41P14NE0035 63.2397 MIDLOTHIAN

010

AUTOPOSITIVES FILED SEPERATELY

63.2397

1. INTRODUCTION.

Between September 30th and October 9th, 1968, an airborne geophysical survey comprising in-phase and out-of-phase electro-magnetometer, was carried out by Lockwood Survey Corporation Limited for Timiskaming Nickel Limited over 753 claims, in three irregular shaped blocks, totalling 800.38 line miles.

The airborne survey was over three areas including the claim blocks within 16 miles radius of Gowganda. The three areas cover the following Townships:

Area 1: Knight, Township of Knight, District of Sudbury, Larder Lake Mining Division, and parts of Natal District of Timiskaming, Larder Lake Mining Division, and Tyrrell, District of Timiskaming, Larder Lake Mining Division.

Area 2: Kelvin, Township of Kelvin, District of Sudbury, Larder Lake Mining Division.

Area 3: Midlothian, Township of Midlothian, District of Timiskaming, Larder Lake Mining Division.

Traverse lines were spaced at 1/16th mile, on an east-west bearing. Appropriate tie-lines were flown.

The mean terrain clearance for the E.M. and magnetometer bird was 100 feet.

Photographs of the terrain below the aircraft were exposed at intervals of 1.5 secs. throughout the survey on 35 mm film. This photography was used to establish the actual flight path of the aircraft whilst on survey.

The areas have been collated on map sheets, two map sheets per area, at a scale of 1 inch to 1,320 feet, with planimetry traced from uncontrolled mosaics.

The survey was undertaken by the following personnel:

J.M. Barthelemew, Pilot.

J. Masse, Engineer.

H. Sandau, Navigator, Operator.

P. Bell, Data Reduction.

The aircraft used for the survey was a Hiller 1100, registration CF - AHB.

II. INSTRUMENT SPECIFICATIONS.

II.1 ELECTROMAGNETIC SYSTEM:

Manufacturer:	Lockwood Survey Corporation Limited (formerly Hunting Survey Corporation Limited).
Type:	In-phase/Out-of-phase System.
Serial No:	Unit 3.
Frequency:	4000 cycle per second.
Power Source:	28 volts.
Coil Size:	18 inches.
Coil Separation:	30 feet - vertical, co-axial.
Power Output:	10 watt.
Sensitivity:	400 parts per million (0.04%).
Calibration:	100 parts per million step.
Noise Level:	$\pm$ 6 parts per million.
Recorder:	Century.
Chart Speed:	3 inches per minute.

II.2 MAGNETOMETER SYSTEM:

Manufacturer:	Gulf Research and Development Corporation.
Type:	Mark III Fluxgate.
Unit No:	6.
Power Source:	28 volt.
Sensitivity:	1200 gamma.
Step:	1000 gamma.
Noise envelope:	4 gamma.
Recorder:	Gulf.
Chart Speed:	3 inches per minute.

II.3 ELEVATION CONTROL:

Type:	Bonzer Altimeter.
Serial No:	TRN-70.
Power Source:	28 volt.
Calibration Range:	80-2,500 feet, non-linear.
Power Output:	1 watt.
Operating Frequency:	1600 mega cycle.
Chart Speed:	3 inches per minute.

II.4 CAMERA:

Manufacturer:	Canadian Applied Research.
Model:	MK 8.
Serial No:	8106
Exposure interval:	1.5 second.
Film Size:	35 mm.
Shutter:	Focal Plane.

III. SURVEY PROCEDURE.

All instrument calibrations were checked and adjusted immediately before and/or after take-off, and checked for normal function, e.g., pen alignment, automatic stepping, standardization and degree of noise. Assuming all systems were functioning satisfactorily, the flight would proceed following predetermined flight lines marked on uncontrolled mosaics at a scale of 1 inch to 1,320 feet, at the predetermined separation.

The helicopter followed a systematic predetermined pattern of flight lines and tie-lines at an average elevation of 200 feet.

The position of the helicopter was recorded by a vertically mounted camera; there was no significant lag between any instrument and the recorded position. Every time the camera fired, a reference mark was printed on all records and numbered to correspond with the film frame number.

The magnetometer and electromagnetic system detector heads were in the bird, the controls and recorder being mounted in the helicopter with the camera and radio altimeter.

IV. DATA REDUCTION AND PRESENTATION

The flight produces positioning film, duly processed, magnetometer, electromagnetic and radio altimeter continuous records with appropriate frame numbers and field annotations, plus an operator's Daily Flight Report.

The track of the helicopter is recovered on the photographic mosaics by examination of the film; prominent features, i.e., roads, lake-shore, etc., are used for the transposition.

The intersections of tie and flight lines are accurately determined on film and transferred to the records. The frame numbers of the individual plotted points relocated on the mosaic are identified on each record.

The flight line network is divided into conveniently sized circuits and from one intersection as reference, the magnetic closure error around each circuit is determined and distributed uniformly around each circuit such that the correction applied to the magnetic baseline results in a uniform datum of all these magnetometer records throughout the area; this is the datum used for contouring. If the flight lines are very short a single control or tie-line is used to apply a constant datum to all lines assuming zero drift.

The electromagnetic record is baselined with respect to the local background level.

The data for each survey are individually transferred to separate intercept tapes; the data transferred consist of the plotted fiducial point and the intercept of the predetermined contour interval with the trace, and the position and values of high and lows.

The intercepted data are transferred to the flight line plot by linearly interpolating between plotted fiducial points. The transferred data are then contoured, and subsequently fair drawn.

