Report on Reconnaissance Geological Mapping and Prospecting in the Shining Tree Area

Districts of Sudbury and Timiskaming

Ontario

N.T.S. - 41 P/11

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1.0 Introduction

During a period from July 31, 1991 to September 25, 1991, six areas in the Shining Tree area, Ontario were investigated for the potential of precious and/or base metal mineralization. All areas were open to staking during the program according to the Mining Recorder's office in Kirkland Lake. Reconnaissance geological mapping and prospecting were performed over the six areas. This report concerns the results of this work. The program was funded under the Ontario Prospectors Assistance Program (OPAP) - 1991.

2.0 Location and Access

The Shining Tree area is located within the Districts of Sudbury and Timiskaming centered at latitude 47° 35' N and longitude 81° 15 W (fig. 1). Access to the area is via highway 144 north from Sudbury and east along highway 560 to the hamlet of Shining Tree. Alternative access is via highway 11 in the west to highway 560.

The six project areas occur within six townships and are shown in figure 2. In Churchill township, access is by boat from the public landing in Shining Tree through the West Arm of Shining Tree Lake to Jonson and Oddur Lakes. Two short portages are required. In Asquith township, boat access is via the West Arm of Shining Tree Lake. In Kelvin township, the project area is reached via the Grassy Lake Road north from highway 560 to Bigfour Lake where a canoe is required to travel the shallow northwest arm of the lake. Bigfour Creek was unnavigable due to beaver activity during the project.

Leonard, Tyrrell and MacMurchy townships are accessible via the Bay Lumber Road south from highway 560. A road connecting the Bay Lumber Road with an Ontario Hydro powerline maintenance road can be used to reach Leonard and Tyrrell project areas. Alternative access is south along this maintenance road from highway 560 however this route is very rough. In MacMurchy township, the project area is reached via a road leading west from the Bay Lumber Road to Foley Lake.

3.0 Claim Status

All project areas lie within the Larder Lake Mining Division and were open to staking during the program according to the Division's Mining Recorder. One block claim (1118351) covering 64 hectares was staked by the author in Churchill township after the program and is currently being recorded.

4.0 Method of Surveys

Reconnaissance geological mapping and prospecting were performed in Churchill, Asquith, Kelvin and Leonard townships. Flagged line grids were established for control where lines occur at 400 metre line spacing. Marked stations are located every 100 metres while 25 metre stations are identified by equal length flag ends. A combination of

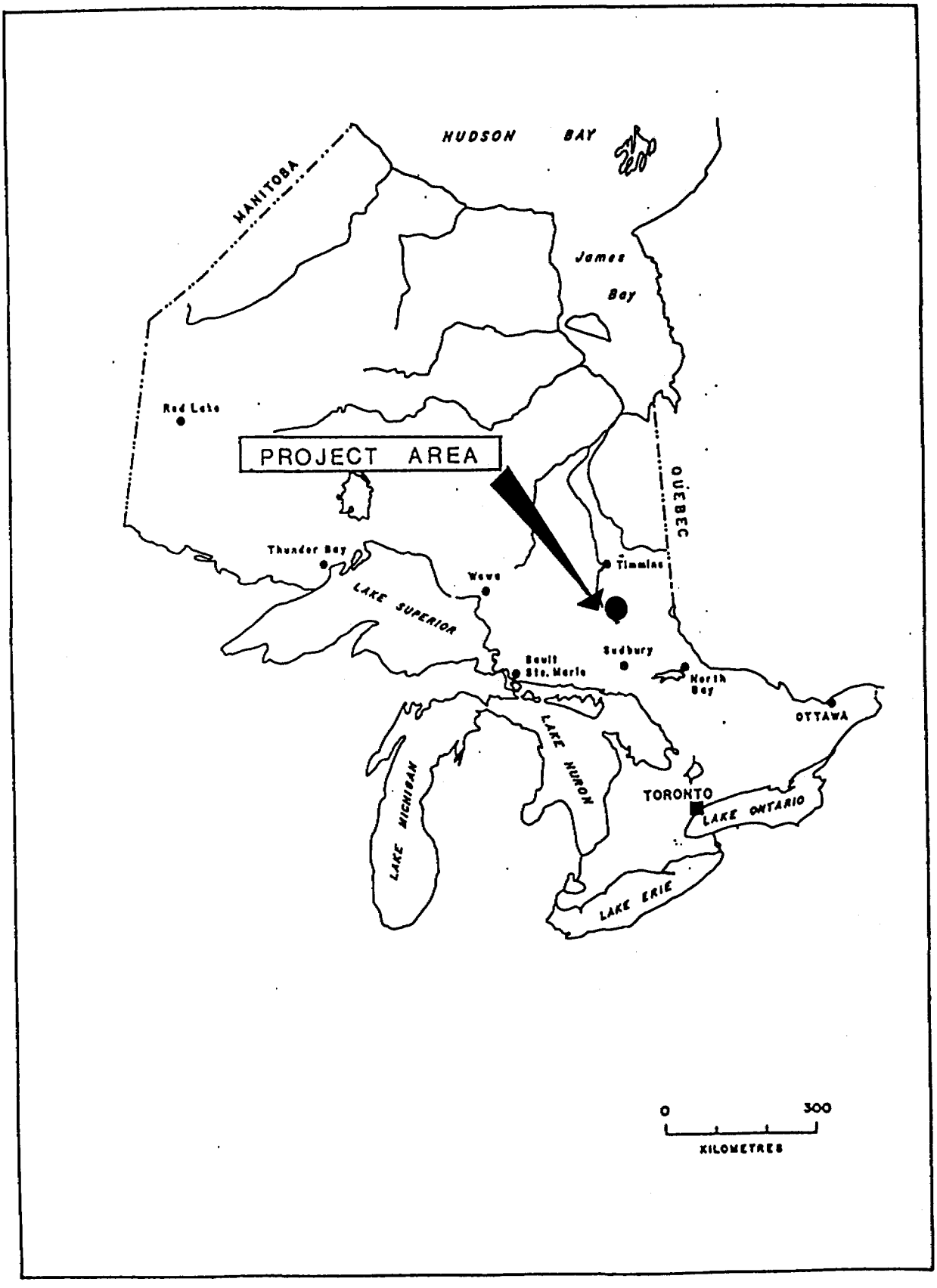


Figure 1. Location Map

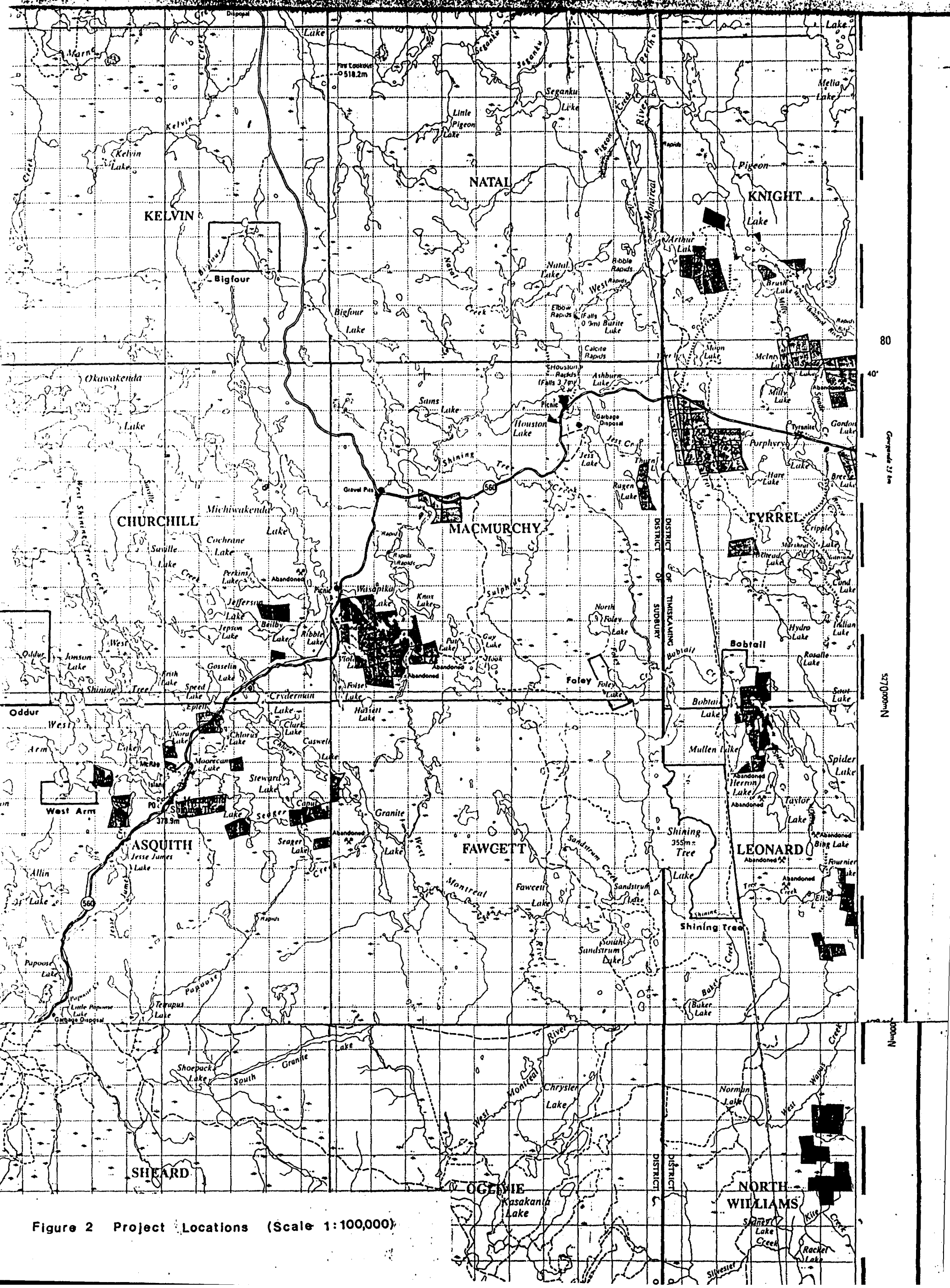


Figure 2 Project Locations (Scale 1:100,000)

compassing and backsighting flags were employed for line direction and a Field Ranger hip chain was used for distance. A total of 55 line kilometers was established.

