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REPORT

on a

GEOPHYSICAL SURVEY (V.L.F. SURVEY)

RASTALL-ALANEN-CRICK OPTION

Hollinger Mines Limited
Nairn Township, Ontario

Timmins, Ontario
September 1, 1978

INTRODUCTION

A V.L.F. survey was completed over 4 claims in Nairn Township, approximately 62 kilometres west of the city of Sudbury. Seven conductive zones were outlined by the V.L.F. survey.

PROPERTY, LOCATION and ACCESS

The four claims pertaining to this report are part of a group of 26 claims under option to Hollinger Mines Limited. The claim group can be reached by car travelling west from Sudbury to Nairn Centre along Highway 17 and south by bush road to the claim group boundary approximately 1.3 kilometres from Nairn Centre.

The claims covered by the survey are as follows: S.398071, S.398072, S.425053 and S.425329. The property owners, holding 33-1/3 percent undivided interest, are:

Bill Alanen - Nairn Centre
Ed Crick - Nairn Centre
Don Rastall - Sudbury

HISTORY and GEOLOGY

In the past, the claim group has been examined for the nickel-copper potential in the diabase sills present on the claim group by a number of mining companies. In 1975-1976, the property was optioned by Falconbridge Nickel Mines Limited, and three short holes were drilled under a prospect pit located on the east boundary line of claim 425329 approximately 500 feet

south of the No. 1 post. No mineralization was intersected in any of the drill holes and the option was dropped. The claims are presently under option to Hollinger Mines Limited, Timmins, Ontario.

The claim group has a great amount of exposed outcrop consisting of Huronian Sediments, chiefly quartzite, conglomerate and argillite. Several sills of diabase are also present on the property. The owners of the property have located several radioactive occurrences in the quartzite and conglomerates. Grab samples have yielded assays up to 3 lbs. U_3O_8 per ton. The mineralization to date appears to be confined to small areas of fractured quartzite containing fine coatings of pitchblende, and very minor sulfides are associated with the highly radioactive zones.

Shear zones in the diabase are also being investigated for nickel-copper and cobalt. Three "packsack" drill holes were drilled by the present owners on one such shear zone, and minor sulfides containing low values in nickel, copper and cobalt were intersected in two of the drill holes.

SURVEY METHODS

The north boundary lines of the claims being surveyed were used as base lines and taped lines were run at 400' intervals. Readings were taken at 100' intervals.

A V.L.F. survey was carried out during the period from July 4 to July 7, 1978. The operators were Dale Alexander and Wally King.

RESULTS

The results of the survey are plotted and interpreted on the accompanying plan entitled V.L.F. SURVEY, NAIRN TOWNSHIP.

On adjoining claims 425329 and 425053, three conductive zones were located by the V.L.F. survey. Anomaly A lies within the McKim sediments and may be caused by a "buried" valley or a graphitic formation.

Anomalies B and C are within the diabase and are possibly caused by mineralization in shear zones in the diabase.

On claims 398071 and 398072, four conductive zones were outlined within the sedimentary formations.

Anomaly A is a weak conductive zone that may only be due to overburden effects. Anomaly B is a one line response that may be extended by further surveys in the swamp area. Anomaly C may be along a contact in Pond Lake and is in the vicinity of a diabase sill. This anomaly should be checked by an H.E.M. survey when the lake is frozen over.

Anomaly D is a one line response that may be extended by later surveys. Anomalies A and D are in the sediments where radioactive zones have been outlined by a scintillometer survey. Anomaly C is near a uranium showing on the lake shore; however, the water effectively screens out any radiation from under the lake.

RECOMMENDATIONS and CONCLUSIONS

It is recommended that further prospecting and H.E.M. and magnetometer surveys be carried out in the vicinity of all anomalies located to date, and further recommendations be made when the results of these surveys are available for study.

Respectfully submitted,

C. D. MacKenzie.

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REPORT

on a

SCINTILLOMETER SURVEY (RADIOMETRIC)

RASTALL-ALANEN-CRICK OPTION

Hollinger Mines Limited

Nairn Township
Sudbury Mining Division, Ontario

Timmins, Ontario
September 1, 1978

INTRODUCTION

A scintillometer survey was completed over 4 claims in Nairn Township, approximately 62 kilometres west of the city of Sudbury.