V. PERSONNEL.

Pilot:	J.M. Barthelemew, Autair Limited, MONTREAL.
Engineer:	J. Masse, Autair Limited, MONTREAL.
Operator:	H. Sandau, Lockwood Survey Corporation Limited, 1450 O'Connor Drive, TORONTO 16.
Data Technician:	P. Bell, Lockwood Survey Corporation Limited, 1450 O'Connor Drive, TORONTO 16.
Geophysicist:	J.W. Prior, M.Sc., F.G.S., Huntec Limited, 1450 O'Connor Drive, TORONTO 16.

VI. THE ELECTROMAGNETIC SURVEY.

II.1 The Electromagnetic System.

The helicopter-borne E.M. system used for this survey was developed by Hunting Survey Corporation and was described by Dr. N.R. Paterson in "Helicopter E.M. Test, Mobrun Ore Body, Noranda", in Canadian Mining Journal, November, 1961. The system measures the in-phase and out-of-phase components of the secondary electromagnetic field, in terms of the primary field at the receiver. Receiving and transmitting coils are held vertical and co-axial in a towed "bird", a distance of 30 feet apart and 100 feet below the helicopter. The sensitivity of the measuring system is such that the minimum recognizable in-phase anomaly is about 8 parts per million. Noise on the in-phase profile should be less than 5 parts per million. The frequency of the alternating electromagnetic field is 4000 cycles per second.

The system so designed is sensitive to large bodies at a depth of up to 250 feet below the "bird". Anomalies in the range 8 to 100 parts per million are commonly obtained over sulphide bodies when this equipment is operated at a "bird" height of 100 feet. The anomaly amplitude decreases with increasing depth (and increasing height) at a roughly 3.8 power. Consequently, an anomaly of 8 parts per million could be caused by a large body buried 150 feet below ground or a very small body at surface. The ambiguity is to some extent resolved by studying the shape of the anomaly.

VI.2 Effect of Magnetic Bodies on Electromagnetic Response

The survey area is characterized by high magnetic relief; therefore, in assessing the significance of any particular anomaly it is essential to note the correlation with strong magnetic relief, as well as geological structural correlation.

The effect of a strong magnetic field on the electromagnetic response is to degrade, to a variable extent, the in-phase component only; the out-of-phase component is unaffected. Therefore, anomalies in areas of low magnetic relief cannot have been degraded, whereas anomalies in areas of high magnetic relief may have had their in-phase response degraded, resulting in an apparently low ratio, hence, low apparent conductivity. The extreme case is where the magnetic field due to the causative body is considerably stronger than the secondary field being measured at the receiving coil, resulting in a negative in-phase anomaly.

VI.3 Presentation of Data

The electromagnetic data is presented as contours of the anomaly in the in-phase component relative to the local background level at an interval of 20 p.p.m. of the primary field and with ratios of in-phase to out-of-phase components at the peaks of the anomalies.

VI.4 Comments on Electromagnetic Data.

Kelvin Area.

The background to the area is essentially flat with a few minor anomalies. A distinctive anomaly extends northwards from line 306 to line 284 and thence at considerably lower amplitudes to line 271. In the extreme south the anomaly coincides with a stream and there may be some inter-relationship. The peak of the anomaly is on lines 288 and 287 with a typical in-phase/out-of-phase ratio of 20/8, equivalent to a conductivity-width of less than 1 mho. The Preliminary Geological Map No. P.151, Gogama Sheet of the Ontario Department of Mines indicates undifferentiated volcanic rocks with interflow sediments. The major anomaly merits further investigation.

Knight Area.

This area covers many known gold showings on the Gogama Geological Sheet and the Elk Lake - New Liskeard Sheet No. P.159.

Three small anomalous areas are observed and a prominent linear feature, each of which will be considered in turn; some gold showings on the maps are not apparent on the electromagnetic response.

The first group are in the southeast corner of the area from lines 236 to 249; amplitudes are low, but the ratios are high (greater than unity) indicating a conductivity-width of 1 mho and an apparent depth of 120 feet sub-bird. This anomaly may overlap in part the ultrabasic intrusive rocks.

The second area of minor anomalies coincides approximately with a gold showing on the northeast shore of Pigeon Lake between lines 143 and 150. The general character of the anomalies is similar to that found in the southeast. The local rock types are defined as indifferentiated volcanic rocks with interflow sediments.

The third small area is to the southwest of the southwest arm of Pigeon Lake between lines 156 and 159. Amplitudes are again low, but ratios are about unity indicating a relatively good conductor at depth.

The major anomaly on the sheet does not coincide with any showings on the map or any geological structure; it is seen to gradually disappear in the north where the Gowganda Formation is mapped, suggesting that the conductor may be still present in the underlying volcanic rocks but is at a depth beyond the penetration of the system. The depth limitation would be reached at about the northern limit of the survey area. The electromagnetic system has resolved the trend into two parallel anomalies about 700 feet apart. Ratios of in-phase/out-of-phase are variable along the strike of the body from 3+ to 0.5 with amplitudes from 250 p.p.m. to 30 or 40 p.p.m. The out-of-phase component has often gone negative, indicative of too low a ground clearance of the bird in flight, however, all the indications are of two parallel, relatively good conductors at the surface.

Midlothian Area.

Almost the entire area is geologically mapped as rhyolite, trachyte and acid pyroclastic rocks; asbestos, zinc and gold occurrences are noted near the survey area.

Many of the lakes show response, i.e. Rhyolite Lake, which should be effectively ignored for mineral exploration purposes.

