

SUMM.

on

HENDERSON URANIUM MINES LIMITED

Raglan & Lyndoch Twp.

County of Renfrew, Ontario

- by -

J. J. Harris, M.Sc., P. Eng.

May 26th, 1958

PROPERTY LOCATION ACCESS

The holding is comprised of 24 contiguous 50 acre claims, twenty-one of which are located in Ragian Township and the remaining three in Lyndoch Township, toward the northeast section of the block. The claims are recorded and numbered as follows:

E.O. 18079 to 18083 inclusive
E.O. 18548 to 18550 inclusive
E.O. 19170 to 19173 inclusive
E.O. 18269 to 18272 inclusive
E.O. 18943 to 18945 inclusive
E.O. 19780, E.O. 19174, E.O. 18862,
E.O. 18546 and E.O. 18688.

The property embraces Lots 30 to 35 inclusive, Range 5 and 6 except for the north half of Lot 32, Range 6, Raglan Township. It also blankets the south of Lots 33 and 34, Range 7 and the north half of Lot 34, Range 6, Lyndoch Township.

The ground is easily accessible by motor road (Foute 500) from the town of Bancroft, 28 miles to the southwest. Another route, Highway 41 from Renfrew, connects with the village Denbigh, 67 miles to the south-west, which in turn is only 13 miles by gravel road directly to the property.

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GENERAL GEOLOGY

The area is underlain by formations of Precambrian age that consist mainly of mstamorphosed sediments. crystalline limestone, dolomites, paragneiss and amphibolites. -all considered of Grenville age. Laurentian and Algoman intrusives ranging from granites and syenites to gabbros to basic pyroxenites intrude the sedimentary structures. The sediments are highly folded, contorted and metamorphosed so that age classification or correlation remains difficult. In some places for instance, the paragnetiss are fresh and only poorly altered. Large areas of the sediments apparently of similar origin have been so highly granitized that they have the appearance of gneissic intrusives. Faint remains of bodding planes are the only evidence of their origin. More or less parallel north-west trending regional faults cross the area, with resultant tangential and cross faulting being common. (See Province of Ontario, Department of Mines Map No. 1953-2, Erudenell Ragian Area, County of Renfrew, Ont. by D. F. Hewitt)

GEOLOGY OF THE HENDERSON GROUP

The group blankets mainly meta-sediments ranging from fresh appearing paragnesss to granitized bands, all highly folded and intruded by granite pegmatite to true pegmatite sills and dykes and all trending N 25° E to N 35° E., generally following the axes of the folding. The paragnesiss both north-westward and south-eastward of these intrusives are so highly granitized in zones that they have the appearance of true intrusive type granite gness and are thus so classified on the geological map (Plan 1) here enclosed. It will be noted that toward the south-east sector, a small granite plug or plugs occur within the granitized paragness. Another narrow dyke of granite is located near the

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south-eastern corner of the property.

The pegmatitic granite and pegmatite sills and dykes, to repeat, trending north-sasterly, all occur within the wide band of granitized gneise, crossing the south and west portion of the holdings.

The main sill assumes its maximum width (500') on Claim E.O. 18944 and on its trend south-westerly, branches as two parallel bodies and continues as such to the southern boundary of the property, infolding a band of contorted granitized gneiss. Numerous parallel but much narrower sills and/or dykes outcrop north and south of the main intrusive body.

As mentioned previously, a series of more or less parallel north-west trending regional faults cross the area. These faults, it is believed, assume a very significant structural importance. The major movements created tangential and cross faulting. The pegmatitic bodies trending north-easterly follow and come up the lines of weakness thus created. Further movement along these secondary cross and thrust faults was contemporaneous with the entrance of uranium bearing quarts rich pegmatitic solutions. These sheared and brecciated sones are the locals of showings 1, 3, 4 and 5 described later. Showing No. 2 is in itself narrow brecciated pegmatite dykes occuring in faults which join or cross to the north-east.

DEVELOPMENT

Early in 1954, the some now designated as Showing No. 2 was partially stripped and a 10 foot pit sunk apparently in a high grade section of the vein.

Later, Prospector Stewart Henderson made further discoveries and these were stripped by bulldozer. There were four areas, totalling approximately 20,000 feet, cleared with

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some rock trenching completed. Several radio-active somes were partially stripped over small areas near the nose of the wide portion of the main sill near the south-east corner of Claim E.O. 18944.

Geo-Technical Development Company Ltd. in late 1956, completed a geological and geophysical (Magnetometer and Scintillator) survey over approximately seven of the twenty-four claims, in a block running north-easterly and covering most of claims E.O. 18269, 18270, 18944, 18080, 19173, 18081 and 18079. Incidentally this block covered only a narrow belt of the main uranium bearing sill, the bulk of which lay to the south of the base line.

Mr. A. J. Gaudet, Geologist in charge of these surveys, in his report dated January 2nd, 1957, states in Par. 3, Page 1: "Some pegmatite dykes were blasted open and an area of about 1,000 square feet was stripped around these dykes, with samples taken.

Scintillometer readings were taken over these pegmatite dykes and some high readings averaging about 1.4 were encountered in the south-western corner of claim E.O. 18080 over a zone of approximately 75 feet in width on line 28E from 4 / 25 N to 500 N and traced for 50 feet in length and still opened on both ends.

Some scintillometer readings were also taken over pegmatite dykes in the south-eastern corner of claim E.O. 18081 line 206 and readings averaging .15 were encountered over a sone of about 100 feet in width from 100 N to 200 N and about 175 feet in length opened on both ends.

Magnetometer readings were taken over lines 4E and 26E and a dipole was encountered on line 4E from 1N to 3N in the vicinity of a pegmatite dyke, it appears that the

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high magnetometer readings occur near the contact of pegmatite dykes and paragness. Because of the occurrence of numerous large radio-active pegmatite dykes it is advisable to carry out further investigations and from observations taken over the pegmatite dykes north of the base line it is recommended that further geological and geophysical surveys be carried out south of the base line to cover the south-eastern part of the property."

