



31M05NE0035 2.5404 BUCKE

010

Report on Till and Humus Geochemistry,
Highland-Crow/Copperfields Property,

Sharpe Lake

by

W. O. Karvinen, Ph.D.

February 1983

RECEIVED

FEB 28 1983

MINING LANDS SECTION

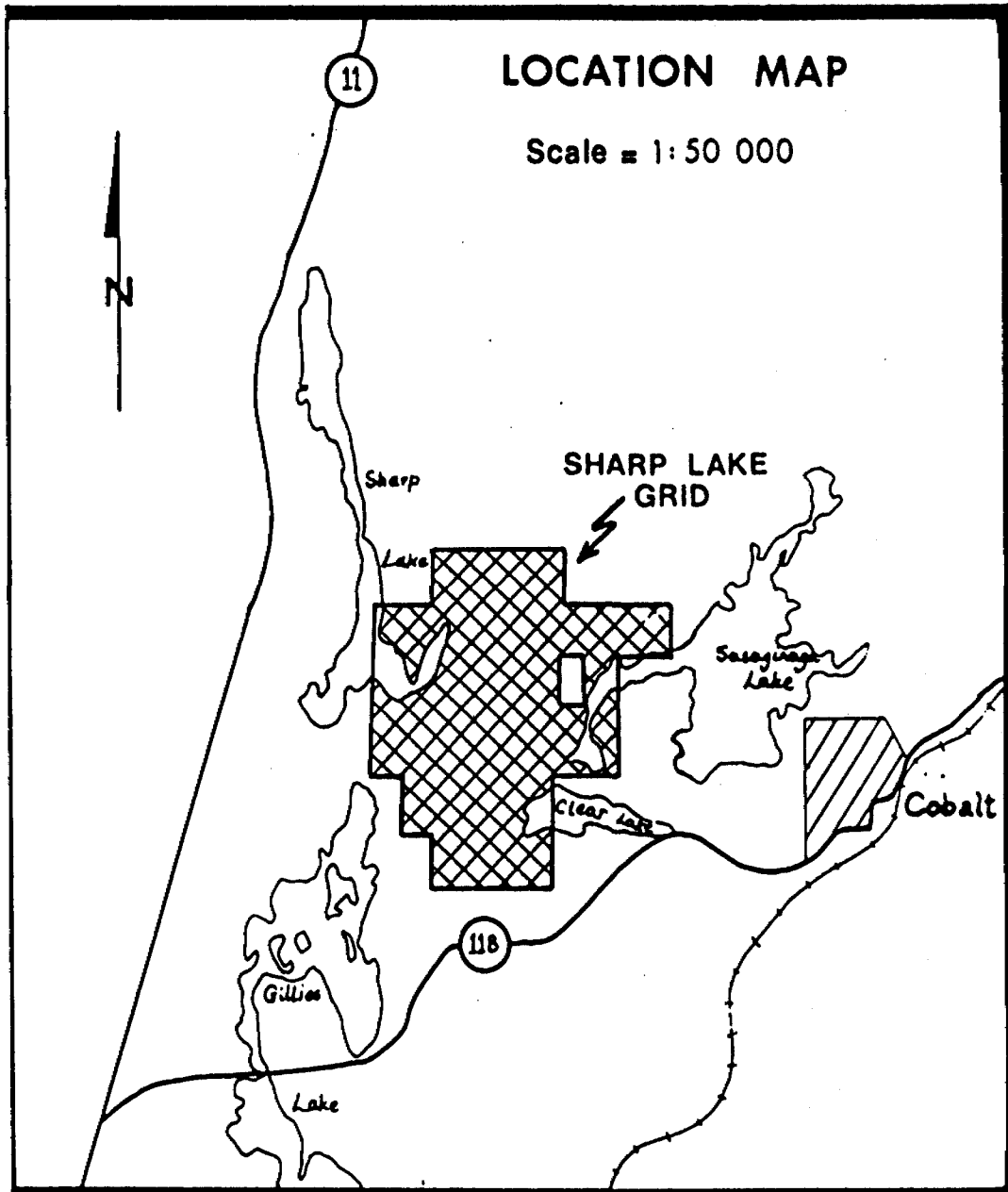
W.O.Karvinen & Associates Ltd.

Introduction

As part of an exploration strategy to test a portion of the Sharpe Lake sedimentary basin for potential silver mineralization at depth (>500 feet), a till and humus geochemical survey was carried out in July 1982 by W.O. KARVINEN & Associates Ltd. on ground held by Highland-Crow Resources Ltd. and Copperfields Mining Corp. The survey was considered to have merit based on orientation surveys carried out by the Geological Survey of Canada (Boyle et al, 1966) which showed convincing anomalies over silver mineralization buried at depth (e.g. Silverfields Mine). In addition, previous work on the Sharpe Lake property by St. Joseph Explorations Ltd. (now Sulpetro Minerals Ltd.) indicated strong silver and arsenic anomalies in humus which were not followed up. The assumption in the methodology is that ground waters percolating through deep fractures would transport silver from depth and form surface anomalies in till and humus. Because of the broad dispersed of ground waters and the mobility of silver under slightly acid conditions, only broad, regional anomalies were expected. These would not delineate specific drill targets but would outline the main areas of potential silver mineralization.

A total of 153 till samples and 407 humus samples were collected along cut grid lines and assayed for Ag, Co, Zn and As. Some were also assayed for Cu and Ni.

The results indicate strong broad anomalous areas in Ag, Co, As and Zn over most of the grid. This contrasts sharply with only few small anomalous zones revealed by a similar survey over the East Grid in Bucke Township (see a previous report).



Location of Sharpe Lake Property

Property Description

The property comprises 18 contiguous claims in north-central Coleman Township (see map). The grid and survey, however, cover only seven contiguous claims in the group; these are: S607422, S647812, S630758, S630759, S647813, S647814 and S647815. The claims are registered in the name of Highland-Crow Resources Ltd. of Vancouver.

Location and Access

The property is located in lots 8 to 10, Conc. VI of Coleman Township, approximately one mile west of the Town of Cobalt (see map). It is readily accessible via the seasonal road to Sharpe Lake.

Sample Collection

The 153 samples of till were collected at 100 ft. intervals using a portable percussion drill (Cobra) which drives a flow-through type sampler/bit with a string of 25 mm diameter rods. The sample retrieved weighs from 50 to 90 grams (see maps). A composite of two samples, from the basal portion of the till was collected at each station. 407 humus samples were collected at 100 ft. intervals from the Ao soil profile horizon and packed into kraft sample bags. Care was taken not to include recent vegetation (e.g. roots, leaves) and silicate material.

Sample Analysis

The till samples were dried and sieved to separate the -200 mesh size fraction which was assayed for Ag, Co, As, Cu and Ni using routine digestive techniques and atomic absorption analysis.

The humus samples were dried and sieved to -50 mesh. Hot HNO_3 -HCL extraction was used to separate Co, Zn and Ag from the sample while hot

Nitric perchlorate was used in the As extraction. Atomic absorption and colourimetric methods were used for analysis.

Quality of Samples

In the area of the grid, bedrock is covered partly by a thin (1 ft. to 10 ft.) layer of till or drift. All samples collected were oxidized to a brown colour. About half of 153 samples collected were sandy oxidized till while the rest were oxidized compact lodgement-type till. Because of the poor quality of the till in general, samples were collected over only a portion of the grid (see sample location maps).

Results

The contents of Ag, Co, As, Zn, Cu and Ni in till and humus are plotted on separate maps attached to this report. Copper and nickel, although showing a few scattered anomalous results (Cu 75 ppm; Ni 50 ppm), are not particularly enriched in tills or humus. As a result only a portion of the samples were analyzed for these elements.

Zn was selected as an indicator element because of its strong enrichment in the local silver deposits. The metal shows little enrichment in till (>35 ppm), but in marked contrast is greatly enriched in humus (>125 ppm). The strong anomaly on the unconformity west of Sasaginaga Lake reflects visible sphalerite scattered through basement interflow bands and lower Coleman sediments. Other anomalous, but lower values are spread over the entire grid.

Silver shows a sympathetic correlation with Zn although it is slightly more anomalous (>1.2 ppm) in tills (see maps). Strong anomalous values (2.5 ppm up to 6.0 ppm) of silver in humus are scattered over a large portion of the grid area.

Cobalt and arsenic are not significantly enriched in the till samples collected, however, as with silver, strong anomalous values of Co (>15 ppm) and As (>28 ppm) are scattered across the sampling area (see maps).

Discussion of Results

Because the range of anomalous values compare to those obtained in the orientation over known deposits at Cobalt, these broad anomalies in Ag, Co, As and Zn on the Sharpe Lake grid are thought to emanate from concentrations of these elements at depth. This contrasts sharply with a similar survey over the East Grid in Bucke Township where anomalous values were mainly restricted to the extreme southeast corner over the North Cobalt trough. Thus on a regional scale, the humus and till geochemical survey indicates a broad area of potential mineralization east of Sharpe Lake.

Conclusions

1. The quality of till in the Sharpe Lake area does not warrant a large scale survey based on its geochemistry. However, humus is of good quality and readily available.
2. Some of the till results and most of the humus data indicate a broad area of mineralization east of Sharpe Lake. It is coincident with the important "interflow bands" which strike westward into the ground from Cobalt.

W O Karvini

February 15, 1983

Dr. William O. Karvinen

C E R T I F I C A T E

I, William Oliver Karvinen, of R. R. #2, Wahnapitae, Ontario, a geological consultant and President of W.O. KARVINEN & Associates Ltd., do hereby certify that:

The information contained in this report is accurate and correct;

That I have a 2½% net profits carried interest in the property described herein;

I hold a Doctorate of Philosophy and an Honours B.Sc. in geology from Queen's University (1974 and 1968) and a Master of Science in geology from the University of British Columbia (1970);

I am a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.

Wahnapitae, Ontario
February 15, 1983

Dr. William O. Karvinen



Instructions: - Please type or print. - If number of mining claims traversed exceeds space on this form, attach a list. Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns. - Do not use shaded areas below.

W.F. 0827

The Mining Act

Form header containing: Type of Survey(s) (Overburden Drilling), Claim Holder(s) (Highland-Crow Resources Ltd.), Address (1199 W. Hastings St., Vancouver, B.C. V6E 2K5), Survey Company (W.O. KARVINEN & Associates Ltd.), Date of Survey (13 07 82 to 20 07 82), Total Miles of line Cut, Name and Address of Author (Dr. William O. Karvinen, R.R. #2, Wahnapitae, Ontario POM 3C0).

Table for Special Provisions, Man Days, and Airborne Credits. Columns include: Special Provisions, Geophysical, Days per Claim, Man Days, and Airborne Credits.

Table for Mining Claims Traversed. Columns include: Mining Claim Prefix, Mining Claim Number, Expend. Days Cr., and Mining Claim Prefix, Mining Claim Number, Expend. Days Cr. Includes a 'RECEIVED' stamp dated MAR 1 1983 and a 'RECEIVED' stamp dated FEB 24 1983.

Form for Expenditures (excludes power stripping) and Instructions. Includes: Type of Work Performed (Overburden Percussion Drilling), Performed on Claim(s) (S647812; 630759; 647813; 630758; 647815; 647799; 647804), Calculation of Expenditure Days Credits (\$1980.00 + 15 = 132), and Instructions regarding Total Days Credits.

Total number of mining claims covered by this report of work: 10

Form for Date and Recorded Holder or Agent (Signature). Date: Feb. 28/83, Signature: W.O. Karvinen.

Form for For Office Use Only. Includes: Total Days Cr. Recorded (132), Date Recorded (Feb. 25/83), Mining Recorder signature, Date Approved as Recorded (84.1.18), and Recorder signature.

Certification Verifying Report of Work. I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true. Name and Postal Address of Person Certifying: Dr. W. O. Karvinen, R.R. #2, Wahnapitae, Ont. POM 3C0. Date Certified: Feb. 28, 1983. Certified by (Signature): W.O. Karvinen.

Details of Assessment Work Breakdown

FIELD WORK

<u>Type of Work</u>	<u>Name & Address</u>	<u>Dates Worked</u>	<u>Number of 8 hour days</u>
Humus sampling	Bruce Raine, Schumacher Ont.	July 30 - Aug. 7/82	
Humus sampling	Dan Vallentree, Timmins Ont.	Aug. 10 - Aug. 12/82	12
			12

CONSULTANTS

<u>Name & Address</u>	<u>Dates Worked (specify in field or office)</u>	<u>Number of 8 hour days</u>
W.O. KARVINEN	July 13, 14, 26, 29, 30; Aug. 3, 5, 10/1982 field	
R.R.Z.	Feb. 9, 14, 15, 16/1983 office	13
WAINWAPITAE ONT.		

DRAUGHTSMAN, TYPING, OTHERS (specify)

<u>Name & Address</u>	<u>Type of Work</u>	<u>Dates Worked</u>	<u>Number of 8 hour days</u>
Josune Martens	Draughting	Jan. 15 - Feb. 3/83	4
Sudbury Ont.			

TOTAL 8 HOUR TECHNICAL DAYS 17

LINE-CUTTING

<u>Name</u>	<u>Address</u>	<u>Dates Worked</u>	<u>Number of 8 hour days</u>
Terry Kiswan	Wainapitae Ont.	June 20 - July 2/82	
			10

TOTAL 8 HOUR LINE-CUTTING DAYS 10

Details of Assessment Work Breakdown

FIELD WORK

<u>Type of Work</u>	<u>Name & Address</u>	<u>Dates Worked</u>	<u>Number of 8 hour days</u>

CONSULTANTS

<u>Name & Address</u>	<u>Dates Worked (specify in field or office)</u>	<u>Number of 8 hour days</u>

DRAUGHTSMAN, TYPING, OTHERS (specify)

<u>Name & Address</u>	<u>Type of Work</u>	<u>Dates Worked</u>	<u>Number of 8 hour days</u>

TOTAL 8 HOUR TECHNICAL DAYS _____

LINE-CUTTING

<u>Name</u>	<u>Address</u>	<u>Dates Worked</u>	<u>Number of 8 hour days</u>

TOTAL 8 HOUR LINE-CUTTING DAYS _____



Mining Lands Comments

duplicate map signed + one original.
 report not signed
 - \$ 3163.20 in cancelled cheques missing.

To: Geophysics

Comments

Approved Wish to see again with corrections Date Signature

To: Geology - Expenditures ~~Mr. Kutra.~~

Comments

This is all geochemistry
 Oct 28/83
 cek.

Approved Wish to see again with corrections Date Signature

To: Geochemistry ~~Dr. Fortescue.~~

Comments

L.D.

Approved Wish to see again with corrections Date 27 Oct 1983 Signature JAC [Signature]

To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1983 03 23

2/5804

Mining Recorder
Ministry of Natural Resources
199 Larch Street
Sudbury, Ontario
P3E 5P9

Dear Sir:

We have received data for Geochemical Survey and Assaying submitted under Section 77(19) of the Mining Act R.S.O. 1980 submitted on Mining Claims 5 607422 et al in the Townships of Coleman and Bucke.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

A. Barr:sc

cc: Highland Crow Resources
Vancouver, B.C.

cc: Dr. W.O Karvinen
Wahnapiatae, Ontario

November 15, 1983

2.5404

Dr. W.O. Karvinen
R.R.#2
Barnapitae, Ontario
POM 3C0

Dear Sir:

RE: Geochemical Survey, Sample Assay Expenditures, and
Overburden Drilling submitted on mining claims
S 607422 et al in the Townships of Bucke and Coleman

Enclosed are some of the geochemical plans and the last page
of the report for the above-mentioned survey. In order to
complete your submission we require the following:

- (a) The plans and pages should all be signed
- (b) the drill logs and a map showing the location
of the drill holes, in duplicate. If you wish,
you may indicate the drill hole locations on the
geochemical plans.
- (c) signed receipts for the drilling expenses
- (d) a man-days breakdown listing the employees and
the dates that each man worked on the various
phases of the geochemical survey.

For further information, please contact Mr. F.W. Matthews
at (416)965-1380.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: (416)965-1380

D. Kinvig:mc

Encl.

cc: Highland-Crow Resources Ltd
1199 West Hastings Street
Vancouver, B.C. V6E 2K5

cc: Mining Recorder
Sudbury, Ontario

W.O. Karvinen & Associates Ltd.

Mineral Exploration • Consulting • Overburden Prospecting

2.5404

Dec. 26/83

F.W. Mathews,
Land Management Br.

RECEIVED

JAN 3 1984

Dear Mr. Mathews,

MINING LANDS SECTION

Re: your requests in letter dated Nov. 15/83 (your file 2.5404)
file No.

Enclosed are requests for (a), (c) and (d) of your letter. In regard to (b), the till sample location map is the drill hole location map for the overburden drilling. Contrary to diamond drill holes in rocks, these percussion holes are in unconsolidated glacial sediments (till) which overlie bedrock. In this area they are all shallow (1-2 m.) and consist totally of till. Because of the method used (flow-through sampler), only the basal portion of the till was recovered, examined and analyzed. Therefore no drill logs exist. I hope this is sufficient information for you to complete this file.

Sincerely,

W.O. Karvinen

P.S. Send all future corresp. to head office

Breakdown of Analytical Costs

<u>Till</u>	<u>Invoice No.</u>	<u>Total</u>	<u>Paid by cheque No.</u>
(Bell-White)	12087	\$176.00	0058
	12181	286.00	0063
	12048	203.00	0048
	12054	116.00	0049
	12063	385.00	0050
	12072	462.00	0051
	12110	165.00	0056
	12109	231.00	0057
	sub-total:	<u>\$2024.00</u> ✓	

<u>Humus</u>	100681	\$1738.95	0059
(Bondar-	100608	1237.25	0062
Clegg)	100426	1239.75	0054
	sub-total:	<u>\$4215.95</u>	

can't find

Grand Total: \$6239.95

Note: Photocopies of cancelled cheques are enclosed.

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0051

Aug. 4 1982

PAY TO THE ORDER OF

Bell-White

\$ 462.00

SUM OF

four hundred and sixty-two

DOLLARS

FOR

till analyses

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W.O. Karvinen

⑆03892⑆010⑆

⑆8⑆006⑆1⑆1⑆

⑆0000046200⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0050

Aug. 4 1982

PAY TO THE ORDER OF

Bell-White Labs

\$ 385.00

SUM OF

three hundred and eighty-five

DOLLARS

FOR

till analyses

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W.O. Karvinen

⑆03892⑆010⑆

⑆8⑆006⑆1⑆1⑆

⑆0000038500⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0049

Aug. 4 1982

PAY TO THE ORDER OF

Bell-White Labs

\$ 116.00

SUM OF

one hundred and sixteen

DOLLARS

FOR

till analyses

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W.O. Karvinen

⑆03892⑆010⑆

⑆8⑆006⑆1⑆1⑆

⑆0000011600⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

Aug 4 0048
19 82

PAY TO THE ORDER OF Bell-White Labs \$ 203.00

SUM OF two hundred and three DOLLARS

FOR till analyzed

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W O Karvinen

⑆03892⑆010⑆ 98⑆008⑆1⑆ ⑆0000020300⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0056
Sept 1 19 82

PAY TO THE ORDER OF Bell-White Labs \$ 165.00

SUM OF one hundred and sixty-five DOLLARS

FOR invoice 12110

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W O Karvinen

⑆03892⑆010⑆ 98⑆006⑆1⑆ ⑆0000016500⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0057
Sept 1 19 82

PAY TO THE ORDER OF Bell-White Labs \$ 231.00

SUM OF two hundred and thirty-one DOLLARS

FOR invoice No. 12109

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W O Karvinen

⑆03892⑆010⑆ 98⑆006⑆1⑆ ⑆0000023100⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0058
1982

Sept 1

PAY TO THE ORDER OF

Bell-White Labs

\$ 176.00

SUM OF

One hundred and seventy-six

xx DOLLARS
100

FOR

Invoice No. 12087

3 8 0 9 0 W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W.O. Karvinen

⑆03892⑆010⑆

98⑆006⑆1⑆

⑆00000⑆17600⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0063

Sept. 13 1982

PAY TO THE ORDER OF

Bell-White Laboratories Ltd.