Immediately to the east of Rhyolite Lake on line 13 a small anomaly with in-phase/out-of-phase ratio 1.2/0.6 gives a conductivity-width of less than 1 mho at about 120 feet sub-bird and appears to have a strike slightly west of north. Further east on the north shore of Lloyd (?) Lake a small cluster of high ratio low amplitude responses nearly coincide with the asbestos show; this latter trend may coincide with a local outcrop of ultrabasic rocks. The major anomaly is found due north on lines 1 to 10; it does not coincide with any any mapped show. The trend is slightly north of east, shows signs of dislocation and tends to turn into a northeast trend parallel to the lakeshore. Within this trend particular anomalies are 20/8, 14/9, 6/3, indicative of conductivity-width of less than 1 mho at depths sub-bird of 90-120 feet.

The three areas each show several trends containing electromagnetic responses typical of geological conductors, especially sulphides. All the trends specifically mentioned in the text merit follow-up on the ground, initially a geological check, but ultimately with a detailed ground survey to determine specific parameters and nature of the conductors.

VII. THE MAGNETIC SURVEY.

VII.1 The Airborne Magnetometer

The instrument used for this survey was the Gulf MK III Fluxgate Magnetometer which measures the strength of the earth's total magnetic field in the direction of maximum force. The instrument was housed in the centre section of the towed bird, the controls and recorder being housed in the helicopter.

The instrument was used with full scale deflection of 1200 gamma with a noise level of $\pm$ 4 gamma.

VII.2 Presentation of Data

The magnetic data is presented as contours of the total magnetic field at a basic interval of 20 gamma with multiple intervals where the gradient warrants.

The diurnal variation was removed by the standard procedure of closing the loop and distributing the misclosure.

The contour map has been reduced for convenience to an arbitrary datum of 5000 gamma; the 5000 gamma reading on the map represents a true reading of about 59,000 gamma.

VII.3 Magnetic Constants.

The relevant magnetic constants for the area are:

Total field strength	-	0.595 oersted: 59,500 gamma
Declination	-	10° West
Inclination	-	77° North

VII.4 Comments on the Magnetic Data.

Kelvin Area.

The magnetic map can be split into two areas of distinct and contrasting magnetic character; the line between these areas lies in a northeast direction passing through fiducial 2150 and line 319. To the southwest the area shows considerably magnetic relief, consistent with a change in geologic lithology at surface, probably to a more basic suite of rocks. To the northeast of the line the magnetic relief is of a low order suggesting possibly a more acidic suite of rocks. The fault noted on the Gogama Map Sheet is not very apparent from the magnetic contours, however, a reasonable position for such a fault, or vertical contact, would be through fiducial 1769 line 207 and fiducial 2772, line 330. The non-magnetic area shows some minor anomalies which do not appear to form any distinct trend or have any great significance.

Knight Area.

This is the large area with a complex geological association of rock types, consequently the magnetic data is similarly complex and it has been found impossible to closely correlate the known geology with the observed magnetics.

Some structure is apparent within the area but cannot readily be correlated with the known mineral occurrences.

The Keweenawan diabase (9) is observed in the east around Duncan Lake and is of moderate magnetic relief. The contact between the diabase and the Gowganda Formation is reasonably well defined magnetically and coincides well with the mapped contact. The Gowganda Formation (7) is relatively non-magnetic and widespread with considerable evidence for deep magnetic sources in evidence from presumably underlying formations, hence thickness estimates could possibly be made. In the extreme northwest this unit (as mapped) becomes highly magnetic at very near surface depths suggesting incorrect mapping or only a very thin veneer of sediments.

The remaining magnetically complex area is mapped as Archaean acid intrusive rocks (6) and undifferentiated basic volcanic rocks (2a). The magnetic relief is observed to reduce within Tyrrell Township, nevertheless the two main lithological units remain magnetically undifferentiable by conventional methods.

Particular note must be made of the pronounced north-south trending feature more or less coincident with the Montreal

River in the northern part of the survey area. This is a complex zone but quite outstanding in its magnetic relief, not noted as a separate unit on the geological map. The additional coincidence of its parallelism with the pronounced electromagnetic trend to which it is adjacent adds to its significance; this magnetic trend is of compound anomalies which do not persist as far north or south as the electromagnetic anomaly. It is of interest to note the pronounced electromagnetic anomaly coincides with a suggestion of a non-magnetic zone.

Midlothian Area.

This area is mapped almost exclusively as acid and intermediate volcanic rocks of Archaean Age with some ultra-basic intrusive rocks. The magnetic map indicates several centres of magnetic activity each with its matching highs and lows suggestive of discrete intrusive ultra-basic masses not necessarily breaking the surface. What must prove to be of significance is the fact that each of these centres of magnetic activity has associated with it, not necessarily coincident, an area of relatively active electromagnetic response, suggesting that there is a relationship between magnetic activity, electromagnetic activity and possibly ultra-basic intrusive activity. Some of the electromagnetic responses coincide with lakes, but the converse is not true, implying therefore that the electromagnetic response over lakes is not solely a function of lake depth in this area but may also be a function of geology, i.e. Rhyolite Lake. There are four centres of magnetic activity, each with associated electromagnetic response; each merits further investigation, preferably including water covered areas.

VIII. RECOMMENDATIONS.

The interpretation of the survey embodied in this report is essentially a rapid geophysical appraisal of the survey area; as such it can incorporate only as much geological information as the interpreter has available. It should be judicously used, therefore, as a guideline by geologists thoroughly familiar with the area and who are in a better position to have a "feel" for the geological significance of any particular feature.