A few anomalous radioactive zones were outlined by the survey.

PROPERTY, LOCATION and ACCESS

The four claims pertaining to this report are part of a group of 26 claims under option to Hollinger Mines Limited. The claim group can be reached by car travelling west from Sudbury to Nairn Centre along Highway 17 and south by bush road to the claim group boundary approximately 1.3 kilometres from Nairn Centre.

The claims covered by the survey are as follows: S.398071, S.398072, S.425053 and S.425329. The property owners, holding 33-1/3 percent undivided interest, are:

Bill Alanen - Nairn Centre
Ed Crick - Nairn Centre
Don Rastall - Sudbury

HISTORY and GEOLOGY

In the past, the claim group has been examined for the nickel-copper potential in the diabase sills present on the claim group by a number of mining companies. In 1975-1976, the property was optioned by Falconbridge Nickel Mines Limited, and three short holes were drilled under a prospect pit located on the east boundary line of claim 425329 approximately 500 feet

south of the No. 1 post. No mineralization was intersected in any of the drill holes and the option was dropped. The claims are presently under option to Hollinger Mines Limited, Timmins, Ontario.

The claim group has a great amount of exposed outcrop consisting of Huronian Sediments, chiefly quartzite, conglomerate and argillite. Several sills of diabase are also present on the property. The owners of the property have located several radioactive occurrences in the quartzite and conglomerates. Grab samples have yielded assays up to 3 lbs. U_3O_8 per ton. The mineralization to date appears to be confined to small areas of fractured quartzite containing fine coatings of pitchblende, and very minor sulfides are associated with the highly radioactive zones.

Shear zones in the diabase are also being investigated for nickel-copper and cobalt. Three "packsack" drill holes were drilled by the present owners on one such shear zone, and minor sulfides containing low values in nickel, copper and cobalt were intersected in two of the drill holes.

SURVEY METHODS

The north boundary lines of the claims being surveyed were used as base lines and taped lines were run at 400' intervals. Readings were taken at 100' intervals.

A scintillometer survey was carried out during the period from July 4 to July 7, 1978. The operators were Dale Alexander and Wally King.

RESULTS

The results of the survey are plotted and contoured on the accompanying plan entitled SCINTILLOMETER SURVEY, NAIRN TOWNSHIP,

Rastall Option, on a scale of 1" = 400'.

The contour interval is at 1000 c.p.m. Total count is recorded and plotted at each station. On the four claims covered, all of the higher counts were obtained over sedimentary formations. The claims surveyed are as follows: S.425329, S.425053, S.398071 and S.398072.

RECOMMENDATIONS and CONCLUSIONS

A continuation of the scintillometer survey is recommended for the remainder of the claim group.

The results of the present survey show that no significant surface uranium mineralization has been detected by the present survey.

Any surface economic deposits would only be found under water or overburden areas on the 4 claims covered by the present survey. The possibility of uranium mineralization at depth remains under study.

Respectfully submitted,

C. D. Mackenzie.

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Electromagnetic V.L.F. Survey

Township or Area Nairn Township

Claim Holder(s) Hollinger Mines Limited
Box 320, Timmins, Ont. P4N 7E2

Survey Company Hollinger Mines Limited

Author of Report C. D. MacKenzie

Address of Author Box 320, Timmins, Ont.

Covering Dates of Survey July 4 - Sept. 1, 1978
(linecutting to office)

Total Miles of Line Cut Taped Lines (4 miles)

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
-Electromagnetic	20
-Magnetometer	
-Radiometric	
-Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Sept. 1, 1978 SIGNATURE: _____
Author of Report or Agent

L.D.

