42A12NE0803 2.2789 MOBERLY

2.2789

010

Report on

GEOPHYSICAL SURVEYS

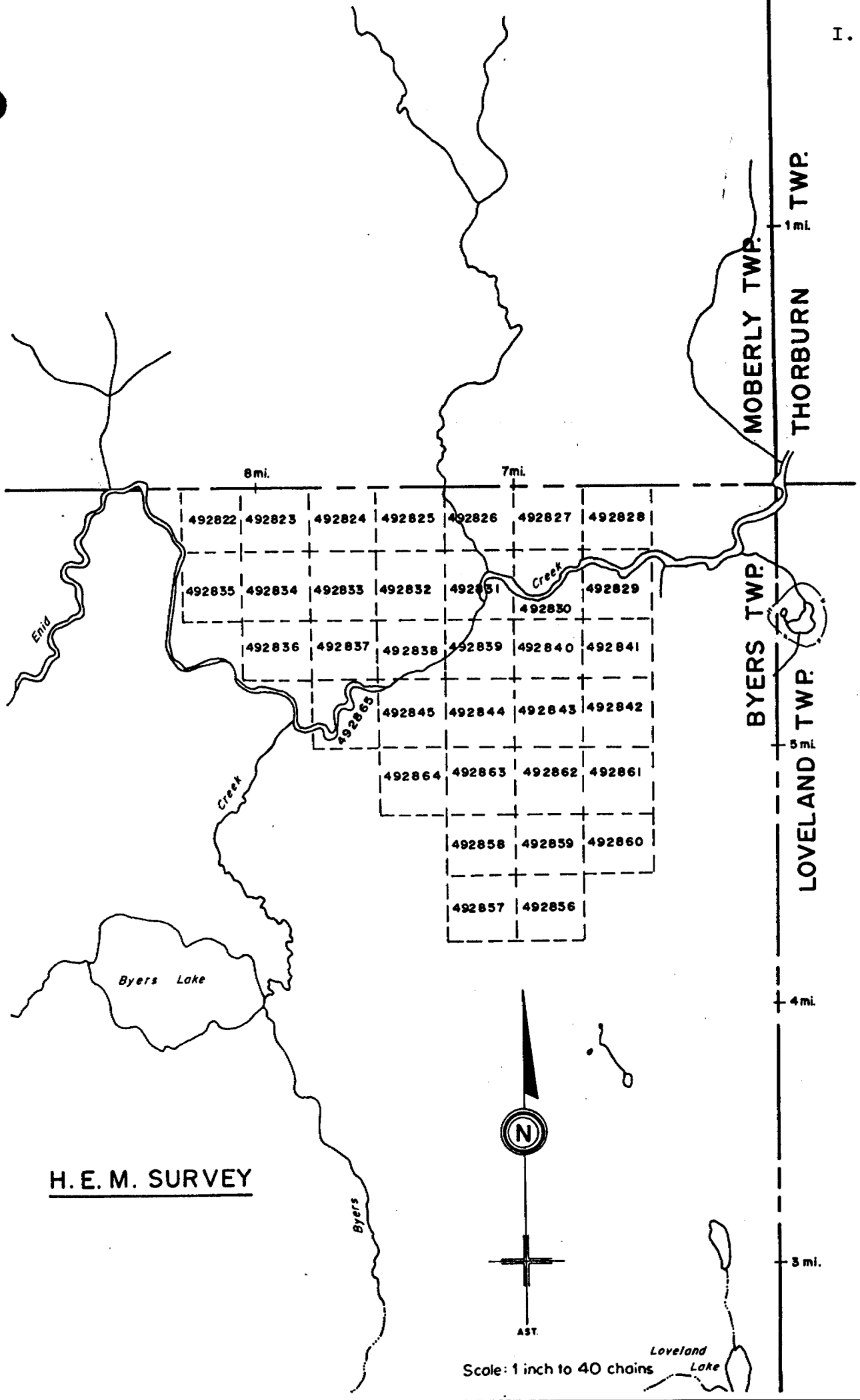
MOBERLY No. 1 GROUP

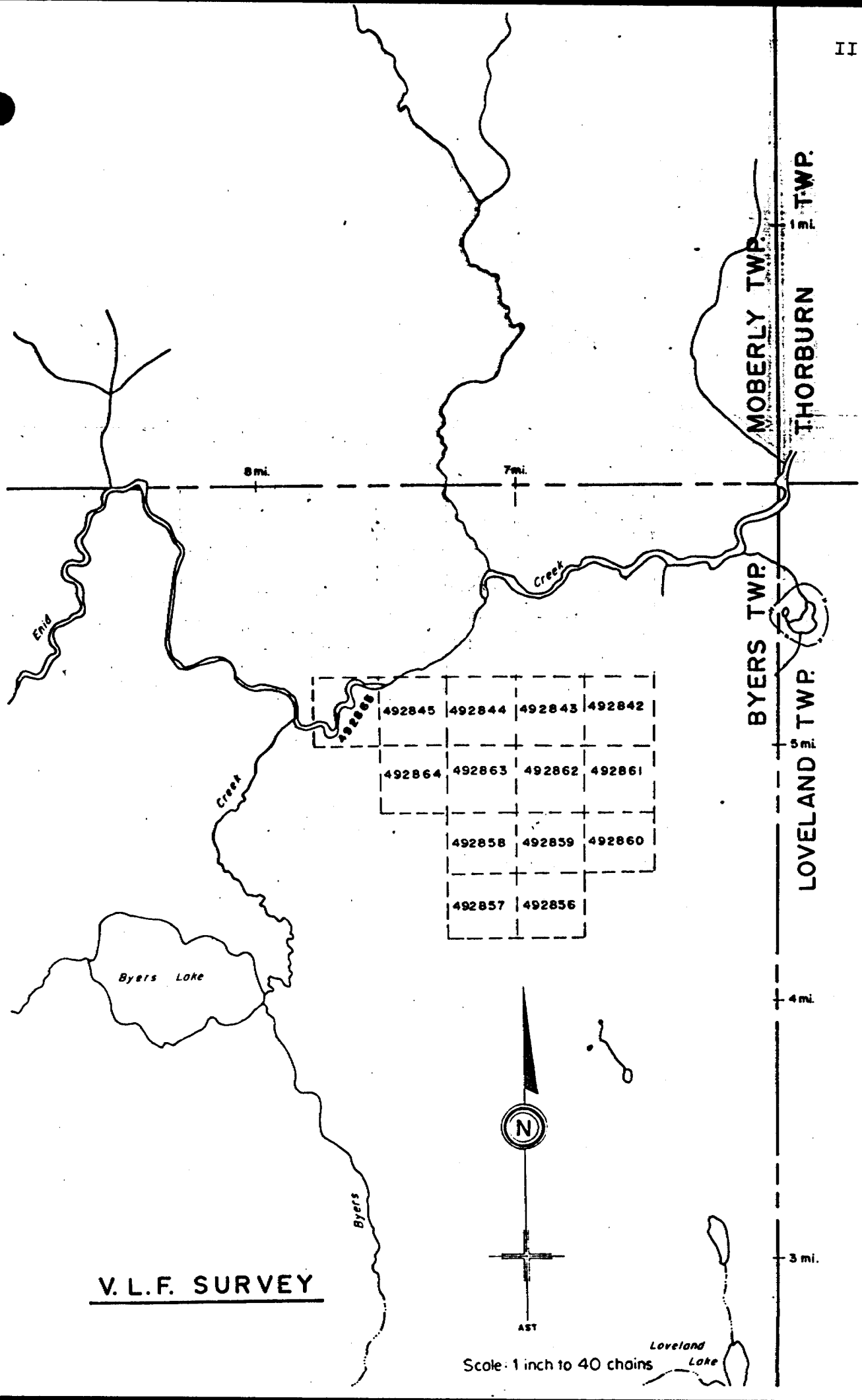
Moberly and Byers Townships
Porcupine Mining Division

HOLLINGER MINES LIMITED

Timmins, Ontario
September 8, 1978

H.Z. Tittley, P.Eng.


MOBERLY TWP.
THORBURN
BYERS TWP.
LOVELAND TWP.
1 mi.
5 mi.
4 mi.
3 mi.
8mi.
7mi.
492822 492823 492824 492825 492826 492827 492828
492835 492834 492833 492832 492831 492829
492830
492836 492837 492838 492839 492840 492841