The electromagnetic system used for this survey detects electrically continuous conductors, especially massive sulphides, at relatively shallow depths; therefore, any anomalous situation of further interest should be accurately located on the ground by a comparable E.M. system. Each area has shown several anomalies which merit detailed investigation, if this has not already been undertaken. It is recommended that initially a reconnaissance electromagnetic survey be made on the ground in order to accurately locate the anomaly and check that it is not caused by man-made structures; if a geologist accompanies the crew he should check for graphite and non-economic minerals. If all factors are favourable, a magnetometer traverse may assist in determining further parameters of the causative body; the airborne magnetics should be a guide in this

Depending on the local geological detail, a decision then must be made to either continue with systematic survey work with a view to adding more data from which the causative body can be accurately defined, ultimately leading to trenching and drilling, or the dropping of the property.

Any of the horizontal loop ground electromagnetic systems would be adequate as a follow-up tool, however, the HUNTEMATIC probably has the best capabilities of providing definitive information.

The magnetic map of the Knight area is highly complex and it is considered that the application of advanced computerised interpretation techniques would considerably enhance the knowledge of the survey area and the usefulness of the field data.

HUNTEC LIMITED,

J.W. Prior

J.W. Prior, M.Sc., F.G.S.

REGISTERED PROFESSIONAL ENGINEER
R. K. WATSON
PROVINCE OF ONTARIO

Roger K. Watson B.A. Sc., P.Eng.
Consulting Geophysicist

A D D E N D U M

NUMBER OF MINING CLAIMS TRAVERSED BY SURVEY

Kelvin Township MR	SSM 44904	1 claims
	SSM 46136 - SSM 46152	17 "
	SSM 46575	1 "
	SSM 46585 - SSM 46586	2 "
	SSM 46591 - SSM 46592	2 "
	SSM 46599 - SSM 46600	2 "
	SSM 46607 - SSM 46608	2 "
	SSM 46615 - SSM 46618	4 "
	SSM 46626 - SSM 46628	3 "
	SSM 46634 - SSM 46636	3 "
	SSM 46647 - SSM 46649	3 "
	SSM 46653 - SSM 46656	4 "
	SSM 46665 - SSM 46668	4 "
	SSM 46672 - SSM 46674	3 "
	SSM 46680 - SSM 46683	4 "
	SSM 46689 - SSM 46691	3 "
	SSM 46696	1 "
		59 claims

Total Mileage Flown 124.2

Mileage flown over claim groups 73.0

73 x 40 x 2 = [illegible] days

MAY. 80 days.

A D D E N D U M

NUMBERS OF MINING CLAIMS TRAVERSED BY SURVEY

Midlothian Township MR.	SSM 47385 - SSM 47390	6 claims
	SSM 50005	1 "
	SSM 50010 - SSM 50013	4 "
	SSM 50326	1 "
	SSM 50340 - SSM 50341	2 "
		14 claims

Total Mileage Flown	44.4
Mileage flown over claim groups	24.1

MN. 80 days.

A D D E N D U M

Knight - Tyrrell - Natal Townships

NUMBER OF MINING CLAIMS TRAVERSED BY SURVEY

Natal Township	MR. SSM 43104 - SSM 43106	3	claims
	SSM 43520 - SSM 43533	14	"
	SSM 43549 - SSM 43555	7	"
	SSM 44175 - SSM 44177	3	"
	SSM 44186 - SSM 44191	6	"
	~~SSM 44547 - SSM 44191~~	~~6~~	"
	SSM 44547 - SSM 44582	36	"
	SSM 44606 - SSM 44641	36	"
	SSM 44657 - SSM 44659	3	"
	SSM 44669 - SSM 44698	30	"
	SSM 44703 - SSM 44722	20	"
	SSM 44736 - SSM 44737	2	"
	SSM 45017 - SSM 45034	18	"
	SSM 47005 - SSM 47012	8	"
	SSM 43414	1	"
	SSM 43291	1	"
	SSM 45066 - SSM 45067	2	"
	SSM 2600	1	"
		161	claims
Tyrrell Township	MR. SSM 5840 - SSM 5841	2	claims
	SSM 5909 - SSM 5910	2	"
	SSM 6194	1	"
	SSM 6864	1	"
	SSM 23784 - SSM 23785	2	"
	SSM 32818	1	"
	SSM 40398 - SSM 40403	6	"
	SSM 41646 - SSM 41648	3	"
	SSM 42158 - SSM 42169	12	"
	SSM 42880	1	"
	SSM 42884 - SSM 42887	4	"
	SSM 43444	1	"
	SSM 43455	1	"
	SSM 43723 - SSM 43730	8	"
	SSM 44727 - SSM 44732	6	"
	SSM 44781 - SSM 44782	2	"
	SSM 44899	1	"
	SSM 44902 - SSM 44903	2	"
	SSM 45006 - SSM 45007	2	"
	SSM 45068 - SSM 45072	5	"
	SSM 45418 - SSM 45453	36	"
	SSM 45473 - SSM 45482	10	"
	SSM 45484 - SSM 45486	3	"
	SSM 45908 - SSM 45912	5	"
	SSM 46352 - SSM 46420	69	"
	SSM 46800 - SSM 46817	18	"
	SSM 47065 - SSM 47068	4	"
		208	claims

ADDENDUM

NUMBER OF MINING CLAIMS TRAVERSED BY SURVEY

Knight Township MR.

