasalts (2) are moderately to strongly chloritized reflecting regional low grade greenschist facies metamorphism. They are dark green in colour on the fresh surface. This colour becomes progressively lighter with increasing carbonatization and sericitization. The metabasalts are usually fine to medium grained. In the medium grained varieties the sericitization of the feldspars can be observed. The percentage of carbonate, present, is variable but usually increases as the fault zone is approached.

In the weakly carbonated metabasalts, the carbonate is present along the fractures and schistosity planes and is also present as carbonate "eyes". The strongly carbonatized and sericitized varieties are massive and aphanitic to fine grained. These metabasalts are light green in colour and exhibit a thick, red brown weathered rind which is indicative of the presence of iron carbonate.

The extremely altered metabasalts (2A) have distinctive buff coloured weathered and fresh surface. The overall appearance of this altered unit is one of a rhyolite, however it is believed that they do in fact represent the altered equivalents of the massive aphanitic basalts. They are also generally massive and aphanitic and in addition are cross-cut by numerous quartz veinlets. These quartz veinlets are usually associated with carbonate, fuchsite and chlorite alteration. These extremely altered metabasalts occur within the major fault and shear zones. They appear to be the result

of intense hydrothermal activity in which the fluids were enriched with CO_2 K_2O and SiO_2.

Along the west shore of "Beaver" Lake, there appears to be a zone of shearing and intense alteration. In the centre of the strongly sericitized unit, there is a dark green-grey schistose zone which is carbonated and contains 20% biotite porphyroblasts. On line 14+00N at 1+90E, there appears to be a zone of mylonitization at the contact between the biotite-bearing schistose zone and the sericitized unit. This thin zone has been cross-cut by numerous chlorite veinlets yielding a "brecciated" appearance. The "fragments" are light grey, aphanitic and appear to be strongly silicified.

Tuffs, Lapilli Tuffs and Agglomerates (3)

This zone appears to be approximately 7 to 15 meters wide and occurs within the metabasalts. The unit appears to delineate a gentle fold with a fold axis trending in a northeast-southwest direction.

The tuff is dark grey, aphanitic chloritized and finely laminated. The lapilli tuff and agglomerate contain silicified lapilli to bomb-size fragments in a chloritized matrix. The fragments are more resistant to weathering and therefore they form prominent features on the weathered surfaces.

Intrusives

Peridotites (1): these rocks consist of serpentinized peridotites or dunites. They are fine grained and are black when fresh but weather to a rust brown. A thin section of a sample taken by Carter (1980) from the Northern shore of Gosselin Lake shows that the unit almost completely consists of cumulate serpentinized olivines.

Felsic Intrusives: (4): The feldspar porphyritic and syenitic-dioritic rocks are observed on the east side of the map area. Locally felsic dykes are observed intruding the metabasalts and are believed to be feeders to the intrusives. The feldspar porphyry generally consists of 20% euhedral potash feldspar phenocrysts in a fine-grained matrix of feldspar, minor quartz, chlorite and biotite. The syenite is of a similar composition but is usually fine grained, equigranular and hematized

Diabase (5): Numerous diabase dykes cross-cut the units. These dykes in general have a northeast to northwest trend. They weather to a red brown colour and since they are more resistant to weathering than the host rocks they form prominent ridges.

The diabase is medium-grained, subophitic. It appears to have undergone less alteration when compared to the proximal metabasalts. The rock consists of 40-50 modal percent feldspar and 50 to 60 modal percent pyroxene (amphibole).

Structure

The lack of extent of the individual outcrops, on the property, permitted only a limited number of foliation measurements. The general trend of the foliations is northwest-southeast with local variations probably due to folding and faulting. The steep dips of the rocks suggest tight isoclinal folding. Minor folding was observed at line 32+00N at 29+00E, within the pyroclastic zone, where the fold axis was trending 232° and plunging west.

The major structure on the property is a northwest trending zone of shearing and faulting, in which the silicified and sericitized metabasalts occur. This zone is referred to as the "Gosselin Rift Zone". It contains the majority of the quartz veining present within the map area. The zone extends from line 0+00N to approximately line 28+00E. Between lines 23+00N and 24+00N the zone is offset 180 meters to the west, by a series of east-west trending faults known as the Speed Lake Fault Complex.

Quartz Veining

The quartz veining is more extensive in the highly altered metabasalts usually occurring in zones of intense carbonate alteration. The width of the quartz veins varies from 1 meter to 10 meters. There appears to be two sets of quartz veining, in the map area, one set with a predominately north-south trend and the second with a predominately east-west trend.

A major north-south quartz vein system appears to extend north from line 0+00N through "Beaver Lake" and ends just to the south of Speed Lake. As with the majority of the quartz veins in the area, these quartz veins are accompanied by zones of alteration, indicated by the presence of carbonate and fuchsite and to a lesser degree sericite.

The majority of the east to northeast trending quartz veining are mainly located to the west of "Beaver Lake". They appear to have an affinity to the strongly altered metabasalts. These veins have been observed cross-cutting the schistosity which suggests post-regional folding emplacement.

Part of this east-west system is associated with the old shaft on line 15+10N at 2+60W. The quartz veins are generally hosted by a sericitized silicified metabasalt.

