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430127 ONT LTD.
L.O.C.C. EXPLORATION
6 SEVERN STREET
SUDBURY, ONTARIO P3C 2Y7

GEOLOGICAL SURVEY REPORT
ON THE EVANGELINE LAKE PROPERTY
McKINNON TOWNSHIP, SUDBURY AREA, ONT.

RECEIVED

DEC 3 - 1981

MINING LANDS SECTION

REPORT BY
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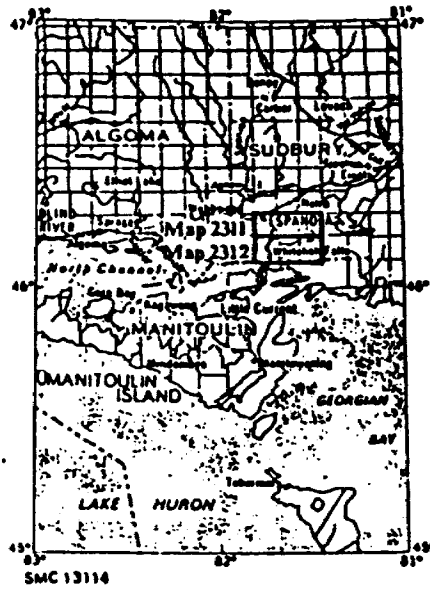


Figure 1—Key map showing location of Espanola-Whitefish Falls area. Scale 1 inch to 50 miles or 1:3,168,000.

INTRODUCTION:

This report includes an interpretation of a geological survey conducted on the Evangeline Lake property by L.O.C.C. Exploration during August 17-24, 1981. The property comprises a group of 19 contiguous, unpatented mining claims (S.515276-80, S.551424-33, S.551240-42, S.607403) in McKinnon Township, District of Sudbury.

An area outline is presented at the beginning of this report for reference purposes. The property location is shown on the accompanying map at a scale of 1:50,000. The area is part of the National Topographic Series, sheet number 41 I/4W.

SURVEY PROCEDURE:

The base maps used for the survey were 1:5,700 enlargements of 1:15,840 O.M.N.R. photographs. These were overlain with stable transparent film on which shore lines and major outcrops were marked.

Pace and compass traverses were carried out at 400-foot intervals over the property. Survey control was maintained using hip chains and tying in with prominent outcrops and landmarks seen on the base maps. In addition to the traverses, all parts of the property bordering on water were mapped using a boat and motor.

LOCATION AND ACCESSIBILITY:

The Evangeline Lake property is situated on Lots 3-7 inclusive, Concession III of McKinnon Township in the Sudbury Mining District. The claims are located approximately 10½ miles southwest of Espanola on the north shore of Evangeline Lake. The area is reached by a 20-mile gravel road which branches south from Highway 17 West at Webwood.

HISTORY:

The area has been intermittently prospected for Cu, Ni, Au and U since early 1930. In 1934-35, Bob Tough Gold Mines Limited carried out surface exploration and diamond drilling on the property. Based on these results, a three compartment shaft was sunk to the 150-foot level, where 118 feet of cross cutting was completed. Results of the crosscutting are not available and are believed lost. The company folded in 1940 due to lack of funds.

From 1954-1959, Bernard Day undertook surface exploration on the property and drilled several holes approximately 300 feet in depth, in response to a radioactive anomaly. No uranium mineralization was encountered. During this drilling phase, sulphide and arsenide mineralization was intersected but was not assayed for precious metals.

Recently, L.O.C.C. Exploration completed a VLP-EM and magnetometer survey over claims S.5515276-78. During this period, sampling of the rock dump, near the shaft, yielded values from trace to 0.83 ounces per ton Au.

ECONOMIC GEOLOGY:

The Evangeline Lake property lies within a belt of Huronian metasediments which strikes east-west for a distance of 33 miles. Numerous gold occurrences are found within this belt adjacent to the Charlton Lake Fault in association with diabase dykes. Structural evidence suggests that localized heat sources (such as diabase dykes) remobilized precious metals, which were subsequently redeposited in porous shear zones.