Prospecting was conducted in Tyrrell and MacMurchy townships where topographic control was used for location. In all areas, sample locations are marked by flags bearing the assay tag sample number. A total of 47 grab samples were taken during the program.

5.0 Analytical Technique

All samples were submitted to X-Ray Assay Laboratories, Don Mills, Ontario. Samples were dried, crushed to -3 mm, riffled to a maximum of 250 gm and milled in chrome steel. Gold analysis involved fire assay (F.A) with direct current plasma (D.C.P.) finish after dissolution of the fire assay bead. Silver and base metals involved D.C.P. emission spectrometry analysis after standard extraction using nitric aqua regia.

Results of the Program

6.1 Churchill Township - Oddur Lake Area

6.11 Exploration Target: Gold and silver mineralization associated with contact metamorphism of metavolcanic rocks from diabase sill.

6.12 Geology

The project area is underlain by north-northwest striking Archean felsic, intermediate and mafic metavolcanic rocks extensively intruded by Middle Precambrian (Nipissing) diabase.

A generalized trend from mafic through intermediate to felsic volcanism is indicated from southwest to northeast. Mafic metavolcanics rocks are dominantly represented by flow rocks with subordinate amounts of fine grained tuff. They occur as massive fine to coarse grained units, porphyritic flows, structured flows and pillowed basalts. Porphyritic flows contain equant to elongate plagioclase phenocrysts up to 5 cm in the greatest dimension. Structured flows show coarse wavy layering and pillowed flows exhibit deformed selvages in the west while undeformed pillows in the south indicate tops to the northeast. Compositionally, the mafic metavolcanics range from basalt to andesite where locally the gradation can be observed in outcrop (i.e. L 0/6+00S).

Intermediate metavolcanic rocks range from massive to porphyritic flows with minor tuff. A vesicular flow occurs in the west (L 4W/3+00S). The intermediate units range from andesite to dacite in composition.

Felsic metavolcanic rocks occur mainly as massive to porphyritic rhyolite and rhyo-dacite flows with lesser amounts of tuff, lapilli tuff, crystal tuff and quartz-eye tuff.

Medium to coarse grained diabase occurs extensively throughout the map area. Its spatial distribution suggests that the diabase intrudes metavolcanics at a low angle however field observation could

not verify this. Olivine diabase and hornblende diabase occur locally indicating some differentiation of the large body. Magnetite is a common accessory mineral locally concentrating in massive pockets.

6.13 Structure

Fabric within metavolcanic rocks indicate that schistosity is imposed on the original layering. Dip reversals across stratigraphy may suggest some folding however pervasive diabase intrusion obscures stratigraphic correlation and may have ultimately caused the variable dips. From one pillow top indicator, the sequence would be overturned. Without further evidence, the sequence represents a north-northwest striking, west-southwest dipping homocline. Evidence of faulting or shearing was not recognized during field investigations.

6.14 Metamorphism, Alteration and Mineralization

Field evidence from mafic metavolcanics and altered matrices of pyroclastic units indicate that the metavolcanics were metamorphosed under greenschist conditions. Although contacts between diabase and metavolcanics were not observed at any point, exposures near contacts show no metamorphic, altered or mineralized aureoles from the intrusion. Quartz and quartz carbonate veining is minimal in the area.

Carbonatization, represented mainly by calcite, occurs randomly within the mafic and intermediate rocks. Mild sericitization occurs within felsic units locally accompanied by minor ankerite.

Mineralization throughout the area is dominantly pyrite. Felsic metavolcanics locally contain 1-5% fine grained disseminated pyrite proximal to their contacts with intermediate and mafic units. In the northeast, fine grained disseminated arsenopyrite up to 10% within felsic units show a gold association (see 6.15). Diabase commonly contains trace to 2% fine grained disseminated pyrite.

6.15 Prospecting

A total of 11 grab samples were taken over the map area. The following table summarizes the significant results and information regarding these samples. Complete assay results are listed in Appendix II.

Sample #	Location	Description	Significant Assays
10301	L8W-5+40N	Qtz-eye felsic tuff; 1% m.g. py	230 ppb Au
10302	L4W-14+75N	Sheared qtz-eye felsic tuff; 3-4% f.g. py, trace asp, minor ank. and ser.	110 ppb Au
10304	0+50W-9+80N	Felsic flow; 10% f.g. asp and 1% py	9100 ppb Au
10308	L4E-1+35N	Jointed rhyo-dacite; 1% m.g. py	217 ppm Cu 279 ppm Zn

The significance of the gold results lies in the fact that they are not quartz vein associated reminiscent of the past discoveries around the Shining Tree area. They occur in mineralized zones within the felsic metavolcanics. Slightly anomalous copper and zinc values occur proximal to a felsic-intermediate contact suggesting the potential for a classical volcanogenic massive sulfide deposit.

6.16 Conclusions and Recommendations

The target of gold and silver mineralization associated with contact metamorphism was not realized in the Oddur Lake area. However, a significant new discovery of gold associated with arsenopyrite bearing felsic metavolcanics has been made in the area. A small land position has been staked over this area for future considerations. Surface stripping of the area which returned the 9100 ppb Au value is recommended as soon as possible to evaluate the size of this zone. Ground electromagnetic surveys are also recommended to determine any response of this zone as well as potential conductors at metavolcanic contacts.

6.2 Asquith Township - West Arm - Shining Tree Lake

6.21 Exploration Target: Exhalative gold mineralization and MacQuire Showing.

6.22 Geology

The area is underlain by an east-southeast striking Archean sequence of predominantly mafic metavolcanic rocks with subordinate, narrow felsic and intermediate metavolcanic intercalations. Minor diabase dykes and felsic intrusive rocks occur in the west.

Mafic metavolcanic rocks are mainly represented by amphibolite closely associated with massive and schistose basaltic flows. Lesser amounts of mafic tuff and porphyritic flows occur proximal to felsic metavolcanics.

Intermediate metavolcanic rocks are confined to narrow dacite-andesite flows.

Felsic metavolcanic rocks appear to be fairly continuous narrow units but the lack of exposure in these areas renders this speculative. These units occur as rhyolite flows, tuff, quartz-eye tuff and quartz-feldspar porphyry.

Magnetite bearing, narrow diabase dykes trend northwest in the west portion of the map area.

Foliated quartz monzonite differentiated outliers of a trondjemite pluton further west intrudes the metavolcanics in the west.

6.23 Structure

The metavolcanic suite represents an east-southeast striking, south dipping homoclinal sequence. Two shear zones were observed during field mapping. In the west, a southeast striking, 1.0 metre

wide zone of crumbly fine grained quartz monzonite occurs within its more competent coarser grained host. At the inlet to a creek from Shining Tree Lake, a shoreline exposure shows well developed kink banding within an east-west striking shear zone displaying incipient quartz-sericite schist development. This shear zone is offset across the inlet indicating sinistral displacement along a north striking fault. A southward deflection of stratigraphy at the east end of the map area may represent additional faulting or folding.

6.24 Metamorphism, Alteration and Mineralization

The ubiquity of amphibolite over the project area indicates that the metavolcanics have been metamorphosed under amphibolite grade conditions. Silicification and carbonatization (calcite) occurs mainly within the mafic metavolcanics. Barren quartz 'blows' and stringers occur within extensional joints in both felsic and mafic metavolcanics.

A trench at L4W/1S exposes a gossanous, 1.0 metre wide zone of semi massive pyrite within felsic metavolcanics near the contact with a mafic flow. Elsewhere, felsic metavolcanic units host up to 2-3% fine grained disseminated pyrite. Exhalative horizons were not observed during field mapping.

MacQuire Showing: At this showing, a 41.0 metre long trench follows a bull white quartz vein within mafic metavolcanics. The vein is reported to have yielded high grade gold values however this information is not available. Additional trenching was conducted in 1983 to investigate the potential of the showing however low gold values were returned.

Where the main vein is exposed it occurs as a bull white, 50 cm wide, north dipping vein within a south dipping, sheared and silicified mafic metavolcanic (Fig. 3). The east end of the trench deepens to at least 4.0 metres where it is water-filled. It is in this area where pyrite mineralization up to 5% is associated with quartz veinlets in highly silicified mafic rock. A narrow, variably silicified quartz porphyry intrudes this area.

6.25 Prospecting

The following table summarizes the significant information and results from the 11 samples taken over the project area.

Sample #	Location	Description	Significant Assays
10312	L8W-2+85S	Qtz blow (1.5x5.0m); 5% m.g. py and gf	160 ppb Au
10313	L8W-2+83S	Sheared qtz-monzonite; qtz in fractures	160 ppb Au
10314	L4W-3+25S	Cherty felsic tuff with mafic interbands	346 ppm Cu
10317	4+25W-0+90S	Semi-massive to massive py in felsic tuff	133 ppm Co
10319	L8E-3+75S	White-rose qtz blow; 1% py	454 ppm Cu

The anomalous values in copper and gold returned from quartz veins appear too low to merit much further investigation. The results from the MacQuire Showing tend to confirm the 1983 findings of low gold values.