Res. Geol. _____ Qualifications 63.1255

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
S	- 398071
S	- 398072
S	- 425329
S	- 425053

4 mnf covered

If space insufficient, attach list

41195SE0033 0014A1 NAIRN

900

TOTAL CLAIMS 4

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 212 Number of Readings 212

Station interval 100' Line spacing 400'

Profile scale 1" = 40ft (2.54 cm = 40ft)

Contour interval

MAGNETIC

Instrument

Accuracy – Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument Geonics EM-16 Serial #48

Coil configuration Horizontal receiver

Coil separation Infinity

Accuracy ± 1 degree

Method: ☒ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency 20 KHz Station NAA Cutler, Maine
(specify V.L.F. station)

Parameters measured In-Phase and Quadrature

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Radiometric (Scintillometer)

Township or Area Nairn Township

Claim Holder(s) Hollinger Mines Limited
Box 320, Timmins, Ont. P4N 7E2

Survey Company Hollinger Mines Limited

Author of Report C. D. MacKenzie

Address of Author Box 320, Timmins, Ont.

Covering Dates of Survey July 4 - Sept. 1, 1978
(linecutting to office)

Total Miles of Line Cut 4 miles of line taped.

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

DAYS per claim

Geophysical
- Electromagnetic _____
- Magnetometer _____
- Radiometric 20
- Other _____

Geological _____

Geochemical _____

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Sept. 1, 1978 SIGNATURE: C.D. MacKenzie