Several old gold and silver producing mines exist within this metasedimentary belt. These mines were active during the

late 1930's and early 1940's. These include the McMillan Gold Mine, Majestic Mine, Bousquet Mine, Hawry Creek Mine and Upsala Mine. With the increased value of gold, there is renewed activity in the area with extensive staking and exploration.

The Evangeline Lake property is similar to the afore-mentioned gold properties in the mineralogical and structural nature of the gold mineralization. Grab samples taken from the rock dump and old pits have yielded gold values from trace to 0.83 ounces per ton. An early uranium exploration program intersected sulphide and arsenide mineralization in several shallow drill holes. It should be noted that this mineralization was not assayed for precious metals. Gold values up to 0.21 ounces per ton over 4.5 feet were recorded for holes drilled by Bob Tough Mines Ltd. during the late 1930's. Though the area was only mined for gold and silver, there are indications that mineralization may also contain platinum and rhodium.

GENERAL GEOLOGY:

The rocks of the area consist of:

- 1) The Huronian Supergroup which are Proterozoic clastic sediments and minor volcanics, which overlie the predominantly gniessic Archean terrain. These sediments consist of quartzite, argillite, greywacke, conglomerate and carbonates which were metamorphosed to the greenschist and amphibolite facies during Penokean and Hudsonian orogenic disturbances.
- 2) Post Huronian mafic intrusions which include:
 - a) Nipissing Diabase dykes--these are sill-like bodies 2,155±80 million years in age, which lie parallel to the regional trend
 - b) thin Amphibolite dykes--these dykes post-date the Nipissing Diabase and range from 2-30 meters in width. These dykes strike W-NW and weather black
 - c) NW trending Olovine Diabase dykes--these are the youngest rocks in the area. The dykes can be up to several hundred meters wide. These rocks weather

to black-brown, cut regional trends and have a high magnetite content.

3) Pliocene to recent unconsolidated sediments

The rocks of the Huronian Supergroup which outcrop on the property consist of the Espanola, Serpent and Gowganda formations. For the sequence and nature of these formations refer to Table 2.

The principal structures in the area include the E-W trending Bass Lake syncline, Fox Lake Anticline and the La Cloche syncline. The latter two are isoclinal folds with near vertical overturned limbs and horizontal axes. There are also several fault systems in the area, of which, the North Branch of the Charlton Lake fault passes through the center of the property. The fault is believed to be a reverse fault with the fault plane dipping towards the south. Though movement along the fault is complex, there appears to be vertical and sinistral movement.

DETAILED GEOLOGY:

The rocks of the Huronian Supergroup, which outcrop on the property, consist of the Espanola, Serpent and Gowganda Formations. The exposures of Espanola Formation define a narrow belt of calc-silicate rocks which strike northeast and dip steeply to the southeast. Weathered outcrops are buff-coloured. In hand-specimen, these rocks appear medium-grained with a fair degree of sorting of the subrounded quartz grains. Flame structure was the only sedimentary structure observed. The Formation is dis-united from the Gowganda Formation, to the north and Serpent Formation to the south, by shear zones.

The Serpent Formation crops out in the north and central portions of the property. The bedding strikes between 70-80 degrees northeast and dips approximately 80 degrees to the southeast. The Serpent Formation is very similar in appearance to the

degrees. A northwest trending Olovine Diabase dyke was observed in the central portion of the property.

The claims are located on the south limb of the Fox Lake Anticline, and are dissected by several faults, which are part of the Charlton Lake Fault system. These longitudinal reverse faults parallel the regional trend and in some instances form lithological boundaries. The repetition of Formations on the property would imply vertical fault movement, placing the Espanola Formation in contact with the Gowganda Formation. The Nipissing Diabase dykes appear to be preferentially located near structural zones of weakness such as shear zones and lithological contacts.

