# GLENSHIRE MINES LIMITED

KALADAR TOWNSHIP

LENNOX & ADDINGTON ~~TOWNSHIP~~ COUNTY

ONTARIO

December 19, 1977

J. D. McCANNELL

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SOIL SAMPLING STRIPPING AND TRENCHING
GLENSHIRE MINES LIMITED
KALADAR TOWNSHIP
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ONTARIO

SUMMARY

During the months of October and November 1977, Glenshire Mines Limited carried out a program of soil sampling along with some stripping and rock trenching, on their group of 12 contiguous mining claims located in Kaladar Township, Southeastern Ontario Mining Division. This work was confined to an area underlain by a wide pegmatite dike in the southwest part of the property and an area showing considerable gossan and extending in a north east direction through the north central part of the property. The gossan zone occurs in an area underlain by crystalline limestone, amphibolite, altered quartzitic type sediments and numerous pegmatite dikes ranging in size from a few inches up to several feet in width.

Stripping and trenching was carried out in nine localized areas and amounted to a total of 15,660 feet of stripping and 1,722 cubic feet of rock trenching. A total of 182 soil samples were taken and checked for copper, nickel, lead and zinc. One hundred of these samples were also checked for $U_3O_8$. Twenty six rock samples were taken from the trenches and checked for $U_3O_8$ content and eleven samples of sulphide bearing rock were taken to provide indications of gold, copper, nickel, lead and zinc.

Minor anomalous conditions were indicated for copper, nickel and zinc but there was nothing either in the soil or rock sampling that would suggest any values of commercial significance. The results of the sampling for radioactive mineralization however,

show some encouragement with respect to $U_3O_8$ values associated with pegmatite dikes. The results of the entire exploration program are expressed on a plan accompanying this report. It is suggested that any further work on this property be directed to a more detailed investigation of the radioactive mineralization associated with the pegmatites.

## PROPERTY, LOCATION AND ACCESS

The property described in this report, consists of a group of 12 mining claims located in the southeast corner of Kaladar Township, county of Lennox and Addington, Ontario. Kaladar is a surveyed township so the claims were staked to conform with concession and lot lines which resulted in claims larger than the usual 40-acre size. The total area of the 12 claims is about 635 acres. The ground included in the group is further described as follows:

| | | | | | |
|---|---|---|---|---|---|
| 414229 | NE¼ | Lot | 3 | Concession | VIII |
| 414230 | SE¼ | Lot | 3 | Concession | VIII |
| 414231 | NW¼ | Lot | 5 | Concession | IX |
| 414232 | SW¼ | Lot | 5 | Concession | IX |
| 414233 | NW¼ | Lot | 4 | Concession | IX |
| 414234 | SW¼ | Lot | 4 | Concession | IX |
| 414235 | NW¼ | Lot | 3 | Concession | IX |
| 414236 | SW¼ | Lot | 3 | Concession | IX |
| 414237 | NE¼ | Lot | 5 | Concession | IX |
| 414238 | SE¼ | Lot | 5 | Concession | IX |
| 414239 | NE¼ | Lot | 4 | Concession | IX |
| 414240 | SE¼ | Lot | 4 | Concession | IX |

The property is readily accessible via highway 41 which leads north from highway 401 at Napanee. At a point about 3 miles south of the village of Kaladar at the junction of highways 7 and 41, a logging road leads east and can be followed directly to the claims group, a distance of approximately 2 miles.

TOPOGRAPHY

The topography of the claims group consists mainly of low rolling hills forming a series of elongated ridges with intervening valleys or troughs. The topographic lineaments strike northeast conforming with the formational and schistosity strike. Outcrop is often exposed on the higher ground with many of the valleys and troughs forming small lakes,and beaver ponds. A fairly large body of water referred to as Lingham Lake is located in the southeast corner of the claims group and is fed and drained by Donahue Creek. The entire property is covered with a fairly heavy stand of spruce, pine and hardwoods.

GENERAL GEOLOGY

The geology of Kaladar Township is shown on the Grimsthorpe-Kennebec Area map,Number 51d and the Madoc Area sheet map Number 2053. Both sheets were published by the Province of Ontario Department of Mines, the former on the scale of 1 inch to 1 mile in 1942 and the latter on the scale of 1 inch to 2 miles in 1964. An earlier sheet, map Number 559A was published by the Geological Survey of Canada in 1925. Map Number 51d accompanies Volume LI, Part 4 by V.B. Meen and W.D. Harding and map Number 2053 accompanies Geological Circular No. 12, Madoc Gananoque Area by D.F. Hewitt.