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
S -	398071
S -	398072
S -	425329
S -	425053

If space insufficient, attach list

TOTAL CLAIMS 4

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS -- If more than one survey, specify data for each type of survey

Number of Stations 212 Number of Readings 254

Station interval 100' Line spacing 400'

Profile scale

Contour interval 1000 c.p.m.

MAGNETIC

Instrument

Accuracy -- Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency (specify V.L.F. station)

Parameters measured

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters -- On time Frequency

-- Off time Range

-- Delay time

-- Integration time

Power

Electrode array

Electrode spacing

Type of electrode

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument Scintillometer TV-1A Serial No. 176-88

Values measured Total counts per minute at 100' stations

Energy windows (levels) T_1 .2 MEV.; T_2 1.6 MEV.; T_3 2.5 MEV.

Height of instrument Hip Level (1 meter) Background Count Varies from 1000 to 2000 c.p.m

Size of detector 1" in diameter, 1½" thick (crystal)

Overburden Varies from 0 to 100'
(type, depth - include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____
(specify for each type of survey)

Accuracy _____
(specify for each type of survey)

Aircraft used _____

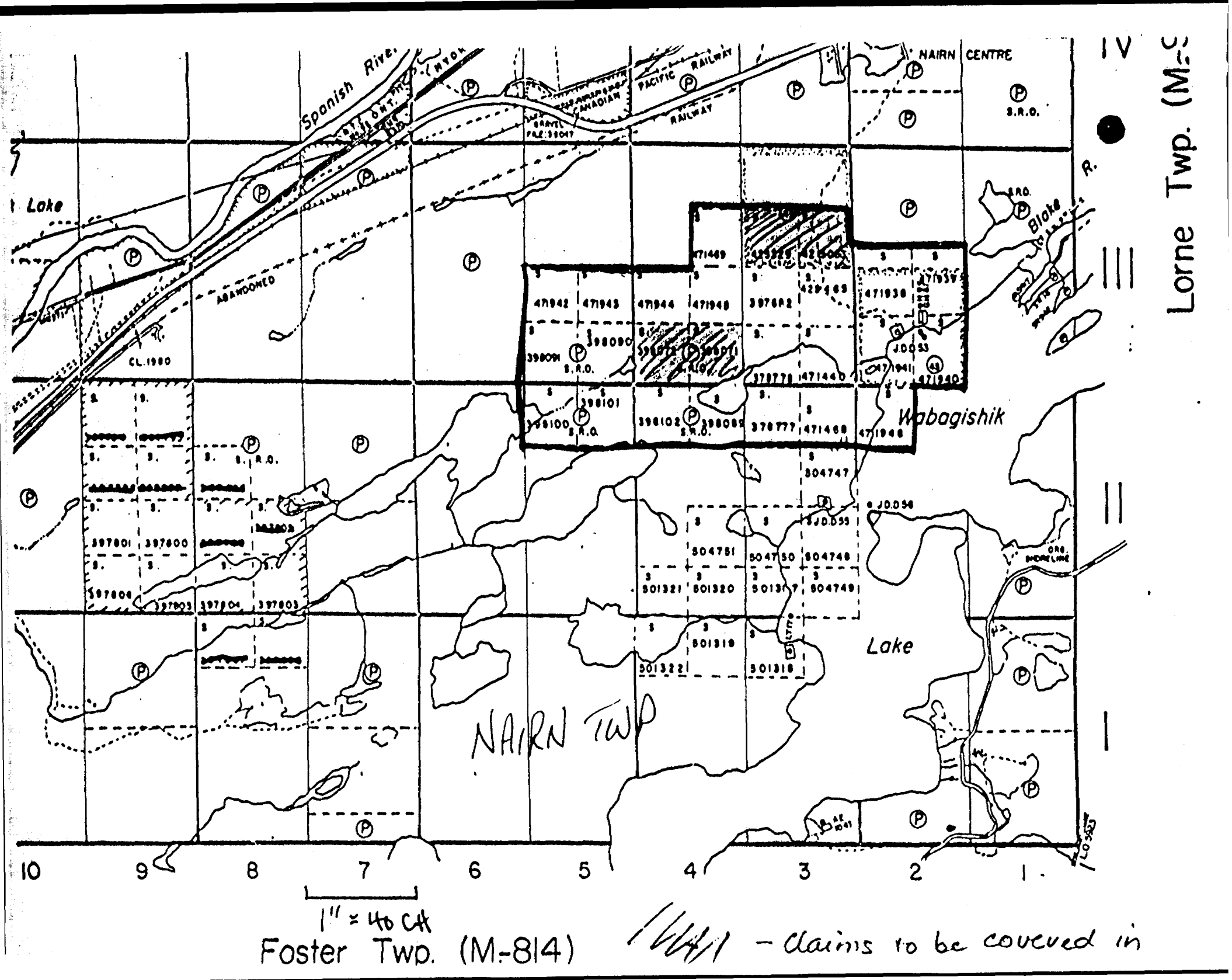
Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____