492865
492845 492844 492843 492842
492864 492863 492862 492861
492858 492859 492860
492857 492856
Enid
Creek
Creek
Byers Lake
Byers
N
AST.
Loveland Lake
Scale: 1 inch to 40 chains
H. E. M. SURVEY


MOBERLY TWP.
THORBURN TWP.
BYERS TWP.
LOVELAND TWP.
1 mi.
8 mi.
7 mi.
5 mi.
4 mi.
3 mi.
Enid Creek
Creek
Byers Lake
Byers
492865
492845
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492863
492862
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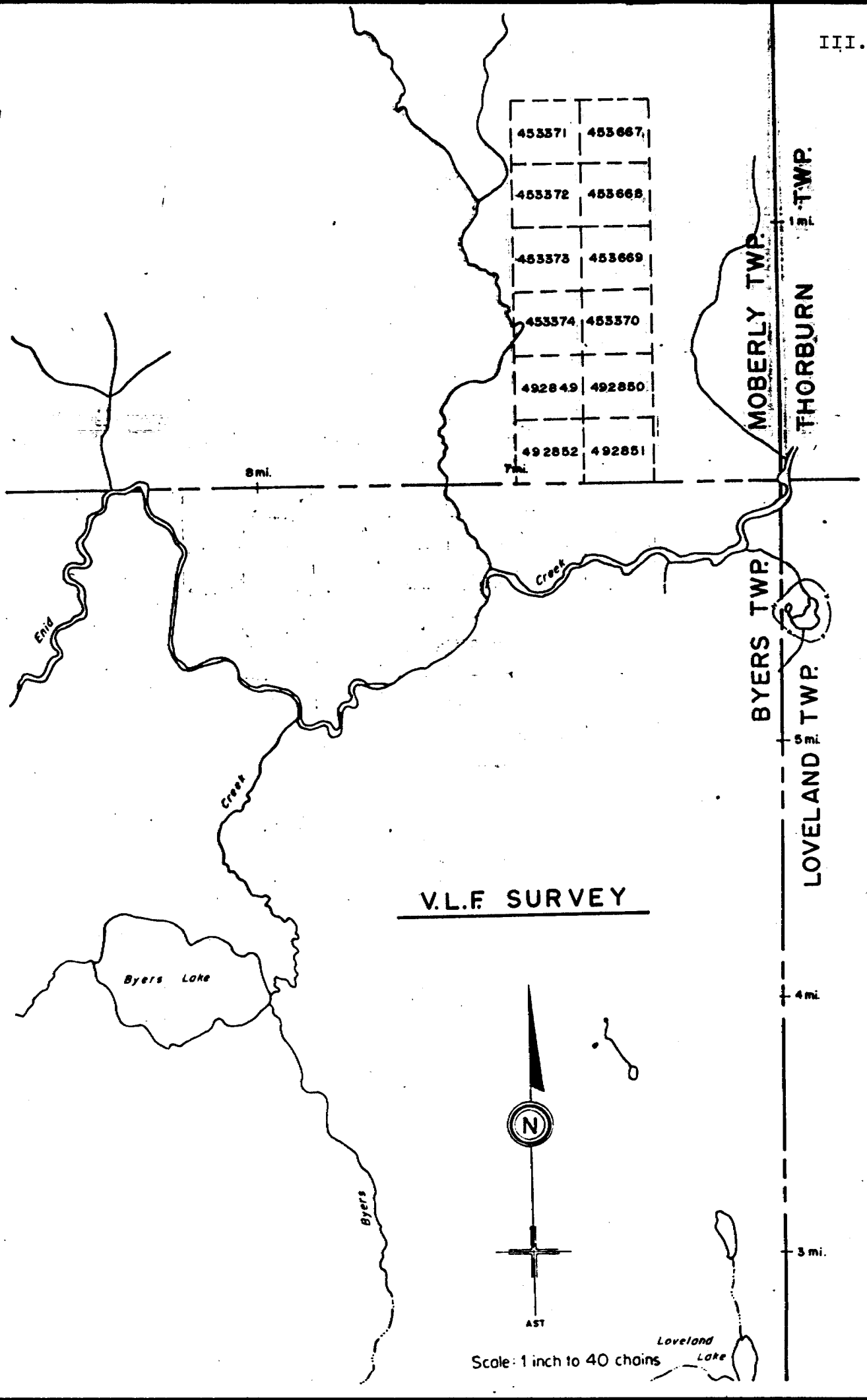
N
AST
Loveland Lake
Scale: 1 inch to 40 chains