Samples taken by Mr. Gaudet on the various showings (see Plan No. 1) range radiometrically from 0.001 to 2.02 uranium oxide with intermediate samples grading up to .83% U_30_9 . Since it is not otherwise stated, these samples must be classed as selected grabs. They do however indicate that high values are present.

A geological survey was made by the writer during the period April 13th to May 14th, 1958, coincident with detailed geiger examination of the radio-active sills. As stated earlier in this report, one of the main structural features here existent is a large granite pegmatite dyke, traceable from the south-eastern corner of Claim E.O. 18079, north-eastward (N 30* E) across E.O. 18081, E.O. 18944 and narrowly through E.O. 18082 and into E.O. 18548 -a distance of nearly one mile. As previously mentioned a series of more or less parallel shearings or fracture zones cross the sill at angles varying from 10° to 15° north of the sill's long axis. These cross shears are obviously related to removement along the nearby regional faults. The penetration of quarts rich pegmatic solutions carrying uranium along these fracture or shear zones, occurred contemporaneous with this later movement. Their more silicous and pegmatitic appearance make them easily discernible from the mass of the sill. The feldspars are within them, coarsely crystalline and a deepar red, perhaps due to the effect of the radio-active minerals present.

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Showings No. 1, 3, 4 and 5 are of this type. The sill is for the most part overburdened, so it can be reasonably expected that other parallel deposits still remain covered. Showing No. 2 is of a different structure and will be described later. The granite-pegmatite material between the shears, though weakly radio-active, will not make one and is of no economic value. The uranium bearing mineral within the deposits has been identified as finely crystalline uraninite. A further test demonstrated that the calcium carbonate content is low (.04%) so that acid consumption by leaching would be also low.

SHOWINGS NO. 1, 3 and 5

Showing No. 1 is located near the south-east corner of Claim E. O. 18079. It consists of two parallel sones of shearing and brecciation. The more westerly shear assumes a width of 25 feet, is heavily biotitized in streaks and reads from 2,000 to 5,000 counts per minute, while the easterly shear has a width of 10 feet where exposed and reads consistently from 3,000 to 5,000 counts per minute. The massive granite pegmatite between the shears reads low and will not make ore. The area has been stripped by buildoner and blasted with a series of pop shote, all rubble-filled. Sampling therefore was difficult. The assay returns were low varying from .035 to .079 U₃0g with a selected grab returning 0.28%. The lack of relationship between the consistently high readings and the sample values is definitely attributable to surface leaching. Only by rock trenching to at least semi-fresh material can the tenor of the ore be ascertained.

Showings No. 3 and No. 5, 500 and 2,000 feet respectively from No. 1, both on Claim E.O. 18081 are similar and parallel occurrences. They occur along with No. 1 in the narrow north branch of the sill. Their projection southward

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across the south branch is overburdened, but geiger readings indicate that they follow through. Both somes are well biotitised and read from 3,000 to 9,000 counts over an average width of 30 feet and have a possible projected length of 700 feet. A chip sample over 6 feet in Showing No. 3 returned .15% U30g and a 10 feet centre cut assayed .08%. A grab returned .09%. A representative grab on No. 5 showing gave .13% U30g. The consistently high readings again strongly suggest heavy surface leaching.

Showing No. 4 is considered important. It consists of a 40 foot wide shear or brecciated sone, striking N 20° E across the sill. The brecciated shear is quarts rich, containing much biotite and reads consistently well over the exposed (Bulldosed) length of 150 feet. The geiger readings varying from 3,000 to 5,000 counts per minute indicate that the deposit will average at least . 20% U30g under the leached surfaced material. The persistent strength of this shear certainly suggests that it will diagonally cross the full width of the south branch of the sill and also the north branch in the vicinity of No. 3 which in itself might be its continuation. Thus a length of over 950 feet can be assumed to exist here. Its potential therefore is good. Sampling of the sone, due to rubble and the hardness of the quarts rich glaciated surface, was not possible without further rock trenching. A representative grab assayed .22% U30g while grabs taken by Henderson ran . 33% and . 65%.

Showing No. 2 is located some 430 feet north of the base line between lines 24E and 30E. It occurs as a highly brecciated fissure-type quarts pegmatite dyke quite heavily biotitized and containing an appreciable amount of fine pyrite, sericite and minor amounts of fluorite. This dyke vein (2A) Plan 1, has an average width of 6 feet and is traceable 5 20° W for a length of over 500 feet, open at both ends. This dyke

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made entry along a thrust fault striking N 20° E. This is evidenced by dragging and fault gauge along the footwall side. A second branch fault dyke (Vein No. 2) striking N 30° E, amalgamates with No. 2A, 40 feet north-east of line 28 and continues to the north-east as one dyke. The dip of the veins vary from 55° to 77° S.E. and though they bulge and marrow down, are very persistent and strong. Both make up an exposed length of 750 feet open at all three ends. Geiger readings range from 5,000 to 15,000 counts but again leaching is strongly evident. Where rock trenched or pitted the values become very appreciable higher, than on the weathered surface (see Plan 2). The writer from the evidence of geiger counts and readings estimates that the vein matter will grade .30% U308;

Some isolated stripping and blasting has been done in the vicinity south of Line 34E, indicating cross structure similar to showings 1, 3, 4 and 5, but here the overburden is heavy so that no continuance of formation could be ascertained.

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

Both No. 2 and No. 4 showings are strong structurally and give sufficiently high readings and values in U_3O_8 to justify their further investigation.

It is recommended that they be rock trenched and channel sampled at 50 foot intervals.

If such sampling confirms the belief that both have ore potential, they should be probed by a series of shallow drill holes at 100 foot centres, not exceeding 150 feet. Three thousand feet of drilling, along with surface sampling, supervision etc. should not exceed an overall expenditure of \$20,000. This would initially establish the showings' economic worth. Subsequent expenditure would be dependent on both the results of

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this work and the prevalent marketing conditions.