Foster Twp. (M-814)

Lorne Twp. (M-5

1/4/1 - claims to be covered in

SEE ACCOMPANYING

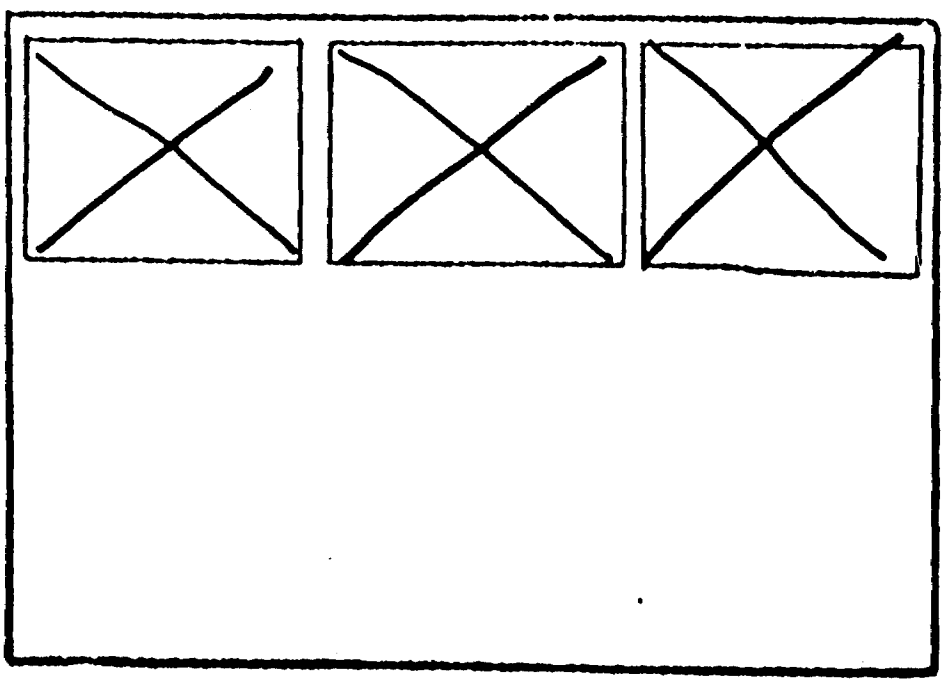
MAP(S) IDENTIFIED AS

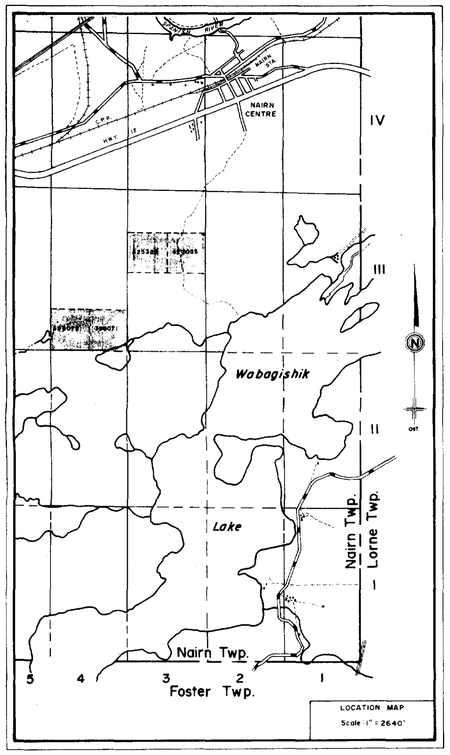
NAIRN-0014-A1. #1

#2

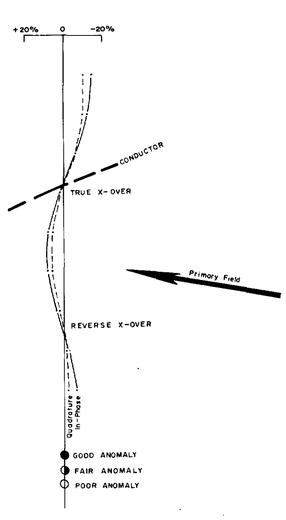
#3

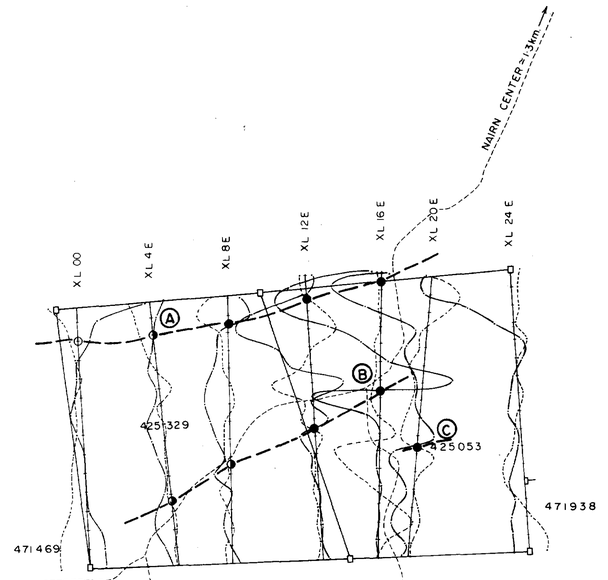
LOCATED IN THE MAP CHANNEL IN THE FOLLOWING SEQUENCE (X)