V. L. F. SURVEY


453671
453667
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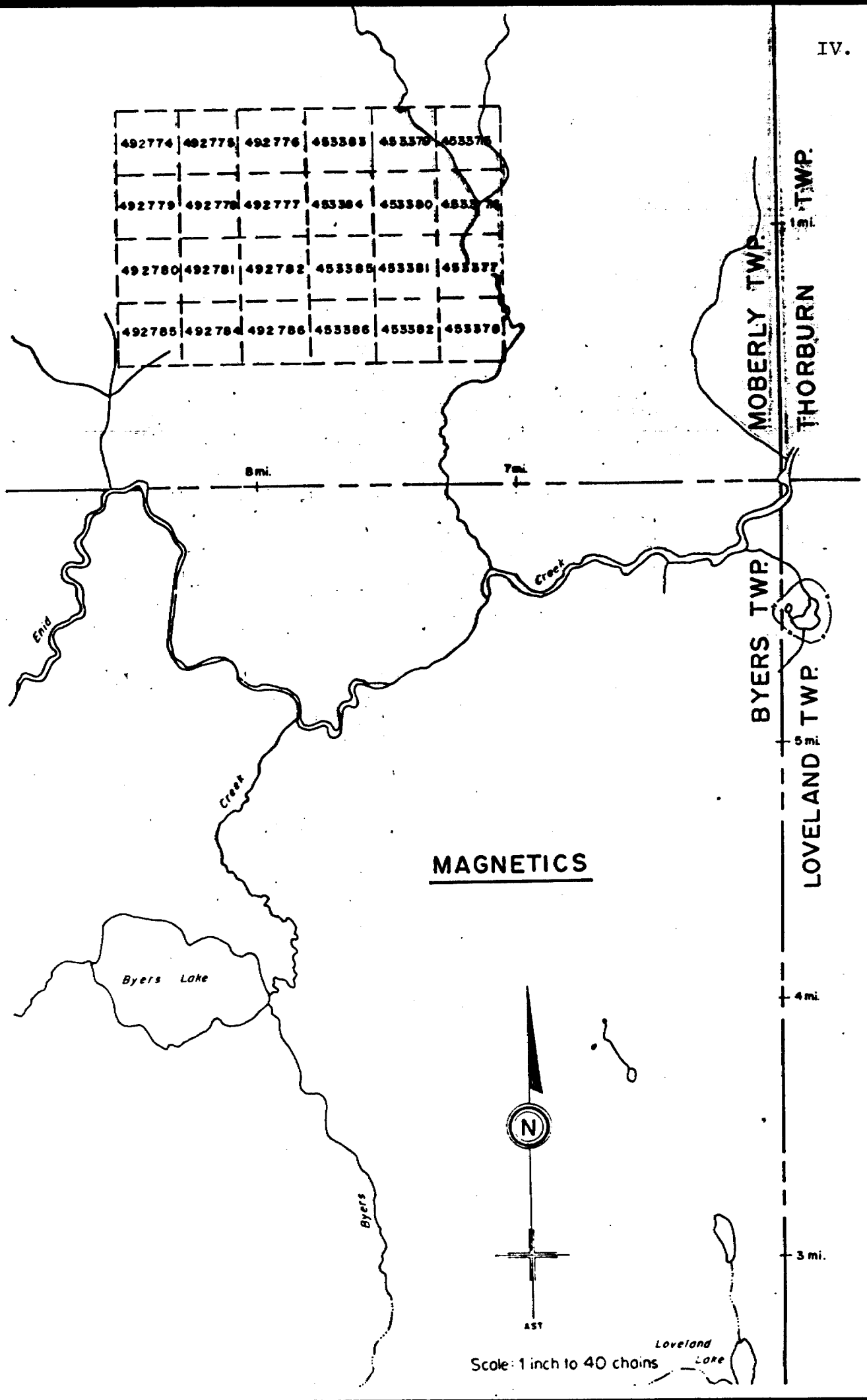
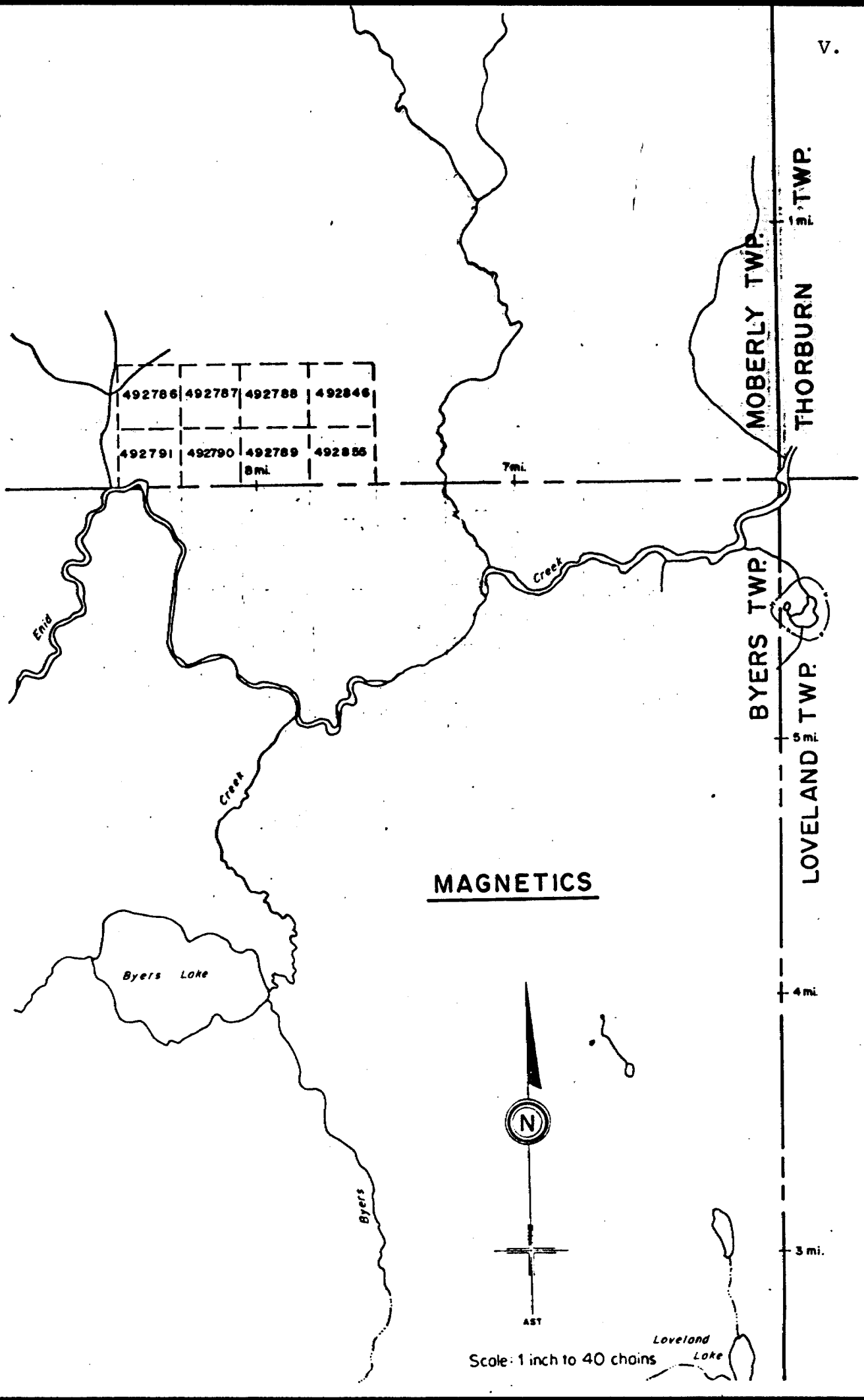
453673
453669
453674
453670
492849
492850
492852
492851
8mi.
Twp.
MOBERLY TWP.
THORBURN
1mi.
BYERS TWP.
LOVELAND TWP.
5mi.
4mi.
3mi.
Enid
Creek
Creek
Byers Lake
Byers
V.L.F SURVEY
N
AST
Scale: 1 inch to 40 chains
Loveland Lake