That similar showings as No. 1, 3, 4 and 5 are existent elsewhere along the main sill is almost a certainty, but further exploration is not desmed expedient until the potential of the already exposed shearings are determined.

Similarly it is believed that other dykes such as No. 2 will also be located.

Even though little work has so far been accomplished on the holdings, their mine making possibilities appear good. It is recommended that the program here suggested be carried out.

Respectfully submitted,

1. j. : Janis Harris, M.Sc., P.Bng.

Dated at Toronto, Ontario, May 26th, 1958.



Mr. Murray E. Watts, Suite 309, 200 Bay Street, Toronto, Ontario.

Dear Mr. Watts:

Re: Henderson Uranium Property

The following report describes the results of the geological and geo-physical survey over a group of 7 claims held by Henderson Uranium Property and located in the Bancroft Area, District of Renfrew, Raglan Township. This survey was conducted by Geo-Technical Development Company Limited during the period from August 26th to August 30th, 1956, and a check survey over some areas was also carried out from November 14th to November 19th, 1956. The results of these surveys are on Plan No. 1 accompanying this report

SUMMARY AND RECOMMENDATIONS

Claims EO-18269 - 18270 - 18944 - 18080 -19173, 18081, 18079 were found to consist mostly of granite gneiss with some pegmatite dykes in the S. W. corner of claim EO-18080 and S. E. corner and N. W. corner of claim 18081, and the S. W. corner of claim EO-18079.

Some pegmatite dykes were blasted open and an area of about 1,000 sq. ft. was stripped around these dykes, with samples taken.

Scintillometer readings were taken over these pegmatite dykes and some high readings averaging about 1.4 were encountered in the 5. W. corner of claim EO-18080 over a zone of approximately 75 ft. in width on line 28E from $4 \neq 25$ N to 500 N and traced for 50 ft. in length and still opened on both ends.

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Some scintillometer readings were also taken over pegmatite dykes in the S. E. corner of claim EO-18081 line 20E and readings averaging .15 were encountered over a zone of about 100 ft. in width from 100 N to 200 North and about 175 feet in length opened on both ends.

Magnetometer readings were taken over lines 4E and 26E and a dipole was encountered on line 4E from 1N to 3N in the vicinity of a pegnatite dyke, it appears that the high magnetometer readings occur near the contact of pegnatite dykes and paragneiss. Because of the occurrence of numerous large radioactive pegnatite dykes it is advisable to carry out further investigations and from observations taken over the pegnatite dykes north of the base line it is recommended that further geological and geo-physical surveys be carried out south of the base line to cover the south eastern part of the property.

PROPERTY CLAIMS

The Henderson Uranium Property is comprised of 24 contigeous claims, 7 of which have been mapped geologically and a geo-physical survey carried out. These 7 claims are listed below.

E0-18269, 18270, 18944, 18080, 19173, 18081, 18079.

LOCATION AND ACCESSIBILITY

The group of claims is situated in Raglan Township, Lots 31-35 inclusive in Hange V and part of Range VI and located approximately 40 miles East of Bancroft and is easily accessible by automobile or jeep over a good

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secondary road, numbered 500 route.

GENERAL GEOLOGY

The general geology in the vicinity of the Bancroft area is described by Hewitt in Geology of the Burdenell-Raglan area Sixty second Annual Report of the Ontario Department of Mines Volume LXII, Part 5, 1953 and is summarized as follows:-

The bedrock formation underlying the area are all of Precambrian age and consist largely of Meta sediments (crystalline limestone, paragneiss and amphibolite) cut by basic and acidic plutonic rocks (gabbro-diorite, meta gabbro, granite, syenite, nepheline syenite and thin gneissic equivalents.

The meta sediments are of the Grenville types and the granites and granite gneisses are of the Laurentian and Algoman type, but criteria on which to base definite age correlation arelacking for most of the rock in the area.

Nearly all the rocks in the area are highly folded and metamorphoned.

Some evidence of shearing and faulting of Precambrian age was obtained; <u>for example</u>, north east trending pegmatite dyke occupies fractures parallel to the axis of a series of north east trending folds in the granite gneiss complex.

The rock formation encountered on the Henderson Uranium Property consists mostly of granite gneiss, and in the centre of the property from 100 ft. to 400 ft. north of the

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Base line a number of pegmatite dykes occur with some very high readings on the scintillometer, some fluorite and pyroxenites was noted on the contact of the paragneiss and the pegmatites, a thickness of about 5 to 10 feet. of overburden was encountered on the bulldozed areas.

ROCK TYPES

<u>Paragneiss</u> The paragneiss is generally fresh and unaltered, with a large percentage of hornblend. These were encountered from line 20E and 100 north trending north east about 70° to line 28E and 400 north. Another band was observed and mapped and extends from line 10E at 850 ft. north to line 12E and 10/00 north.

They seem to weather brown and rusty and interbedded with crystalline limestone. Pyroxene has been noted in places.

<u>Granite</u> The granite is fine to medium grained and is generally gray in colour. Some biotite and hornblend was noted and the structure varies from massive to gneissic.

<u>Structure</u> The largest area of basic intrusive is the Raglan meta gabbro, it is a lens shaped nearly vertically dipping body, running from the southwest corner of Raglan Township northeastward.

The predominant rock type in this complex is a coarse grained foliated hornblend, plagioclase gneiss.

Table of Rock Formations

Precambrian - Younger Basic intrusives

Diabase

Table of Rock Formations (c't'd.)

Intrusive Contact

Granite group, granite gneiss, hornblend granite, hornblend granite gneiss, biotite granite, biotite granite gneiss, and amphibalite.

granite pegmatite, pegmatilic granite.

Intrusive Contact

Older basic instrusive and meta intrusive group.

Diorite, gabbro, hornblendite, lamprophyre, pyroxenite, metagabbro, amphibalite.