SSM 6082 - SSM 6083	2	claims
SSM 6202 - SSM 6203	2	"
SSM 34254	1	"
SSM 34257 - SSM 34259	3	"
SSM 34261 - SSM 34262	2	"
SSM 37624 - SSM 37629	6	"
SSM 37908 - SSM 37911	4	"
SSM 38939 - SSM 38942	4	"
SSM 39036 - SSM 39038	3	"
SSM 39596 - SSM 39597	2	"
SSM 40025 - SSM 40041	17	"
SSM 42326 - SSM 42327	2	"
SSM 43102 - SSM 43103	2	"
SSM 43107 - SSM 43109	3	"
SSM 43286 - SSM 43290	5	"
SSM 43410 - SSM 43413	4	"
SSM 43516 - SSM 43519	4	"
SSM 43534 - SSM 43548	15	"
SSM 44393 - SSM 44429	36	"
SSM 44479 - SSM 44505	27	"
SSM 44538 - SSM 44546	9	"
SSM 44588 - SSM 44605	18	"
SSM 44642 - SSM 44656	15	"
SSM 45035 - SSM 45065	31	"
SSM 45131 - SSM 45148	18	"
SSM 46349 - SSM 46351	3	"
SSM 47684	1	"
SSM 49798 - SSM 49826	29	"
SSM 49895	1	"
	269	claims

Total Mileage flown over Natal, Tyrrell & Knight Townships 777.9

Mileage flown over claim groups 703.4

703.4 x 40 x 2 = 84 days.
668

MAX. 80 days.

—PLAN OF—

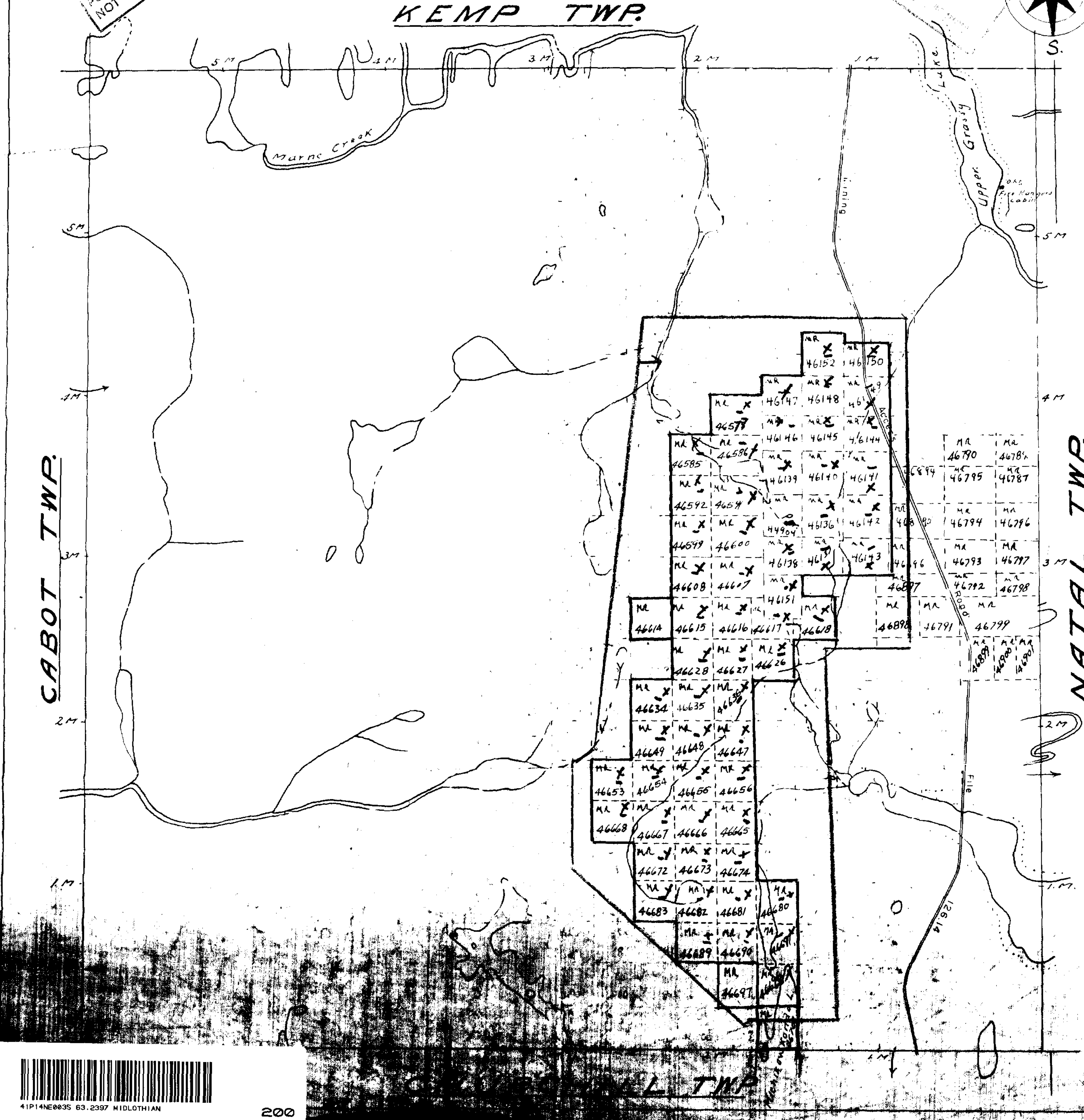
KELVIN TWP.