RECOMMENDATIONS:

It is recommended by the writer that:

- 1) The rest of the property be gridded during the winter of 1981-82, at 400-foot intervals. A magnetic and VLF-EM survey should be carried out over this grid.
- 2) A systematic sampling program be implemented over known conductors and favourable geologic sites.

Ken Cuomo

Geologist

Ken Cuomo

Espanola Formation. It may be distinguished from the latter by the more siliceous composition, slightly coarser grain size, and foliations produced by weathering of the thin micaceous rich beds. Sedimentary slump structures were noted on several occasions. Where observed, the contact between the Serpent and Gowganda Formations was sharp and disconformable. The amount of micaceous minerals increased towards the contact with the Gowganda Formation, causing the contact to weather out.

Outcrops of Gowganda Formation appear in the southeast and central portions of the property. Evidence suggests that over most of the property the Formation strikes northeast and dips steeply to the southeast. This formation is a tillite and in most localities displays pentagonal clasts typical of glacial origin. The dominant form of the tillite, on the property, is a matrix supported polymitic paraconglomerate with between 10-20% clasts. Polymitic orthoconglomerates of very limited lateral extent were also observed. The orthoconglomerates are composed of approximately 70-80% clasts and may represent water washed lag deposits. Most of the clasts (80%) observed were granite pebbles with a lesser amount being quartzite pebbles, possibly derived from the underlying sedimentary formations. The matrix is poorly sorted and dark brown in colour. Fine grained, dark grey to brown, laminated, argillaceous units were encountered within the Gowganda Formation. The major one has been marked on the accompanying map. Drop stones and cubic pyrite crystals were noted in sections of this argillaceous unit.

Several brown-black weathering, medium grained Nipissing Diabase dykes were mapped on the property. The dykes pinch and swell, strike parallel to lithological contacts and dip at 90

TABLE 2 | SUMMARY OF HURONIAN STRATIGRAPHY IN THE BLIND RIVER-ELLIOT LAKE AREA

Group	Formation	Lithology	Thickness (in feet) ¹	Depositional Environment	Source	Mineralization
Cobalt	Bar River	Quartzite	At least 1,000-Flack Lake; at least 4,000-Willisville	Shallow water	Source north but currents variable	
	Gordon Lake	Siltstone, sandstone	1,000-Flack Lake; 3,000-Willisville	Shallow water		
	Lorrain	Quartzite, conglomerate, arkose	2,000-6,000	Shallow water	North-northwest	Th-U in north Cu?
	Gowganda	Conglomerate, greywacke, quartzite, siltstone	500-4,200	Glacial in north; glacial-marine in south	North-	
Quirke Lake	Serpent	Quartzite	0-1,100	Shallow water	Northwest	
	Espanola	Limestone, dolostone, siltstone	0-1,500	Shallow water	Northwest	U trace in Victoria Tp. Cu in limestone against diabase
	Bruce	Conglomerate	0-200	Glacial-shallow water	North?	
Hough Lake	Mississagi	Quartzite	0-3,000+	Shallow water	West-northwest in west; north in southeast	U near basement highs
	Pecors	Argillite	40-1,000+	Shallow water	North-northwest	Traces U near basement highs
	Ramsay Lake	Conglomerate	5-200	Glacial-shallow water	Northwest?	Traces U where unconformable on Matinenda Formation
Elliot Lake	McKim	Argillite-greywacke	0-2,500+	Shallow water (turbidite)	Northwest	Traces U near basement highs
	Matinenda	Quartzite, arkose, conglomerate	0-700+	Shallow water	Northwest	U-Th-Rare Earths in conglomerate in basement lows*
	Volcanic rocks	Andesite-basalt (felsic volcanic rocks)	Local piles	Subaerial	Flack Lake F. Murny F.	U-Th in conglomerate interbeds

*All U-deposits of commercial importance in the Blind River-Elliot Lake area are in the Matinenda Formation.