Intrusive Contact

Crystalline Limestone Group

Crystalline limestone and dolomite. Interbedded crystalline limestone and amphibalite or paragneiss. Silicated limestone, lime silicate rock.

Meta sediments

Plutonic

Rocks

Paragneiss Amphibalite Group

Amphibalite - hornblend, plagioclase gneiss Hornblend amphibalite, hornblend schist. Biotite Amphibalite, biotite hornblend gneiss.

Biotite pargneiss, mica schist.

Quartzite

Meta sediments

Quartzo-feldspathic gneiss, quartz biotite, feldspar gneiss and schist. Feldspathic paragneiss, feldsparhornblend granulite.

SURVEY DATA

A total of 8.0 miles of scintillometer survey was carried out by Geo-Technical Development Company Limited from August 26th to August 30th, 1956, and a geological survey covering about 17 miles was carried out during this same period. From November 13th to November 19th, 1956, a scintillometer check survey totalling about 1 mile over the most interesting areas was completed and also a geological check survey was carried out over the 7 claims group covering a total of about 16 miles of lines.

The number of 8-hour man days required to complete this work is as follows :-

	(8-Hour) <u>Man Days</u> 20 x 4 16 x 1 1 x 4	Attributable to Assessment Work	
Line Cutting Scintillometer Magnetic Check Survey		80 16	
Geological Survey Preparation of Report &	15 x 4	60	Sest - 23
Office Typing Drafting	3 x 4 5 x 4	12 _20	fine - 20 Seint - 7
Total	60	192	may - 1

LIMITED

Respectfully submitted, The sector of the 269 of the Geo-TECHNICAL DEVELOPMENT COMPANY LIMITED