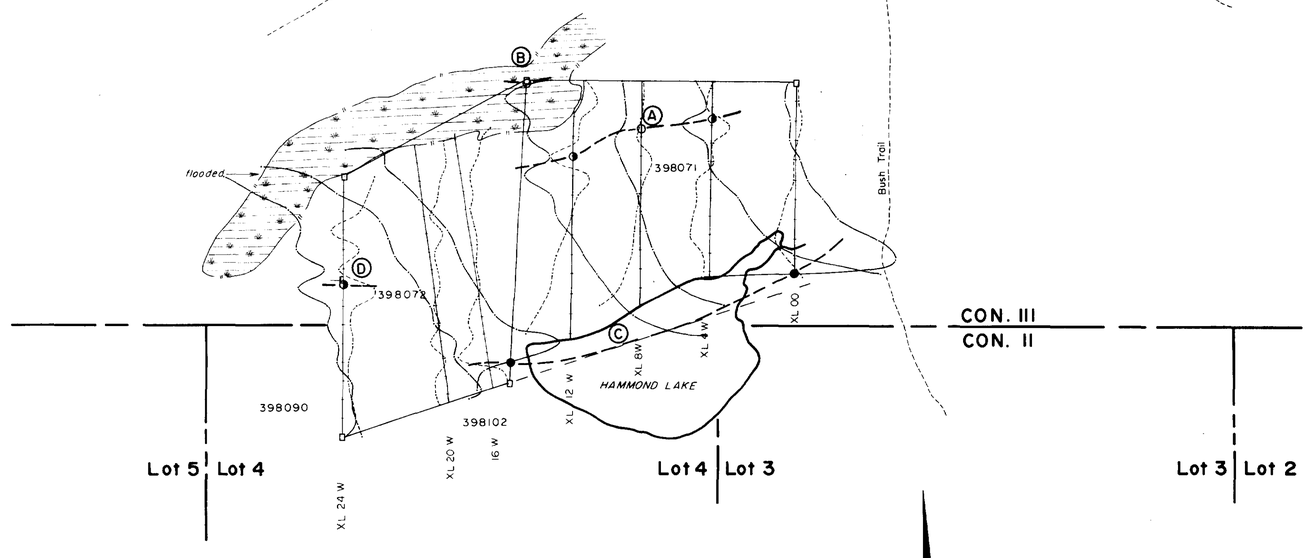




LEGEND







HOLLINGER MINES LTD.

V.L.F. SURVEY

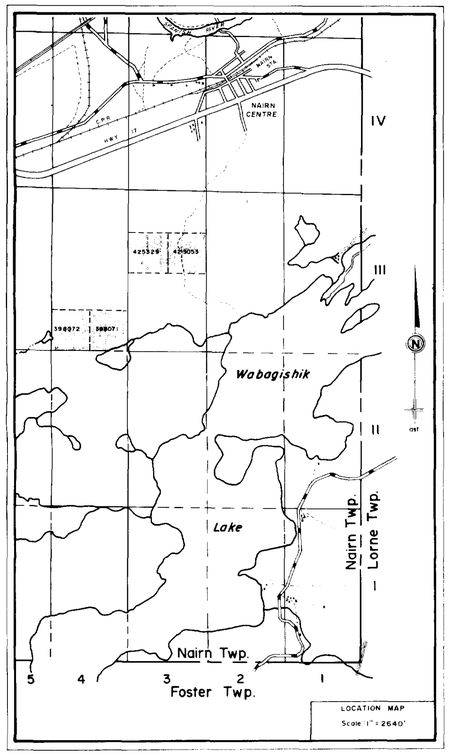
(20 KHz.)