492774 492775 492776 453383 453379 453375
492779 492778 492777 453384 453380 453376
492780 492781 492782 453385 453381 453377
492785 492784 492786 453386 453382 453378
MOBERLY TWP.
THORBURN TWP.
1 mi.
8mi.
7mi.
Enid
Creek
Creek
BYERS TWP.
LOVELAND TWP.
5 mi.
4 mi.
3 mi.
MAGNETICS
Byers Lake
Byers
N
AST
Loveland Lake
Scale: 1 inch to 40 chains


492786
492787
492788
492846
492791
492790
492789
492856
8mi.
7mi.
MOBERLY TWP.
THORBURN
1mi.
BYERS TWP.
LOVELAND TWP.
5mi.
4mi.
3mi.
Enid
Creek
Creek
Byers Lake
Byers
MAGNETICS
N
AST
Loveland Lake
Scale: 1 inch to 40 chains

INTRODUCTION

Ground magnetic and V.L.F. and horizontal-loop electromagnetic surveys have been carried out over a group of 82 claims in Byers and Moberly Townships, Porcupine Mining Division, Province of Ontario.

The work was performed over the past two years and covered all except four claims near the center of the group.

PROPERTY, LOCATION and ACCESS

The Moberly No. 1 Group consists of 82 contiguous unpatented mining claims held by Hollinger Mines Limited.

The property is located twenty-five miles northwest of downtown Timmins.

Access to the property is by helicopter to a few cleared sites or along drill roads from Kamiskotia Lake.

HISTORY

There is evidence of older grid lines near the northeast and southwest parts of the property, but there is no record of ground mineral exploration work by previous operators in government files.

A horizontal-loop electromagnetic survey carried out during 1976 and 1977 over 40 claims in Moberly Township was reported in 1977.

The results of a drill hole put down in 1977 were also recorded in the same year.

GEOLOGY

No outcrop has been encountered on the property, but from our drill results and the surrounding geology, the area contains mainly basic to felsic lavas of Archean age intruded by north trending diabase dykes. A younger olivene diabase dyke mapped in Loveland Township trends northwesterly across the center of the property. Felsic intrusive rocks are suspected, mainly in the western part.