\$ 286.00

SUM OF

two hundred and eighty-six

xx DOLLARS
100

FOR

bill analyses

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W.O. Karvinen

⑆03892⑆010⑆

98⑆006⑆1⑆

⑆00000⑆28600⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0054

Aug 29 1982

PAY TO THE ORDER OF BONDAR - CLEGG Co. Ltd. \$ 1237.75

SUM OF one thousand two hundred and thirty seven ⁷⁵/₁₀₀ DOLLARS

FOR analytical services (invoice 100426)

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W.O. Karvinen

⑆03892⑆010⑆

98⑆0061⑆

⑆0000123975⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0062

Sept 13 1982

PAY TO THE ORDER OF Bondar - Clegg & Co Ltd. \$ 1237.25

SUM OF one thousand two hundred and thirty seven ²⁵/₁₀₀ DOLLARS

FOR analytical services

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W.O. Karvinen

⑆03892⑆010⑆

98⑆0061⑆

⑆0000123725⑆

W.O. KARVINEN & ASSOCIATES LTD. TRUST
R.R. No. 2, Tel. 694-5558
Wahnapitae, Ontario POM 3C0

0059

Sept 6 1982

PAY TO THE ORDER OF Bondar - Clegg Co Ltd. \$ 555.75

SUM OF five hundred and fifty five ⁷⁵/₁₀₀ DOLLARS

FOR residue analysis

W.O. Karvinen & Associates Ltd. Trust

CANADIAN IMPERIAL BANK OF COMMERCE
New Sudbury Shopping Centre
Sudbury, Ont.

W.O. Karvinen

⑆03892⑆010⑆

98⑆0061⑆

⑆000055575⑆



BONDAR-CLEGG & COMPANY LTD.

764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-4455

Invoice: 100681

Date: August 26, 1982

Report No: 112-1259

WILLIAM O. KARVINEN
RR2,
WAINWAPITAE, ONTARIO,
P0N 3C0

509 Analyses of Silver	at	1.90	967.10	
509 Analyses of Cobalt	at	0.90	458.10	
509 Analyses of Zinc	at	0.90	458.10	
Subtotal			1883.30	1883.30
509 Analyses of Arsenic	at	3.25	1654.25	
Subtotal			1654.25	1654.25
Sample Preparation				
509 Samples of SEIVE -50	at	1.75	890.75	
Subtotal			890.75	890.75
Invoice Total				4428.30

Please Note

A total of \$3245.10 of this invoice of analyses was claimed on a previous assess form for other claims. The difference ($4984.05 - 3245.00$), which is 1738.95 is being claimed on the present form.

W O Karvinen Feb 28/83

THIS IS A PROFESSIONAL SERVICE
ACCOUNTS DUE WHEN RENDERED

BONDAR-CLEGG & COMPANY LTD.

64 BELFA ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-4455

AN O. KARUTNEN
TAE, ONTARIO.

Invoice: 100185
Date: August 12, 1982
Report No: 112-1051

Analyses of Arsenic
Subtotal

	at	3.25	555.75		.30
Invoice Total			555.75	555.75	1.25
				<u>555.75</u>	0.75
					<u>28.30</u>

*per
her claims
is being*

8/83

A.K.
THIS IS A PROFESSIONAL SERVICE
ACCOUNTS DUE WHEN RENDERED



BONDAR-CLEGG & COMPANY LTD.

. 764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-4455

WILLIAM O. KARVINEN
RR2,
WAHNAPIITAE, ONTARIO,
POM 3C0

Invoice: 100608

Date: August 19, 1982

Report No: 112-1167

101 Analyses of Silver	at	1.90	191.90	
101 Analyses of Cobalt	at	0.90	90.90	
101 Analyses of Copper	at	0.90	90.90	
101 Analyses of Nickel	at	0.90	90.90	
101 Analyses of Zinc	at	0.90	90.90	
Subtotal			555.50	555.50
101 Analyses of Arsenic	at	3.25	328.25	
Subtotal			328.25	328.25
Sample Preparation				
101 Samples of PULVERIZING	at	1.75	176.75	
101 Samples of SEIVE -50	at	1.75	176.75	
Subtotal			353.50	353.50
Invoice Total				\$1237.25

Cobalt.

*Paid by
cheque No. 0062
Sept 13/82*

Wm

THIS IS A PROFESSIONAL SERVICE
ACCOUNTS DUE WHEN RENDERED



BONDAR-CLEGG & COMPANY LTD.

764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-4455

WILLIAM O. KARVINEN
RR2,
WAHNAPIAEE, ONTARIO,
POM 3C0

Invoice: 100426

Date: August 09, 1982

Report No: 112-1051

171 Analyses of Silver	at	1.90	324.90	
171 Analyses of Cobalt	at	0.90	153.90	
171 Analyses of Copper	at	0.90	153.90	
171 Analyses of Nickel	at	0.90	153.90	
171 Analyses of Zinc	at	0.90	153.90	
Subtotal			940.50	940.50
Sample Preparation				
171 Samples of SEIVE -50	at	1.75	299.25	
Subtotal			299.25	299.25
Invoice Total				<u>\$1239.75</u>

*Paid by cheque No. 0054
Aug. 29/82*

JHK
**THIS IS A PROFESSIONAL SERVICE
ACCOUNTS DUE WHEN RENDERED**



BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187 HAILEYBURY, ONTARIO TEL: (705) 672-3107
POJ 1KO

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario.
POM 3CO

INVOICE No 12110

ORDER NO.

DATE August 5, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B201-82	Aug.5/82	15 Ag, 15 Cu, 15 Zn, 15 Ni, 15 Co, 15 As, 15 sample preparations <i>Cobalt Paid by cheque No. 0056 Sept 1/82</i>	\$ 165.00



BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187 HAILEYBURY, ONTARIO TEL: (705) 672-3107
POJ 1K0

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario.
POM 3C0

INVOICE No 12109

ORDER NO.

DATE August 5, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B200-82	Aug. 5/82	21 Ag, 21 Cu, 21 Zn, 21 Ni, 21 Co, 21 As, 21 sample preparations <i>Cobalt</i> <i>Paid by cheque</i> <i>No. 0057</i> <i>Sept 1/82</i>	\$ 231.00



BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187 HAILEYBURY, ONTARIO TEL: (705) 672-3107
POJ 1KO

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario.
POM 3C0

INVOICE No 12087

ORDER NO.

DATE July 30, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B196-82	July 30/82	16 Ag, 16 Cu, 16 Zn, 16 Ni, 16 Co, 16 As, 16 sample preparations <i>Cobalt Paid by cheque No. 0058 Sept 1/82.</i>	\$ 176.00



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POJ 1K0

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario.
POM 3C0

INVOICE No 12181

ORDER NO.

DATE August 19, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B231-82	Aug. 19/82	26 Ag, 26 Cu, 26 Zn, 26 Ni, 26 Co, 26 As, 26 sample preparations <i>Cobalt. Paid by cheque No. 0063 Sept. 13/82.</i>	\$ 286.00



BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187 HAILEYBURY, ONTARIO TEL: (705) 672-3107
POJ 1K0

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario.
POM 3C0

INVOICE No 12048

ORDER NO.

DATE July 20, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B183-82	July 20/82	29 Ag, 29 Cu, 29 Zn, 29 Ni, 29 Co, 29 sample preparations	\$ 203.00



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POJ 1KO

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario,
POM 3C0

INVOICE No 12054

ORDER NO.

DATE July 21, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B183A-82	July 21/82	29 As	\$ 116.00



BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187 HAILEYBURY, ONTARIO TEL: (705) 672-3107
POJ 1K0

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario.
POM 3C0

INVOICE No 12063

ORDER NO.

DATE July 23, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B185-82	July 23/82	35 Ag, 35 Cu, 35 Zn, 35 Ni, 35 Co, 35 As, 35 sample preparations	\$ 385.00



BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187 HAILEYBURY, ONTARIO TEL: (705) 672-3107
POJ 1KO

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario.
POM 3CO

INVOICE No 12072

ORDER NO.

DATE July 27, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B190-82	July 27/82	42 Ag, 42 Cu, 42 Zn, 42 Ni, 42 Co, 42 As, 42 sample preparations	\$ 462.00



BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187 HAILEYBURY, ONTARIO TEL: (705) 672-3107
POJ 1K0

W. O. Karvinen & Associates Ltd.,
R. R. #2,
Wahnapitae, Ontario.
POM 3C0

INVOICE No 12072

ORDER NO.

DATE July 27, 1982

CERTIFICATE NO.	DATE	DESCRIPTION	AMOUNT
B190-82	July 27/82	42 Ag, 42 Cu, 42 Zn, 42 Ni, 42 Co, 42 As, 42 sample preparations	\$ 462.00

W. O. Karvinen & Associates Ltd.

R.R. 2
WAHNAPITAE, ONT. P0M 3C0

ms. 5

0130

Bus. 694-5558 Res. 694-4307

TO

Highland-Crow
Copperfields

DATE	August 2, 1982
CUSTOMER ORDER NO	
SALESMAN	Regional Exploration,
	Eastern Ontario (Cobalt)
VIA	Geochem sampling &
	line cutting

TERMS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
8.3 mi.	Line cutting (flagging)	\$175.00	\$1452.50
139 stations	Overburden Drilling (2 holes/station)	12.00	1668.00
226 samples	Humus sampling	3.60	813.60
24 days	Truck rental	20.00	480.00
1526 km	Mileage	0.22	335.72
			<hr/> \$4749.82

*Payment received
in full
W. Karvinen*

ORIGINAL

Thank You!

B 694-5558 Res. 694-4307

TO

Highland Crow Resources Ltd.
Copperfields Mining Corp.

DATE	August 14, 1982
CUSTOMER ORDER NO	
SALESMAN	Regional Exploration, Eastern Ontario (Cobalt)
VIA	Geochem sampling & line cutting

TERMS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
2.6 mi.	line cutting (flagged)	\$175.00	\$455.00
26 stations	overburden drilling (2 holes/station)	12.00	312.00
541 samples,	humus sampling	3.60	1947.60
15 days	truck rental	20.00	300.00
954 km	mileage	0.22	209.88
			<u>\$3224.48</u>

*Payment received
in full
W. O. Kapvinen*

ORIGINAL

Thank You!

5435

5435

BUCKE L.M.P.

BUCKE L.M.P.

5435

5435

Dymond Twp. (M.468)

THE TOWNSHIP OF

BUCKE

DISTRICT OF TIMISKAMING

SUDBURY MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

VI

V

IV

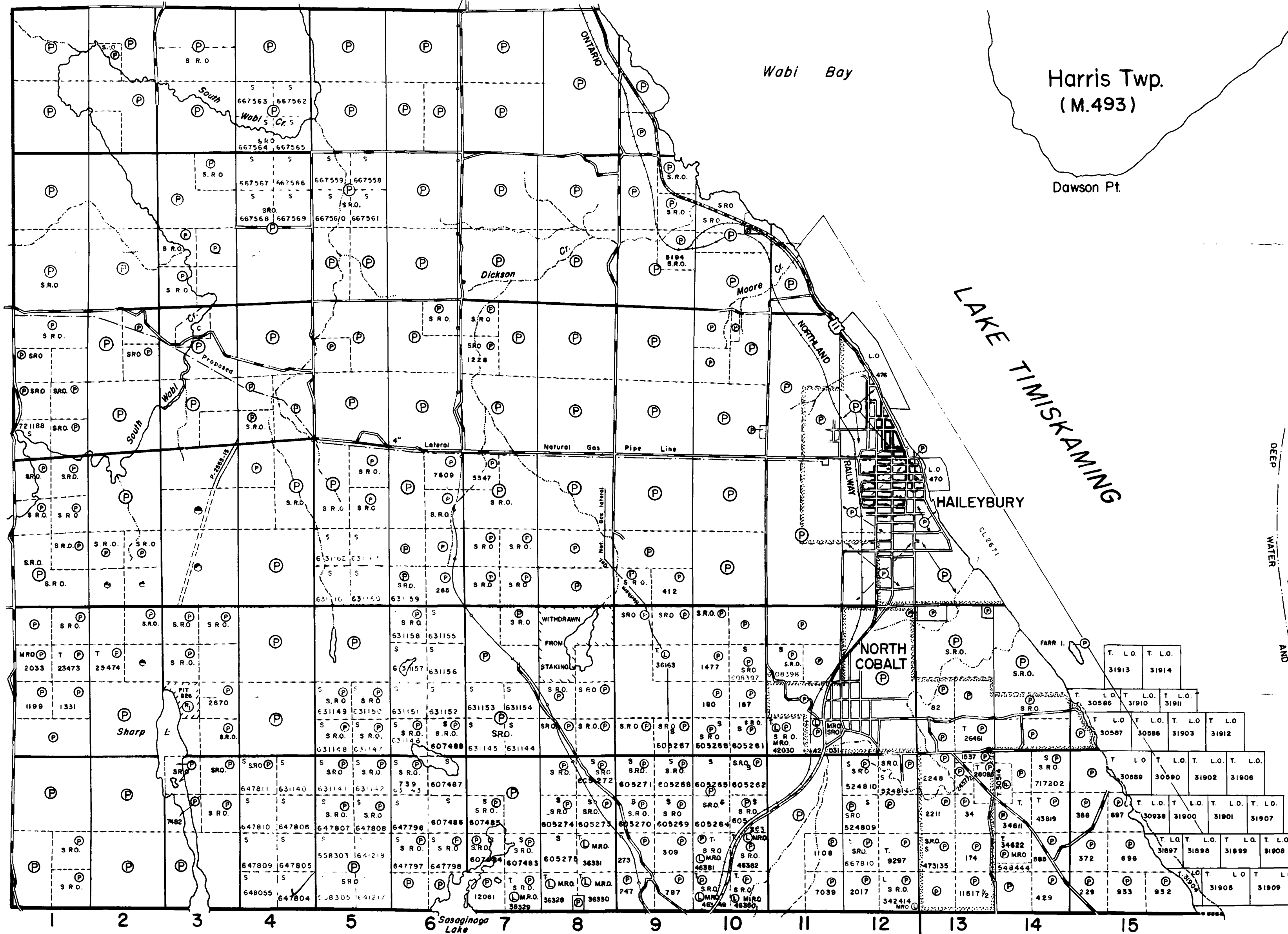
III

II

I

Firstbrook Twp. (M.475)

Province of Quebec



2.5404

Coleman Twp. (M.454)

Lorrain Twp. (M.536)

LEGEND

- PATENTED LAND or P
- CROWN LAND SALE C.S
- LEASES L
- LOCATED LAND Loc
- LICENSE OF OCCUPATION L.O
- MINING RIGHTS ONLY M.R.O
- SURFACE RIGHTS ONLY S.R.O
- ROADS
- IMPROVED ROADS
- KINGS HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKEG
- MINES
- PATENTED S.R.O.
- CANCELLED

NOTES

- 400' surface rights reservation along the shores of all lakes and rivers.
- Staking of mining claims within Townsites shown thus only with consent of the Minister.
- Flooding rights to elevation 595' above sea level in Lake Timiskaming
- Proposed Natural Gas Pipeline along Hwy. 11 through this township
- N. half Lot 8, Con.2 subject to sanitary control of Constance Lake for Town of Haileybury.

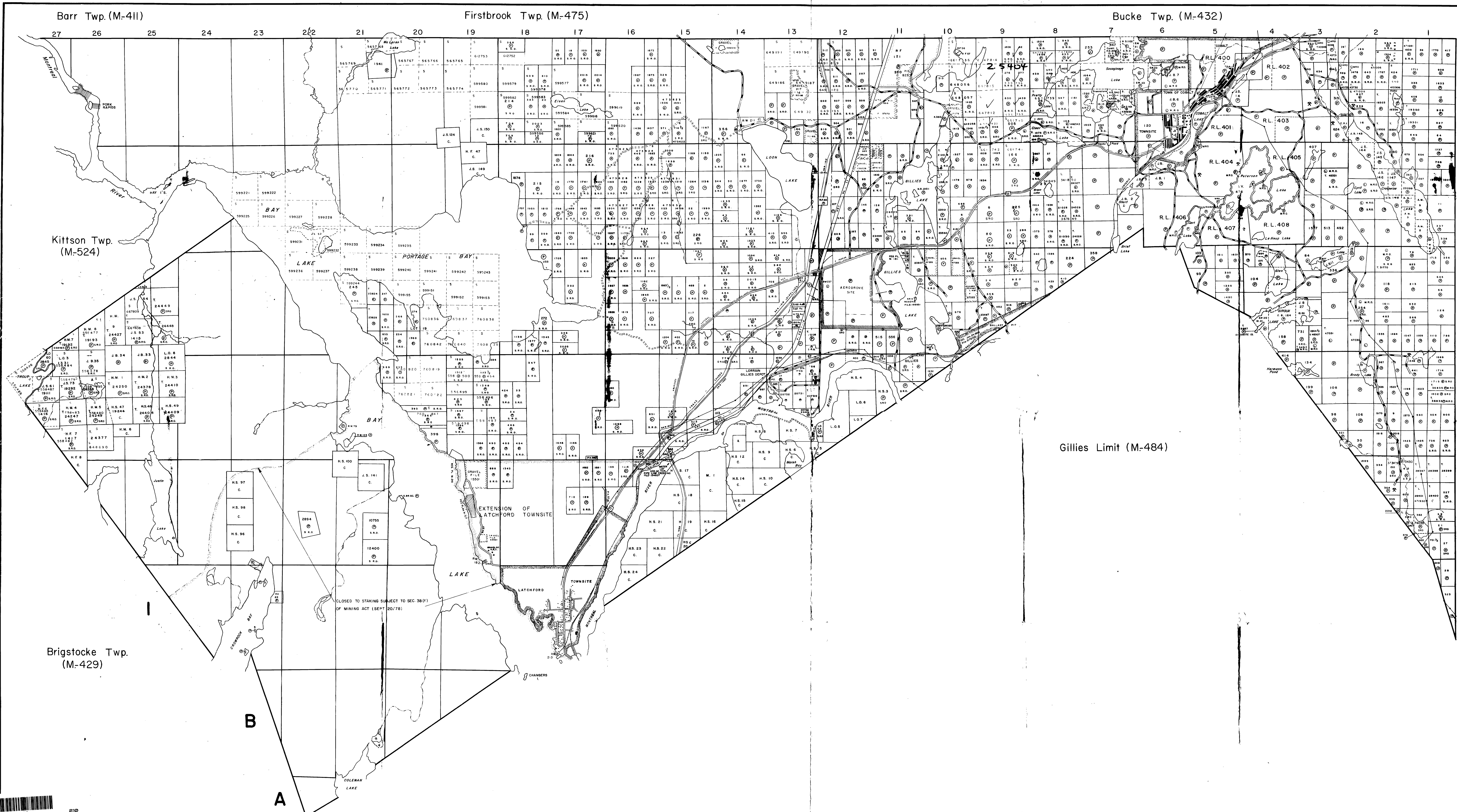
Areas withdrawn from staking under Section 43 of the Mining Act, R.S.O. 1970 (1964), R.S.O. 60.
 Order No. File DATE OF ISSUE Disposition

JAN 11 1984
 Ministry of Natural Resources
 TORONTO

PLAN NO - M.432

ONTARIO
 MINISTRY OF NATURAL RESOURCES
 SURVEYS AND MAPPING BRANCH





THE TOWNSHIP OF
COLEMAN
DISTRICT OF
TIMISKAMING
SUDBURY
MINING DIVISION
SCALE: 1-INCH=20 CHAINS

LEGEND

- PATENTED LAND
- CROWN LAND SALE
- LEASES
- LOCATED LAND
- LICENSE OF OCCUPATION
- MINING RIGHTS ONLY
- SURFACE RIGHTS ONLY
- ROADS
- IMPROVED ROADS
- KINGS' HIGHWAYS
- RAILWAYS
- POWER LINES
- MAINS OR HIGHWAYS
- MINES
- PATENTED S.R.O.
- CANCELLED

NOTES

400' surface rights reservation along the shores of all lakes and rivers

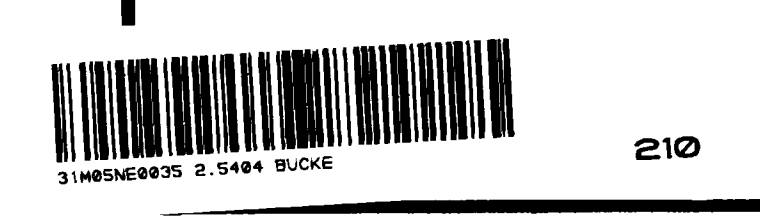
L.O. 7151 Covers Flooding Rights on Montserrat River to H.E.P.C.