Kaladar Township is located within the area underlain by rocks of the Grenville Series. These formations are exposed in a wide belt extending from the Georgian Bay, through southeastern Ontario and continues on through to the Labrador Trough. They contain numerous mineral occurrences covering a wide range of metals but most of the

deposits are small, localized and of no economic importance. This is largely because most of the metals are currently in sufficient supply from other sources. It is the writer's opinion however that the Grenville Series has been very much neglected economically speaking and even the age relationship to other formational series has not been established other than that it is quite early in the Precambrian era. Rocks exhibiting very similar alteration and believed by some geologists to be of similar age, are quite prevalently exposed throughout the Scandanavian Peninsula of northwestern Europe and provide the host rocks for numerous mineral deposits, both metallic and nonmetallic in that region.

The formations underlying the property discussed in this report as well as the immediately surrounding area, consist of a series of closely intercalated volcanic and sedimentary rocks. They are all well altered and for the most part, quite schistose. The schistosity, contacts and bedding are all parallel and strike northeast with the dip to the southeast at 35 to 45 degrees. Sulphide mineralization consisting of pyrite and pyrrhotite along with minor amounts of chalcopyrite and sphalerite are quite commonly disseminated throughout the more highly altered and schistose formations. Occasional small amounts of molybdenite and galena also occur with this mineralization.

This northeast striking band of altered rocks can be classed as a "fahlband", a term used by some geologists to describe a type of schistose rock carrying fine disseminations and seams of sulphide mineralization composed mostly of pyrite, pyrrhotite, chalcopyrite molybdenite and sphalerite. Fahlbands seldom constitute ore grade

material in themselves but sometimes result in orebodies when they occur in conjunction with faulting, shearing, formational contacts or other such structures. The term is in much more widespread use among European geologists and appears quite frequently in descriptions of ore occurrences throughout the Scandanavian Peninsula

The particular fahlband underlying the claims covered by this report, originates in Hungerford Township, extends through the northwest and southeast corners of Sheffield and Kaladar Townships respectively and terminates in the central part of Kennebec Township.

It has a strike length of twenty miles and averages about two and one half miles in width. It is bounded on the north and south by granitic rocks consisting of granite gneiss, granite and pegmatite.

The oldest rocks in the fahlband appear to be volcanic in origin and consist of basic flows with some rhyolitic phases. They are mostly well altered to typical greenstone with some development to amphibolite. When these rocks become amphibolite they lose most of their distinctive volcanic features and when no evidence of volcanic origin can be detected, they are usually classified as paraamphibolites. At this point, they appear to grade into the rocks of sedimentary origin.

A fairly extensive group of rocks which are highly metamorphosed could be partly volcanic and partly sedimentary. They include para-amphibolite, biotite-amphibolite schist and gneisses and are comprised of quite a number of minerals, hornblende and plagioclase being the most predominant and including quartz, pyrite and magnetite as accessory minerals. The presence of considerable pyroxene often imparts adark green colour to the rock.

structure. The finer grained phases probably represent rocks of argillaceous origin and are termed pelite gneiss.

With the exception of the beds of quite pure crystalline limestone, the rocks of sedimentary origin are intensely altered. It would appear that most of these formations were originally highly quartzitic in composition and probably represented various types of impure quartzite. Most of these beds now contain a fairly high percentage of disseminated pyrite and pyrrhotite with occasional splashes of chalcopyrite. Narrow pegmatite dikes frequently cut across the bedding and schistosity strike of this volcanic-sedimentary band and in several instances, have been noted to be weakly radioactive.

Dolomitic and calcitic marble grading from fine to coarse in crystallinity is common throughout this band of volcanic-sedimentary rocks. In places this formation is represented by quite pure crystalline limestone and in other parts it is impure and highly altered with the development of much diopside, tremolite phlogopite and other lime-silicate minerals. Pyrite, pyrrhotite, magnetite, apatite, spinel and small amounts of other minerals often also occur in these highly altered impure phases of the lime sedimentary rocks.