Footnote

¹ To convert to metres, multiply by 0.30

Abbreviations

Cu - Copper

Th - Thorium

U - Uranium

REFERENCES

- Card, K.D. 1976, "Geology of the Espanola Whitefish Falls Area, District of Sudbury, Ontario.", Geoscience Report, 131.
- Card, K.D. 1978. "Geology of the Sudbury Manitoulin Area", O.G.S. Report, 166.
- G.S.C. Map No. 1522 G, "Whitefish Falls, Ontario Area",
Scale 1: 5280.
- O.D.M. 1935, Vol. 44, Pt. 7, p. 61.
- O.D.M. 1936, Vol. 45, Pt. 1, pp. 83-84.
- O.G.S. Map No. 2361, "Sudbury-Cobalt Sheet", Scale 1: 253,440.
- O.D.M. Map No. 2312, "Mongowin and Curtin Township", Scale 1:
31, 680.
- O.D.M. Map No. P. 794, "McKinnon Township", Scale 1: 1320.



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To whom it may concern:

The following cover letter has been included with this report to establish the qualifications of the writer. Since graduating from Laurentian University with an Honours B.Sc. in Geology, I have been employed by various companies including Inco Ltd., Denison Mines Ltd., and Questor International Surveys Ltd. as an exploration geologist. While employed by these companies, I have worked on exploration projects in Northern Quebec, Northern Saskatchewan, British Columbia, U.S.A. and several mining camps in Ontario. As of late, I have worked extensively within the area discussed in the report.

Sincerely,

Ken Cuomo

Hallam

Twp. - M.909

McKinnon Twp.