The slightly anomalous cobalt value from the semi-massive pyrite horizon was unexpected since all other metal values are suppressed however this horizon would appear to be essentially barren.

The cherty felsic tuff sample which returned 346 ppm Cu occurs very close to a diabase dike. This anomaly may have resulted due to the concentrating effect of available metals along or near dyke margins. Subsequently, the sample could be misleading as a base metal deposit indicator.

6.26 Conclusions and Recommendations

The mildly anomalous gold and base metal values which were returned from this project area do not appear to hold much potential. The geological environment (i.e. semi-massive sulfides, shear zones, etc.) is prospective however at the program's scale of mapping, no targets could be generated. It is therefore recommended that no further work be conducted over the area at present.

6.3 Kelvin Township - Bigfour Lake Area

6.31 Exploration Target: Quartz-carbonate lode gold deposits and volcanogenic massive sulfide deposits.

6.32 Geology

The area is underlain by a north-south striking, steeply dipping sequence of Archean metavolcanic and metasedimentary rocks. In the west, intermediate metavolcanics are predominant with narrow intercalations of felsic and mafic units while in the east, metasediments and ultramafic rocks prevail. Narrow diabase dykes occur locally.

Intermediate metavolcanic rocks occur mainly as massive fine grained and aphanitic dacite flows with subordinate porphyritic flows. In a few cases, the units may approach andesite in composition. Lesser amounts of pyroclastic rocks are represented by agglomerate, tuff and lapilli tuff. Agglomerate shows sub-angular to sub-rounded dacite fragments, commonly in the 10's of cm in the maximum direction, set in a darker chloritic matrix. Lapilli tuff resembles the agglomerate yet with much smaller fragment size. Dacitic tuff occurs as fine grained gritty units as well as finely laminated aphanitic varieties. The fresh surface of the latter at L1N/12W is identical to that of aphanitic dacite flows however the weathered surface reveals fine bedding. This may indicate that some of the aphanitic flows are actually coarsely bedded pyroclastic ash.

Mafic metavolcanic rock occurs as narrow, discontinuous lenses of massive fine grained basalt and andesite flows. In the west, one exposure of plagioclase porphyritic mafic flow occurs.

A narrow intercalation of felsic metavolcanic occurs in the centre of the map area which is represented by rhyo-dacite and quartz-

feldspar porphyry flows.

Ultramafic rocks occur as fine grained, black komatiitic flows and serpentinized flows. Grain size was used to suggest an extrusive origin since spinifex texture was not observed.

Metasediments occur predominantly as dark grey-green to black, very fine grained argillite commonly displaying a pseudoconchoidal fracture on fresh surfaces and rhythmic bedding on weathered surfaces. Narrow interbeds of grey chert or wacke occur locally. The narrow grey cherty units also occur interbedded with dacite tuff to the west proximal to the metavolcanic-metasedimentary contact.

Minor, narrow magnetite-bearing diabase dykes occur in a few locations.

6.33 Structure

The stratigraphy forms a north-south striking sequence with dip reversals across strike suggesting folding along north-south axes. The absence of top indicators makes the delineation of such axes speculative. Foliation occurs parallel to bedding which is well preserved in argillite. Shearing is mainly confined to the ultramafic rocks and occurs only locally. Some moderate brecciation of dacite flows and agglomerate occurs in the west. A north-northeast striking fault is suspected along a portion of Bigfour Creek which is bound by steep scarps.

6.34 Metamorphism, Alteration and Mineralization

Rocks appear to have been metamorphosed under mild lower greenschist conditions since chlorite development in mafic rocks and pyroclastic matrices is not well developed. Alteration is mainly carbonatization (calcite) along fractures in intermediate and ultramafic rocks and rarely argillite. Ankerite within dacite was observed at one location (L1N/3+25W). Minor epidote occurs in dacite at L2N/0+50W. Mineralization in the area is restricted to pyrite and occurs most commonly within dacitic agglomerate reaching up to 2%. At L3N/4+85W, pockets of massive fine grained pyrite occur along fragment-matrix boundaries within agglomerate.

6.35 Prospecting

A total of 9 samples were taken over the project area. The gold, silver, cobalt, copper lead and zinc values are discouraging. The only encouragement came from elevated nickel values in intermediate metavolcanics which are listed below.

Sample #	Location	Description	Significant Assays
10326	L3N-8+60W	Dacite agglomerate; 2% f.g. py	710 ppm Ni
10327	L3N-4+85W	Dacite agglomerate; py at frag-matrix boundaries	303 ppm Ni
10328	L2N-7+80W	Aphanitic dacite; black qtz, 1% very f.g. py	312 ppm Ni
10329	L2N-6+10W	Siliceous dacite fragmental; 2% py	772 ppm Ni

Elevated nickel values are common proximal to ultramafic rocks however the consistency of the dacite agglomerate holding the elevated values renders itself as an exploration target for more significant nickel mineralization.

6.36 Conclusions and Recommendations

The polymetallic potential of the project area initially does not appear to hold much promise and the widescale absence of quartz-carbonate veining and alteration renders the precious metal scenario even less prospective. However the elevation of nickel values appears to be significant enough to warrant more work for nickel exploration. More detailed prospecting and mapping in the dacitic agglomerate would be the first phase of follow-up work. Full base metal and precious metal analyses should be maintained during such a program.

6.4 Leonard Township - Shining Tree Lake

6.41 Exploration Target: Silver bearing calcite veins within Nipissing Diabase and Gowganda Formation sediments.

6.42 Geology

Reconnaissance geological mapping and prospecting was greatly hampered by the lack of bedrock exposure (<5%). The limited exposure indicates that the project area is largely underlain by Huronian sediments intruded by Nipissing Diabase sills with minor Archean metavolcanics occurring in the northwest.

Huronian rocks occupy the majority of the map area. According to Carter (1977), these rocks are represented by the Lorrain Formation and the older Gowganda Formation of the Cobalt Group. The Gowganda Formation occurs in the northern and central portions of the map area. In the east, fine grained, poorly bedded, dark green to grey argillite occurs with minor greywacke. In the west, polymictic paraconglomerate is dominant with local quartzite units. The conglomerate contains clasts of granite, felsic and mafic volcanic, jasper and quartz in a variably arenaceous-argillaceous matrix. The unit transitions to

quartz rich microconglomerate in the south. A shoreline exposure along Shining Tree Lake (L5N) shows the eroded surface of a schistose quartzite in contact with an overlying conglomerate where the origin of large angular quartzite blocks is evident indicating paleocurrent direction was from west to east.

The Lorrain Formation overlies the Gowganda Formation and is represented in the south by a distinctive pink, well sorted arkose.

The two formations are intruded by Nipissing diabase sills. The diabase occurs as generally medium grained, green, magnetite-bearing units while in the larger outcrops, coarse grained cores are flanked by fine grained margins. A red granophyric phase occurs on L3S.

Remnants of Archean metavolcanic rocks occur in the northwestern portion of the project area. These are mainly represented by dacite and andesite flows with intercalations of massive to vesicular basalt flows. One exposure of very hard, aphanitic rhyolite occurs just east of these rocks.

6.43 Structure

The limited exposure over the project area provided little structural information. Huronian sediments show shallow dips and Carter (1977) indicates that this area represents the west margin of a saucer-shaped basin. Diabase sill emplacement is believed to separate the lower Gowganda Formation from the upper Lorrain Formation.

6.44 Metamorphism, Alteration and Mineralization

The relatively pristine state of the Huronian sediments indicates that metamorphism is not significant in the area. No contact metamorphic effects from diabase intrusion were observed. Alteration and mineralization is equally insignificant. Only one of the five drill holes in the northeast was located. The drill road connecting the holes is completely overgrown and unidentifiable after the first hole.

6.45 Prospecting

Only one sample was taken over the map area. The sample was a red granophyric diabase with minor quartz stringers which did not yield any significant assay results. The great lack of outcrop exposure makes traditional surface prospecting difficult in this area.

6.46 Conclusions and Recommendations

Despite the poor exposure over the project area, those available outcrops showed no indication of alteration or mineralization. The absence of calcite in fractures further detracts from this area being prospective. No further work is recommended in the area.

6.5 Tyrrell Township - Bobtail Lake Area

6.51 Exploration Target: Silver bearing calcite veins within Nipissing Diabase and Gowganda Formation sediments.

6.52 Prospecting

The project area was mainly prospected while outcrop exposures were tied into topography. The area is underlain by Huronian argillite, arkose, greywacke and polymictic orthoconglomerate in the west intruded by Nipissing Diabase in the east. Classic exposures of the orthoconglomerate can be seen along the west shore of Bobtail Lake while the Hydro-Power corridor provides good examples of rhythmic bedding in argillite.

A total of 5 samples were taken from the area however silver mineralization was not encountered. A gossanous, locally derived boulder of greywacke on the west shore of Bobtail Lake returned 536 ppm Cu. Minor sulfide mineralization is associated with calcite filled fractures in diabase in the east yet assay results are insignificant. A copper showing occurs on the powerline maintenance road 300 metres northwest of Bobtail Lake. The showing is represented by a pink arkose containing 1% fine to coarse grained chalcopyrite and 2% malachite. A grab sample of this showing returned 1210 ppm Cu. Tracing the extent of the showing was not possible since it appears to follow the road northward and is buried under overburden to the south.

6.53 Conclusions and Recommendations

The geological environment in the southeast portion of the project area is conducive to silver mineralization however the intensity of calcite vein emplacement and sulfide mineralization would appear somewhat subdued. The copper showing on the road contains copper mineralization in the form of chalcopyrite and malachite however the copper assay value is only moderately anomalous. Additional sampling and surface stripping is required to further evaluate this showing. Elsewhere in the project area however, there does not appear to be any need for further work.