Paragneiss with associated schists and gneisses form a group of lesser significance in this particular fahlband. These rocks are composed mainly of quartz, biotite and feldspar with a wide variety of accessory minerals, garnet, hornblende, sillimanite, epidote and graphite being the most common. The rocks are medium grained and often show pronounced bedding along with gneissic

SOIL SAMPLING

The soil sampling was confined to an area approximately 600 feet wide and 5,000 feet long and extending in a northeast direction through claims 414233 and 414238. This permitted coverage of a gossan zone and an area underlain by several pegmatite dikes showing some radioactivity. A large pegmatite dike in the southwest part of the claims group is exposed in several large areas of outcrop so it was not considered necessary to check it by soil sampling.

The soil sampling was carried out along northwest lines spaced at 200-foot intervals and the samples were taken at 100-foot spacing along these lines. The material removed for the sample was taken from the "B" zone about six inches below surface. A grub-hoe and shovel were used for removing the "A" zone and recovering the sample.

The sample locations, the values in parts per million of copper, nickel, zinc, lead and Uranium and the histograms for all five elements are shown on the accompanying plan. As these histograms indicate, the soil sampling provided very little by way of encouraging values. The results of the soil sampling are summarized in the following table:

| METAL | LOWEST VALUE | HIGHEST VALUE | AVERAGE | MODE | MODE LIMITS | POSSIBLE ANOMALY | ANOMALY |
|---|---|---|---|---|---|---|---|
| Cu | 1 | 120 | 20 | 7 | 5-10 | 50-100 | >100 |
| Pb | 7 | 119 | 23 | 17 | 15-20 | 150-200 | >200 |
| Ni | 4 | 129 | 22 | 12 | 10-15 | 100-150 | >150 |
| Zn | 11 | 1720 | 171 | 120 | 80-160 | 800-1600 | >1600 |
| U | 0 | 6 | .5 | .3 | .2-.4 | 2-4 | >4 |

STRIPPING AND TRENCHING

The stripping and trenching work was confined to the area of the gossan zone. The stripping was carried out using a combined front-end loader and back-hoe. A total of 15,660 square feet of stripping was completed and 1,722 cubic feet of rock trenching was done by means of drilling and blasting.

The gossan zone occurs in a quartzitic type sediment and lies along the north side of a crystalline limestone band which extends in a northeast direction through the north central part of the claims group. The zone is up to one foot in thickness and is frequently covered by a reddish brown iron-rich soil. Pyrite and pyrrhotite occur as disseminations in the quartzitic rocks and range from 5 to 20 percent of the material making up the rock. The ocassional fleck of chalcopyrite and very minor sphalerite is sometimes associated with the pyrite and pyrrhotite. The geochemical data indicates some enrichment of copper and zinc in the gossan material and soil but as the trenching proved, the results are no indication of economic values. Trenches 3, 5 and 6 were blasted into the gossan zone and the underlying rocks to permit a detailed study of the zone.

Three areas were stripped to expose the underlying crystalline limestone where the geochemistry showed some high zinc and lead. These areas are designated on the plan by numbers 7, 8 and 9. A small amount of blasting was also done to expose fresh rock. Very minor amounts of sphalerite and zinkenite were noted in the rock which appear to have caused the somewhat high values in the soil. The writer has found from experience in other areas, that because

of the high mobility of zinc and fairly high mobility of lead, significant geochemical values for zinc should be in the range of 2,000 to 3,000 parts per million with somewhat lower values for lead.

Two rock trenches were blasted on the main radioactive pegmatite dike in the southwest part of the property. One of these trenches is located at diamond drill hole No.2 and the other at hole No. 3. Both of these holes were drilled during a diamond drilling program carried out on the property by Glenshire Mines Limited in the late fall of 1975.

The trench at hole No. 2 returned 0.004% $U_3O_8$ across 38.0 feet but the same dike in the drill core returned 0.011% at a vertical depth of 70 feet. The trench at hole No. 3 showed a value of 0.010% across 8.3 feet whereas the drill core returned 0.017% over a core length of 6.7 feet. The sampling of the entire dike in the trench showed a value of 0.009% $U_3O_8$ across 28.4 feet. A grab sample of rock showing considerable yellow uranophane stain gave an assay of 0.28% $U_3O_8$. A trench at diamond drill hole No.4 exposed a fair amount of uranophane stain and the assay returns showed 0.029% across 2.6 feet and 0.01% across 4.5 feet.