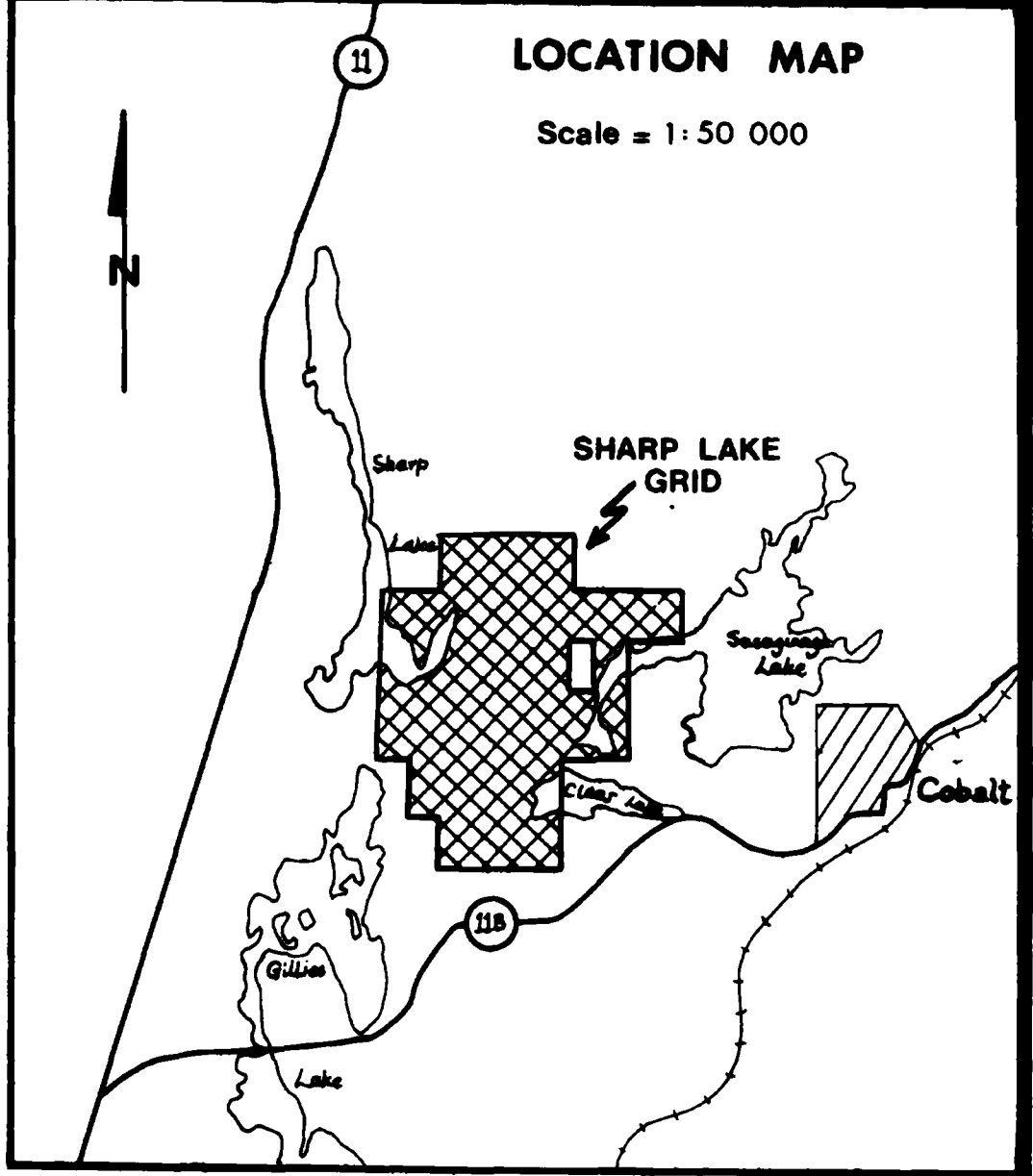
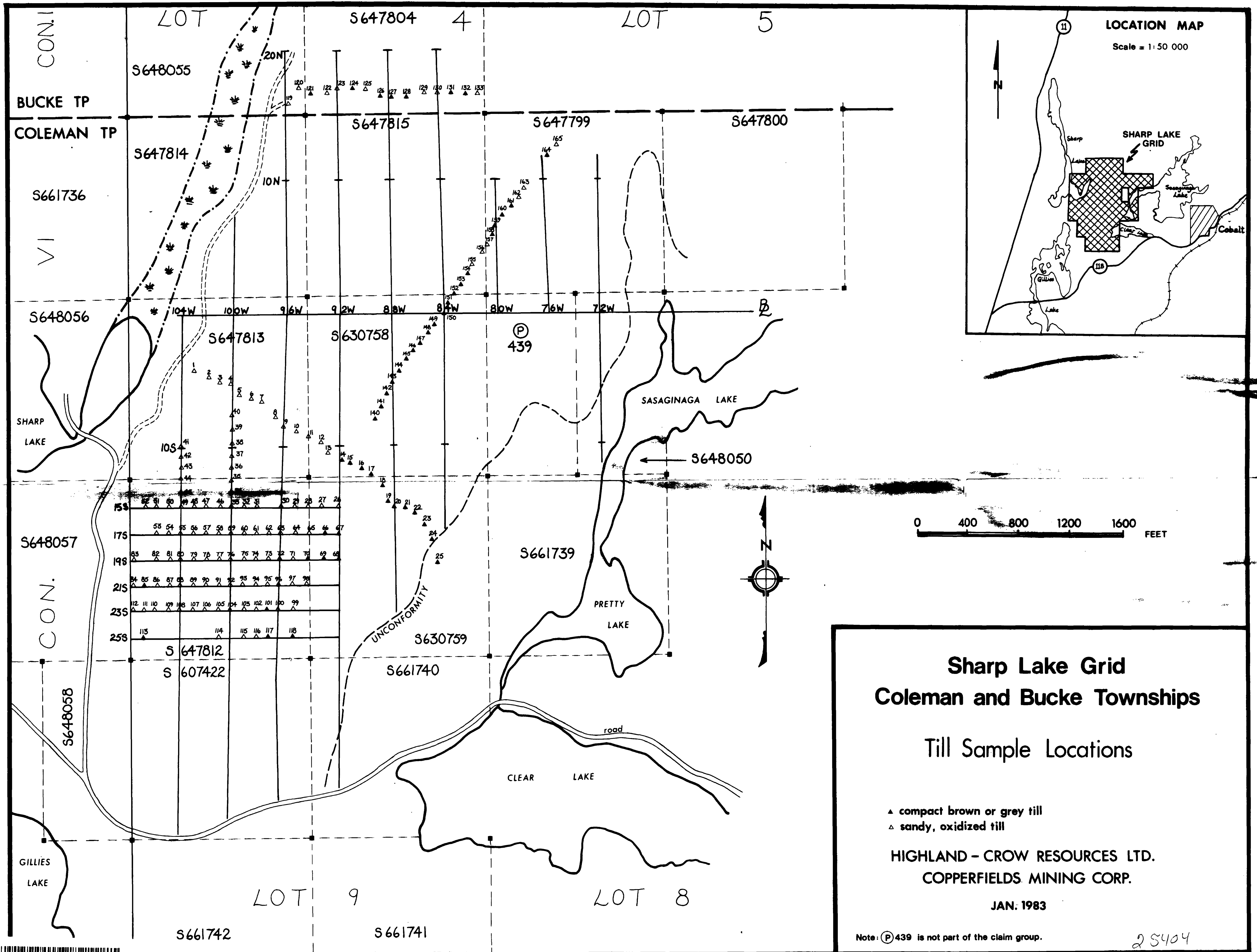
Mining claims on Clear Lake etc. subject to water reservation to the Town of Cobalt - Statutes of Ontario (1917), 7 George V. Chap. 67.

DATE OF ISSUE
JAN 11 1984
Ministry of Natural Resources
SUDBURY

PLAN NO-454

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH





Sharp Lake Grid
Coleman and Bucke Townships

Till Sample Locations

▲ compact brown or grey till
 ▲ sandy, oxidized till

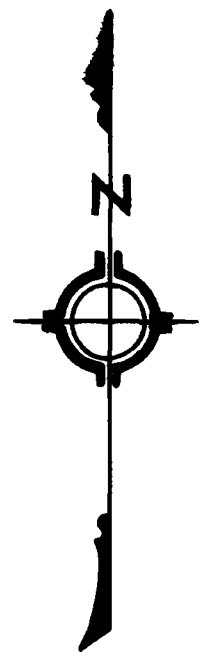
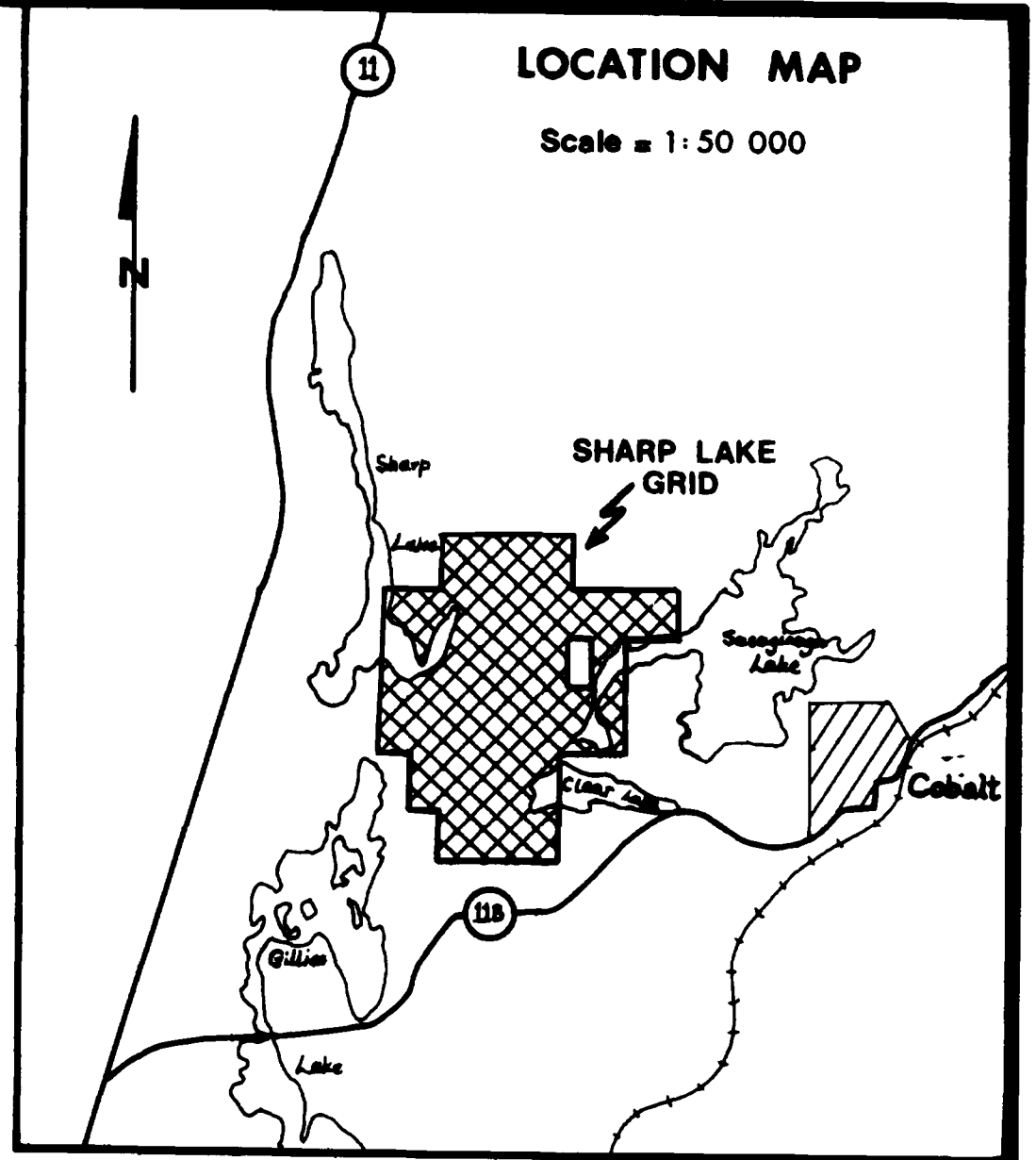
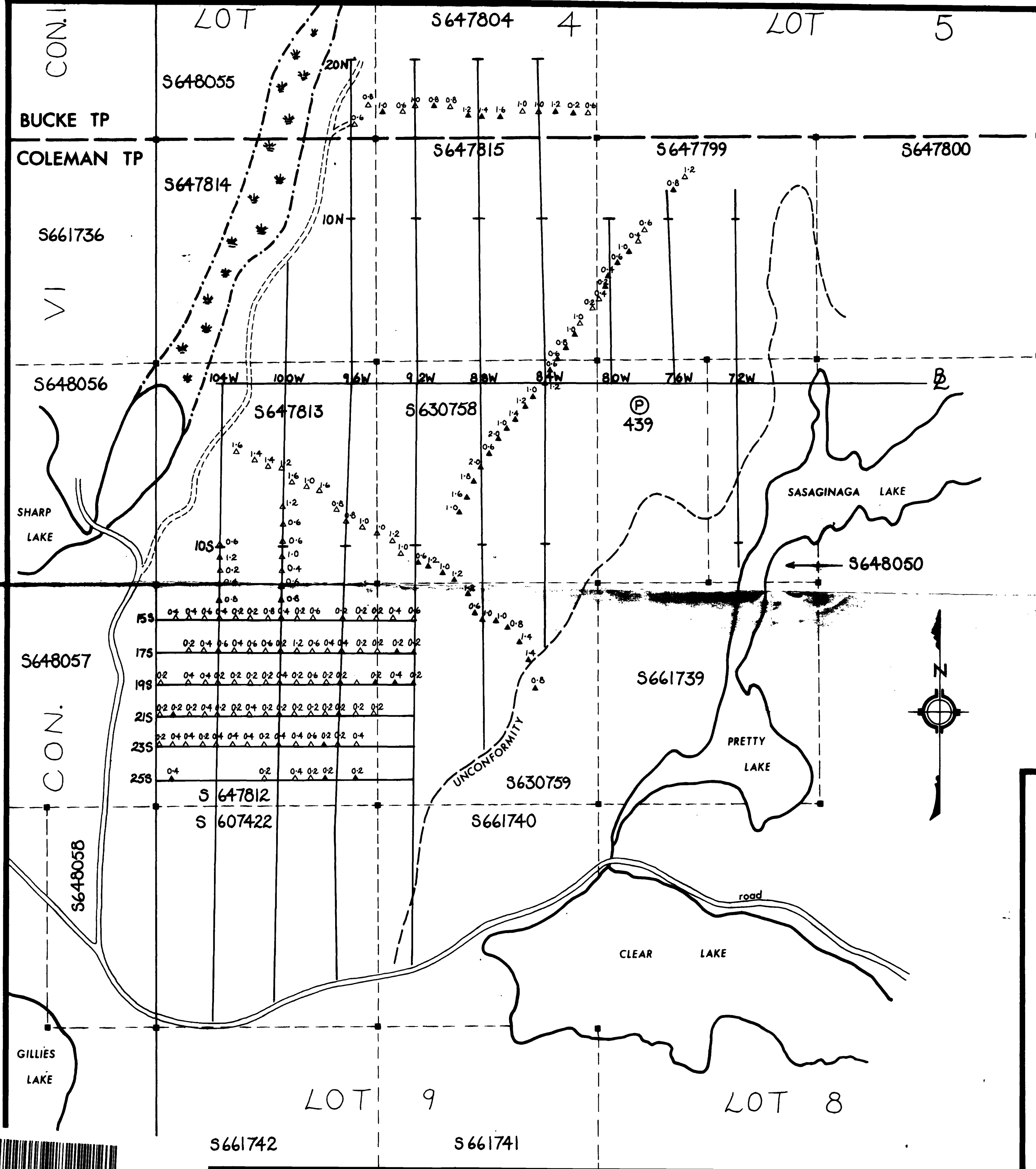
HIGHLAND - CROW RESOURCES LTD.
 COPPERFIELDS MINING CORP.

JAN. 1983

Note: (P) 439 is not part of the claim group.