6.6 MacMurchy Township - Foley Lake Area

6.61 Exploration Target: Gold mineralization associated with iron formation.

6.62 Prospecting

Iron formation is indicated at the northwest corner of Foley Lake according to Ontario Geological Survey Preliminary Map P. 765 (Carter, 1972). This area was investigated in detail and although carbonatized, gossanous pyrite bearing dacitic metavolcanic rocks were identified, no iron formation was uncovered.

The area is underlain by dacite flows, and tuff with minor felsic lenses. These units are in contact with massive mafic metavolcanics to the west. A northwest trending diabase dyke occurs northwest of

Foley Lake.

Five samples of gossanous, carbonatized dacite were taken in the area however low gold values were returned.

6.63 Conclusions and Recommendations

The area investigated shows pyrite mineralization and carbonate alteration however gold values are insignificant. The apparent lack of iron formation in the area further deters its prospectiveness. Therefore, no further work is recommended in the area.

7.0 General Conclusions

Three out of the six project areas in the Shining Tree area require further exploration work. The gold-arsenopyrite bearing felsic unit in the Oddur Lake area, Churchill township commands the greatest priority. Stripping the zone is essential at this stage to determine its potential.

In the Bigfour Lake area in Kelvin township, more detailed prospecting and mapping should be conducted in the dacitic metavolcanics west of Bigfour Lake for nickel exploration.

In the Bobtail Lake area in Tyrrell township, stripping of the copper showing on the powerline maintenance road should be considered if approval can be obtained from Ontario Hydro.

REFERENCES

Carter, M.W. 1972 MacMurchy Township, District of Sudbury; Ontario Division of Mines, Prelim. Map P. 765, Geol. Ser., scale 1 inch to 1/4 mile. Geology 1971.

Carter, M.W. 1977 Geology of Fawcett and Leonard Townships, Districts of Sudbury and Timiskaming; Ontario Division of Mines, GR146, 50p. Accompanied by Map 2359, scale 1 inch to 1/2 mile (1:31,680)

CERTIFICATE OF QUALIFICATIONS

I, Chris Suchanek, of the City of Toronto, Province of Ontario, do hereby certify that:

1. I am a geologist residing at 3305 - 95 Thorncliffe Park Drive, Toronto, Ontario, M4H 1L7.

2. I graduated from the University of Toronto in 1983 with a Bachelor of Science degree - Geology Specialist Programme.

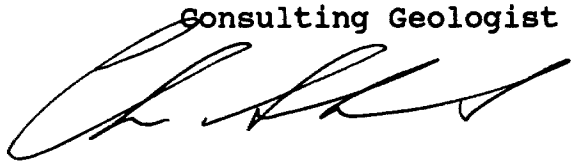
3. I have been actively engaged in the mineral exploration industry since 1981.

4. I am the registered holder of Ontario Prospector's Licence No. A - 51151.

5. I do not receive proceeds from the output of a mine anywhere in the world.

Dated at Toronto, Ontario, this 1st day of November, 1991

Signed: Chris Suchanek
Consulting Geologist



APPENDIX I

Sample Descriptions

SAMPLE DESCRIPTIONS

Sample No.	Location	Description
CHURCHILL TWP		
10301	L8W-5+40N	cherty qtz eye felsic tuff; 1% py
10302	L4W-14+75N	sheared, brecciated qtz eye felsic tuff 3-4 % fine grained py; trace asp
10303	L4W-14+50N	intermediate lapilli tuff with grey cherty fragments; 3-5 % py
10304	0+50-9+80N	silicified felsic flow containing 10% asp and 1% py
10305	L4E-12+50S	fractured qtz blow in felsic crystal tuff
10306	L8E-4+50S	porphyritic dacite; 2-5% py
10307	L8E-2+90S	dacite tuff with cherty interbands; 1% py
10308	L4E-1+35N	jointed rhyodacite flow; 1% py
10309	L4E-1+75N	siliceous rhyolite; 2% py, sericite
10310	L12E-4+50S	siliceous rhyolite; 3-5% py, sericite and ankerite
10311	L12E-3+10S	sheared intermediate tuff with qtz-ank vein
ASQUITH TWP		
10312	L8W-2+85S	1.5x5.0 m qtz blow; 5% py and graphite
10313	L8W-2+83S	ankeritized, sheared qtz monzonite
10314	L4W-3+25S	cherty felsic tuff; tr-1% py
10315	L4W-1+70S	1/2 m qtz blow in brecciated qtz eye felsic
10316	4+25W-0+90S	trench: gossanous felsic volcanic; 10-15% py
10317	4+25W-0+90S	trench: semi massive to massive py in felsic volcanic, non-magnetic
10318	L8E-5+20S	amphibolite; 2% py with carb. fractures
10319	L8E-3+75S	rose qtz blow in qtz porphyry; 1% py
10320	L8E-0+50N	felsic tuff; 2% py
10321	L8E-4N	gossanous mafic volcanic; 5% py
10322	L12E-1+90S	rhyodacite in contact with mafic flow; 1% py
KELVIN TWP		
10323	L4N-10+50W	brecciated dacite; 1% py
10324	L3N-5+30E	gossanous, carbonatized dacite
10325	L3N-5+20E	carbonatized argillite; 2% py
10326	L3N-8+60W	carbonatized dacite agglomerate; 2% py
10327	L3N-4+85W	dacite agglomerate with massive pockets of py at fragment-matrix boundaries
10328	L2N-7+80W	brecciated dacite with black qtz; 1% py
10329	L2N-6+10W	silicified dacite fragmental; 2% py
10330	L2N-3+25W	rhyodacite; 1-2% py
10331	L1N-3+25N	porphyritic dacite; 1% py

Sample No.	Location	Description
LEONARD TWP		
10332	L38-3+55W	red granophyric diabase; minor qtz stringers
TYRRELL TWP		
10333	west shore Bobtail Lk	gossanous angular float greywacke
10334	300 m east of north end of Bobtail	diabase with carb. fractures; tr. cpy
10335	100 m east of 10334	same as 10334
10336	hydro maintenance road	pink arkose; 1% cpy, 2% mal
10337	clearcut north of swamp	qtz stockwork in greywacke
MACMURCHY TWP		
10338	west of Foley Lk	brecciated, carbonated dacite
10339	northwest of Foley Lk	brecciated dacite; 5% py
10340	as above	calcite flooded gossanous dacite
10341	as above	silicified, gossanous boulder; 2-5% py
10342	as above	gossanous, pyritic rhyodacite; 5% py
MACQUIRE SHOWING		
001	trench	silicified mafic; qtz veinlets, 5% py
002	trench	qtz porphyry
003	trench	sheared, silicified qtz porphyry
004	muck	silicified, gosannous mafic; 3-4% py
005	muck	qtz vein with minor rust

APPENDIX II

Assay Results and Invoice

Invoice No.: 17881

XRAL X-Ray Assay Laboratories

A Division of SGS Supervision Services Inc.

1885 Leslie St.
Don Mills
Ontario M3B 3J4
Canada
Tel: (416) 445-5755
Fax: (416) 445-4152
Telex: 09-986947

Invoice To:
CHRIS SUCHANEK
95 THORNCLIFFE PARK DRIVE, APT.3305
TORONTO, ONTARIO
M4H 1L7

Invoice Date: 08-Oct-91
Work Order No.: 10988
Date Submitted: 2-Oct-91
Report No.: 16928
Customer No.: 2196/NONE
Your P.O. No.:
Your Project No.:

Submitted To:
CHRIS SUCHANEK
95 THORNCLIFFE PARK DRIVE, APT.3305
TORONTO, ONTARIO
M4H 1L7

# OF PKGS	SHIPPED VIA	WAY BILL NO.	SHIPPED FROM	TYPE OF SAMPLES
1	SELF		TORONTO	ROCK

QUANTITY	DESCRIPTION METHOD	CODE NUMBER	UNIT COST	AMOUNT
1. 37	8 ELE PKG BY DCP (1-0)	1 7 0 0 0 0	5.50	203.50
2. 42	AU,FPB	210 7 0 0 0	8.00	336.00
3. 48	ROCK, CRUSHING & MILLING (CHROME STEEL MILL)	99 1 0 0 0 0	4.50	216.00
	GST REG NO. R105082572 APPLIED TO $755.50			52.88
	Non OP4P Sample minus			13.38
				795.01

****** ADVANCED PAYMENT RECEIVED $1010.47 ******

MISC CHARGES	SHIPPING CHARGES	CUSTOM BROKERAGE	TELEX/FAX	MINIMUM CHARGES
	OTHER C.O.D.			SURCHARGE - RUSH SERVICE

RETURN THIS COPY WITH YOUR PAYMENT

TOTAL IN › CDN FUNDS $ 808.39

XRAL

X-RAY ASSAY LABORATORIES

A DIVISION OF SGS SUPERVISION SERVICES INC.
1885 LESLIE STREET • DON MILLS, ONTARIO M3B 3J4 • CANADA
TEL: (416)445-5755 TELEX: 06-986947 FAX: (416)445-4152

CERTIFICATE OF ANALYSIS

REPORT 16928

TO: CHRIS SUCHANEK
95 THORNCLIFFE PARK DRIVE, APT.3305
TORONTO, ONTARIO
M4H 1L7

CUSTOMER No. 2196

DATE SUBMITTED
2-Oct-91

REF. FILE 10988-G1

Total Pages 1

48 ROCKS

	METHOD	DETECTION LIMIT
AU PPB	FADCP	1.
CO PPM	DCP	1.
NI PPM	DCP	1.
CU PPM	DCP	.5
ZN PPM	DCP	.5
MO PPM	DCP	1.
AG PPM	DCP	.5
CD PPM	DCP	1.
PB PPM	DCP	2.