TOPOGRAPHY

Pleistocene clays mantle most of the area. Slight gouging of Enid Creek and its tributaries and the occasional sandy ridge provide the only relief that would not exceed five meters above or below the plain.

The forest cover is a gradual change from commercial spruce stands in the northern part to open larch swamp in the south with occasional cedar swamps and spruce muskegs throughout.

SURVEY METHODS

a) Linecutting:

In Moberly Township the claims were covered by a grid of north-south lines 400 feet apart, originating from a base line along the north boundary. There is also a base line at 52S and on the small detail grid near line 12W.

On the Byers claims, lines were cut in an east-west direction from a base line originating at the township boundary and line 8W on the above grid. Another base line was surveyed across the property at 32W.

Everywhere stations were measured at 100 foot intervals or less.

b) H.E.M. Survey:

On the Byers grid, the H.E.M. survey was carried out with an EM-17 electromagnetic unit manufactured by Geonics Limited of Toronto. Readings were taken every 100 feet or less with the coils 400 feet apart in the horizontal co-planar mode.

The claims thus covered are: P.492822 to P.492845 and P.492856 to P.492865, all inclusive.

c) V.L.F. (20 KHz E.M.) Survey:

Twelve claims in Moberly and fourteen claims in Byers Township were surveyed with an EM-16 electromagnetic receiver, also manufactured by Geonics Limited. The readings were taken at intervals of 100 feet or less, using station NAA (Cutler, Maine) on north-south lines, and NSS (Annapolis, Maryland) on the east-west grid.

The claims covered by this method are: P.453367 to P.453374 and P.492849 to P.492852 in Moberly Township, and P.492842 to P.492845 and P.492856 to P.492865 in Byers Township.

d) Magnetic Survey:

The magnetic survey was performed over the existing grid of picket lines on 32 claims in the west part of the Moberly grid, using a Geometrics G-816 proton magnetometer. Control stations were established along the 0+00 base line, the 52S B.L. and the south tie-line near the township line by averaging repeat loops that included the even 400 foot stations. A curve of the diurnal was obtained from the control points and applied to the readings.

The claims covered by the magnetic survey are: P.453375 to P.453386, P.492774 to P.492791, P.492846 and P.492855.

RESULTS

a) H.E.M. Survey:

The results are plotted in profile form and interpreted on the accompanying plan entitled 'H.E.M. SURVEY'.

Although seventeen anomalies labelled in order of priority from 'A' to 'R' have been plotted, only 'A' to 'E' show the characteristics of conductors originating from a bedrock source. Anomaly 'F' coincides with a V.L.F. conductor and therefore warrants further examination. Except for 'N', the remaining anomalies display poor ratios and are therefore likely due to irregularities in the conductive clay mantle.

b) V.L.F. (20 KHz E.M.) Survey:

Results of the V.L.F. survey are plotted as profiles on two separate plans entitled 'V.L.F. SURVEY' at a scale of 1 inch to 400 feet. One plan shows the work in Moberly Township and the other covers the Byers Grid.

In the Moberly part, anomaly 'C' coincides with a horizontal-loop conductor detected in 1977. Anomaly 'K' is due to sulphide mineralization encountered in a drill hole sunk in 1977. Conductors 'A' and 'B' will be re-evaluated following completion of the magnetic survey in this area. None of the remaining nine conductive zones is of immediate interest although they could represent sulphide concentrations.

On the Byers grid, anomalies 'A' to 'E' coincide with horizontal-loop conductors that are not all likely due to a bedrock source. On its own merit, only anomaly 'A' remains of further interest. The conductors represented by dashed lines on the plan are anomalies believed due to operator errors.

c) Magnetic Survey:

The results ontained from the magnetic survey are plotted and contoured on the accompanying plan entitled 'MAGNETICS'. The parallel-line method of contouring employed is interpretive and, therefore, most magnetic anomalies are readily discernible.

North trending features are invariably dykes. From the drilling, the anomaly trending north of east near the 52S base line is caused by basic magnetic lavas in contact with acid flows to the north. To the west across the northwest trending dyke, the contact continues for 800 feet and is displaced to the south 800 feet.

CONCLUSIONS and RECOMMENDATIONS

No new major conductive or magnetic zone has been detected by these surveys.

H.E.M. and V.L.F. anomalies that may originate from a bedrock source should be examined using vertical loop or more sophisticated electrical methods.

Additional magnetic work is usually warranted over any potential drill target that may ensue.

Respectfully submitted,

H. Z. Tittley P.Eng.

H. Z. Tittley, P.Eng.

Ontario

G

File 2.2789

900

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) Geophysical; E.M. and Magnetic

Township or Area Moberly and Byers Townships

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

Survey Company Hollinger Mines Limited

Author of Report H. Z. Tittley

Address of Author Box 320, Timmins, Ontario

Covering Dates of Survey October 1976 - Sept. 8, 1978
(linecutting to office)

Total Miles of Line Cut 86.57

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	40 & 20
–Magnetometer	40 & 20
–Radiometric	
–Other	
Geological	
Geochemical	

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

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

DATE: Sept. 8, 1978 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications 43.2513

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
P.453367	P.492822
P.453368	P.492823
P.453369	P.492824
P.453370	P.492825
P.453371	P.492826
P.453372	P.492827
P.453373	P.492828
P.453374	P.492829
P.453375	P.492830
P.453376	P.492831
P.453377	P.492832
P.453378	P.492833
P.453379	P.492834
P.453380	P.492835
P.453381	P.492836
P.453382	P.492837
P.453383	P.492838
P.453384	P.492839
P.453385	P.492840
P.453386	P.492841
P.492774	P.492842
P.492775	P.492843
P.492776	P.492844
P.492777	P.492845
P.492778	P.492846
P.492779	P.492849
P.492780	P.492850
P.492781	P.492851
P.492782	P.492852
P.492783	P.492855
P.492784	P.492856
P.492785	P.492857
P.492786	P.492858
P.492787	P.492859
P.492788	P.492860
P.492789	P.492861
P.492790	P.492862
P.492791	P.492863
	P.492864
	P.492865

If space insufficient, attach list

TOTAL CLAIMS 78

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 5140 Number of Readings E.M., 3103; Mag., 1903.