A. Gaudet, Geologist

A. Gaudet, Geologist. **51**×4 ÷ 7 = 29 ÷ *cilon* 27

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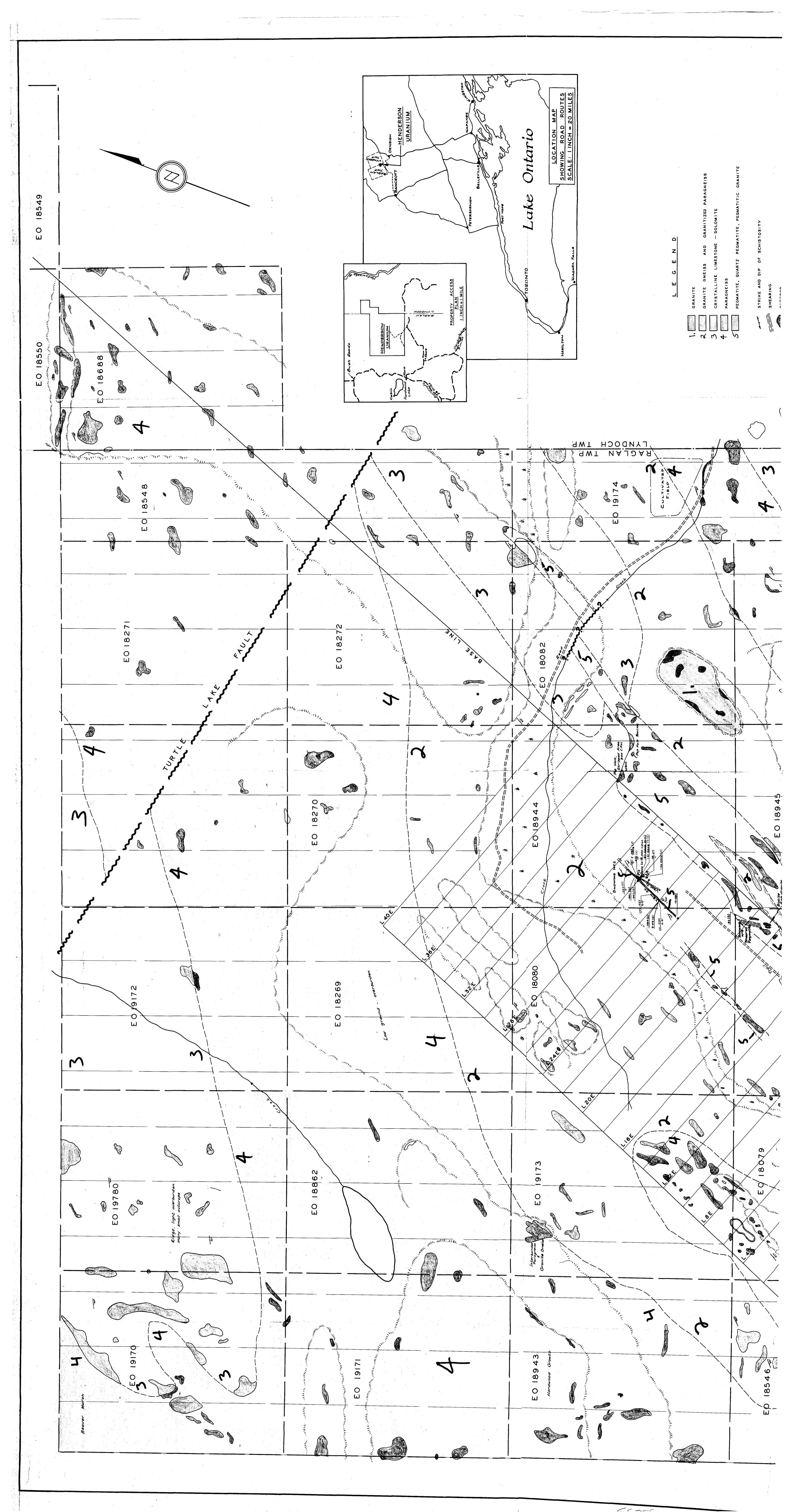
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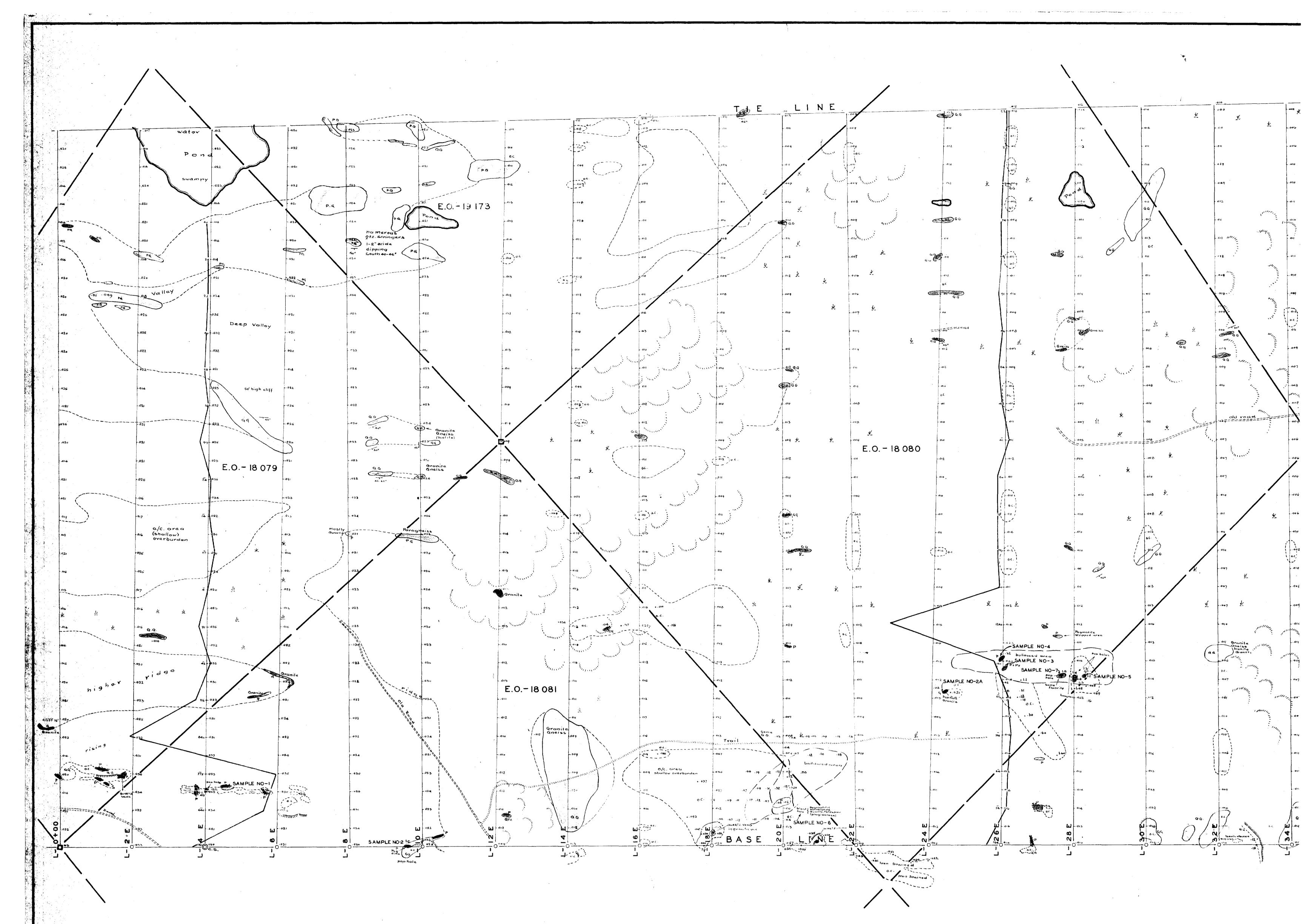
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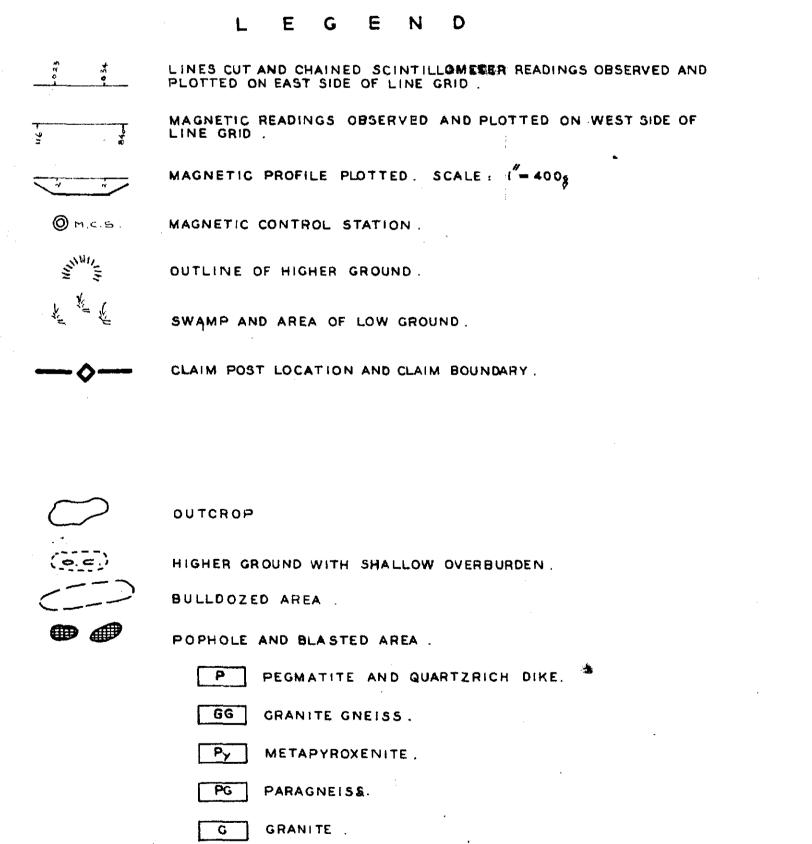
Toronto, Ontario.