25404





Sharp Lake Grid
Coleman and Bucke Townships

Silver Content (ppm) of Till

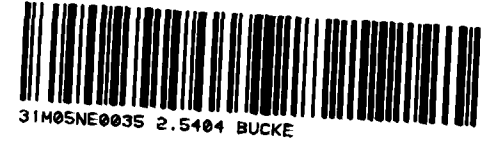
▲ compact brown or grey till
 ▲ sandy, oxidized till

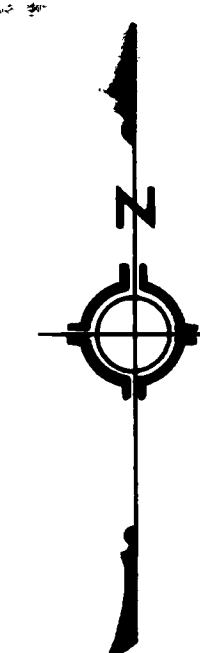
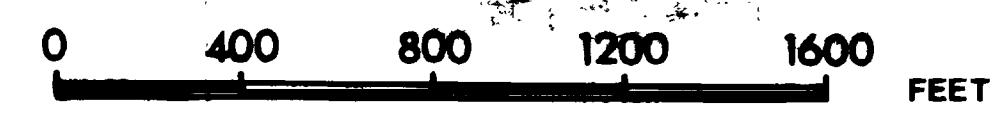
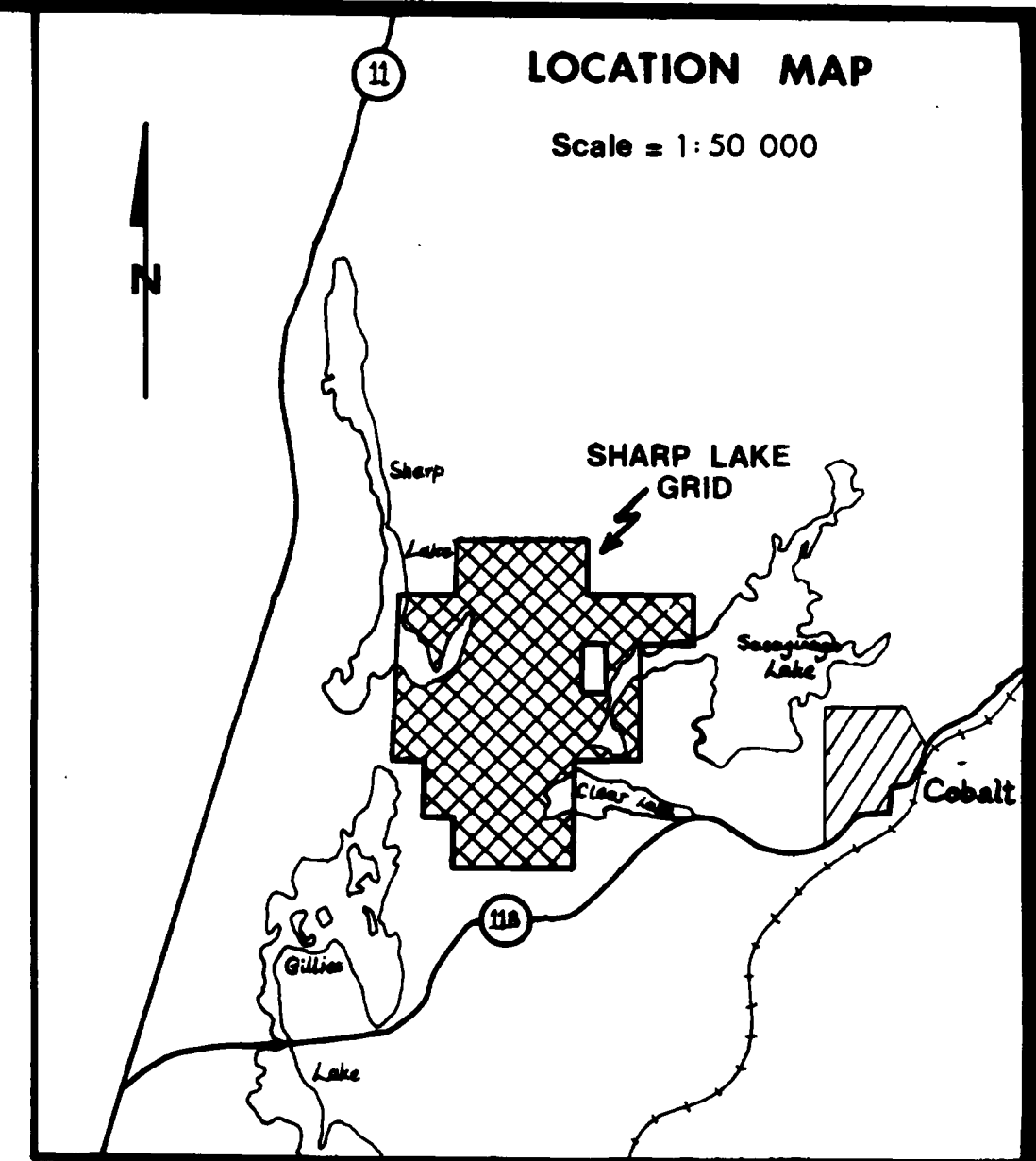
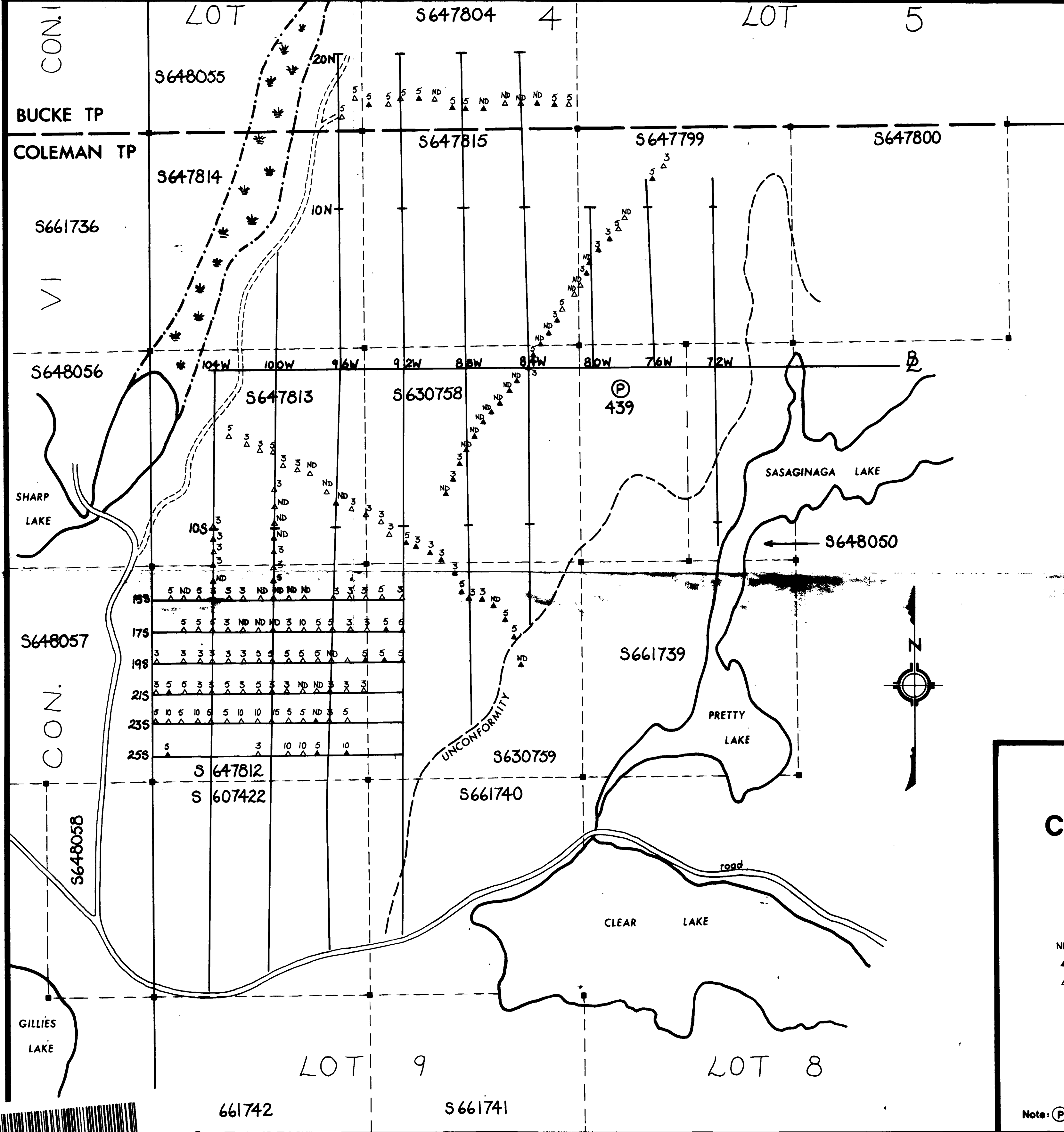
HIGHLAND - CROW RESOURCES LTD.
COPPERFIELDS MINING CORP.

JAN: 1983

Note: (P) 439 is not part of the claim group.

WB Kawana 25404





Sharp Lake Grid
Coleman and Bucke Townships

Arsenic Content (ppm) of Till

ND not detected
 ▲ compact brown or grey till
 △ sandy, oxidized till

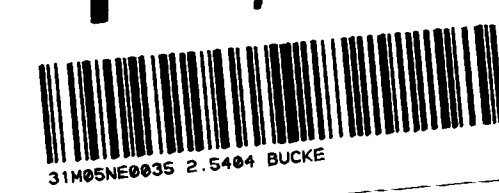
W. Kamene

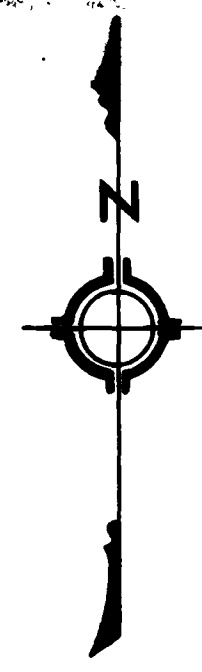
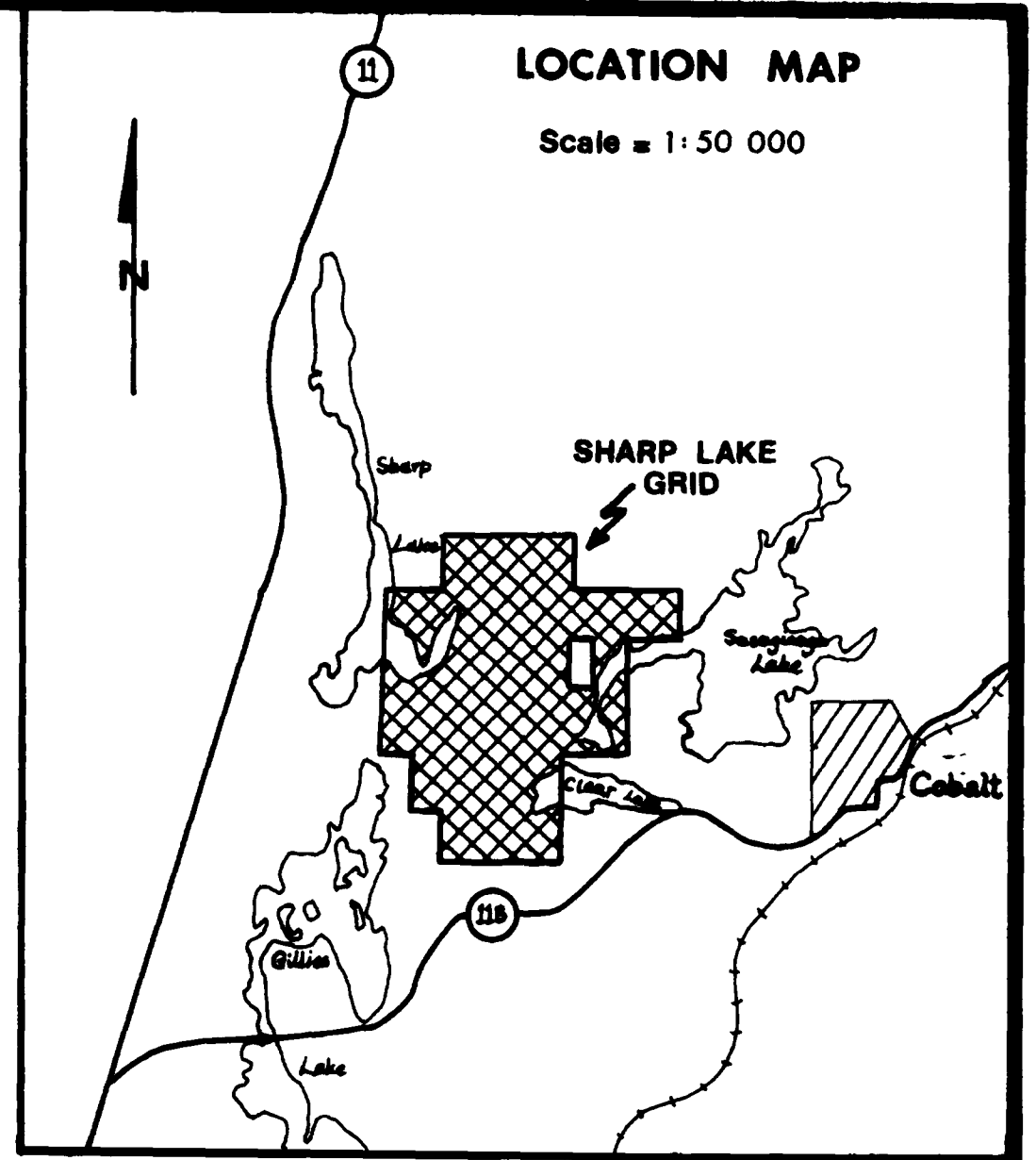
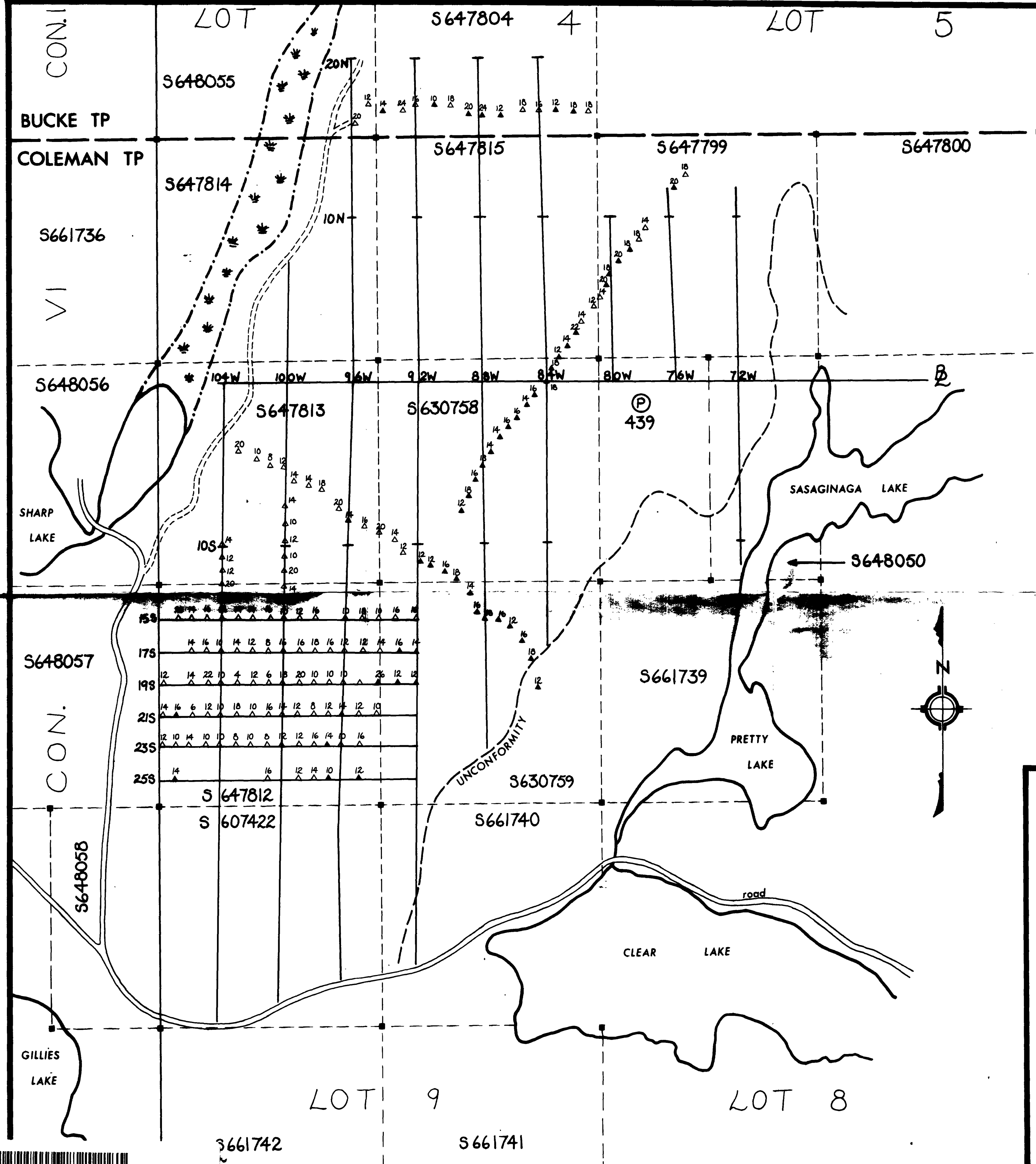
HIGHLAND - CROW RESOURCES LTD.
COPPERFIELDS MINING CORP.

JAN: 1983

Note: (P) 439 is not part of the claim group.