Station interval 100 feet Line spacing 400 feet

Profile scale

Contour interval

MAGNETIC

Instrument Geometrics G-816 Proton Magnetometer

Accuracy -- Scale constant ± 1 gamma

Diurnal correction method closed loop

Base Station check-in interval (hours) 0.75

Base Station location and value 00 Base Line at 28+00'W
= 59,710 gammas minus 59,000 equal 710 gammas on plan.

ELECTROMAGNETIC

Instrument Geonics EM-16 and EM-17

Coil configuration EM-16, Vertical; EM-17, Horizontal Co-planar

Coil separation EM-16, infinity; EM-17, 400 feet.

Accuracy EM-16, ± 1%; EM-17, ± 2%

Method: EM-16 ☒ Fixed transmitter ☐ Shoot back EM-17 ☒ In line ☐ Parallel line

Frequency E.M.16: NAA, 17.8 KHz NSS, 21.4 KHz E.M.17 - 1600 Hz
(specify V.L.F. station)

Parameters measured In-Phase (Real) and Out-of-Phase (Imaginary)

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

SURVEYS AND MAPPING BRANCH

2.2789 C1

PLAN OF MOBERLY T'WP

M.550

PORCUPINE MINING DIVISION

DISTRICT OF COCHRANE.

Scale, 40 chains to an inch.

DATE OF ISSUE

SEP 19 1978

SURVEYS AND MAPPING BRANCH

LEGEND

CANCELLED	C.
PATENTED LAND	(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.

NOTE

400' Surface Rights Reservation around all Lakes and Rivers

N. East North W. E. S.

WILHELMINA T'WP.

24M. 7406 5M. 80.00 4M. 80.00 3M. 80.00 2M. 80.00 1M. 80.00

AITKEN T'WP.

23M. 22M. 21M. 20M. 19M. 18M. 80.00 80.33

THORBURN T'WP.

80.00 9M. 8M. 7M. 6M. 5M. 4M. 3M. 2M. 1M.

BYERS T'WP.

12M. 73.06 11M. 80.00 10M. 80.00 9M. 80.00 8M. 80.00 7M. 80.00 6M.

P 496850	P 496845	P 496844	P 496839
P 496849	P 496846	P 496843	P 496840
P 496848	P 496847	P 496842	P 496841

P 504654	P 500361
P 504655	P 500668

P 508747	
P 500671	
P 500674	

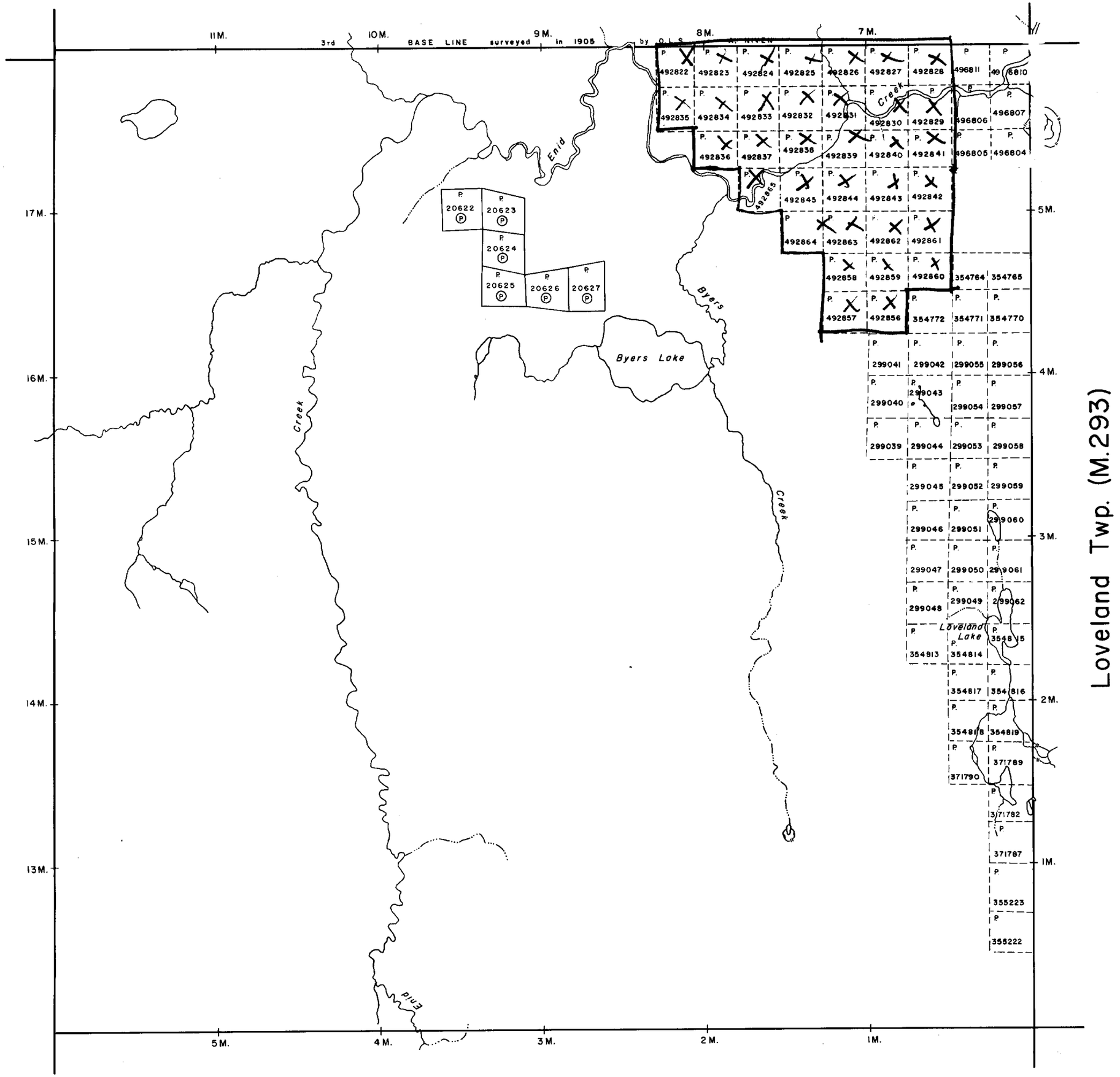
P 492021	P 492020	P 499122	P 499121
P 499150	P 499149	P 499123	P 499124
P 499151	P 499152	P 499126	P 499125
P 499154	P 499153	P 499127	P 499128
P 499142	P 499141	P 499130	P 499129
P 499143	P 499144	P 499131	P 499132
P 499146	P 499145	P 499134	P 499133
P 499147	P 499148	P 499135	P 499136