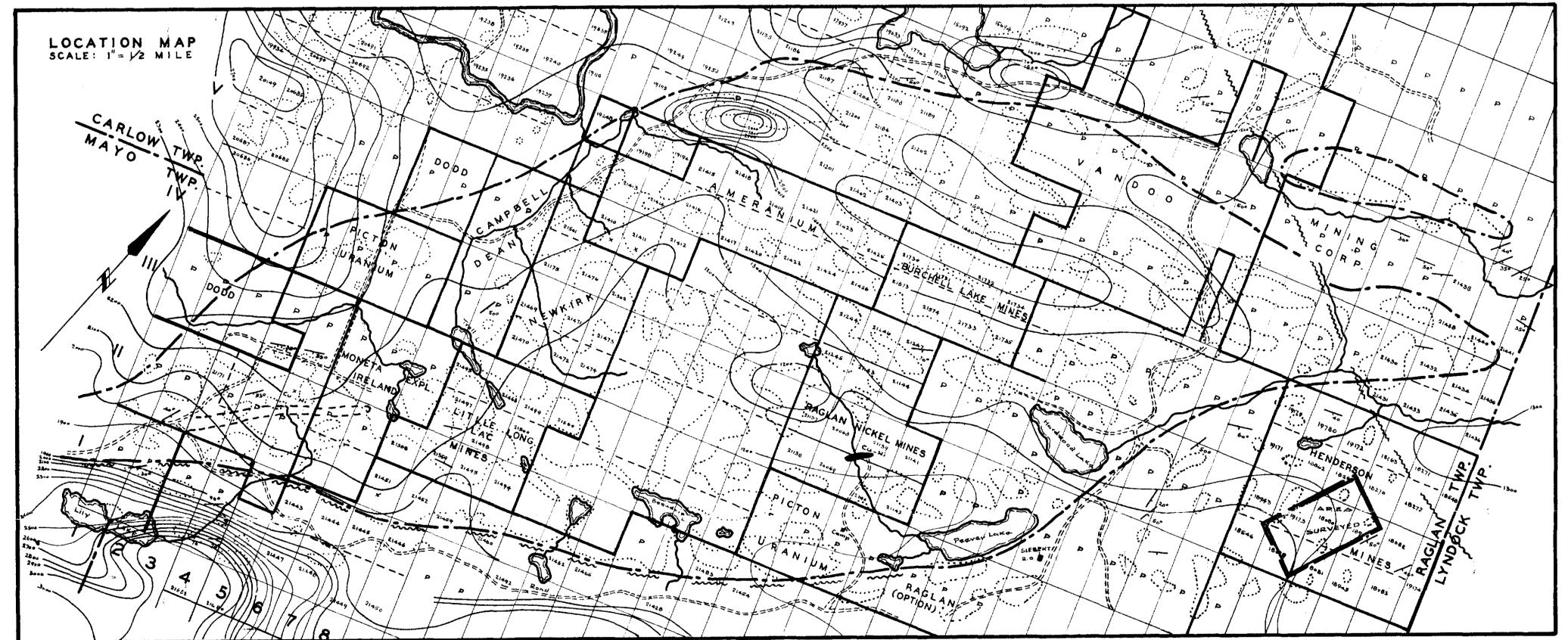
January 2nd, 1957.

AG:mmgeo-technical COMPANY DEVELOPMENT









SCINTILLATOR SURVEY DATA OVER PART OF PROPERTY

AND

HENDERSON URANIUM MINES PROPERTY

WITH CONTOURS OF RADIOACTIVE INTENSITIES

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PLAN NO-1

SCALE : 1" = 100' 200 1.4.4/

SEPTEMBER 1956

3.00'

GEO-TECHNICAL DEVELOPMENT COMPANY LIMITED

GEOPHYSICAL SURVEY BY:

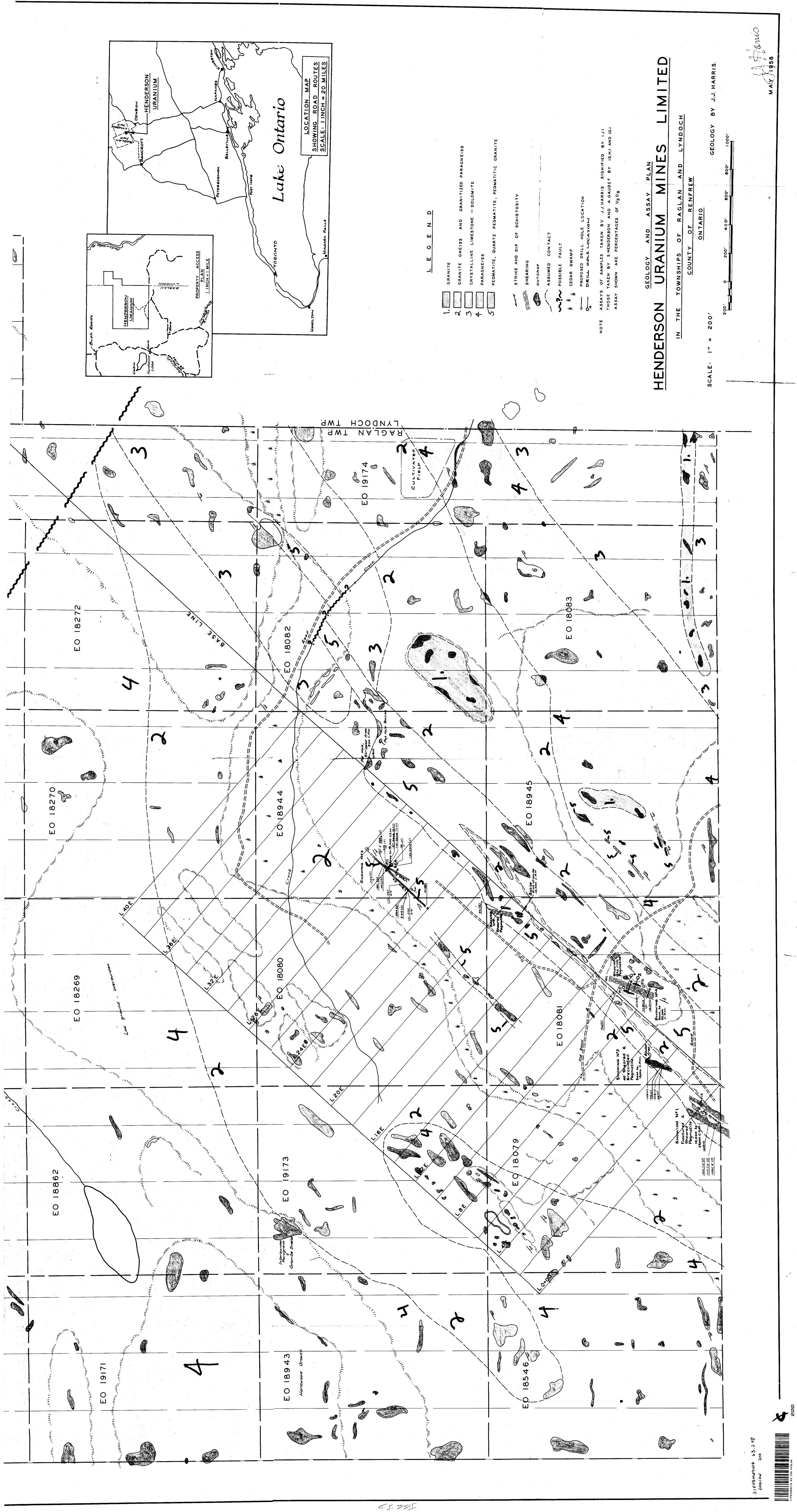
COUNTY OF RENFREW ONTA R'IO

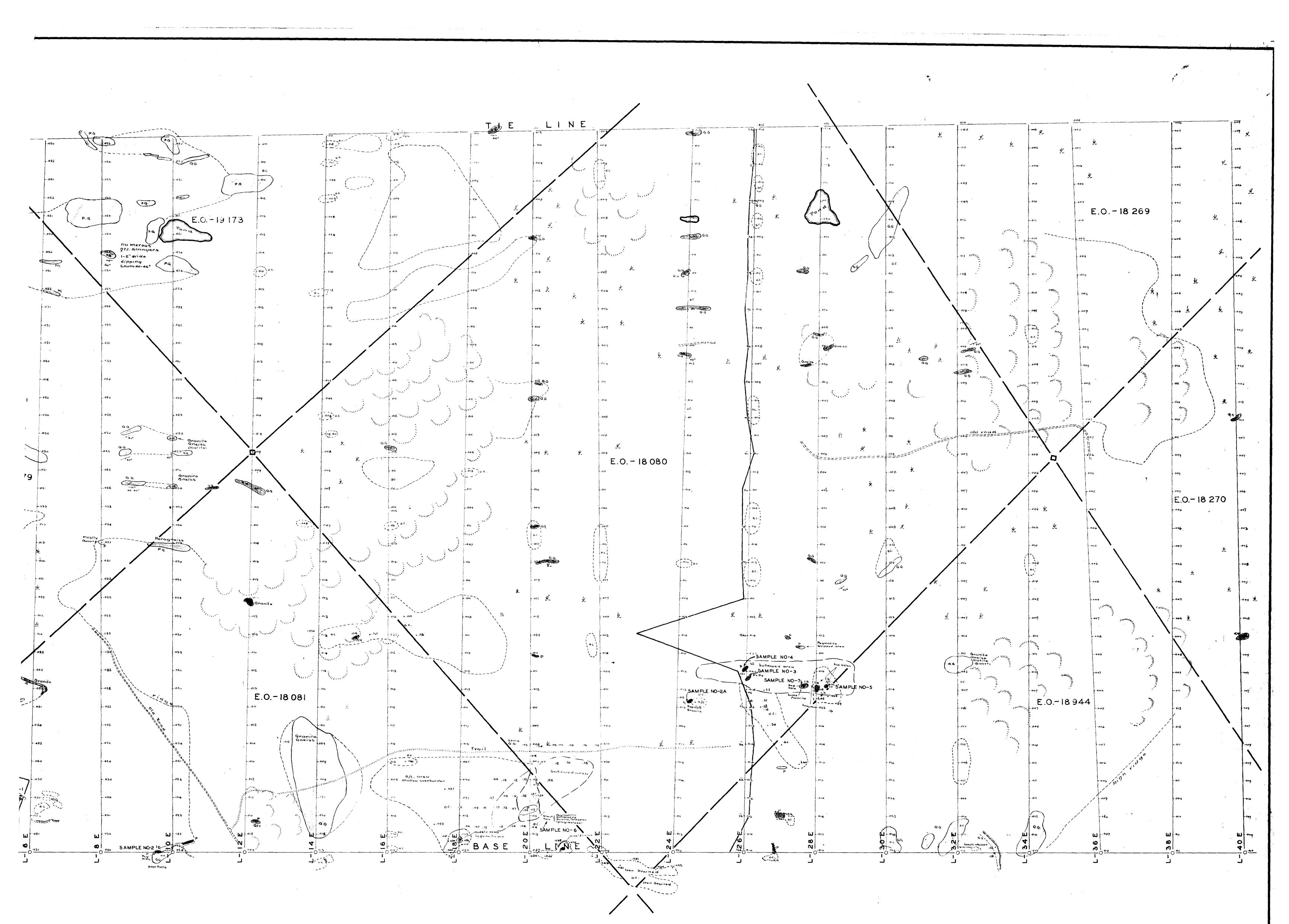
RAGLAN TOWNSHIP

(IN ; PART MAGNETIC PROFILES)