25404





Sharp Lake Grid
Coleman and Bucke Townships

Cobalt Content (ppm) of Till

▲ compact brown or grey till
 △ sandy, oxidized till

W. Kawner

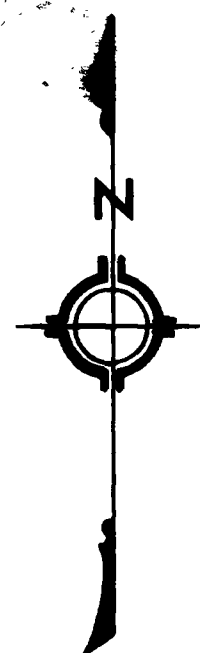
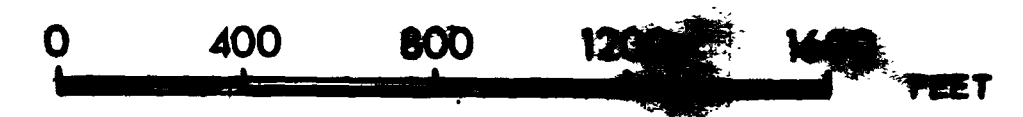
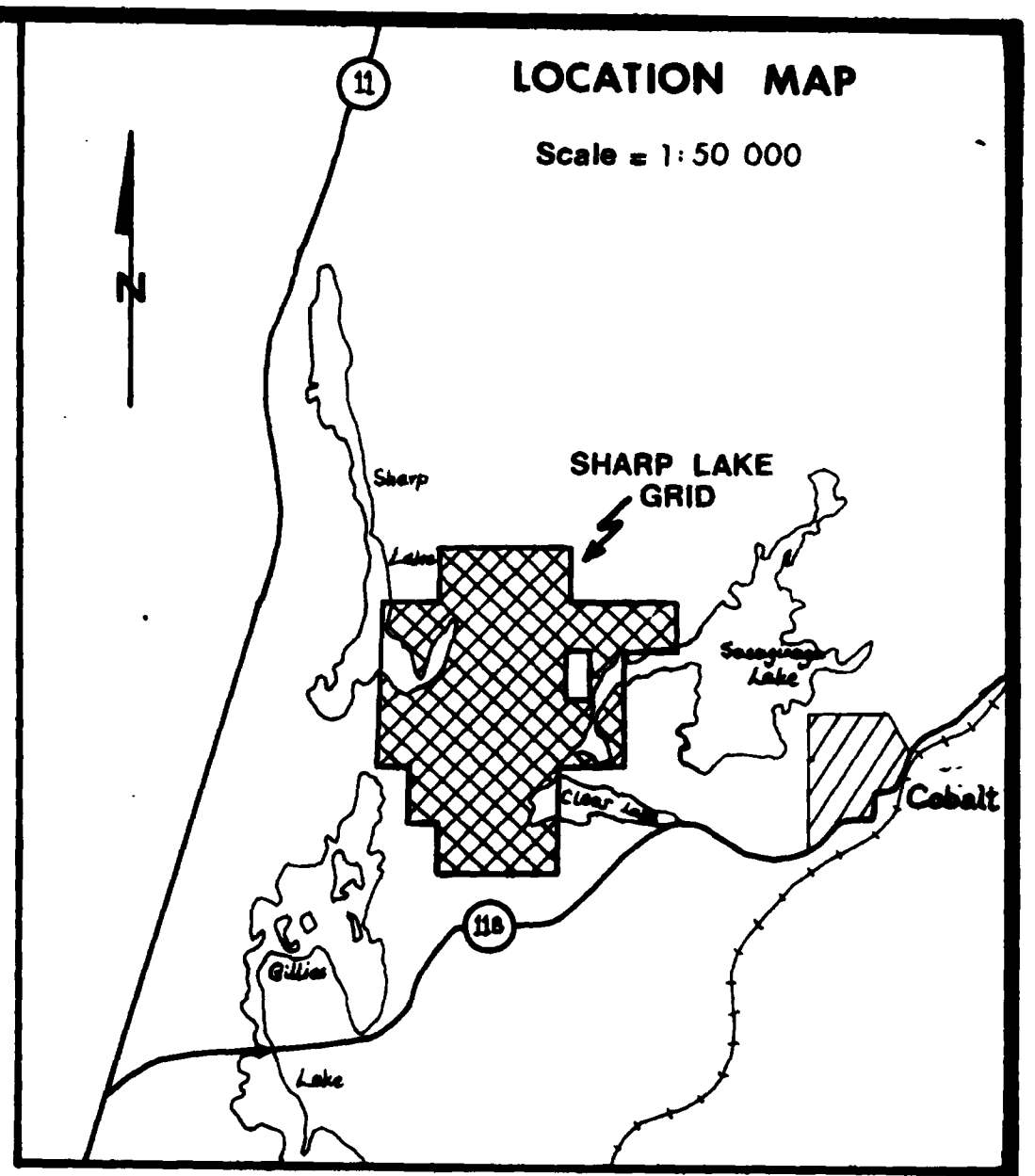
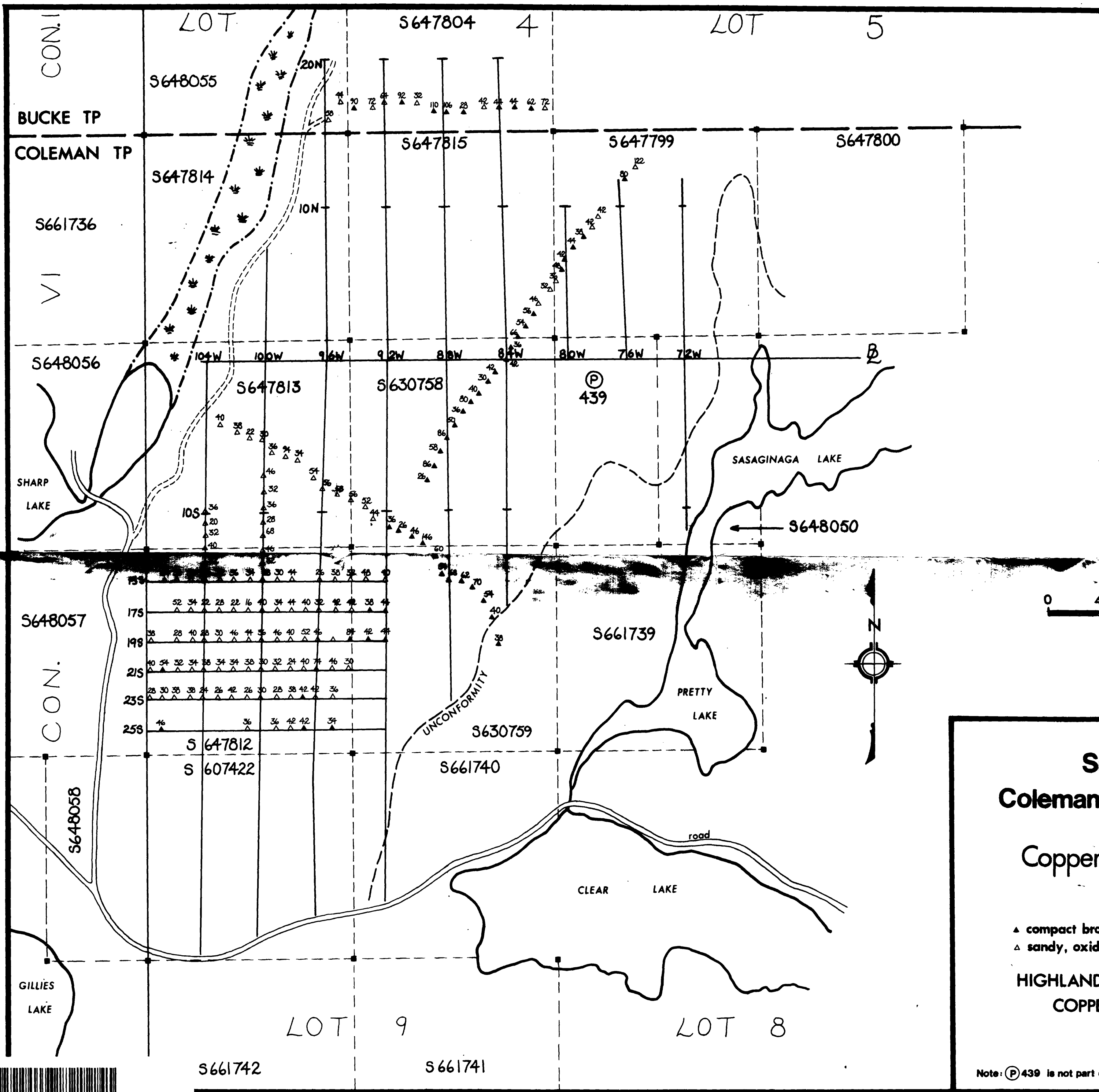
HIGHLAND - CROW RESOURCES LTD.
COPPERFIELDS MINING CORP.

JAN: 1983

Note: (P) 439 is not part of the claim group.

25404





Sharp Lake Grid
Coleman and Bucke Townships

Copper Content (ppm) of Till

▲ compact brown or grey till
 ▲ sandy, oxidized till

W. Kammer

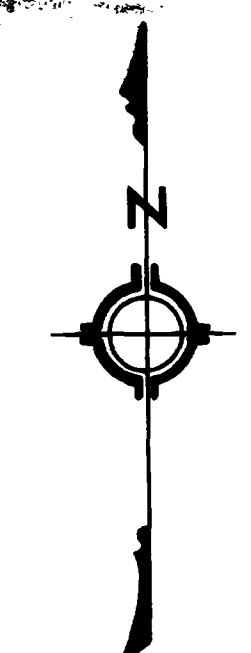
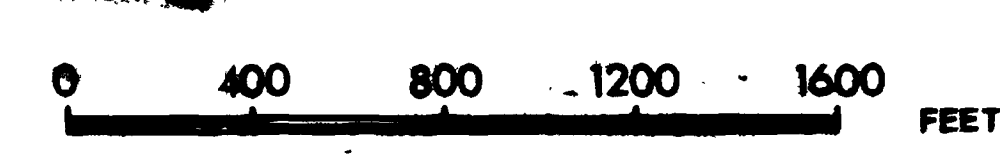
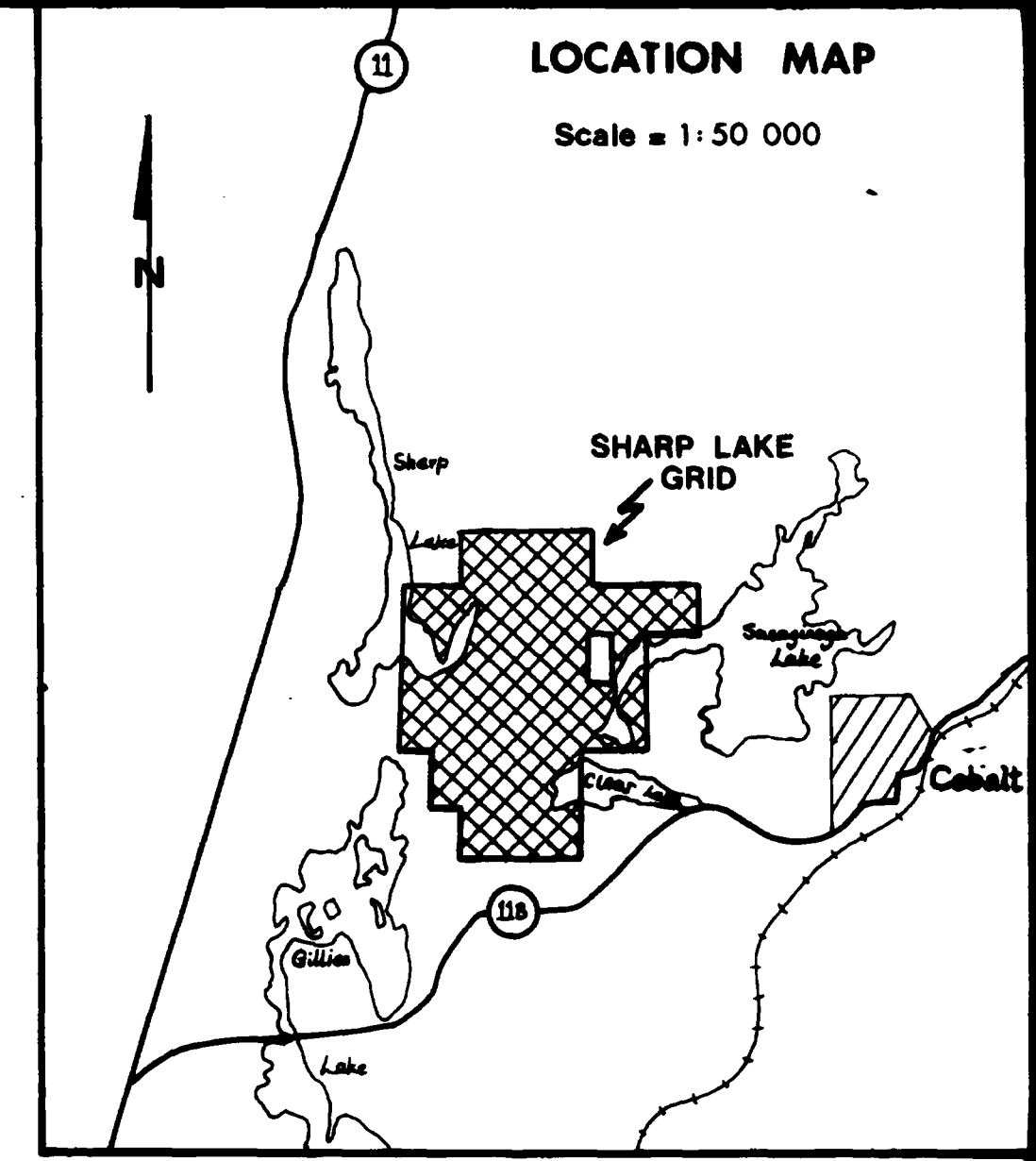
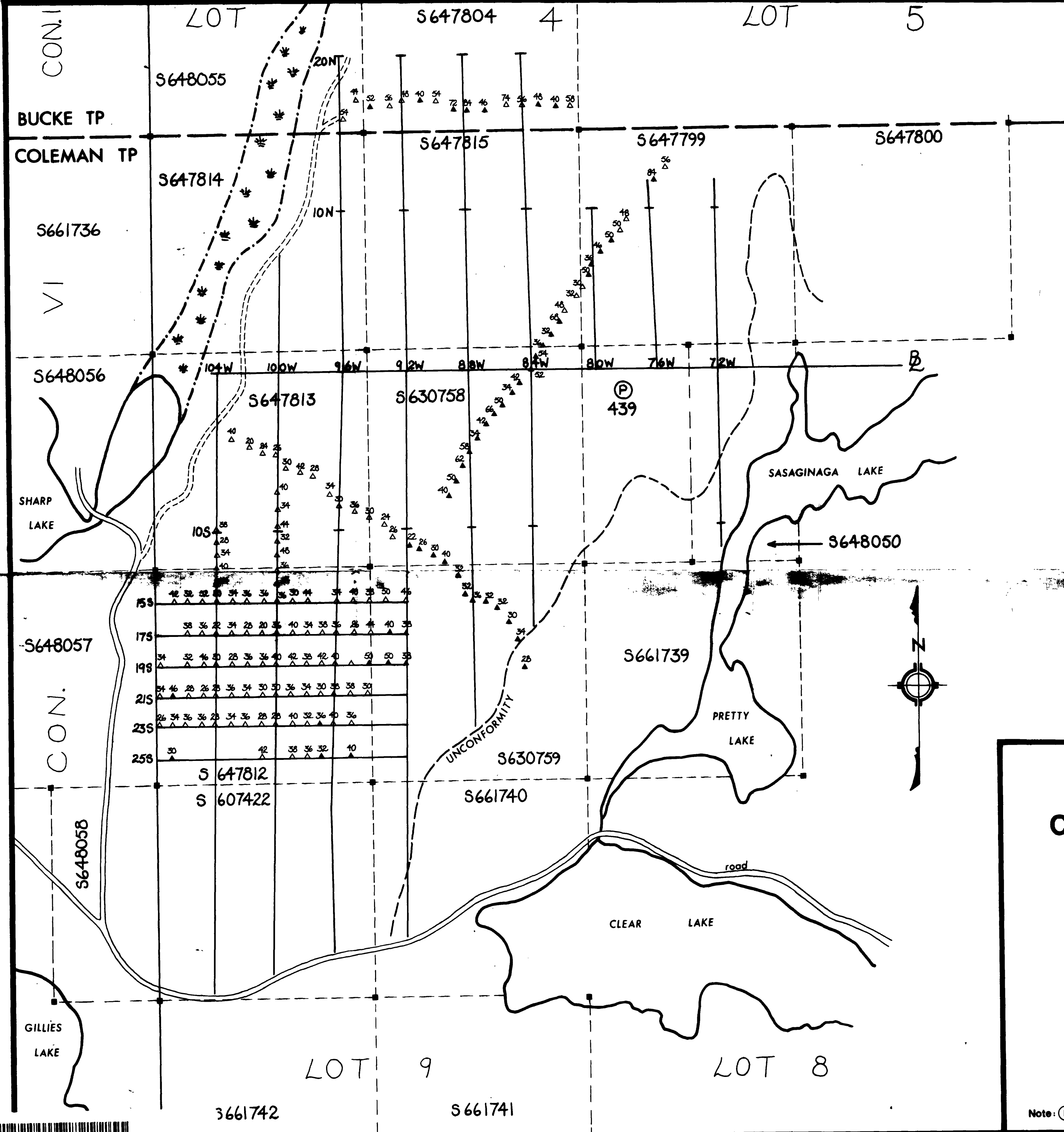
HIGHLAND - CROW RESOURCES LTD.
 COPPERFIELDS MINING CORP.

JAN: 1983

Note: (P) 439 is not part of the claim group.

25404





Sharp Lake Grid
Coleman and Bucke Townships

Nickel Content (ppm) of Till

WOKawne

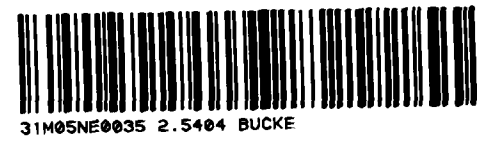
▲ compact brown or grey till
 ▲ sandy, oxidized till