*** UNLESS INSTRUCTED OTHERWISE WE WILL DISCARD PULPS 90 DAYS ***
AND REJECTS 30 DAYS FROM DATE OF THIS REPORT

DATE 08-OCT-91

CERTIFIED BY .....

Philip Boctor, Laboratory Manager

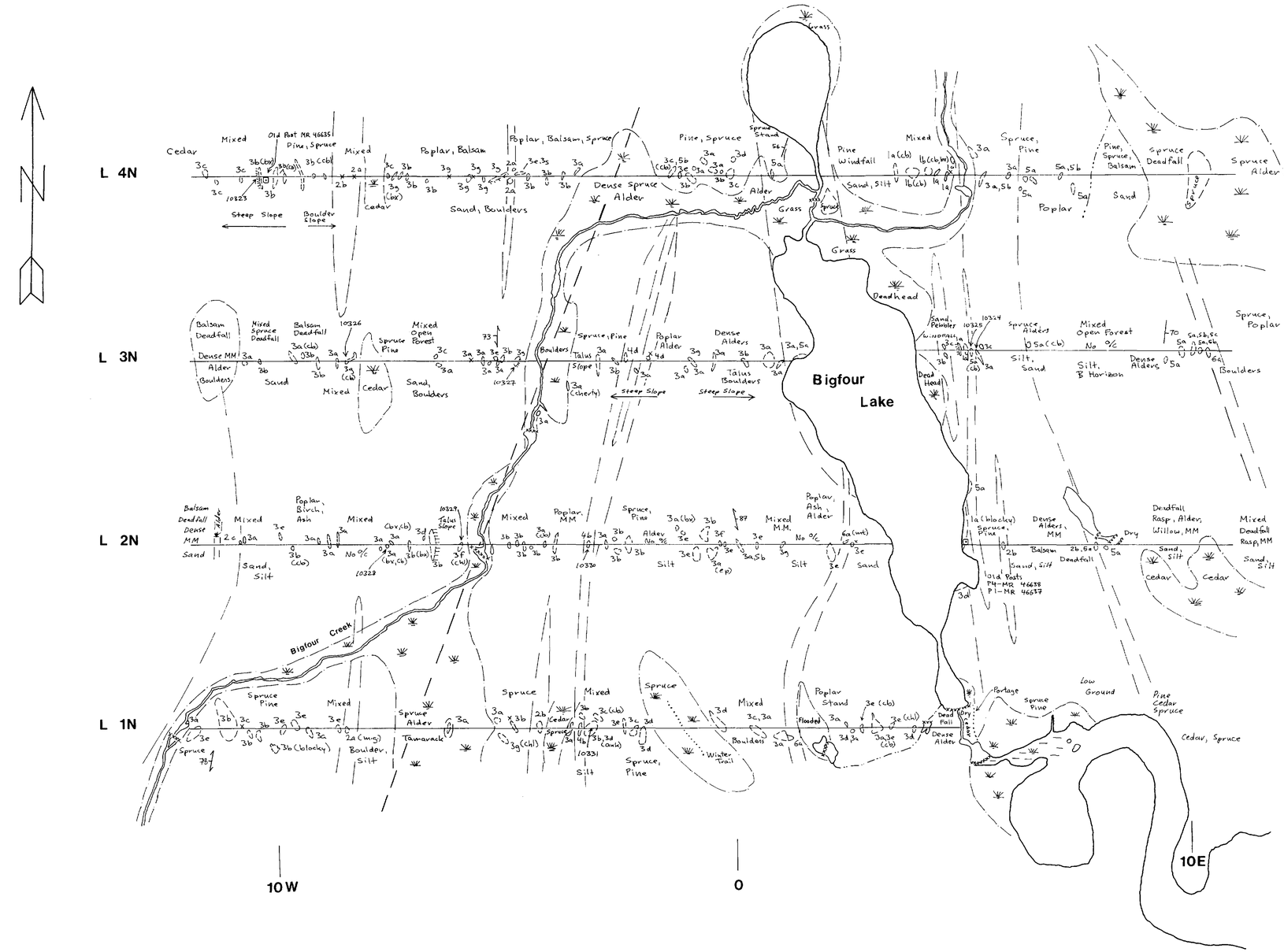
XRAL

08-OCT-91 REPORT 16928 REF.FILE 10988-G1 PAGE 1 OF 1

SAMPLE	AU PPB	CO PPM	NI PPM	CU PPM	ZN PPM	MO PPM	AG PPM	CD PPM	PB PPM
001	19	--	--	--	--	--	--	--	--
002	4	--	--	--	--	--	--	--	--
003	7	--	--	--	--	--	--	--	--
004	12	--	--	--	--	--	--	--	--
005	21	--	--	--	--	--	--	--	--
10301	230	2	<1	9.0	15.6	<1	<.5	<1	3
10302	110	4	2	13.3	13.9	<1	<.5	<1	11
10303	3	8	10	9.4	31.0	<1	<.5	<1	2
10304	9100	4	5	10.3	37.1	<1	<.5	3	9
10305	20	1	1	8.0	57.7	<1	<.5	<1	<2
10306	12	20	19	55.7	49.9	<1	<.5	<1	<2
10307	65	13	21	42.1	31.9	<1	<.5	<1	<2
10308	6	39	64	217.	279.	<1	<.5	<1	7
10309	9	<1	<1	4.0	10.5	<1	<.5	<1	4
10310	6	1	<1	7.8	14.0	<1	<.5	<1	4
10311	4	26	41	69.0	72.7	<1	<.5	<1	5
10312	160	1	<1	6.1	4.4	60	<.5	<1	<2
10313	160	2	<1	15.0	5.7	35	<.5	<1	5
10314	8	19	11	346.	41.1	<1	<.5	<1	4
10315	<1	3	<1	23.1	18.7	<1	<.5	<1	<2
10316	5	14	17	61.6	27.5	<1	<.5	<1	<2
10317	37	133	31	36.2	43.2	<1	.6	<1	25
10318	4	17	20	104.	36.8	<1	<.5	<1	<2
10319	7	3	2	454.	9.9	<1	<.5	<1	<2
10320	1	4	4	13.5	15.5	<1	<.5	<1	<2
10321	13	13	26	79.3	38.3	<1	<.5	<1	2
10322	3	5	1	12.1	41.2	<1	<.5	<1	<2
10323	4	34	60	68.7	47.1	<1	<.5	<1	3
10324	10	4	10	12.0	22.6	<1	<.5	<1	25
10325	2	24	105	37.0	154.	<1	<.5	<1	38
10326	6	67	710	65.0	93.1	<1	<.5	<1	7
10327	5	35	303	65.5	116.	<1	<.5	<1	9
10328	8	55	312	91.4	84.8	<1	<.5	<1	<2
10329	1	57	772	47.5	87.8	<1	.6	<1	10
10330	3	8	27	22.4	13.2	<1	<.5	<1	4
10331	2	10	14	24.7	58.0	<1	<.5	<1	10
10332	--	18	5	122.	82.6	<1	<.5	<1	50
10333	--	17	17	536.	16.7	1	<.5	<1	3
10334	--	19	52	191.	56.4	<1	<.5	<1	6
10335	--	19	33	68.9	152.	<1	<.5	<1	65
10336	--	3	2	1210.	7.5	<1	<.5	<1	4
10337	--	<1	2	112.	3.0	<1	<.5	<1	5
10338	1	--	--	--	--	--	--	--	--
10339	3	--	--	--	--	--	--	--	--
10340	2	--	--	--	--	--	--	--	--
10341	70	--	--	--	--	--	--	--	--
10342	1	--	--	--	--	--	--	--	--
9001	18	--	--	--	--	--	--	--	--

non Opap Sample

X-RAY ASSAY LABORATORIES 1885 Leslie Street Don Mills Ontario M3B 3J4 (416)445-5755 Fax (416)445-4152 Tlx 06-986947
Member of the SGS Group (Société Générale de Surveillance)



LEGEND

6 MAFIC INTRUSIVES
- 6a Diabase

5 METASEDIMENTS
- 5a Argillite
- 5b Grey chert
- 5c Wacke

4 FELSIC METAVOLCANICS
- 4a Rhyolite flow
- 4b Rhyo-dacite flow
- 4c Tuff
- 4d Quartz-feldspar porphyry

3 INTERMEDIATE METAVOLCANICS
- 3a Fine grained dacite flows
- 3b Aphanitic dacite flows
- 3c Dacite-andesite flow
- 3d Porphyritic flows
- 3e Tuff
- 3f Lapi... tuff
- 3g Agglomerate

2 MAFIC METAVOLCANICS
- 2a Massive basalt flow
- 2b Andesite-basalt flow
- 2c Porphyritic flow

1 ULTRAMAFIC METAVOLCANICS
- 1a Komatiite
- 1b Serpentinized flows

SYMBOLS

- Outcrop
- Small outcrop
- Geological contact (observed, inferred)
- 75 Foliation - strike and dip
- Bedding - strike and dip
- Cliff/scarp
- Swamp
- Cancelled claim post

CODE

bx - brecciated
cb - carbonate (calcite)
chl - chlorite
ep - epidote
MM - mountain maple
ag-magnetite
py-pyrite

SCALE (m)
100 0 200 400

BIGFOUR LAKE AREA
Kelvin Twp.