DATA SURVEY GEOLOGICAL

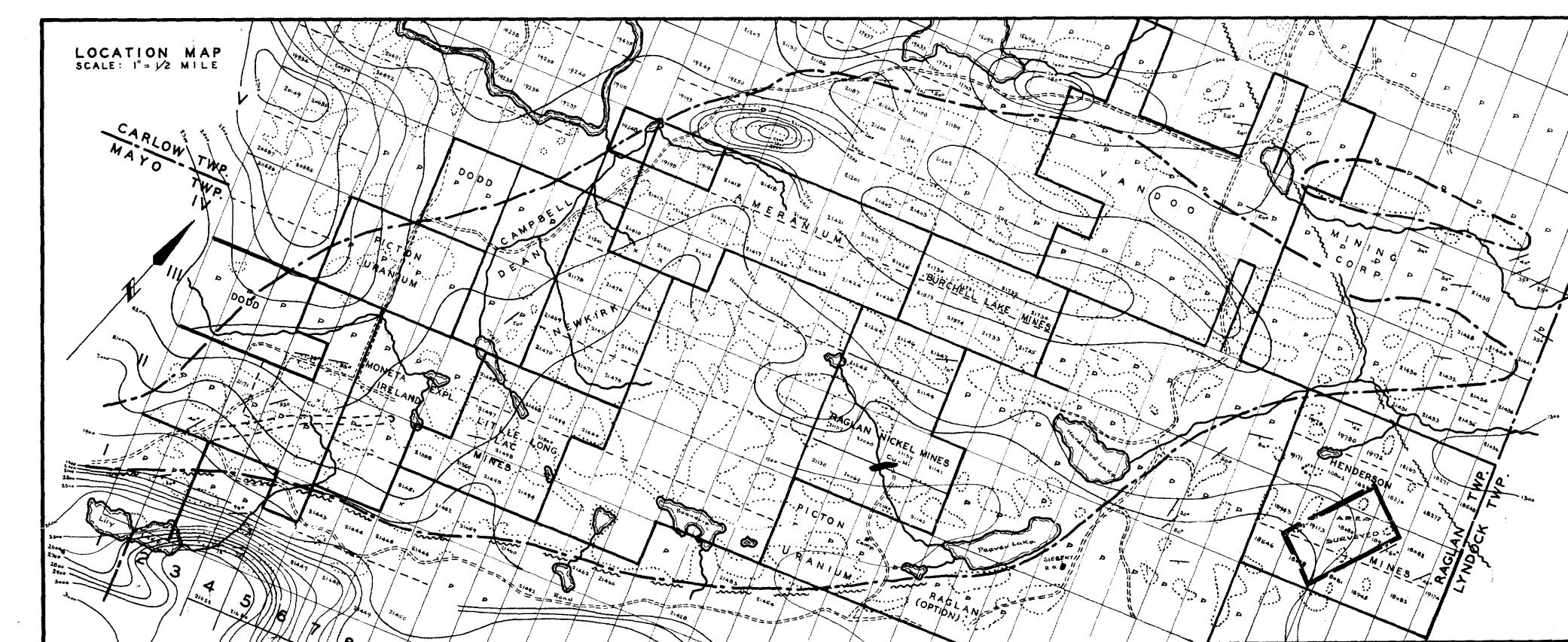
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HENDERSON URANIUM MINES PROPERTY

SCINTILLATOR SURVEY DATA OVER PART OF PROPERTY



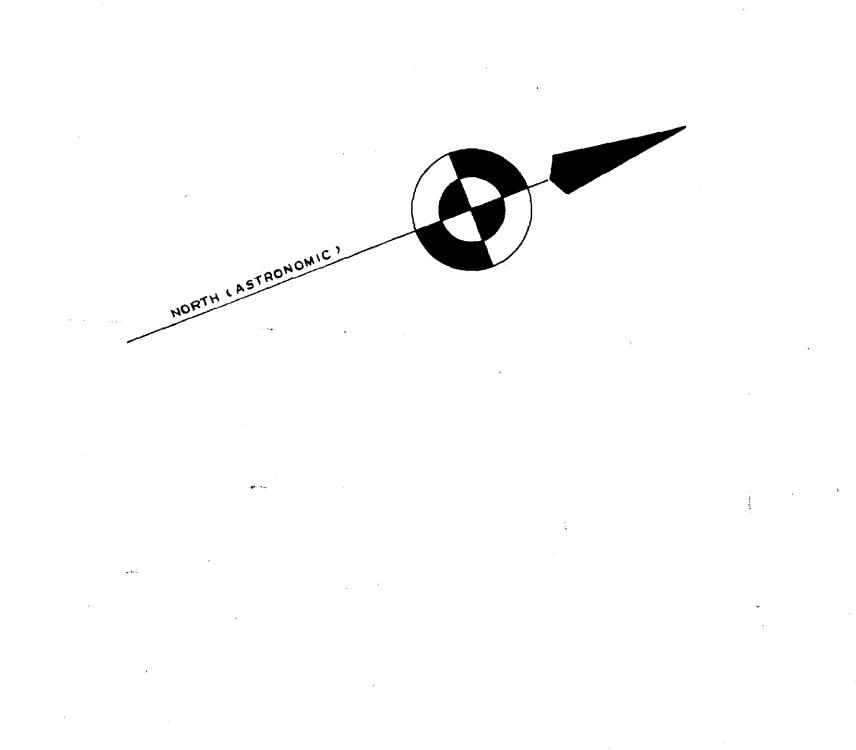
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LOTTED ON WEST SIDE OF

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ICH DIKE.



115.9.1956

WITH CONTOURS OF RADIOACTIVE INTENSITIES

GEOLOGICAL SURVEY DATA

(IN PART MAGNETIC PROFILES)

RAGLAN TOWNSHIP COUNTY OF RENFREW ONTAR'IO

GEOPHYSICAL SURVEY BY:

GEO-TECHNICAL DEVELOPMENT COMPANY LIMITED

PLAN NO-1 SCALE : 1' = 100'