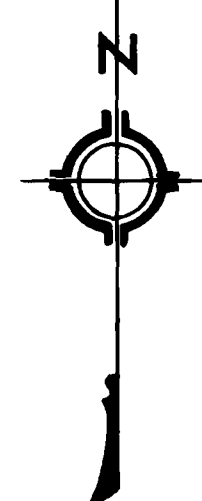
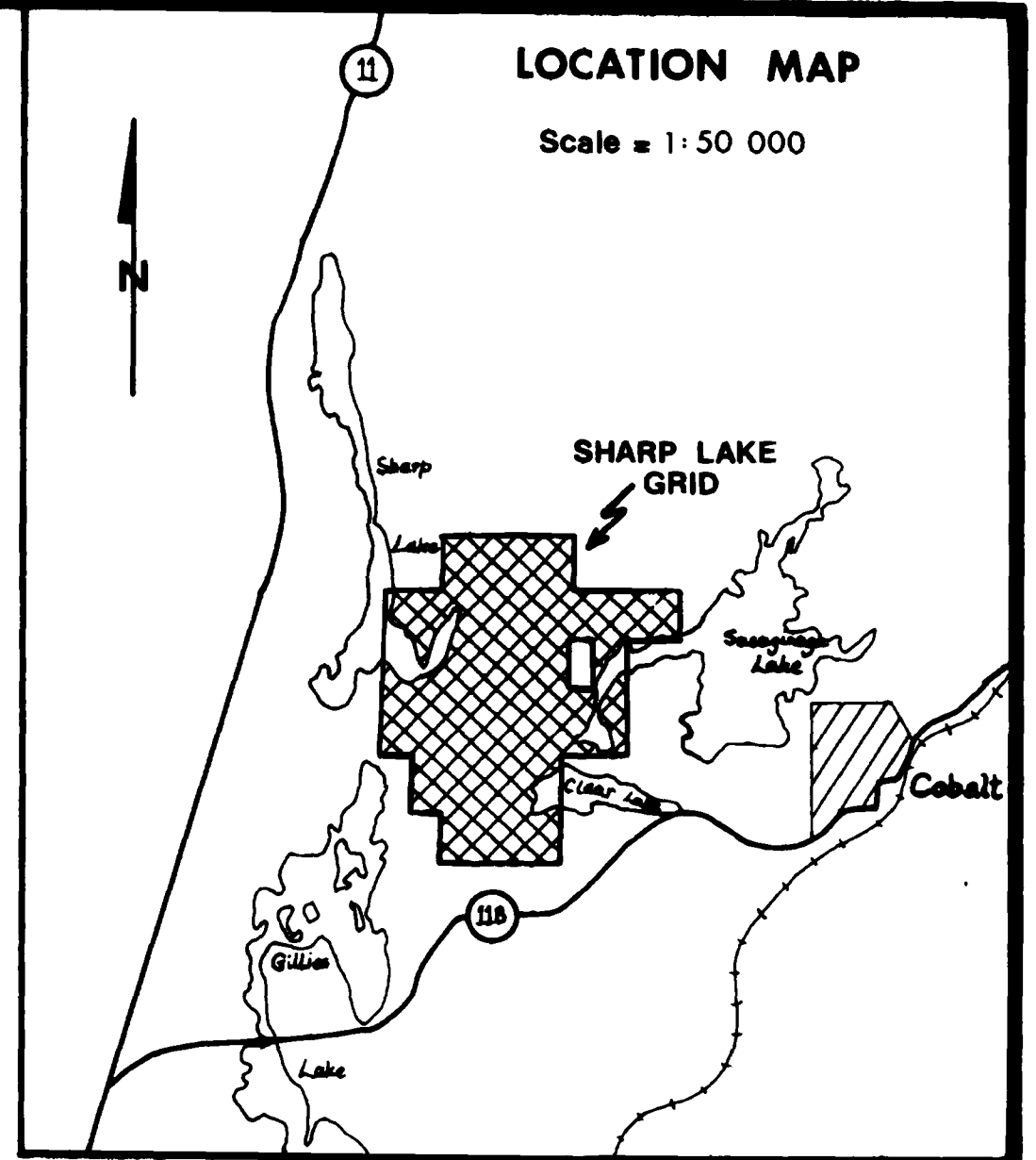
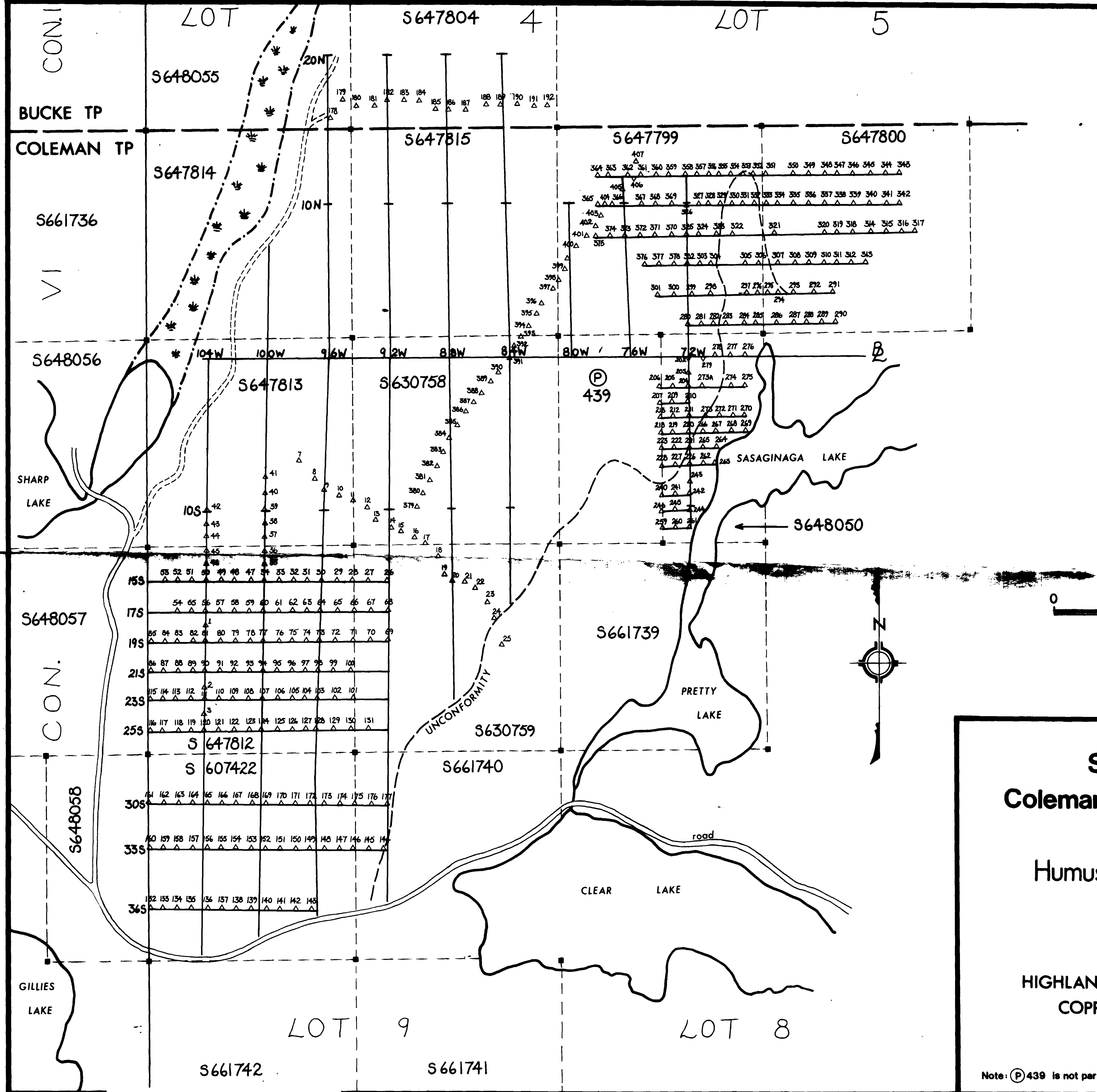
HIGHLAND - CROW RESOURCES LTD.
COPPERFIELDS MINING CORP.

JAN: 1983

Note: (P) 439 is not part of the claim group.

25404





Sharp Lake Grid
Coleman and Bucke Townships

Humus Sample Locations

HIGHLAND - CROW RESOURCES LTD.
 COPPERFIELDS MINING CORP.

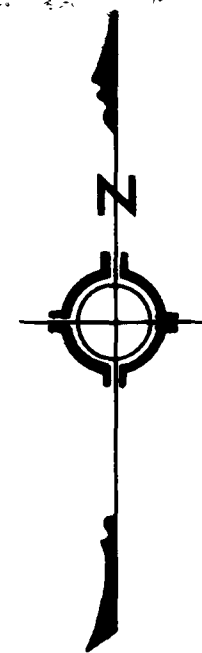
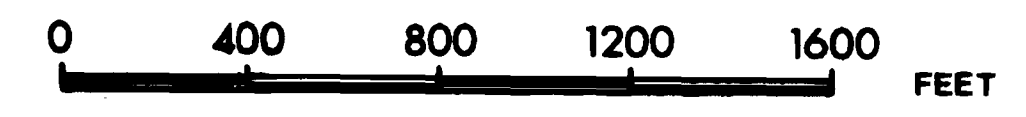
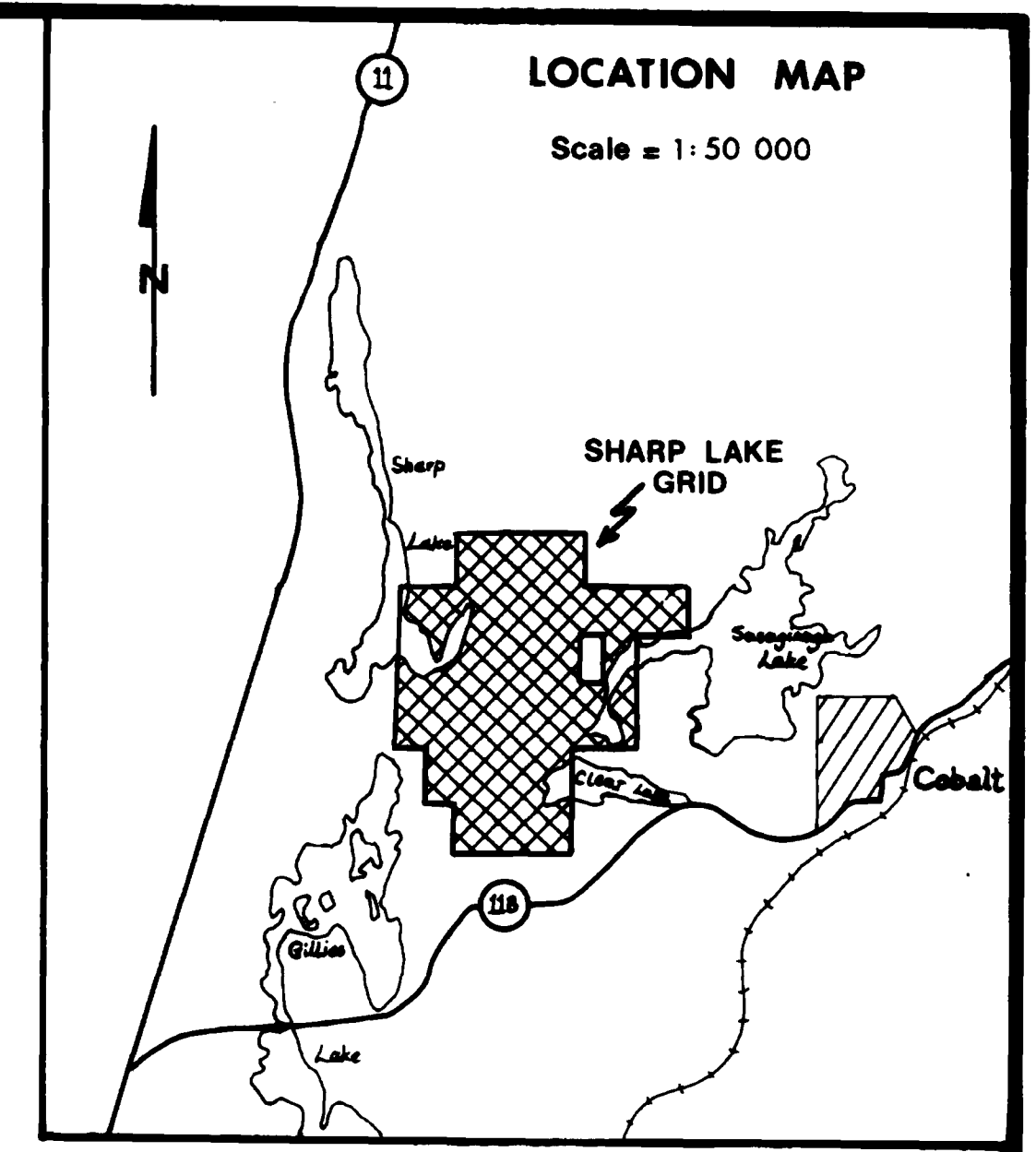
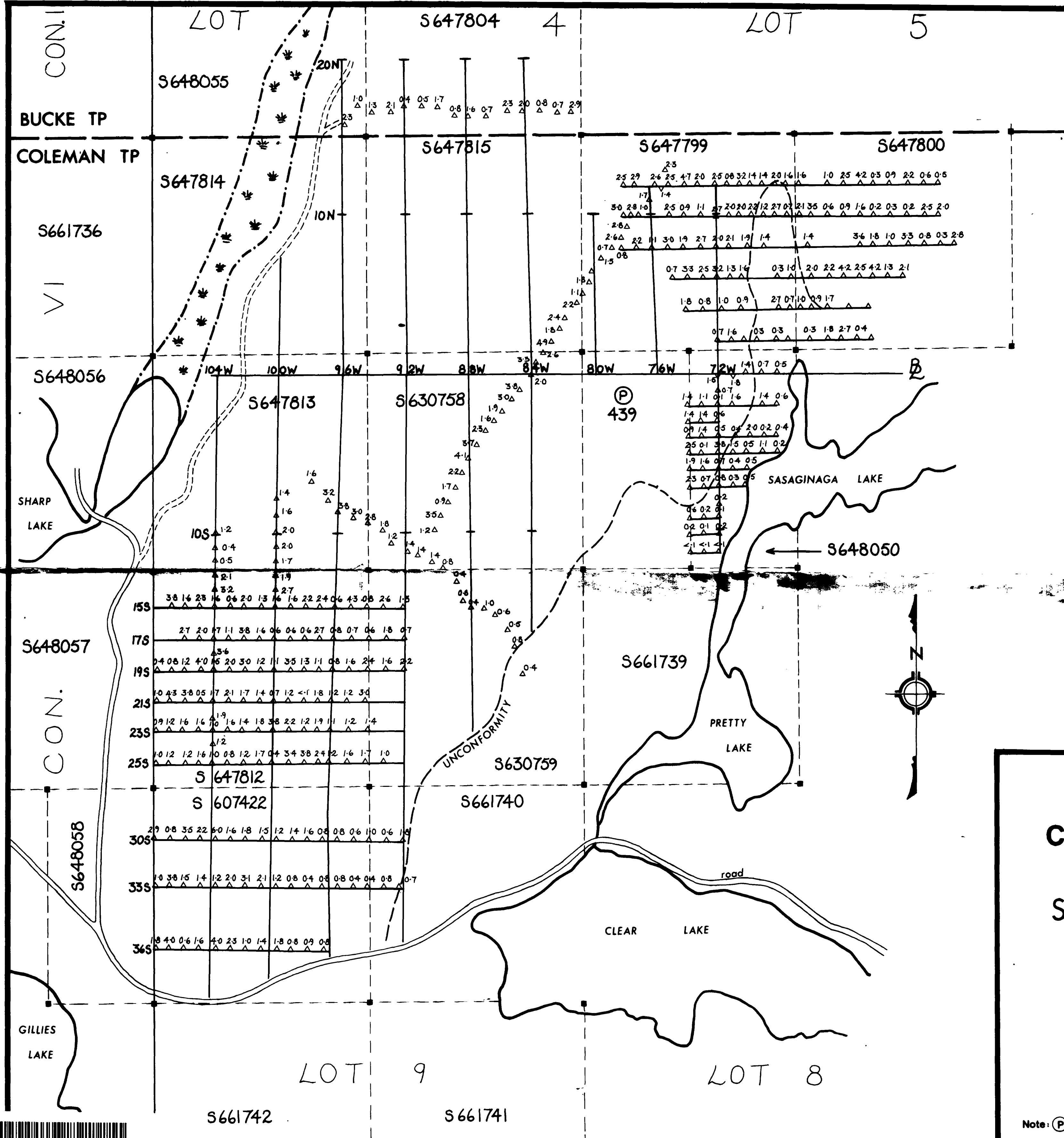
W.P. Kenyon

JAN. 1983

Note: (P) 439 is not part of the claim group.

25454





Sharp Lake Grid
Coleman and Bucke Townships

Silver Content (ppm) of Humus

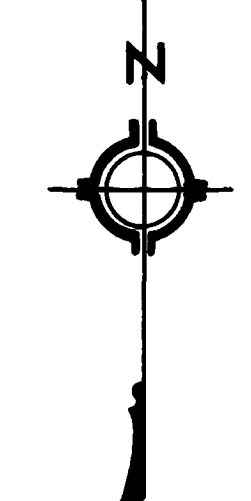
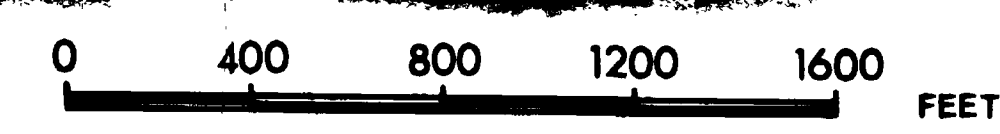
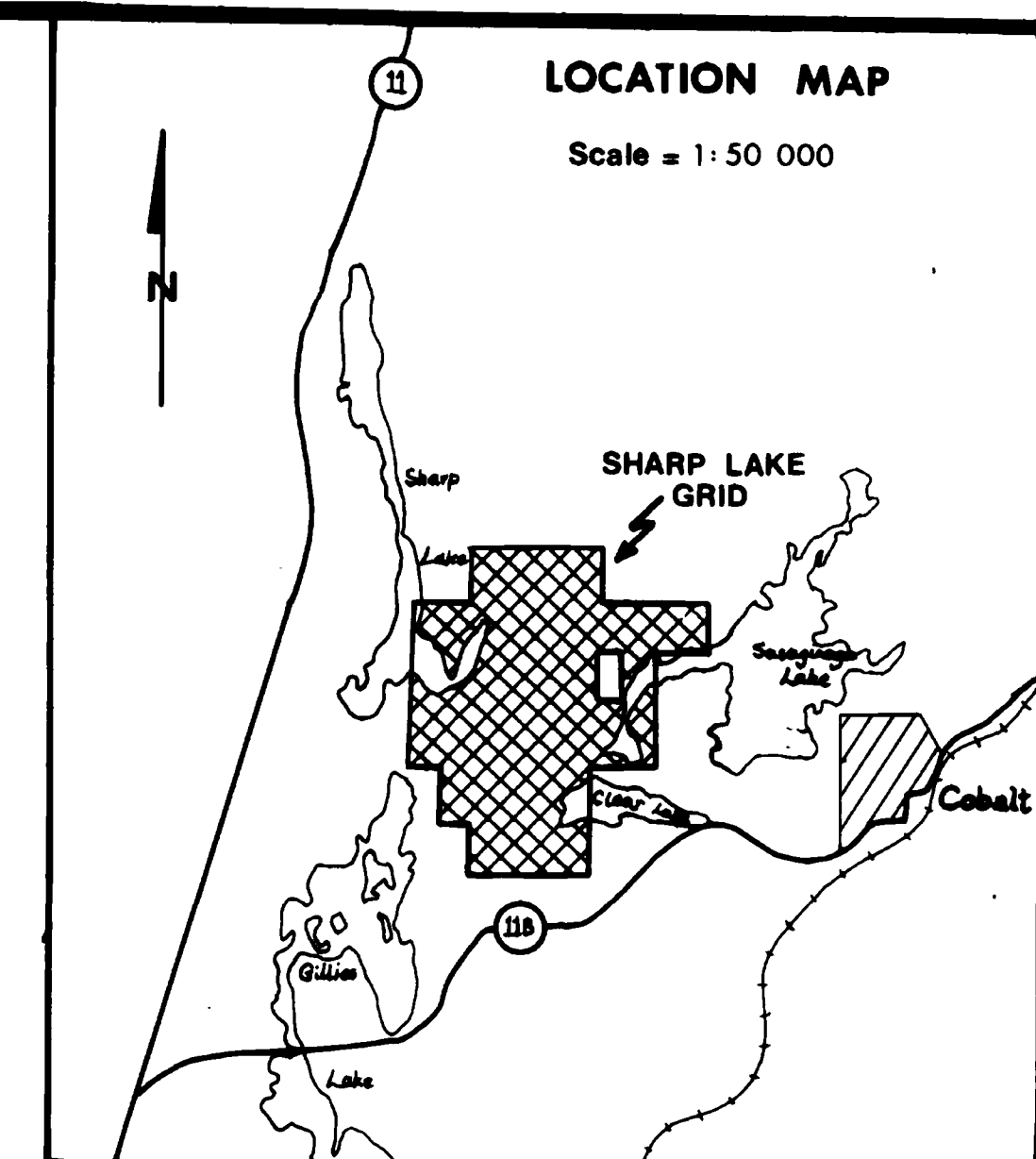
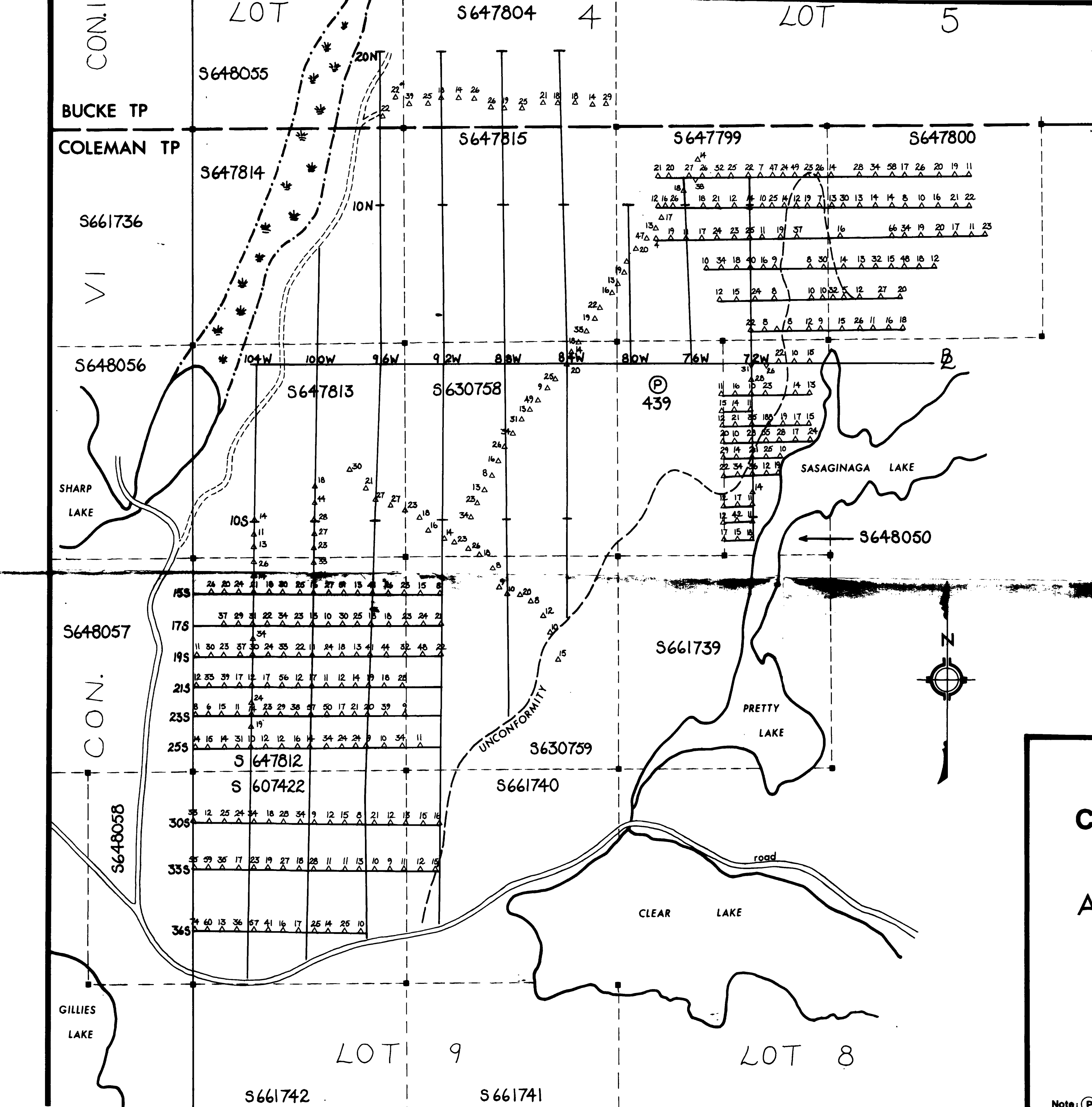
HIGHLAND - CROW RESOURCES LTD.
 COPPERFIELDS MINING CORP.