The quartz veins contain up to 40 modal percent of iron-magnesium rich carbonate. Chlorite is developed along the fine fractures within the quartz. Within the zones of intense shearing at the contacts of the quartz veins the rock is schistose and contains fuchsite. Locally in contact with this fuchsite schist there is a second zone of schistosity containing a predominance of chlorite.

Economic Geology

Native gold within quartz veins, occurs throughout the Shining Tree area. It is often associated with pyrite and/or chalcopyrite. The distribution of the native gold however, is erratic. Early work, conducted on the map area, relied, for the most part, on trenching and pitting of the quartz veins in which the gold was visible. However, since the distribution of the gold is erratic and indeed the quartz veins, themselves, do not extend for any great distance either laterally or with depth no economic or subeconomic zone has ever been delineated.

Previous sampling of the quartz veins within the Gosselin Zone, by Noranda Exploration Company and Tri-Bridge Consolidated Gold Mines Limited has indicated that many of the quartz veins are gold bearing even though no gold is visible. In addition to this the Tri-Bridge diamond drill hole, which was drilled mainly in the altered metabasalts (2A), contains a gold value of 0.052 ounces per ton over 55.0 linear feet. The altered metabasalts are referred to as rhyolites, in the Tri-Bridge report. According to McConnell's report, however, no quartz veining of any consequence was encountered. The gold is therefore

also present within the altered host rock. It would appear therefore that the gold is associated with zones of intense alteration.

Conclusions

It can be concluded from previous work, conducted on the property, that no one individual auriferous zone is of sufficiently high grade and tonnage, to support a viable mining operation. However, since there has been a lack of systematic exploration in the past, this possibly cannot be completely ruled out. There does exist, however, within the main zones of faulting and shearing, the potential for a low grade high tonnage economic deposit.

The gold is associated with the zones of intense CO_2 - K - Mg and Cr alteration. These zones therefore delineate potential exploration targets.

Recommendations

The Gosselin Rift Zone and the Speed Lake Fault Zone are both potential exploration targets since they both contain zones of intense alteration. and associated quartz veining. These areas should be mapped in greater detail. This mapping should be done in conjunction with a program of stripping,trenching and sampling. This will delineate the auriferous units within the major structural zones. It would also provide a better understanding of the relationship between the alteration zones and the gold bearing quartz veins. Once this has been completed, it can be followed by a diamond drill program which will investigate the favourable zones.

Respectfully submitted,

D. R. Scammell

DRS/so

D.R. Scammell

October 23, 1980

REFERENCES

Hopkins, P.E.

1920: West Shining Tree Gold Area, Ontario Department of Mines Volume XXIX, Part 3

Carter, M.W.

1980: Geology of Connaught and Churchill Townships Ontario Geological Survey

McConnell, J.D.

1975: Report on Geological Mapping and Diamond Drilling: Tri-Bridge Consolidated Gold Mines Limited

LEGEND

EARLY TO LATE PRECAMBRIAN

MAFIC INTRUSIVE ROCKS

DIABASE

DIABASE, GABBRO WITH SUBOPHITIC TEXTURES, MEDIUM-GRAINED

FELSIC INTRUSIVE ROCKS

FELDSPAR PORPHYRY, SYENITE

DIORITIC TO SYENITIC COMPOSITIONS WITH K-FELDSPAR PHENOCRYSTS

PYROCLASTIC ROCKS

3 — LAPILLI TUFF TO AGGLOMERATE AND TUFF
SILICIFIED FRAGMENTS AND CHLORITIZED MATRIX

MAFIC AND INTENSELY ALTERED METAVOLCANIC ROCKS

METABASALTS

2 CHL CHLORITIZED
2 C CARBONATED
2 SER SERICITIZED
2 EP EPIDOTIZED
2 S SCHISTOSE
2 HM HEMATIZED
2 FC FUCHSITE-BEARING
2 Bi BIOTITE-BEARING

ALTERED METABASALTS

2A SER SERICITIZED
2A SIL SILICIFIED

ULTRAMAFIC INTRUSIVE ROCKS

PERIDOTITE, DUNITE

SYMBOLS

QV QUARTZ VEINING
EXTENT OF SWAMP AREA
EXTENT OF OUTCROP AREA
EXTENT OF SUB-OUTCROP AREA
GEOLOGICAL BOUNDARY; ASSUMED, KNOWN
FAULT
JOINTING; VERTICAL, DIPPING
QUARTZ VEINING; VERTICAL, DIPPING
FOLIATION; VERTICAL, DIPPING
BEDDING; VERTICAL, DIPPING
TRENCH
SHAFT
BOULDERS

SCALE
1 INCH TO 200 FEET
200' 100' 0 200'

LOCATION PLAN OF SHINING TREE I PROPERTY

FRITH LAKE
SPEED LAKE
BEAVER LAKE
GOSSELIN LAKE
CHURCHILL Twp
ASQUITH Twp

D.R Seamell
1/12/1980

PATINO MINES QUEBEC LIMITED
Exploration Department

GEOLOGY OF THE SHININGTREE I PROPERTY

SHININGTREE AREA, ONTARIO

draughted by A.B. + B.L.	date OCT, 1980	Scale
conducted by ALICE BORN	date SEPT, 1980	1" = 200'
checked by ALICE BORN	date OCT, 1980	Drawing N°

2.3318

41P11SE0051 2.3518 CHURCHILL

200