## CONCLUSIONS AND RECOMMENDATIONS

The radioactive pegmatite dikes appear to be the main geological feature of possible economic significance on this claims group. All the larger pegmatite dikes encountered on the property todate exhibit some radioactivity but as suggested by diamond drill holes Nos. 2 and 3 and the associated trenching, the $U_3O_8$ values improve with depth. The writer has experienced this same condition

in other parts of this same general area especially in Palmerston Township. It is also of interest to note that some of the better results from the geochemical checks for uranium, were encountered in the southwest part of claim 414233 and the northwest corner of claim 414234. This immediate area did not lend itself to stripping or trenching and there has been no diamond drilling carried out in this part of the property.

There has been an extensive increase in the search for radioactive mineralization in the Bancroft area in the last two years and this activity is spreading to the east following the radioactive pegmatites associated with the Grenville formations. Considerable ground has been staked in Kaladar Township adjoining to and along strike to the east of the ground held by Glenshire Mines Limited.

It is the writer's opinion that further attempts should be made to acquire the patented ground adjoining on the west and that the management of Glenshire Mines Limited give consideration to carrying out additional diamond drilling to probe the known radioactive pegmatite dikes at greater depths than they have been investigated todate.

Respectfully submitted,

James D. McCannell, P.Eng.,
Consulting Geologist

Toronto, Ontario
December 19,1978

PROVINCE OF ONTARIO
J.D. McCANNELL
REGD PROFESSIONAL ENGINEER

J. D. McCANNELL

ANOMALOUS

414237

414238

414239

414240

414235

414236

4234

LAKE

LINGHAM

POND

GLENSHIRE

Creek

CONC IX

NO. 7

NO. 8

9

6

5

4

3

N

S

E

W

10°30'

Magnetic Declination

S 45° E

N 45° W

#1 Trench

PEG

DIKE

DDH-2
-45°
137 ft.
(1975)

1 IN. = 20 FT.

NO. 1
TRENCH
1" = 10'

#2 TRENCH

1" = 20'

DDH-3
-45°
102 ft
(1977)

PEG DIKE

NO. 2
TRENCH
1" = 10'

PEG

PEG

QTZTE

Gossan

NO. 4 TRENCH
1" = 10'

DDH-4

QTZTE

Gossan, py, po

Amph

Lm

NO. 3 TRENCH
1" = 10'

DDH-5

QTZTE
Gossan
Py, Po

NO. 5 TRENCH
1" = 10'

QTZTE
Gossan
Py, Po

NO. 6 TRENCH
1" = 10'

LM

LM

LM.
(LIMESTONE)

LM.

NO. 9
1" = 10'

NO. 8 TRENCHING
1" = 10'

NO. 7 TRENCHING

Rock Graham Creek
Zn: 33 ppm
Pb: 73 ppm

2-6" Serpentine Vein
w/ Pyrite (?)