JAN. 1983 *W. Kawman*

Note: (P) 439 is not part of the claim group.

2.5404





Sharp Lake Grid
Coleman and Bucke Townships

Arsenic Content (ppm) of Humus

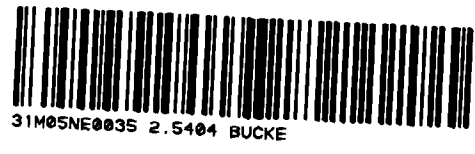
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 COPPERFIELDS MINING CORP.

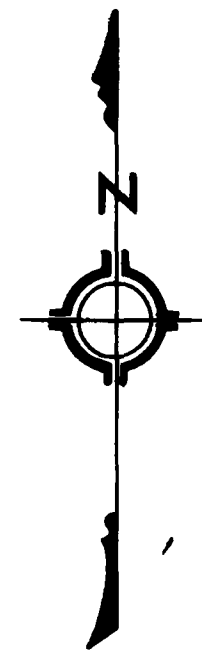
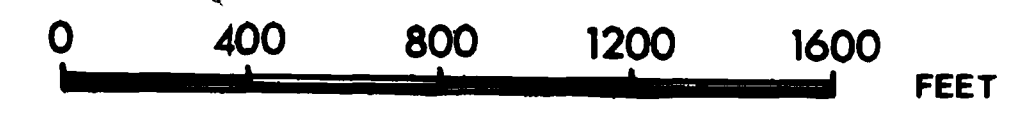
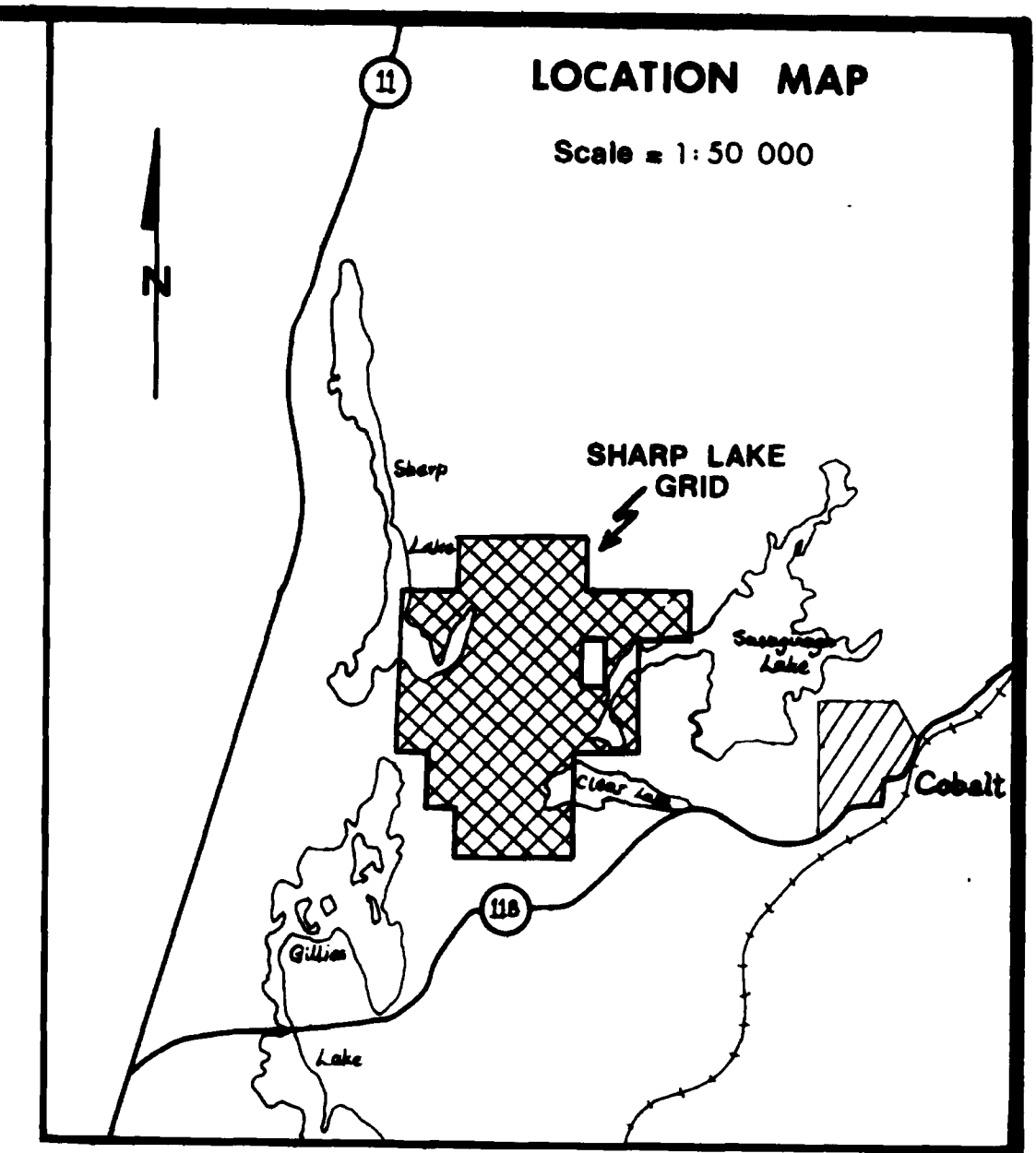
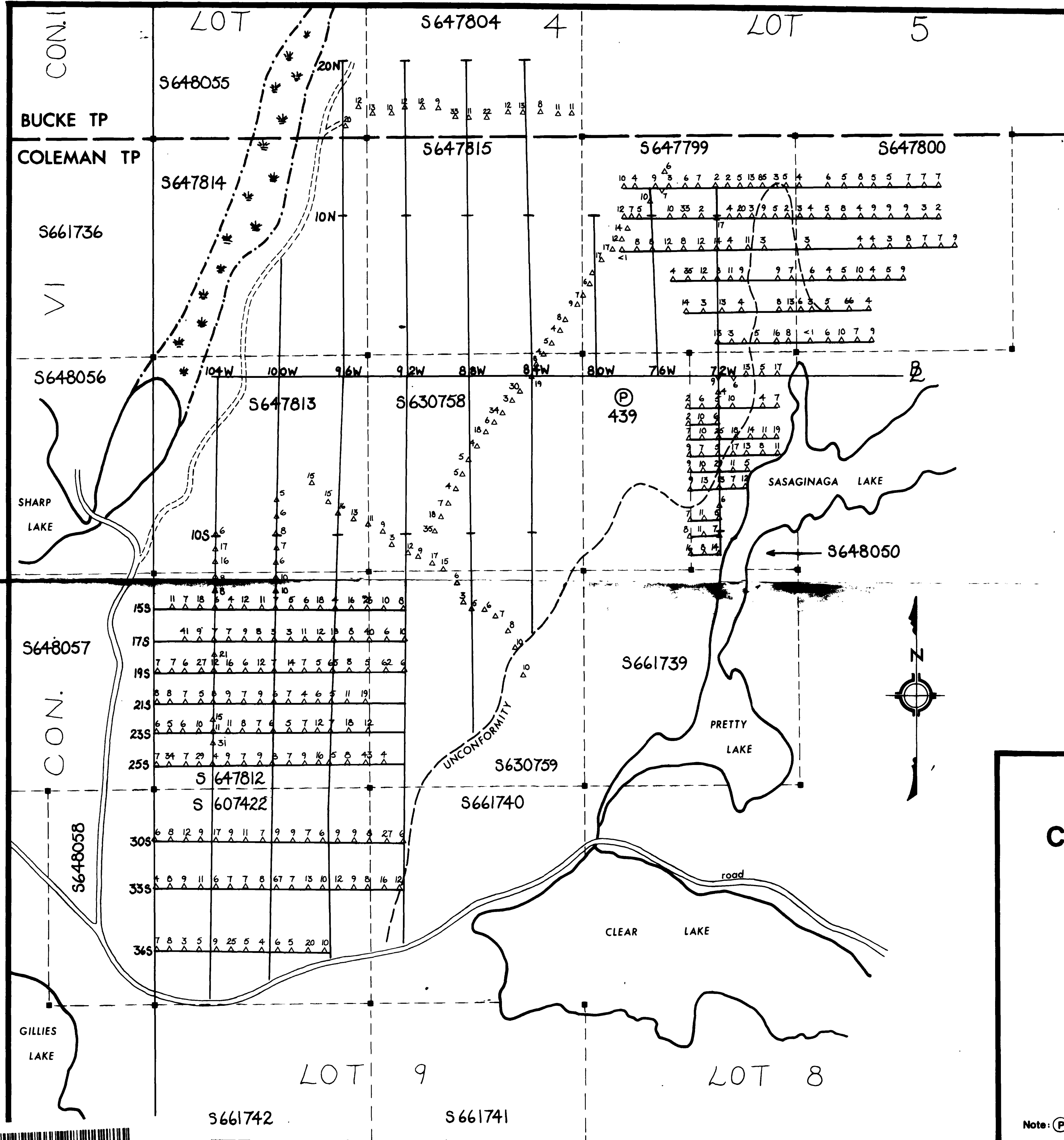
JAN. 1983

W. Kawin

Note: (P) 439 is not part of the claim group.

2.5404





Sharp Lake Grid
Coleman and Bucke Townships

Cobalt Content (ppm) of Humus

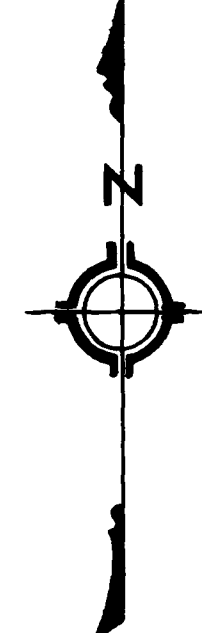
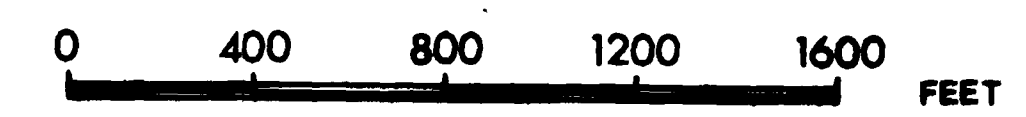
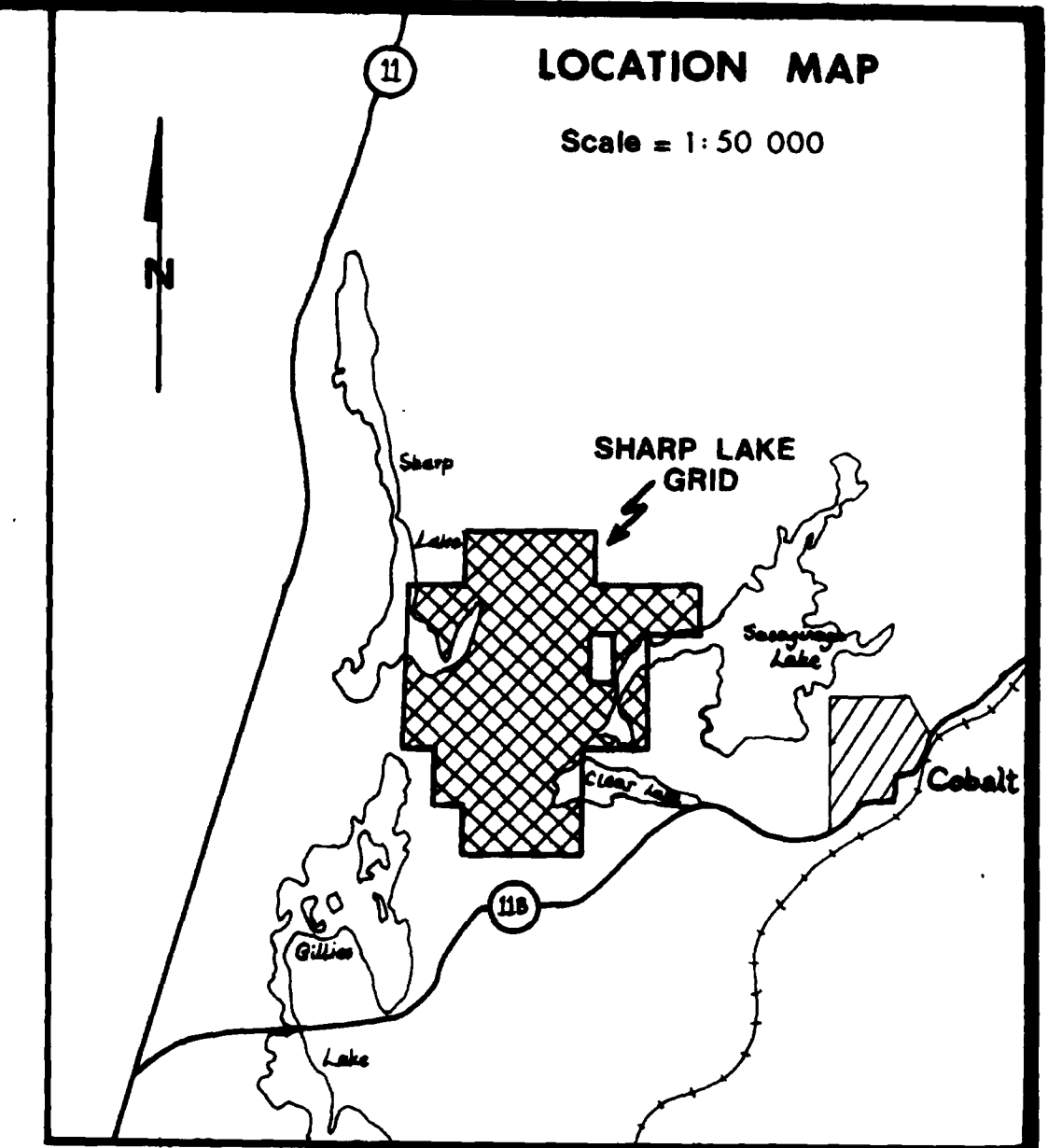
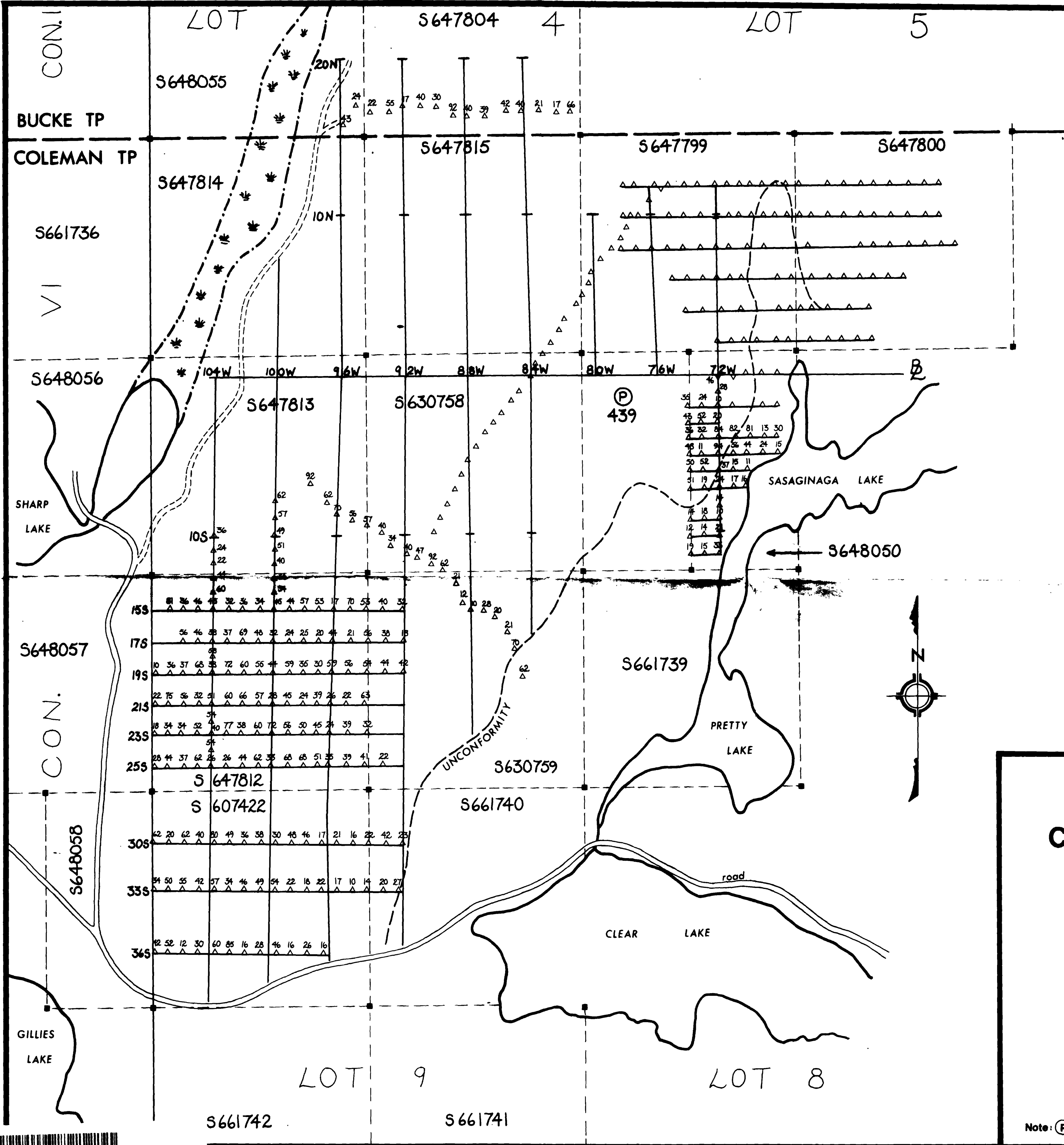
HIGHLAND - CROW RESOURCES LTD.
 COPPERFIELDS MINING CORP.