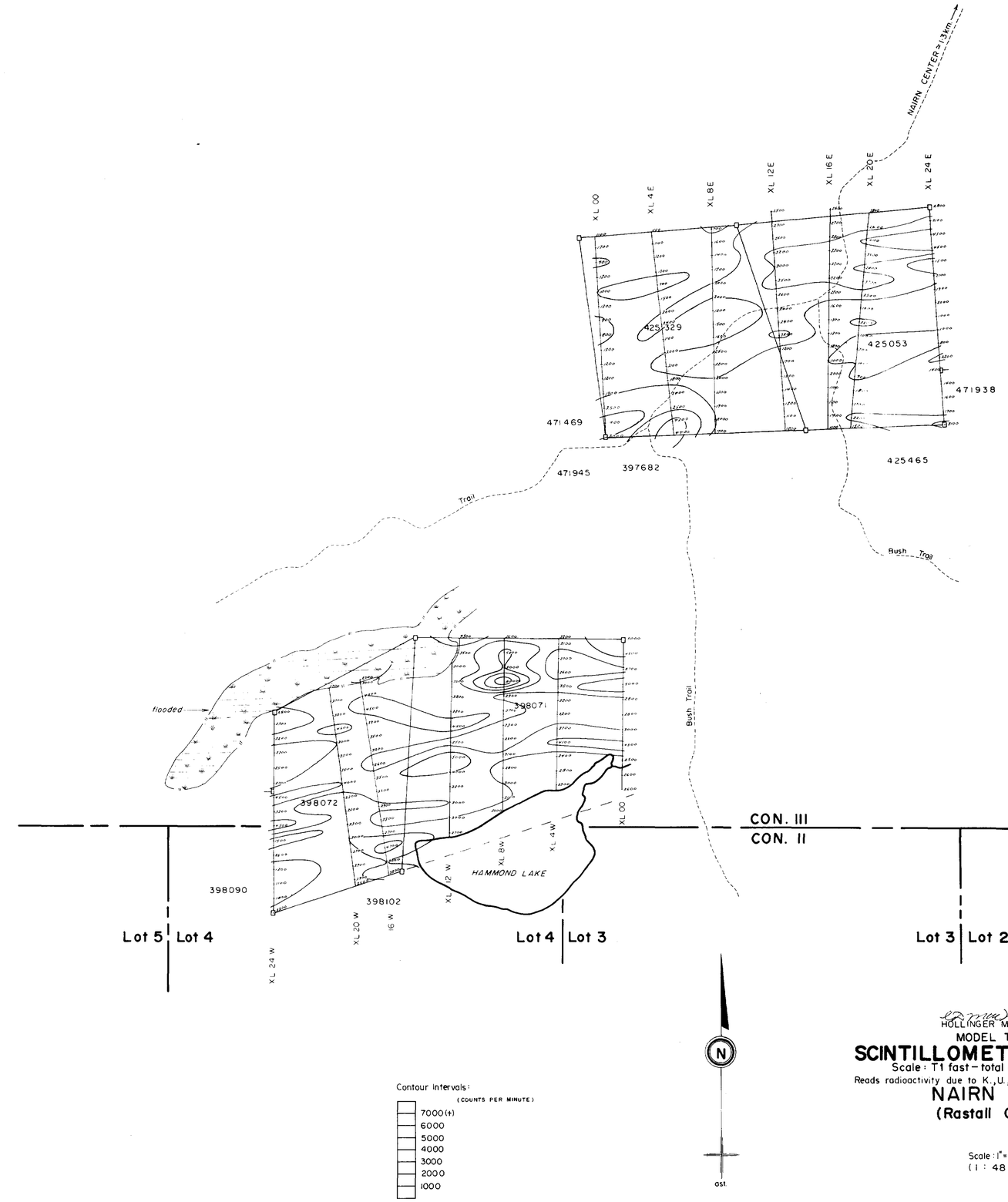
NAIRN TWP.

(Rastall Option)

Scale : 1" = 400'
(1 : 4800)

NAIRN-0014-A1-#1





Contour Intervals:
(COUNTS PER MINUTE)

- 7000 (+)
- 6000
- 5000
- 4000
- 3000
- 2000
- 1000

HOLLINGER MINES LTD.

MODEL TV-1A

SCINTILLOMETER SURVEY

Scale: T1 fast – total counts per minute

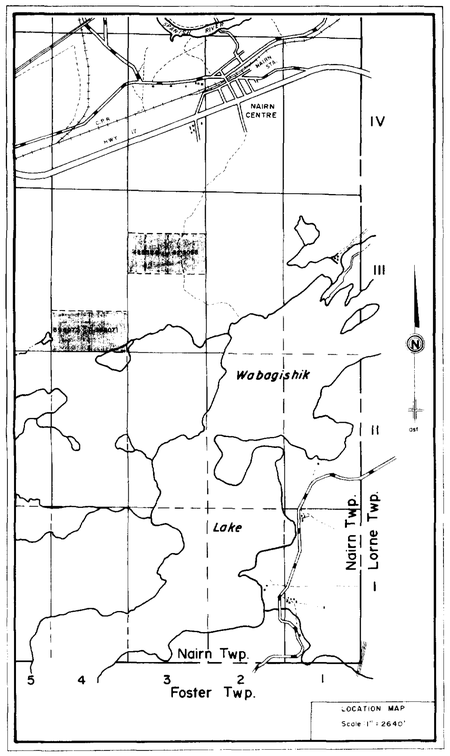
Reads radioactivity due to K., U., Th., & daughter products