Rock Graham
Zn: 25 ppm

U
Cu Pb
Zn Ni
SOIL SAMPLE VALUES
in ppm

PROVINCE OF ONTARIO
J.D. McCANNELL

Oct 1977

Geochemistry

GLENSHIRE MINES LIMITED

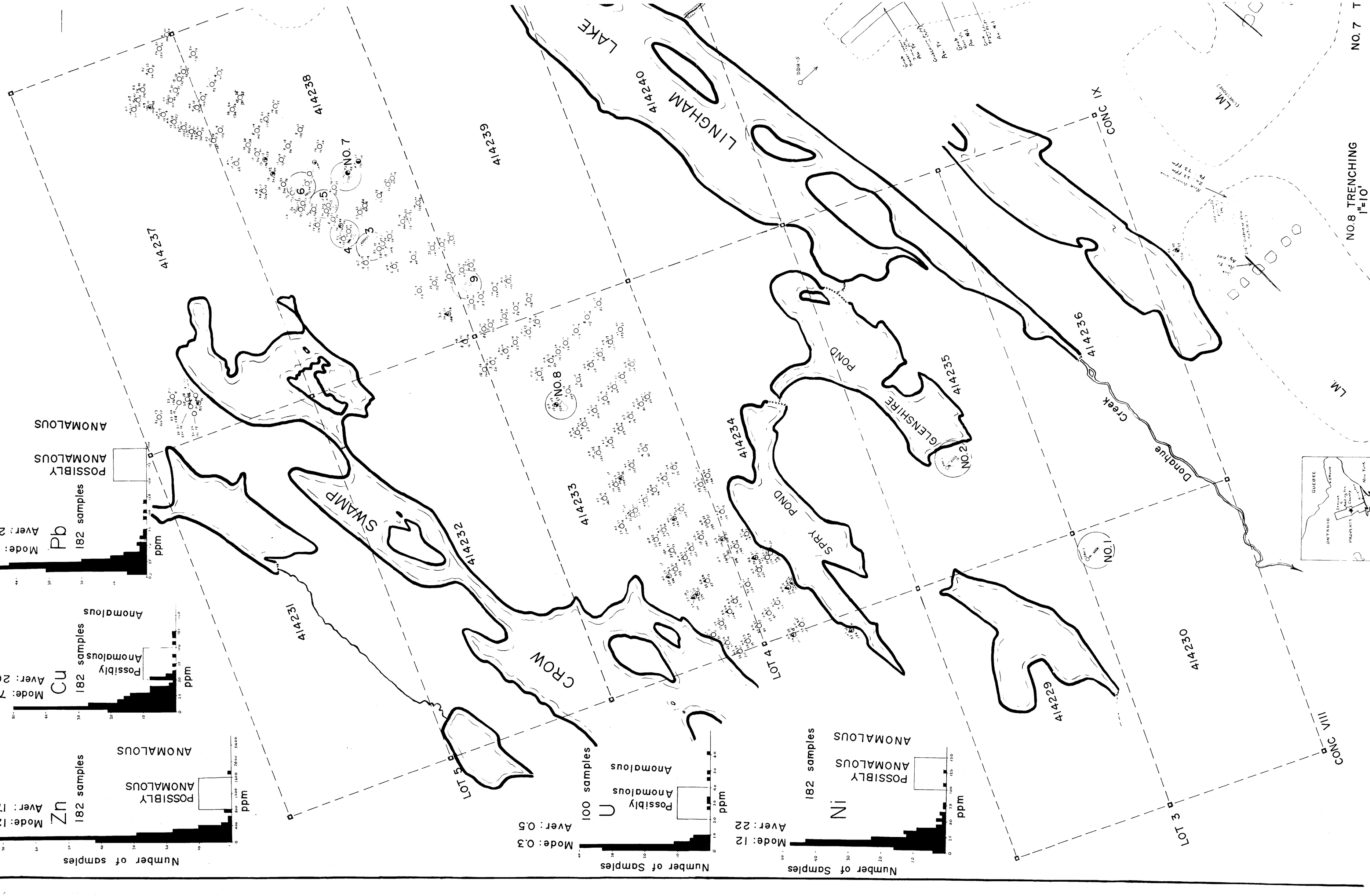
# LINGHAM LAKE PROPERTY

KALADAR TOWNSHIP

LENNOX & ADDINGTON COUNTY

ONTARIO

| | |
|---|---|
| SCALE: 1 IN. = 200 FT. | DATE: OCTOBER, 1977 |
| RES. GEOL: H. Dowhaluk | CONS. GEOL: J.D. McCannell |


414238
414239
414240
414237
414236
414235
414234
414233
414232
414231
414230
414229
LAKE
LINGHAM
POND
GLENSHIRE
SPRY
CROW
SWAMP
Creek
Donahue
CONC IX
CONC VIII
LOT 5
LOT 4
LOT 3
NO.7
NO.8
NO.2
NO.1
NO.8 TRENCHING
1"=10'
NO. 7 T
LM
DOH-5
ANOMALOUS
POSSIBLY ANOMALOUS
Pb
Mode: 17
Aver: 23
182 samples
ppm
Cu
Mode: 7
Aver: 20
Possibly Anomalous
Anomalous
Zn
Mode: 120
Aver: 171
U
Mode: 0.3
Aver: 0.5
100 samples
Ni
Mode: 12
Aver: 22
Number of Samples
QUEBEC
ONTARIO
NEW YORK
1" = 80 mi