JAN. 1983

W. Kawar
2.5404

Note: (P) 439 is not part of the claim group.





Sharp Lake Grid
Coleman and Bucke Townships

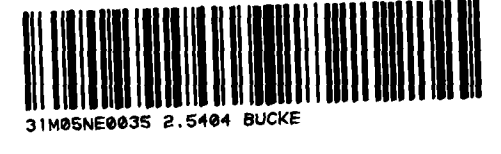
Copper Content (ppm) of Humus

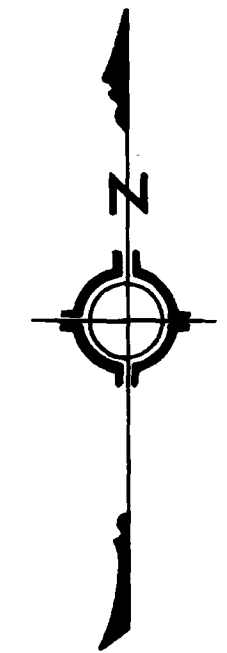
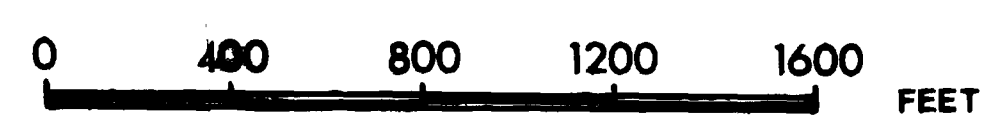
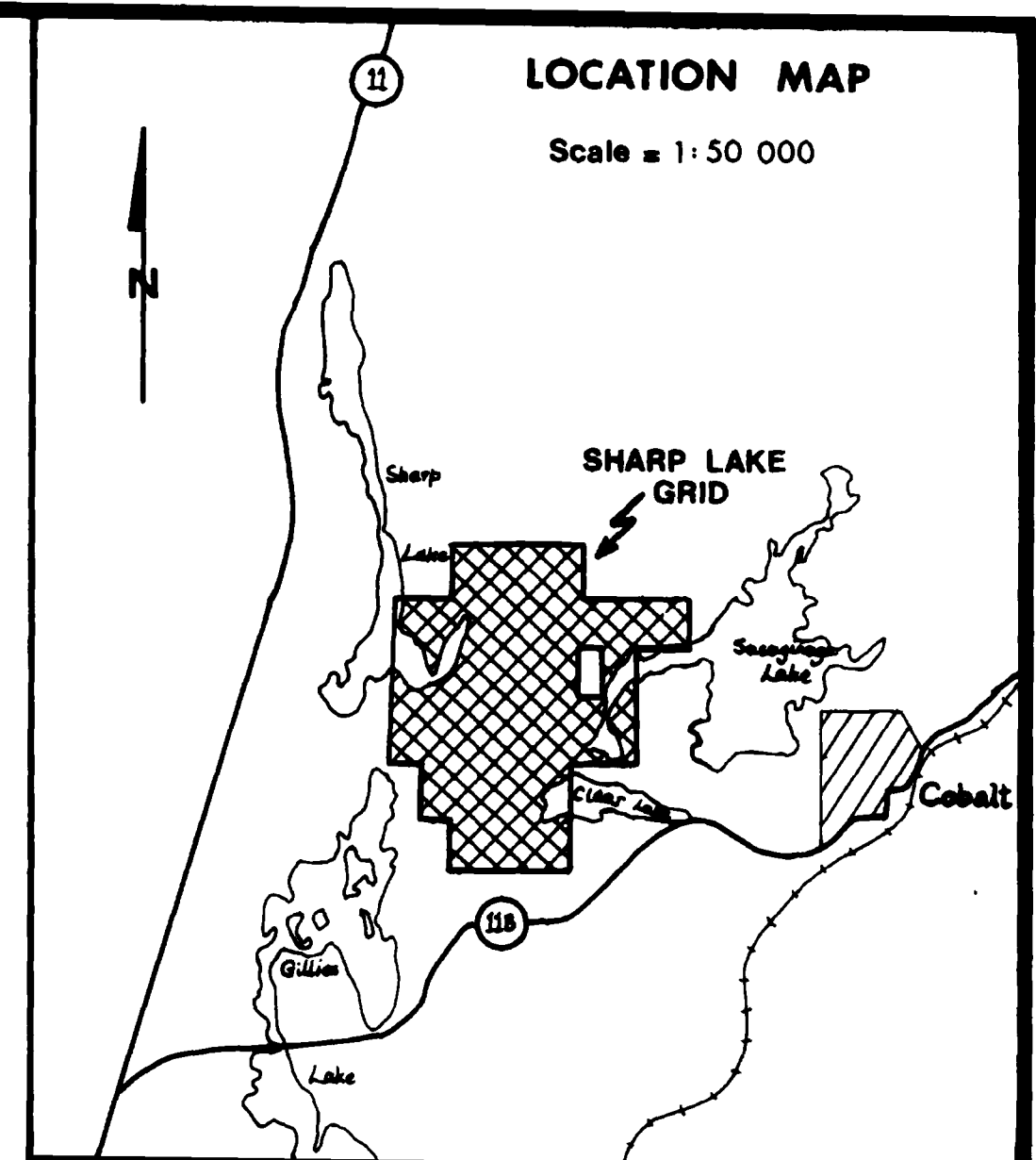
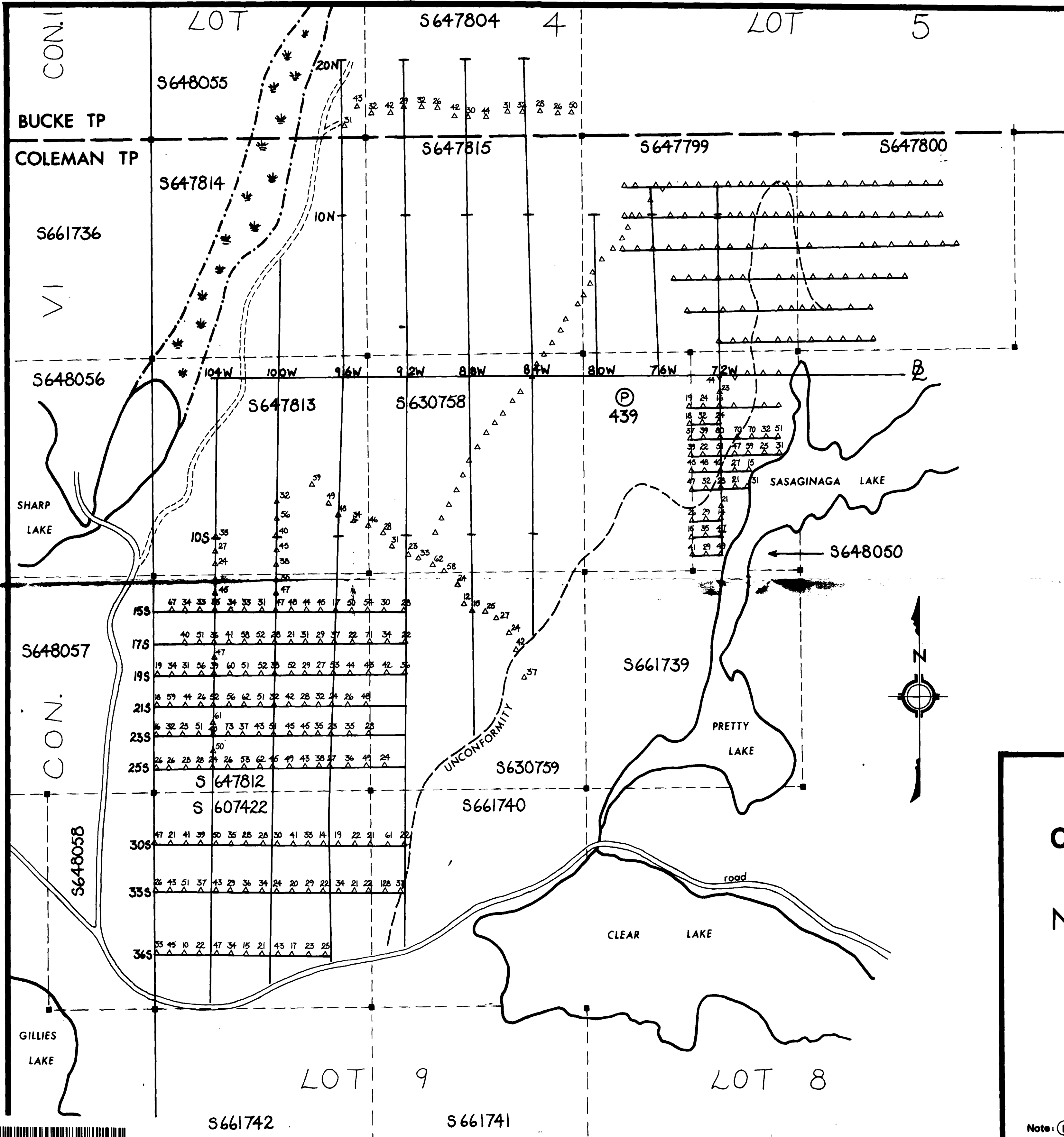
HIGHLAND - CROW RESOURCES LTD.
 COPPERFIELDS MINING CORP.

JAN. 1983
W. Karvonen

2.5434

Note: (P) 439 is not part of the claim group.





Sharp Lake Grid
Coleman and Bucke Townships

Nickel Content (ppm) of Humus

HIGHLAND - CROW RESOURCES LTD.
 COPPERFIELDS MINING CORP.

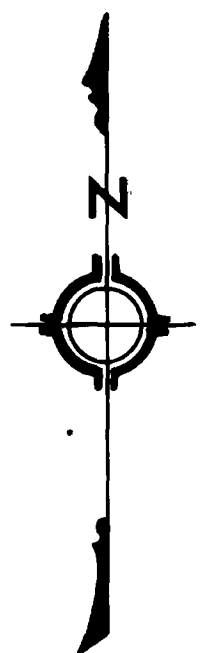
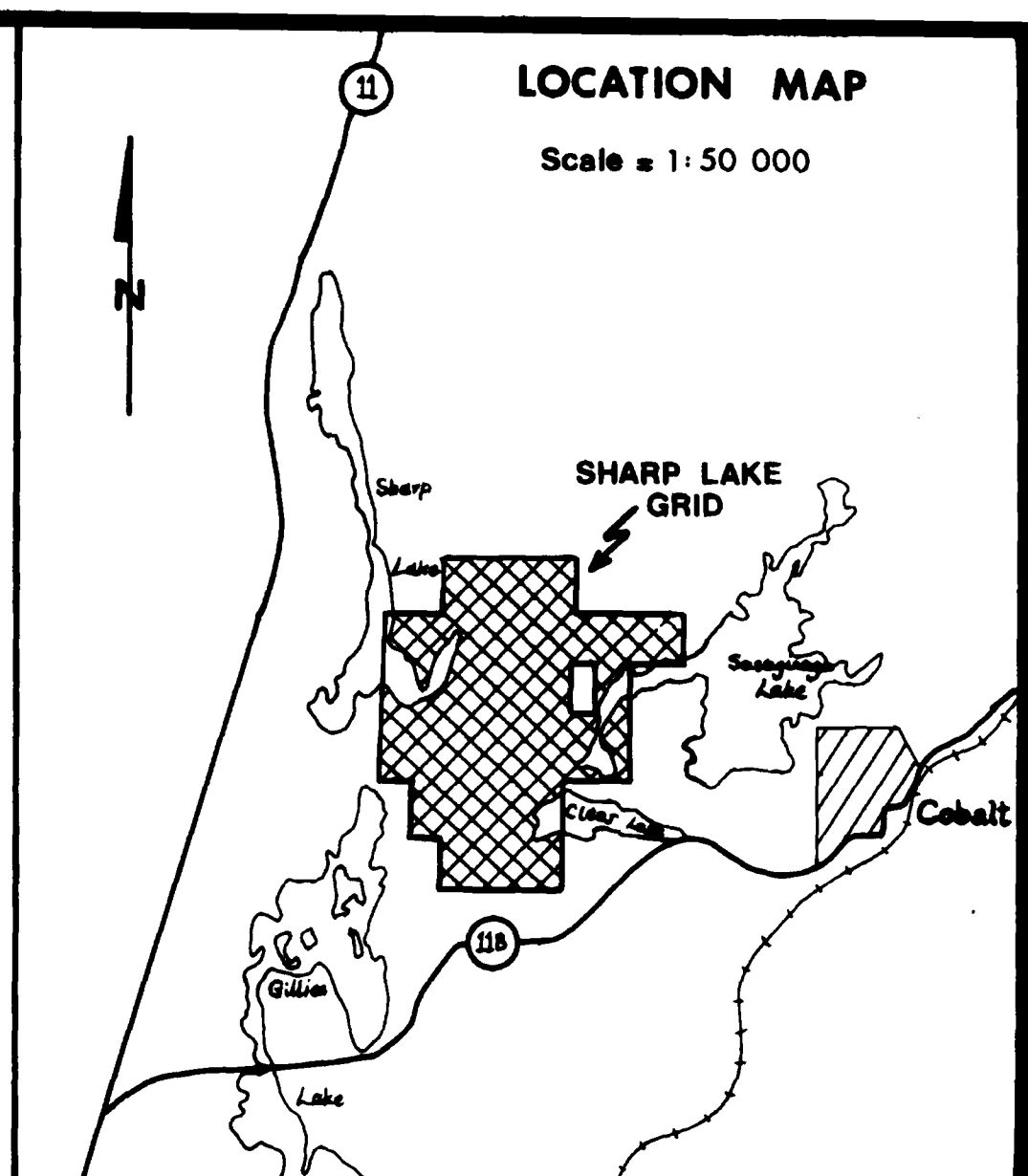
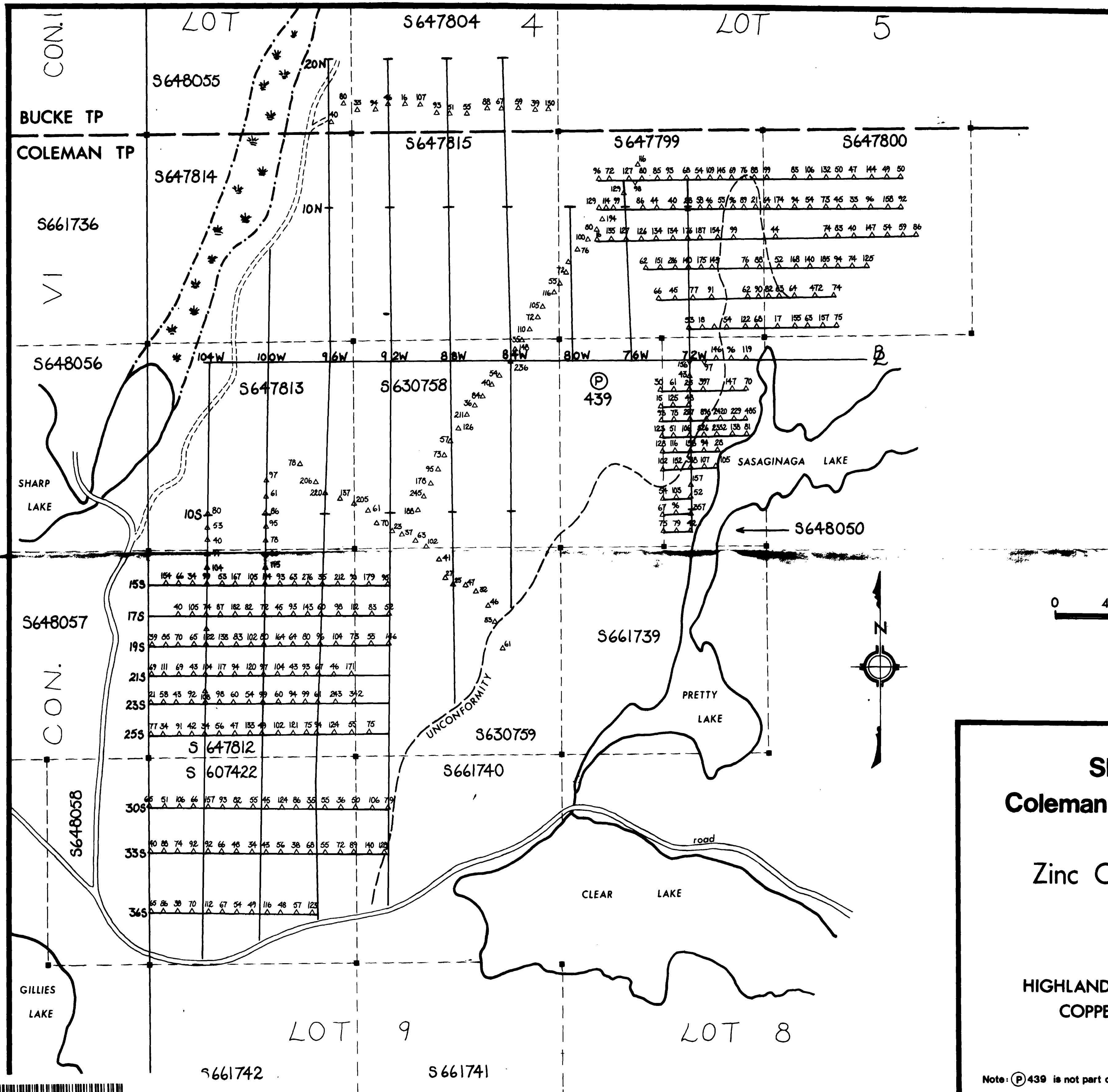
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25404

Note: (P) 439 is not part of the claim group.





Sharp Lake Grid
Coleman and Bucke Townships

Zinc Content (ppm) of Humus

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JAN. 1983

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Note: (P) 439 is not part of the claim group.