63.6273

Reconnaissance Geology and Prospecting

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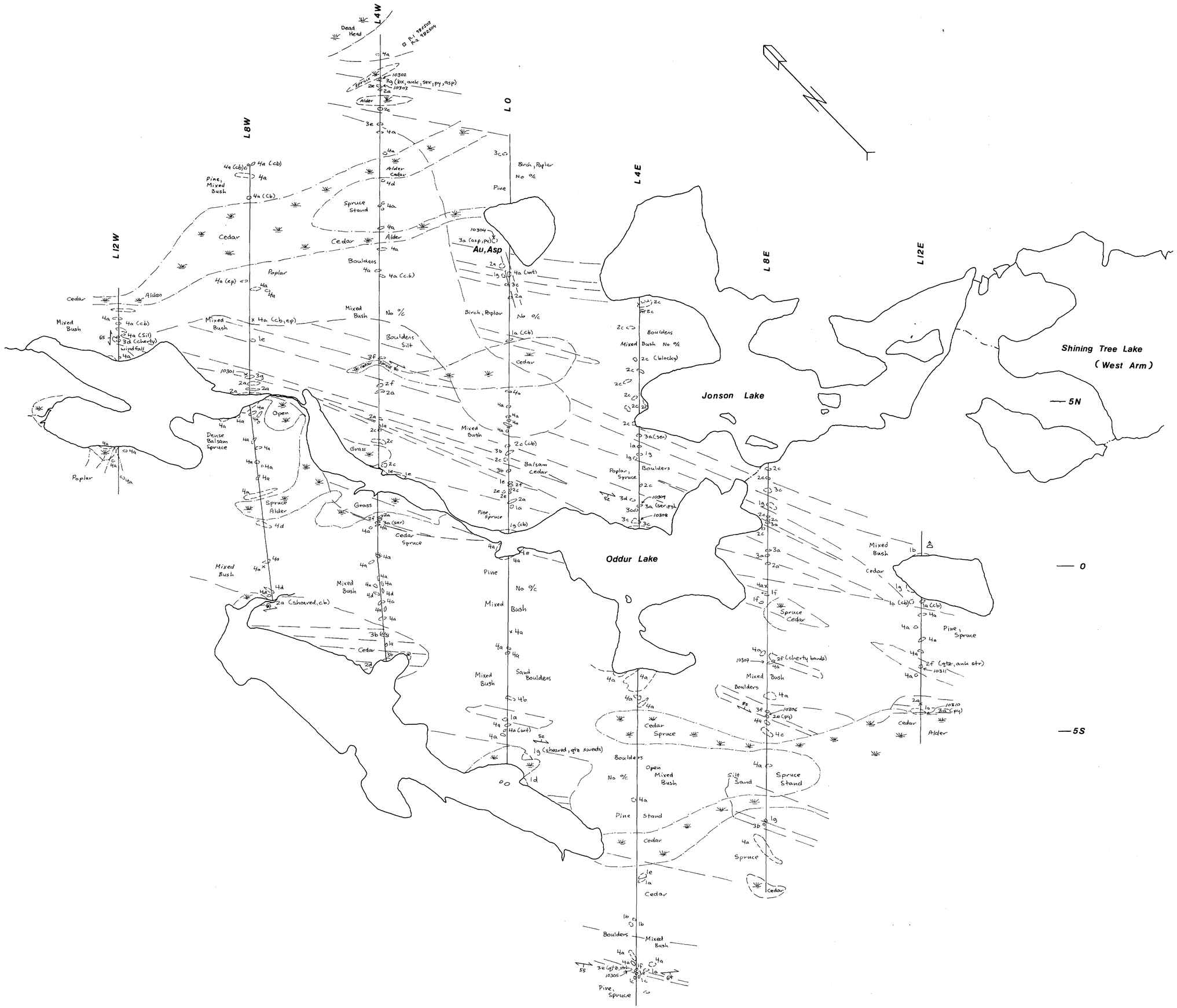
BY: CS/GK	MAP NO. 3	

200



LEGEND

4 MAFIC INTRUSIVES
- 4a Diabase
- 4b Olivine diabase
- 4c Hornblende diabase
- 4d Coarse grained diabase

3 FELSIC METAVOLCANICS
- 3a Massive rhyolite flow
- 3b Porphyritic flow
- 3c Rhyo-dacite flow
- 3d Tuff
- 3e Crystal tuff
- 3f Lapilli tuff
- 3g Quartz eye tuff

2 INTERMEDIATE METAVOLCANICS
- 2a Massive flow
- 2b Pillowed flow
- 2c Andesite-dacite flow
- 2e Vesicular flow
- 2o Porphyritic flow
- 2t Tuff

1 MAFIC METAVOLCANICS
- 1a Massive flow
- 1b Pillowed flow
- 1c Structured flow
- 1d Coarse grained flow
- 1e Porphyritic flow
- 1f Tuff
- 1g Andesite-basalt flow

SYMBOLS

- Outcrop
- Small outcrop
- Geological contact (observed, inferred)
- Pillow top
- Cliff/scarp
- Swamp
- Cancelled claim post

CODE

ank - ankerite
asp - arsenopyrite
bx - brecciated
cb - carbonate (calcite)
MM - mountain maple
mt - magnetite
qtz str - quartz stringers
py - pyrite
ser - sericite

SCALE (m)

100 0 200 400

ODDUR LAKE AREA
Churchill Twp.

63.6273

Reconnaissance Geology and Prospecting

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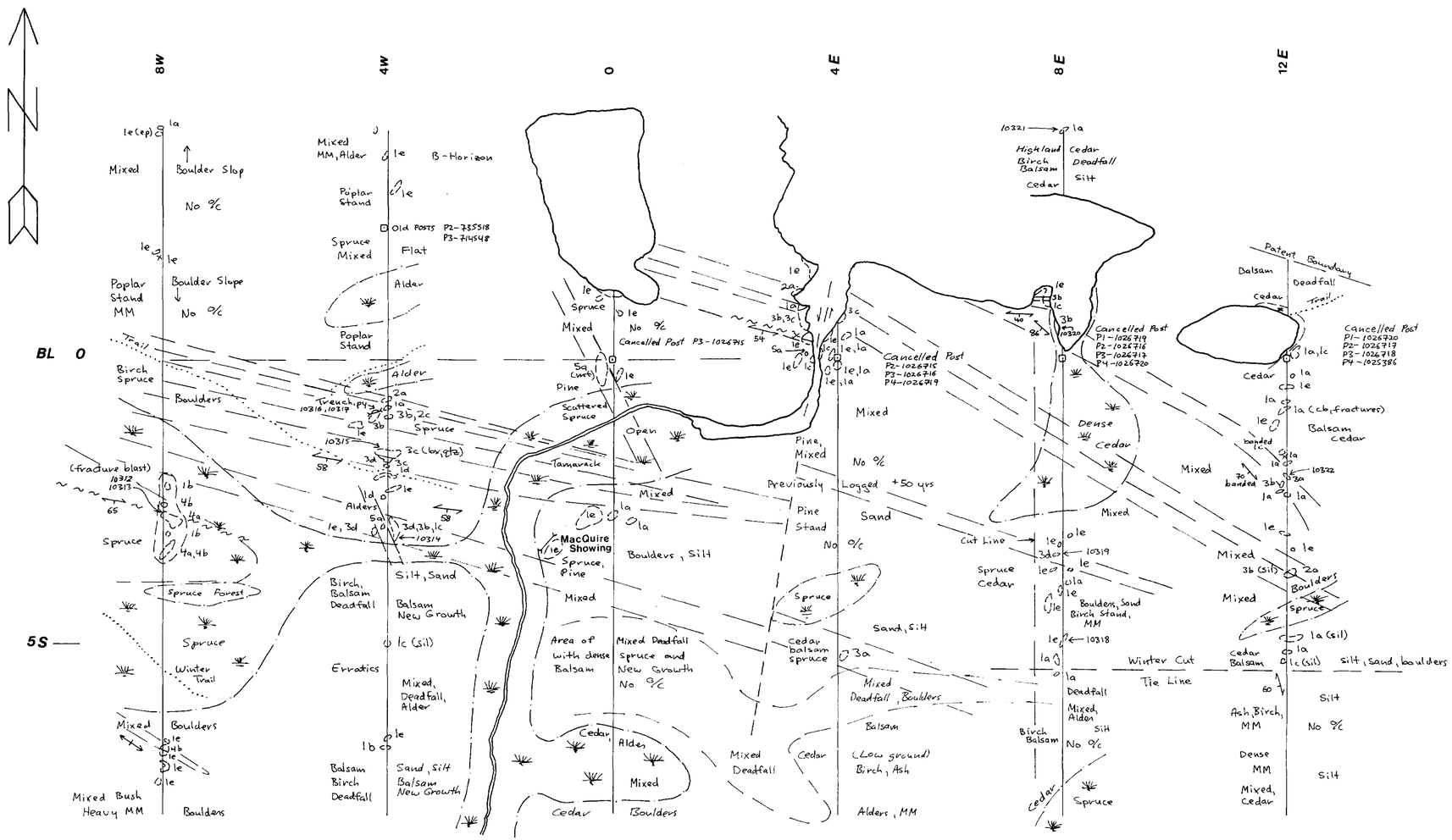
BY: CS/GK	MAP NO. 1	

210



LEGEND

5 MAFIC INTRUSIVES
- 5a Diabase

4 FELSIC INTRUSIVES
- 4a Quartz monzonite
- 4b Foliated quartz monzonite

3 FELSIC METAVOLCANICS
- 3a Rhyolite flow
- 3b Tuff
- 3c Quartz eye tuff
- 3d Quartz feldspar porphyry

2 INTERMEDIATE METAVOLCANICS
- 2a Dacite-andesite flow
- 2b Tuff

1 MAFIC METAVOLCANICS
- 1a Massive flow
- 1b Schistose flow
- 1c Tuff
- 1d Porphyritic flow
- 1e Amphibolite

SYMBOLS

- Outcrop
- Small outcrop
- Geological contact (observed, inferred)
- Shear zone
- Fault
- Strike and dip of foliation
- Strike and dip of gneissosity
- Trench
- Cancelled claim post
- Trail
- Swamp
- Area of Deadfall