LARDER LAKE MINING DIVISION

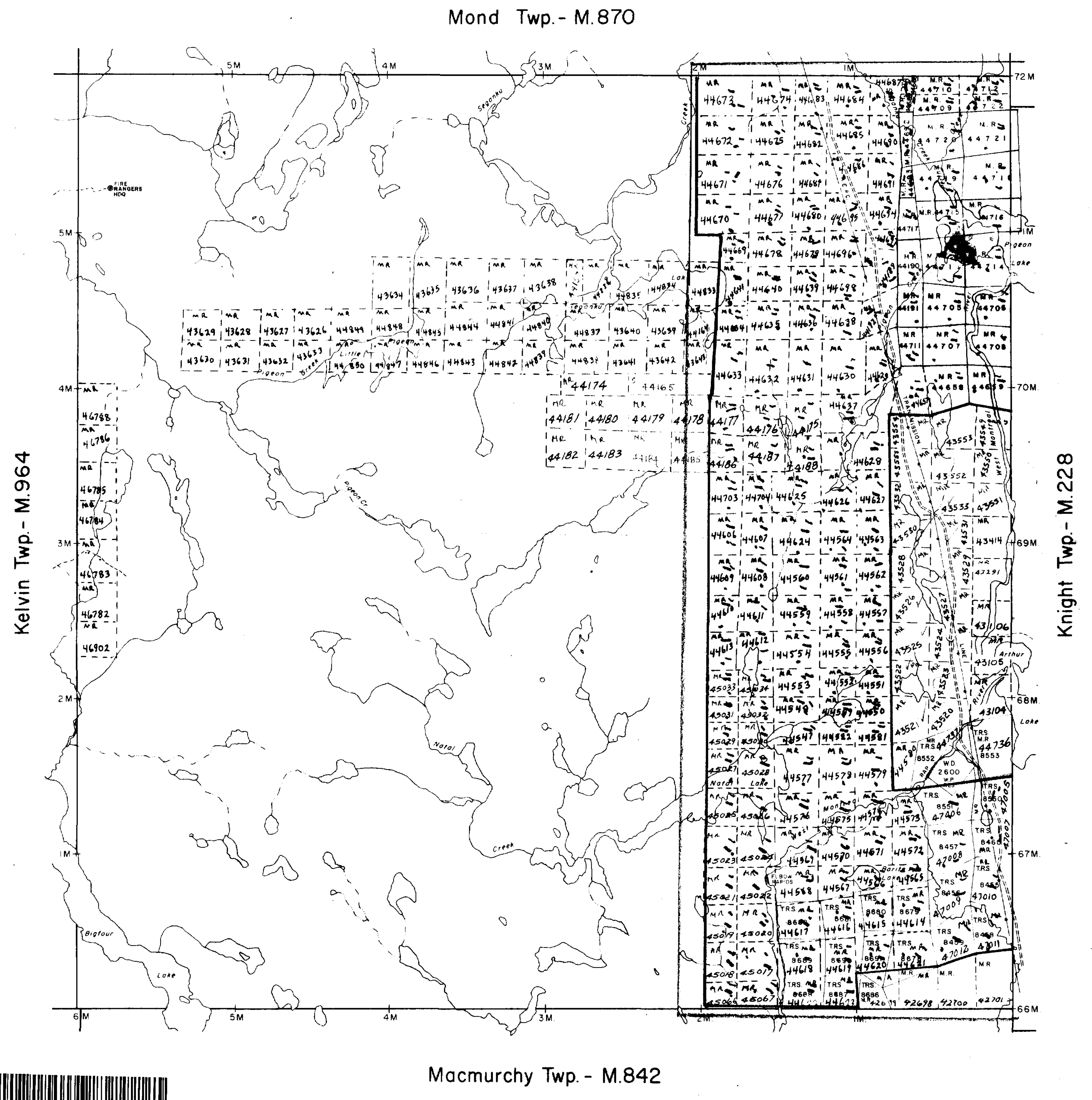
DISTRICT OF SUDBURY.

—Scale: 40 chains to an inch.—

NOTE
400' Surface Rights Reservation around all Lakes and Rivers.



41P14NE0035 63.2397 MIDLOTHIAN
200



THE TOWNSHIP OF

NATAL

DISTRICT OF SUDBURY

LARDER LAKE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

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.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C

NOTES

400' Surface Rights Reservation around all lakes and rivers.

DATE OF ISSUE

JAN 2

ONTARIO DEPT. OF MINES

ONT. DEPT. OF MINES
MINING LANDS BR.
THIS MAP FOR CHECKING PURPOSES ONLY - MUST NOT BE SOLD.