P 492774	P 492475	P 492476	P 453383	P 453379	P 453375	P 453371	P 453367
P 492779	P 492778	P 492777	P 453384	P 453380	P 453376	P 453372	P 453368
P 492780	P 492781	P 492782	P 453385	P 453381	P 453377	P 453373	P 453369
P 492785	P 492784	P 492783	P 453386	P 453382	P 453378	P 453374	P 453370
P 492786	P 492787	P 492788	P 492846	P 492847	P 492848	P 492849	P 492850
P 492791	P 492790	P 492789	P 492855	P 492854	P 492853	P 492852	P 492851

Kamiskotia River

42A12NE0803 2.2789 MOBERLY

Moberly Twp. (M.550)



Fortune Twp. (M.813)

Loveland Twp. (M.293)

Côté Twp. (M.271)

THE TOWNSHIP OF 2.2789

BYERS

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

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

NOTES

400' Surface Rights Reservation along the shores of all lakes and rivers.

DATE OF ISSUE
SEP 19 1978
SURVEYS AND MAPPING BRANCH

PLAN NO. M-265

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A12NE0803 2.2789 MOBERLY

MOBERLY TWP. | THORBURN TWP.

BYERS TWP. | LOVELAND TWP.

32+00 W. Base Line

0+00 Base Line

OLD BASE LINE

492822 492823 492824 492825 492826 492827 492828

492829 492830 492831 492832 492833 492834 492835

492836 492837 492838 492839 492840 492841 492842 492843 492844 492845 492865

492864 492863 492862 492861 492860 492859 492858 492857 492856

4 S 8 S 12 S 16 S 20 S 24 S 28 S 32 S 36 S 40 S 44 S 48 S 52 S 56 S 60 S 64 S 68 S 72 S 76 S 80 S 84 S 88 S 92 S 96 S

A B C D E F G H J K L M N O P Q R

1

Spruce Muskeg

Spring

Creek

Enid

Spruce

Muskeg

Larch Swamp

BYERS LAKE

5 mile

N

ast.

	WILHELMINA	GEARY	
AITKEN	MOBERLY	THORBURN	REID
FORTUNE	BYERS	LOVELAND	MACDIARMID
ENID	COTE	ROBB	JAMIESON
	MASSEY	TURNBULL	

LOCATION MAP
Scale: 1 in. to 4 mi.

HOLLINGER MINES LTD.

MOBERLY No. 1
(BYERS GRID)
H.E.M. SURVEY
(1600 Hz.)
BYERS TWP. ONT.

SCALE: 1"=400' or 1 cm. = 48 metres

+20% 0 -20%

T1 T2 CONDUCTOR

GOOD ANOMALY
FAIR ANOMALY
POOR ANOMALY

REGISTERED PROFESSIONAL ENGINEER
H. Z. TITTLEY
PROVINCE OF ONTARIO

H. Z. Tittley, P. Eng.

42A12NE0003 2.2789 MOBERLY

230

32+00 W Base Line

0+00 Base Line

MOBERLY TWP. | THORBURN TWP.

BYERS TWP. | LOVELAND TWP.

4 S
8 S
12 S
16 S
20 S
24 S
28 S
32 S
36 S
40 S
44 S
48 S
52 S
56 S
60 S
64 S
68 S
72 S
76 S
80 S
84 S
88 S
92 S
96 S

Creek

Enid

492865
492844
492845
492843
492842
492864
492863
492862
492861
492858
492859
492860
492857
492856

A
B
C
D
E
F

BYERS LAKE

5 mile

N

ast.

	WILHELMINA	GEARY	
AITKEN	MOBERLY	THORBURN	REID
FORTUNE	BYERS	LOVELAND	MACDIARMID
	COTE	ROBB	JAMIESON
ENID	MASSEY	TURNBULL	

LOCATION MAP
Scale 1 in. to 4 mi.