Ken Cramer - R

64 repl. & map.
Sept. 28/91

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L.O.C.C.
EXPLORATION

V

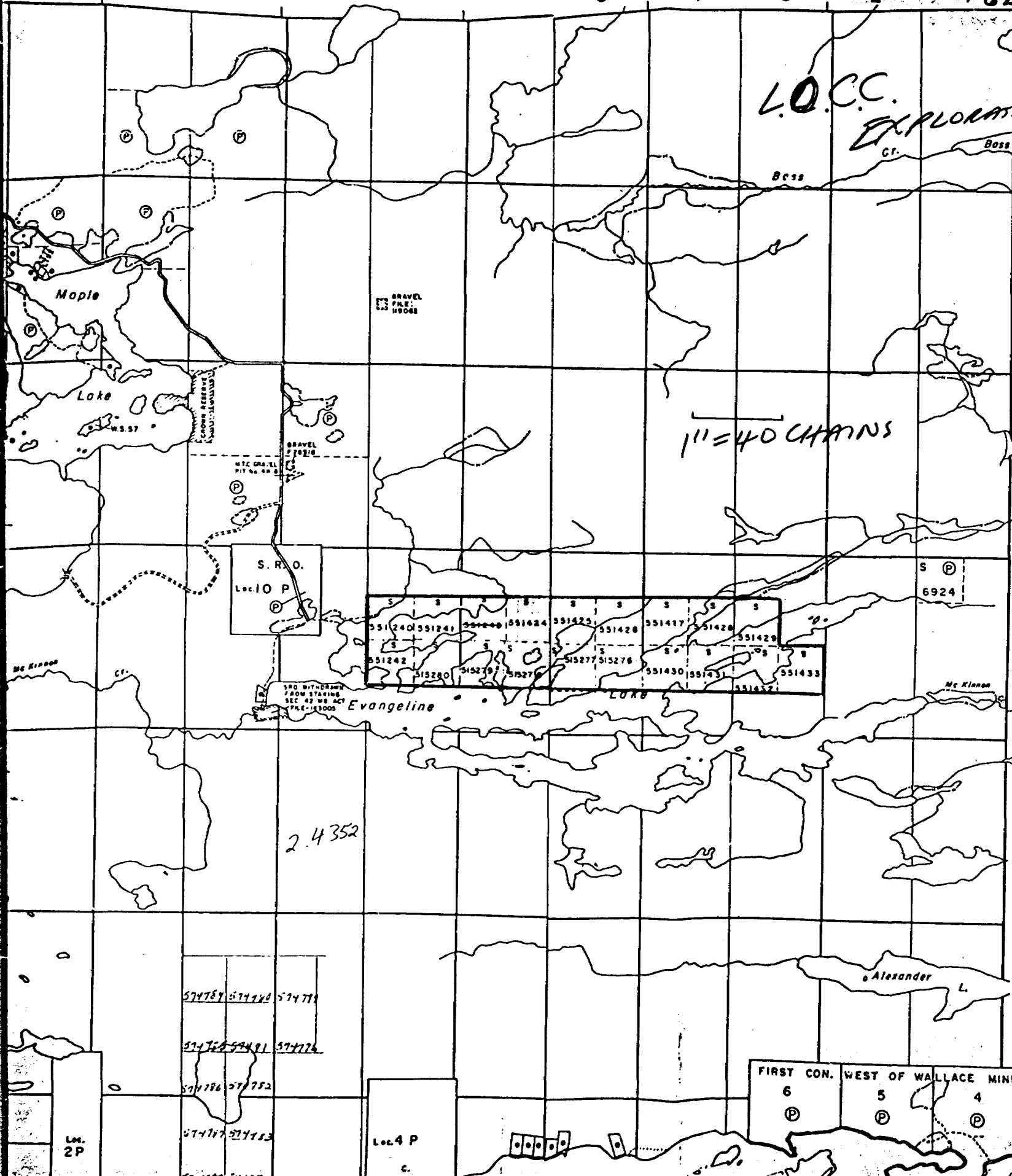
1" = 40 CHAINS

IV

Mongowin Twp. - M.871

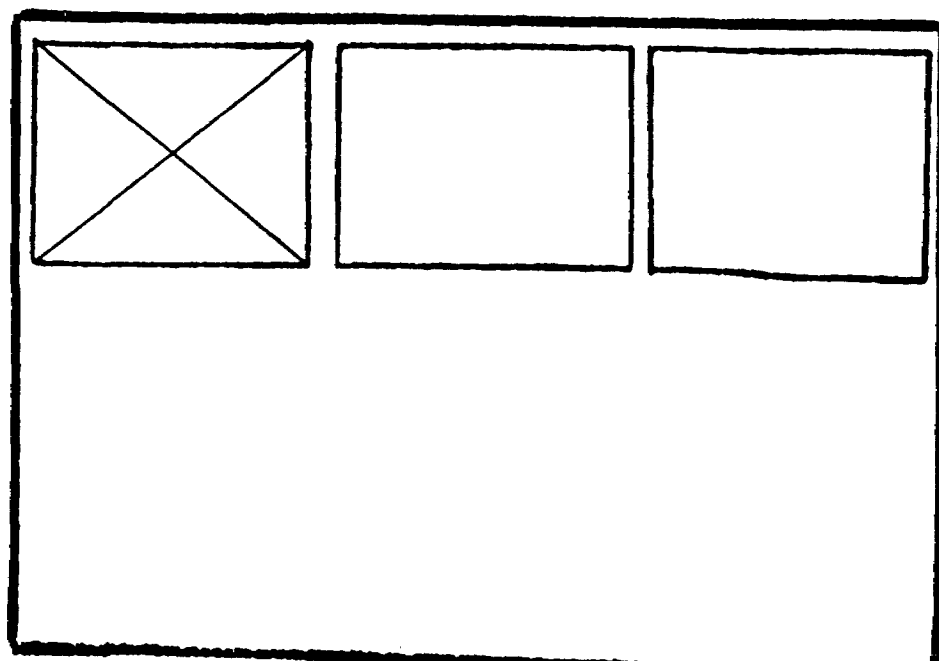
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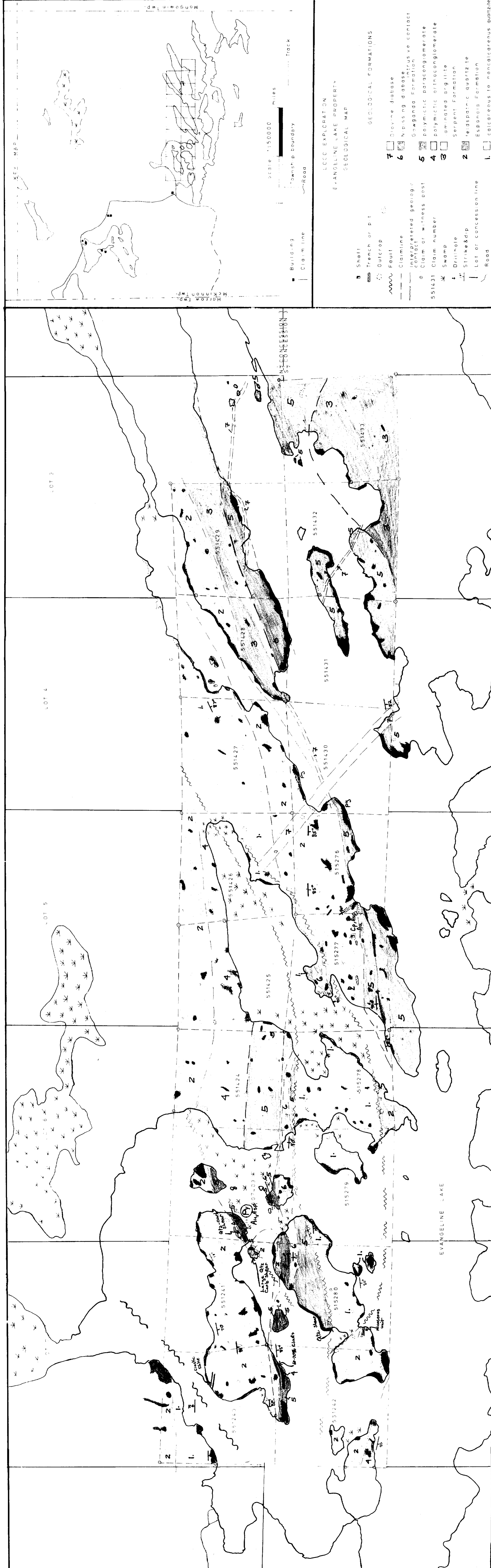
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MAP(S) IDENTIFIED AS
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LOCATED IN THE MAP
CHANNEL IN THE FOLLOWING
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SCALE 1:5700

1/2 mile

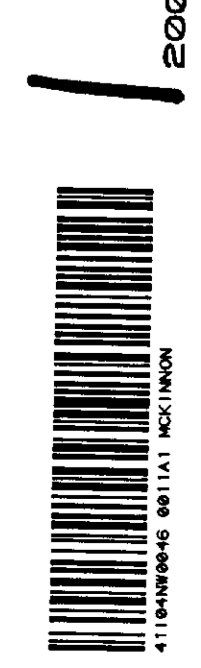
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DATE OF SURVEY: AUG. 17-24, 1981