PLAN NO. M.885

DEPARTMENT OF MINES

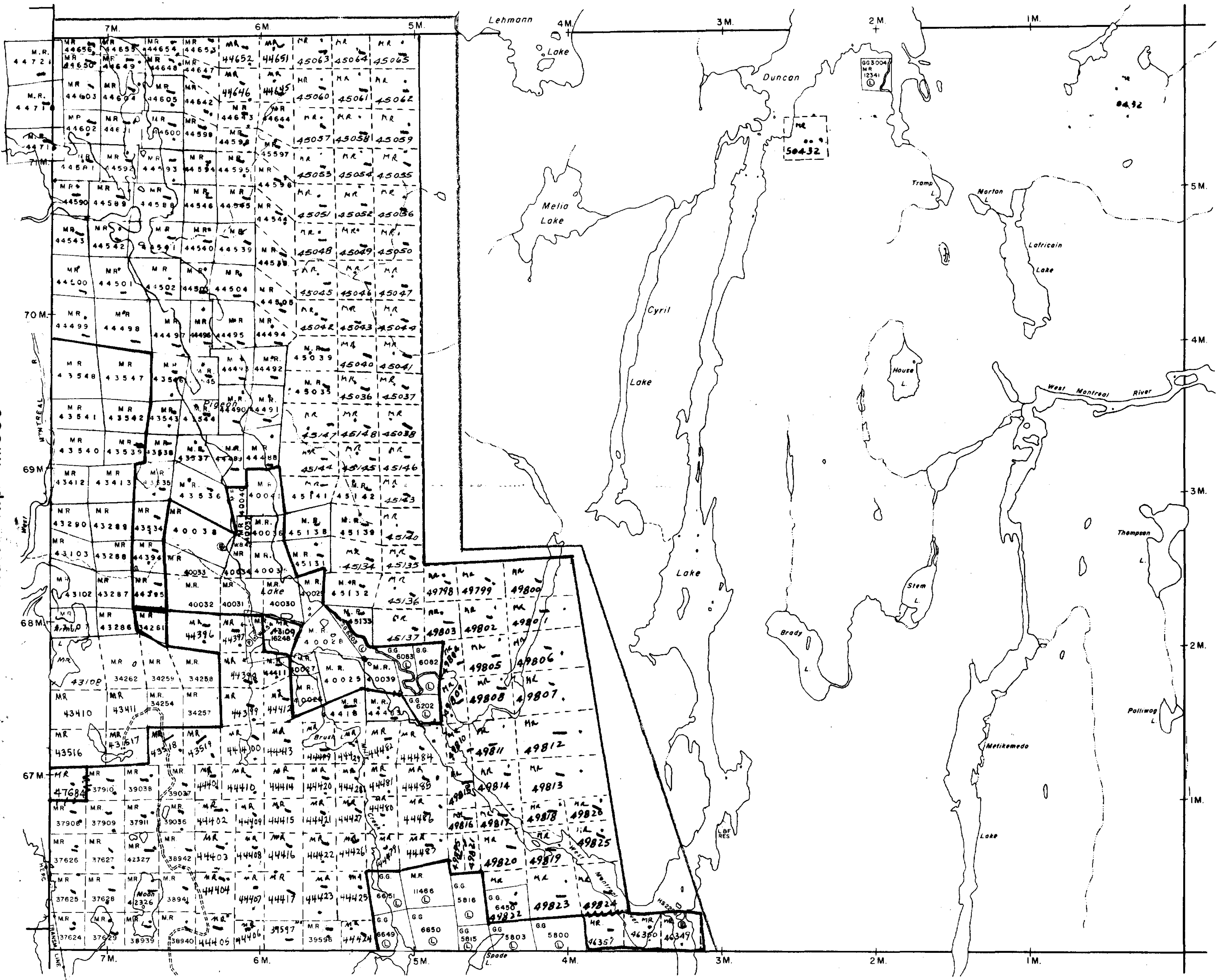
— ONTARIO —

41P14NE0035 63.2397 NIDLOTHIAN

210

Raymond Twp. - M.244

Natal Twp. - M.885



Van Hise Twp. - M.254

Tyrrell Twp. - M.253

THE TOWNSHIP OF

KNIGHT

DISTRICT OF TIMISKAMING

LARDER LAKE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
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.

NOTES

400' Surface Rights Reservation around all lakes and rivers.

DATE OF ISSUE

JAN

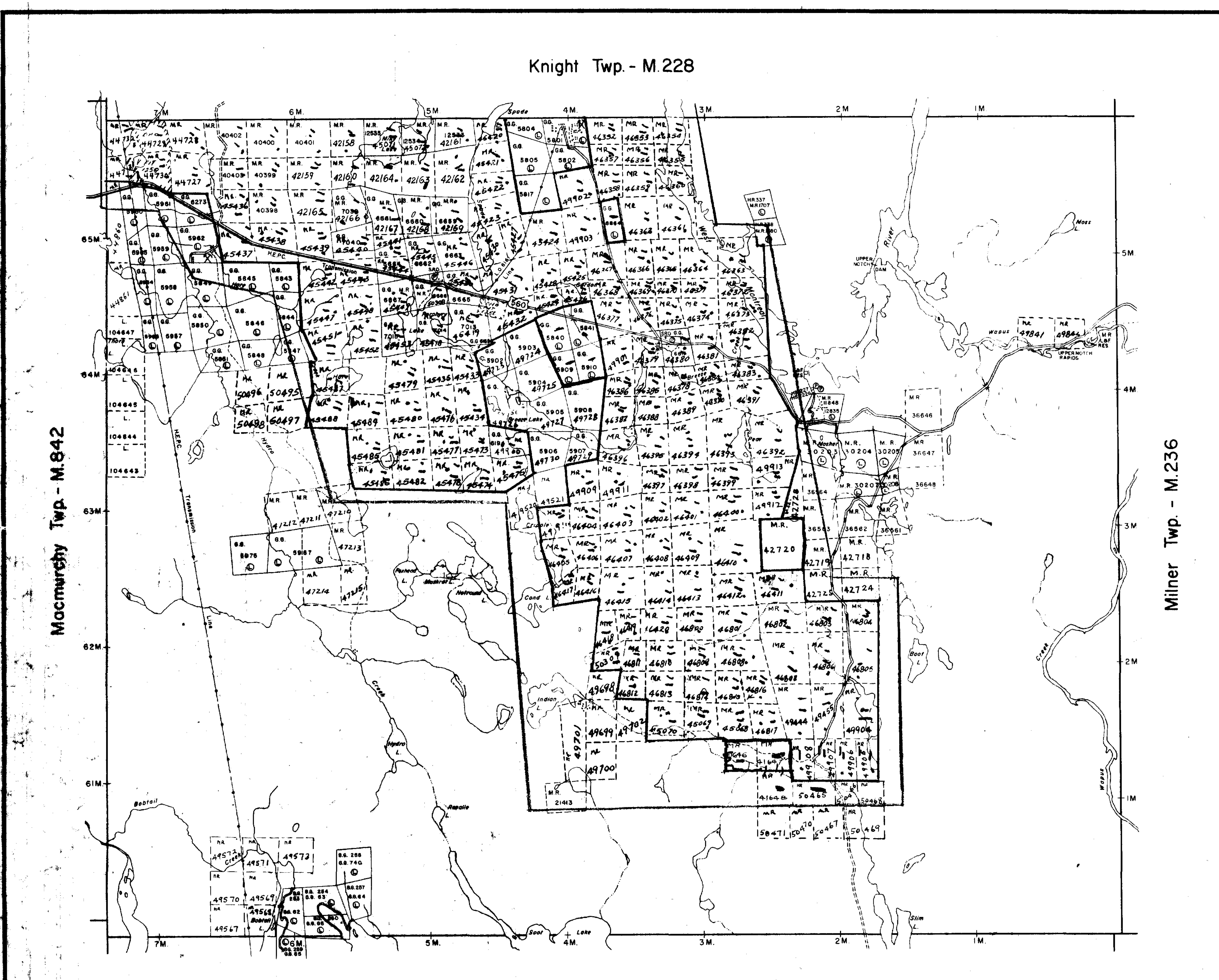
ONT. DEPT. OF MINES
MINING LANDS BR.
THIS MAP FOR CHECKING PURPOSES ONLY – MUST NOT BE SOLD.