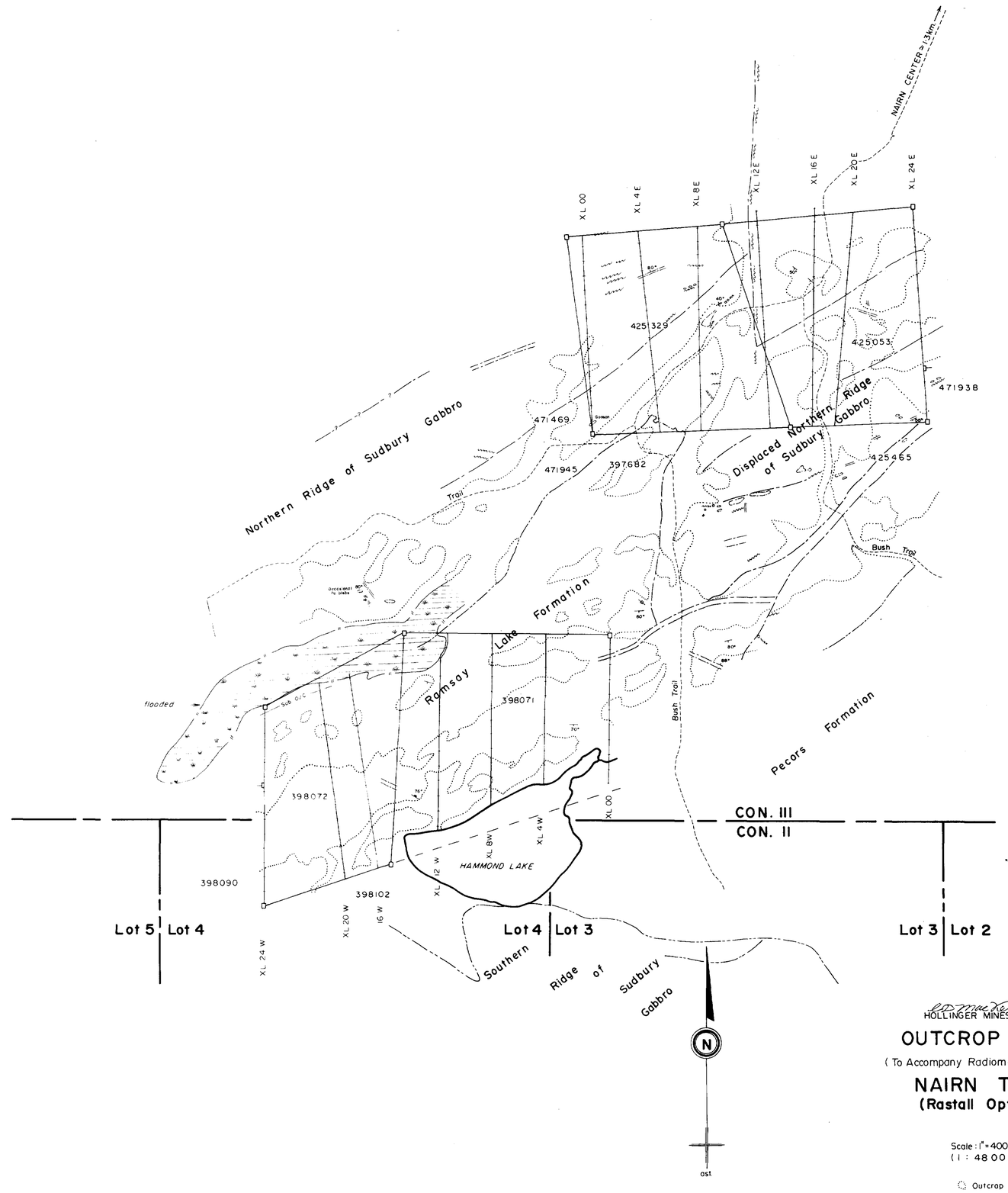
NAIRN TWP.

(Rastall Option)

Scale: 1" = 400'
(1 : 4800)

NAIRN-0014-A1-#2





HOLLINGER MINES LTD.

OUTCROP MAP

(To Accompany Radiometric Survey)

NAIRN TWP.

(Rastall Option)

Scale : 1" = 400'
(1 : 4800)

Outcrop