CODE

bx - brecciated
cb - carbonate (calcite)
MM - mountain maple
mt - magnetite
qtz - quartz blow / stringer
py - pyrite
sil - silicification

SCALE (m)

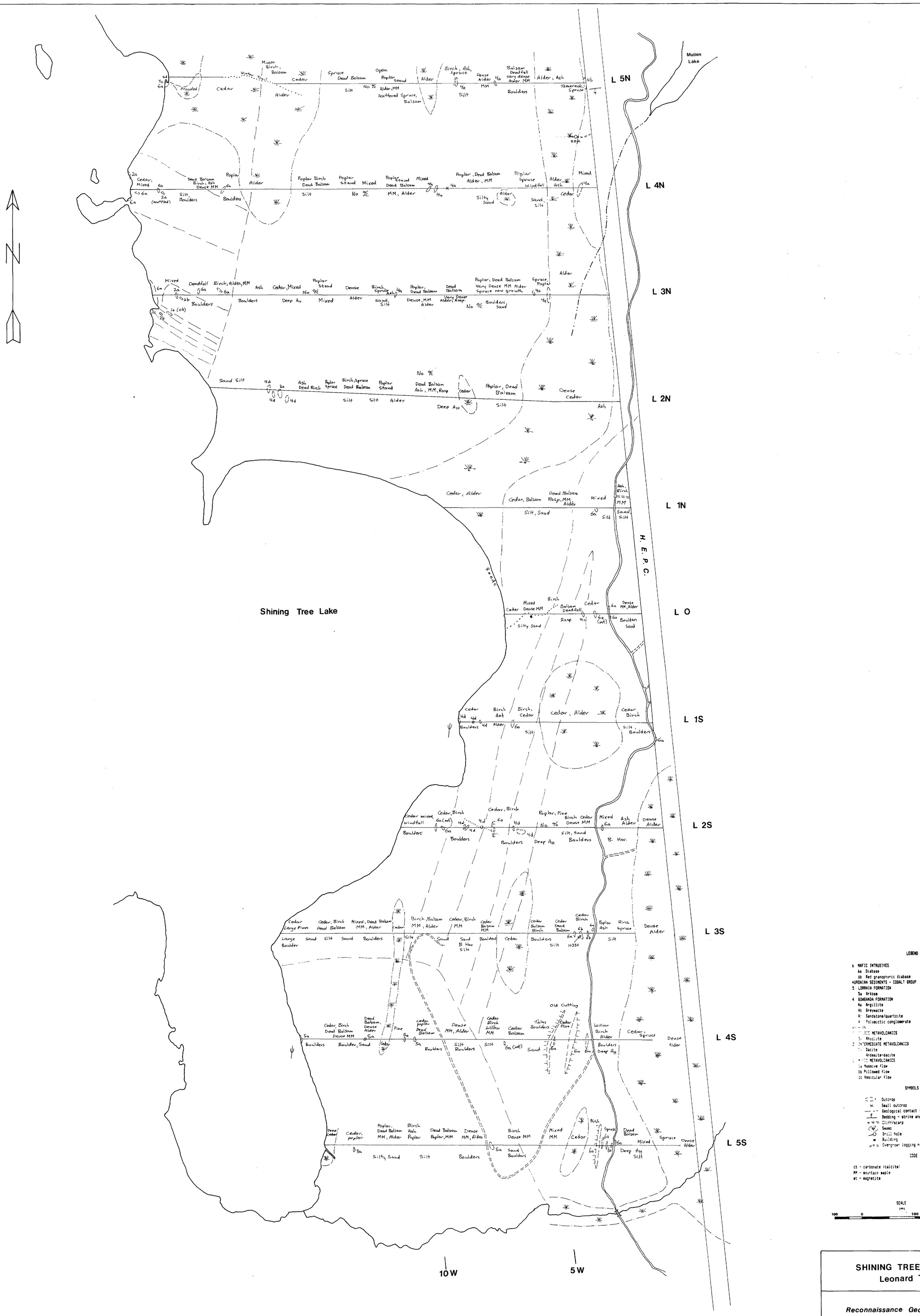
100 0 200 400

SHINING TREE LAKE AREA
Asquith Twp.

63.6273

Reconnaissance Geology and Prospecting

NTS : 41 Py 11	Scale 1:5000	Date: Oct/91
By: CS/GK	Map No 2	



LEGEND

6 MAFIC INTRUSIVES
- 6a Diabase
- 6b Red granophyric diabase

HURONIAN SEDIMENTS - COBALT GROUP

5 LORRAIN FORMATION
- 5a Arkose

4 GOWGANDA FORMATION
- 4a Argillite
- 4b Greywacke
- 4c Sandstone/quartzite
- 4d Polymictic conglomerate

3 [illegible] METAVOLCANICS
- 3b Rhyolite

2 INTERMEDIATE METAVOLCANICS
- 2a Dacite
- 2b Andesite-dacite

1 MAFIC METAVOLCANICS
- 1a Massive flow
- 1b Pillowed flow
- 1c Vesicular flow

SYMBOLS

- Outcrop
- Small outcrop
- Geological contact (observed, inferred)
- Bedding - strike and dip
- Cliff/scarp
- Swamp
- Drill hole
- Building
- Overgrown logging road

CODE

cb - carbonate (calcite)
MM - mountain maple
mt - magnetite

SCALE (m)
100 0 200 400

SHINING TREE LAKE
Leonard Twp.

63.6273

Reconnaissance Geology and Prospecting

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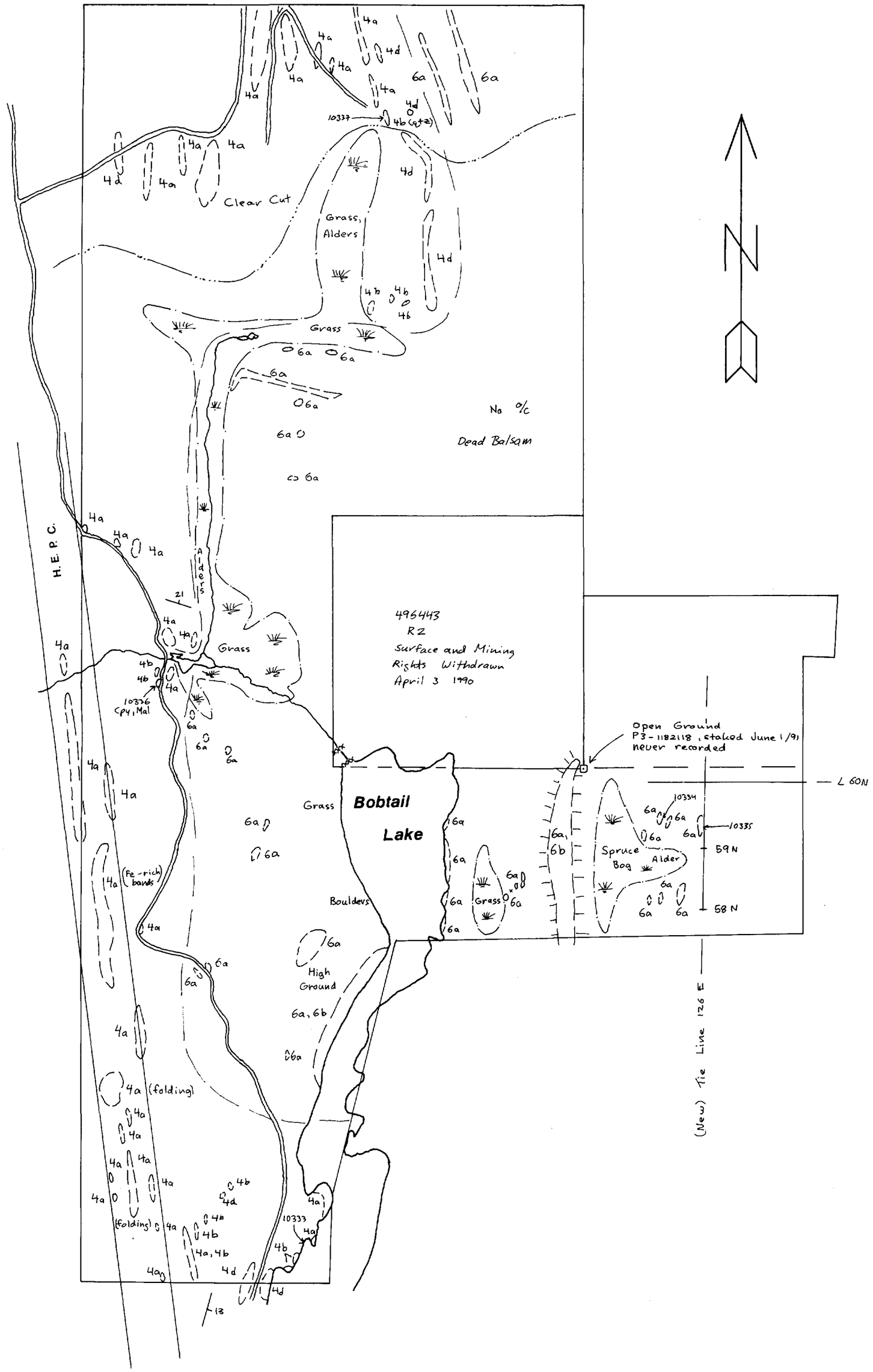
BY: CS/GK	MAP NO. 4	



LEGEND

6 MAFIC INTRUSIVES
- 6a Diabase
- 6b Red granophyric diabase

HURONIAN SEDIMENTS - COBALT GROUP

5 LORRAIN FORMATION
- 5a Arkose

4 GOWGANDA FORMATION
- 4a Argillite
- 4b Greywacke
- 4c Sandstone/quartzite
- 4d Polymictic conglomerate

ARCHEAN

3 FELSIC METAVOLCANICS
- 3a Rhyolite

2 INTERMEDIATE METAVOLCANICS
- 2a Dacite
- 2b Andesite-dacite

1 MAFIC METAVOLCANICS
- 1a Massive flow
- 1b Pillowed flow
- 1c Vesicular flow

SYMBOLS

- Outcrop
- Small outcrop
- Geological contact (observed, inferred)
- Bedding - strike and dip
- Cliff, scarp
- Swamp
- Drill hole
- Building
- Overgrown logging road

CODE

cb - carbonate (calcite)
MM - mountain maple
mt - magnetite

SCALE (m)

100 0 200 400

BOBTAIL LAKE AREA
Tyrrell Twp.