LEGEND

+20%
0
-20%
CONDUCTOR
TRUE X-OVER
REVERSE X-OVER
In Phase Quadrature
GOOD ANOMALY
FAIR ANOMALY
POOR ANOMALY
PRIMARY FIELD

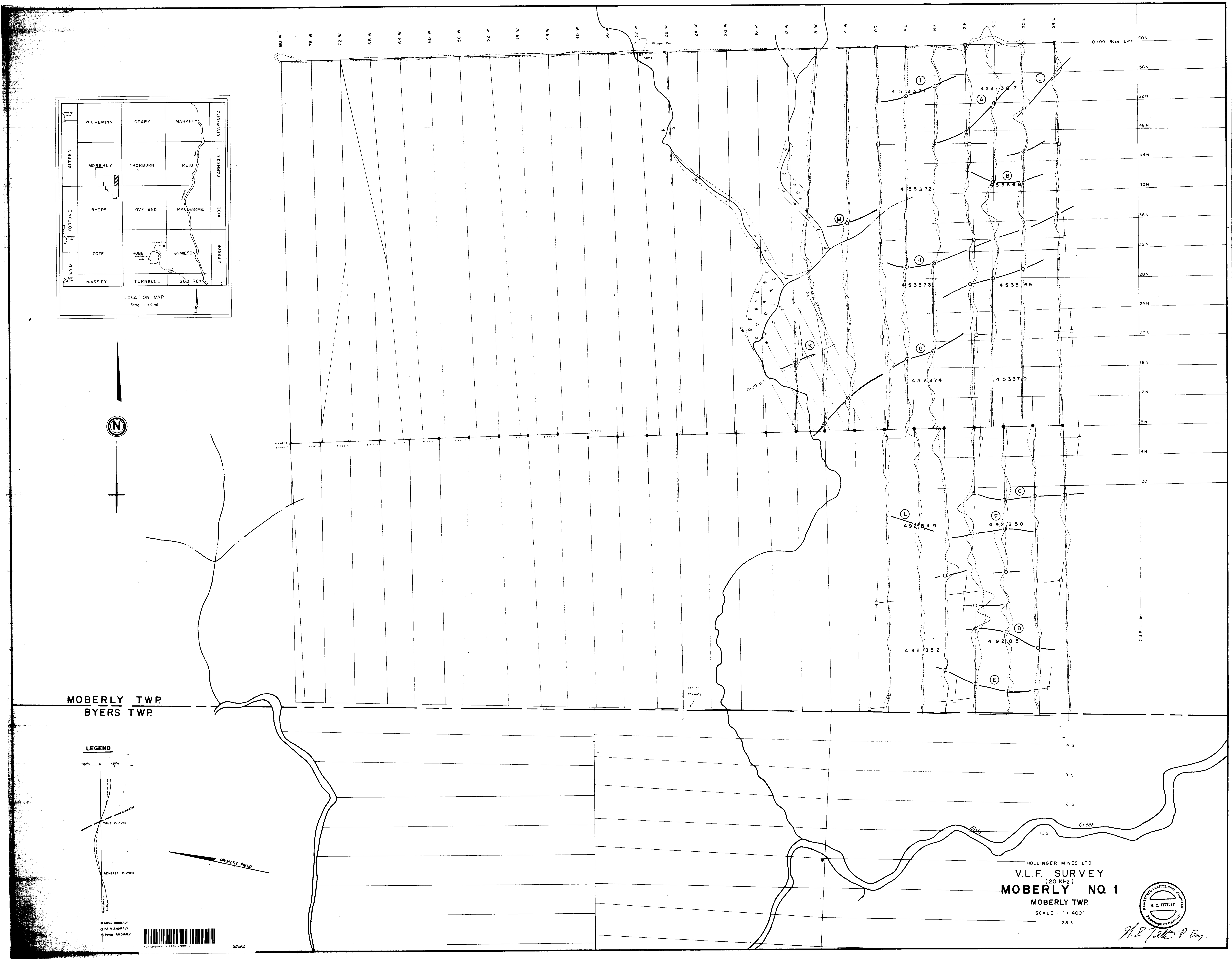
HOLLINGER MINES LTD

MOBERLY No. 1
(BYERS GRID)
V.L.F. SURVEY
(20 KHz.)
BYERS TWP. ONT.

SCALE 1"=400' or 1 cm = 48 metres

REGISTERED PROFESSIONAL ENGINEER
H. Z. TITTLEY
PROVINCE OF ONTARIO

H. Z. Tittley, P. Eng.


HOLLINGER MINES LTD.
V.L.F. SURVEY
(20 KHz.)
MOBERLY NO. 1
MOBERLY TWP.
SCALE: 1" = 400'
MOBERLY TWP.
BYERS TWP.
LEGEND
TRUE X-OVER
REVERSE X-OVER
GOOD ANOMALY
FAIR ANOMALY
POOR ANOMALY
PRIMARY FIELD
LOCATION MAP
Scale: 1" = 4 mi.
WILHEMINA
GEARY
MAHAFFY
CRAWFORD
AITKEN
MOBERLY
THORBURN
REID
CARNEGIE
FORTUNE
BYERS
LOVELAND
MACDIARMID
KIDD
COTE
ROBB
JAMIESON
JESSOP
MASSEY
TURNBULL
GODFREY
0+00 Base Line
Old Base Line
Chopper Pad
Camp
Creek
H. Z. TITTLEY
250
453372
453368
453373
453369
453374
453370
492849
492850
492852
492851

39

BYERS LAKE

BYERS TOWNSHIP

TOWNSHIP LINE

LOVELAND TOWNSHIP

LOVELAND LAKE

Noranda Mines
5 claims

Detail Grid

TN

1 ANDESITE	o BOREHOLE
2 GRANITE	—1900— AEROMAG
3 GABBRO	----- EM CONDUCT
4 DIABASE	M MAG ANOM
5 PERIDOTITE	— COMINCO claim boundary

'A', 'B', 'C', ANOMALIES

drawn by MERD		traced by	
revised	date	revised	date

BYERS PROPERTY

GEOLOGY
AEROMAG (for Mespi Mines)
COMINCO CLAIM AREA

Scale 1" = 1/4 mile | Date . 20 · 7 · 72 | Plate N° 4

4PATENT 860% 1791 LOVELAND

220