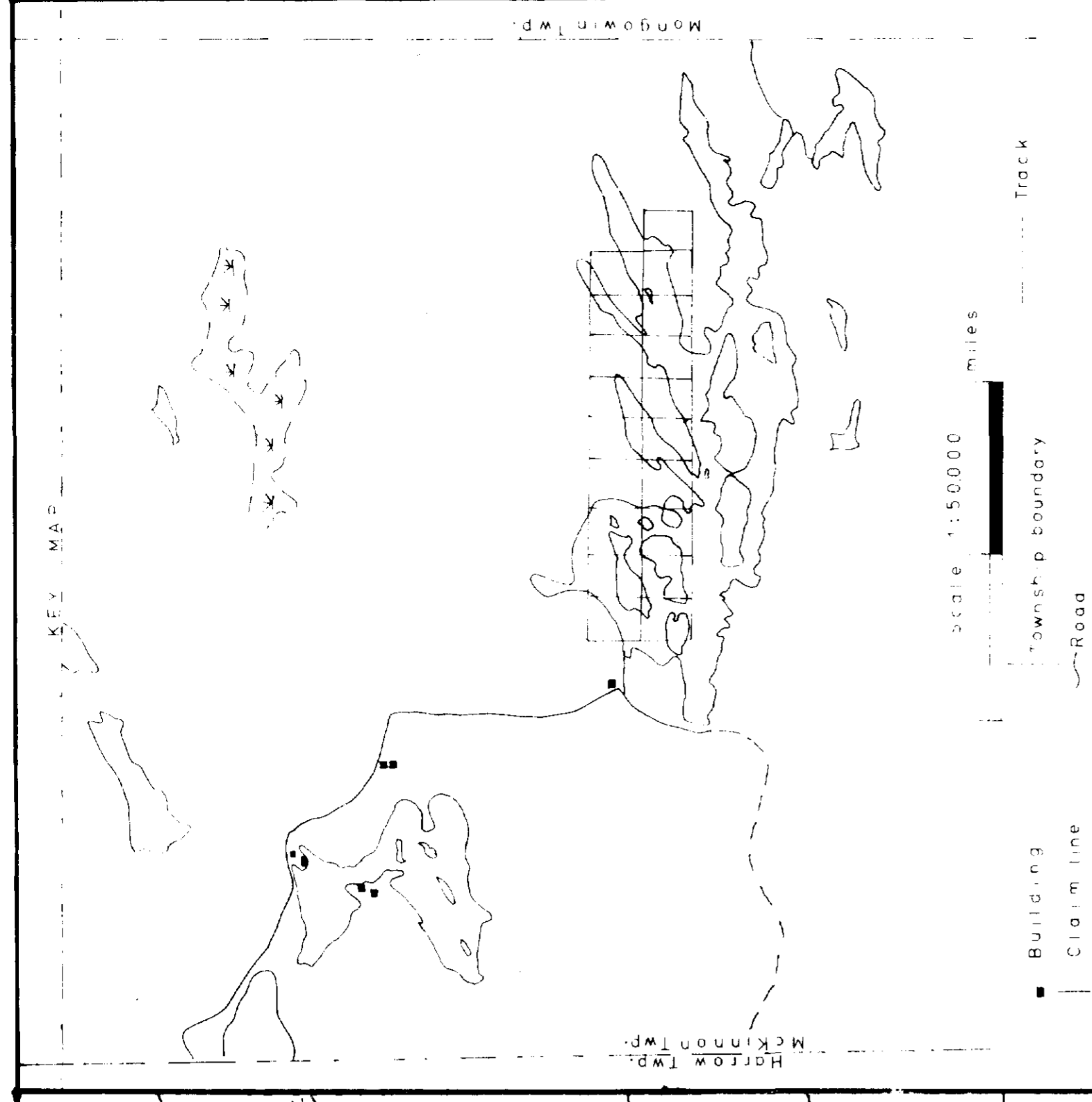
AUTHOR OF REPORT: Ken Cuomo

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LCC EXPLORAT ON
EVANGELINE LAKE PROPERTY
GEOLOGICAL MAP

Scale 1:50,000

Legend:

- Shalt
- Trench or pit
- Outcrop
- Fault
- Claimline
- Interpreted geologic contact
- Claim or witness post
- Claim number
- Swamp
- Drillhole
- Strike&dip
- Lot or concession line
- Road

Scale 1:50,000 miles

Legend:

- Diabase
- Massing diabase
- Gawganda Formation
- polymictic paraconglomerate
- aminated argillite
- Serpent Formation
- redspastic quartzite
- Espanola Formation
- calcareous to noncalcareous quartzite