63.6273

Prospecting

NTS: 41 P/11	SCALE 1:5000	DATE: Oct. 91
BY: CS/GK	MAP NO. 5	

41P11SW8445 63.6273 TYRRELL

240

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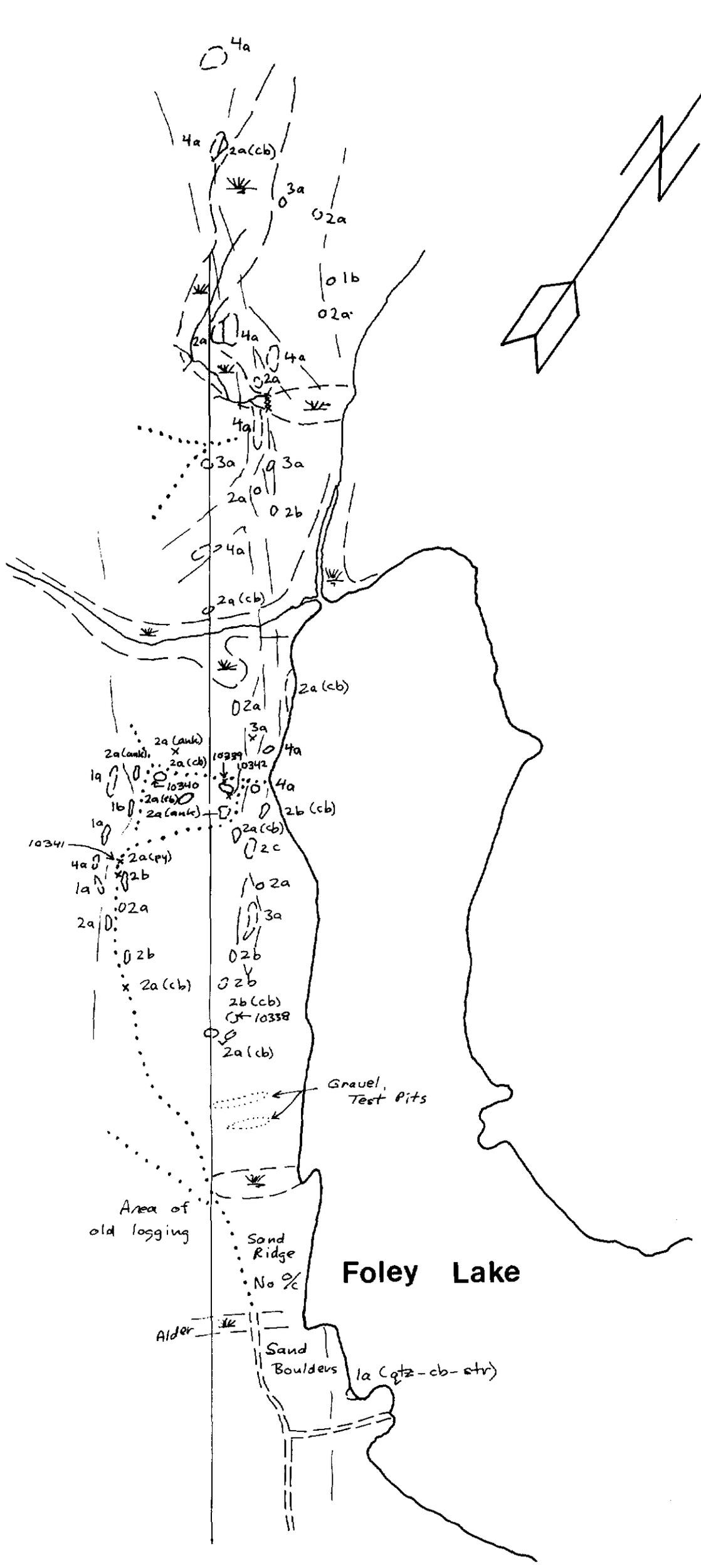


LEGEND

4 MAFIC INTRUSIVES
- 4a Diabase

3 FELSIC METAVOLCANICS
- 3a Rhyolite flow

2 INTERMEDIATE METAVOLCANICS
- 2a Dacite flow
- 2b Tuff

1 MAFIC METAVOLCANICS
- 1a Massive flow
- 1b Tuff

SYMBOLS

- Outcrop
- Small outcrop
- Geological contact (observed, inferred)
- Swamp
- Road
- Trail

CODE

ank - ankerite
cb - carbonate (calcite)
py - pyrite

SCALE
(m)

100 0 200 400

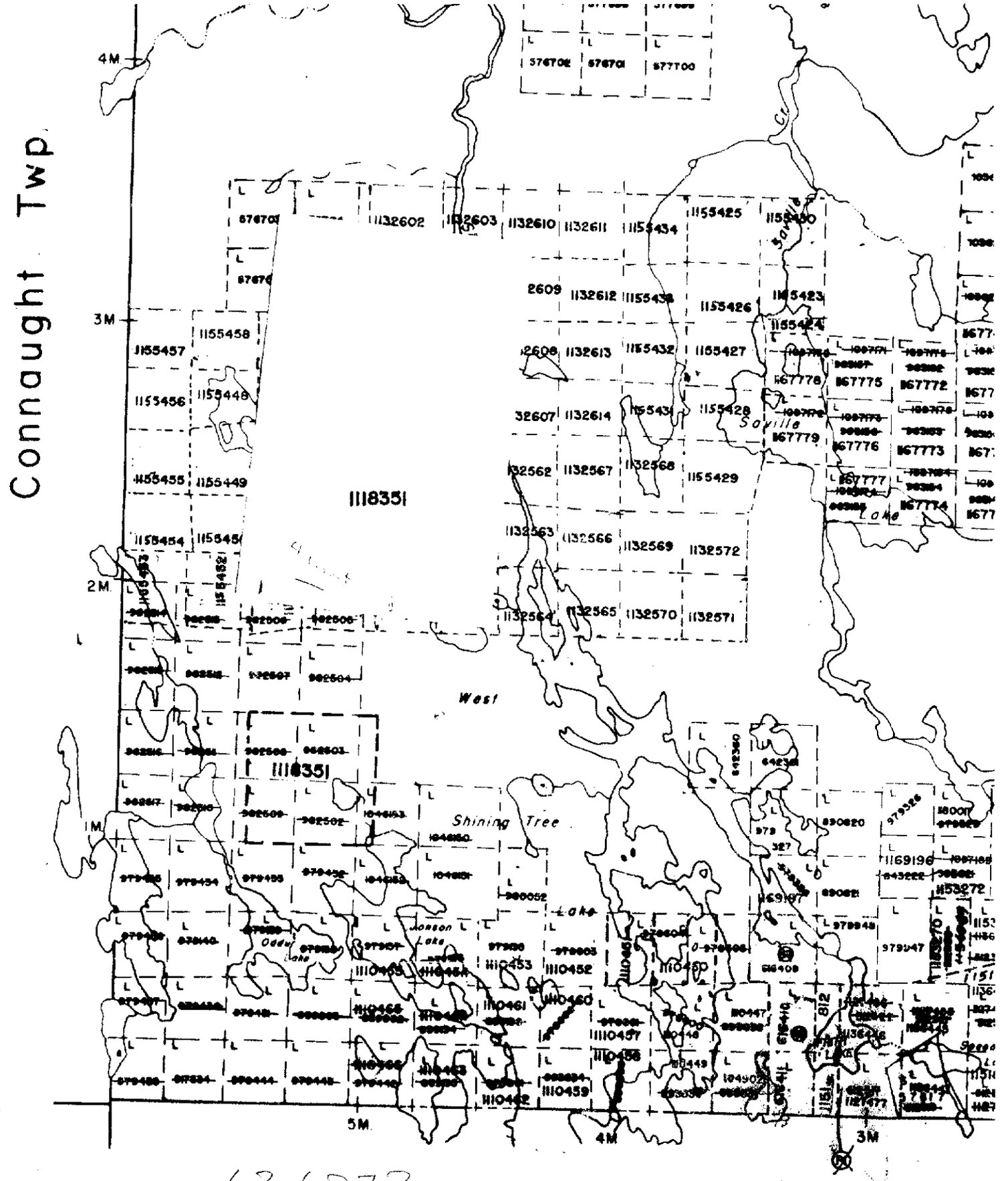
FOLEY LAKE AREA
MacMurchy Twp.

63.6273

Prospecting

NTS: 41 P/11	SCALE 1:5000	DATE: Oct. 91
BY: CS / GK		MAP NO. 6

(250)



63.6273