PLAN NO.- M.228

DEPARTMENT OF MINES
-ONTARIO-

41P14NE0035 63.2397 MIDLOTHIAN

220



THE TOWNSHIP
OF

TYRRELL

DISTRICT OF
TIMISKAMING

LARDER LAKE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
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.

NOTES

400' Surface Rights Reservation around all lakes and rivers.

DATE OF ISSUE

ONT. DEPT. OF MINES
MINING LANDS BR.
THIS MAP FOR CHECKING PURPOSES ONLY - MUST NOT BE SOLD.

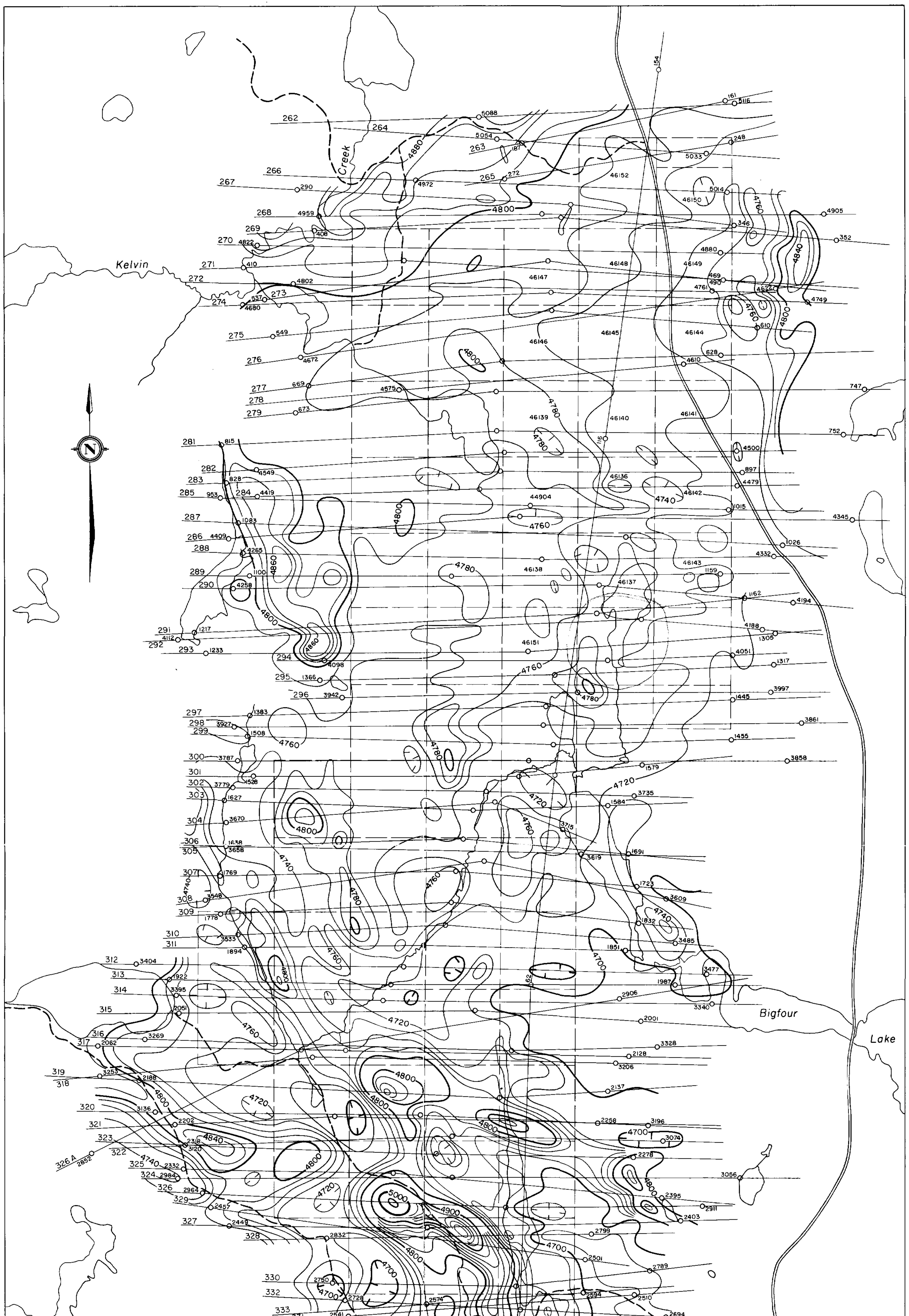
PLAN NO.- M.253

DEPARTMENT OF MINES
-ONTARIO-

41P14NE0035 63.2397 MIDLOTHIAN

230

TIMISKAMING NICKEL LIMITED
AIRBORNE GEOPHYSICAL SURVEY

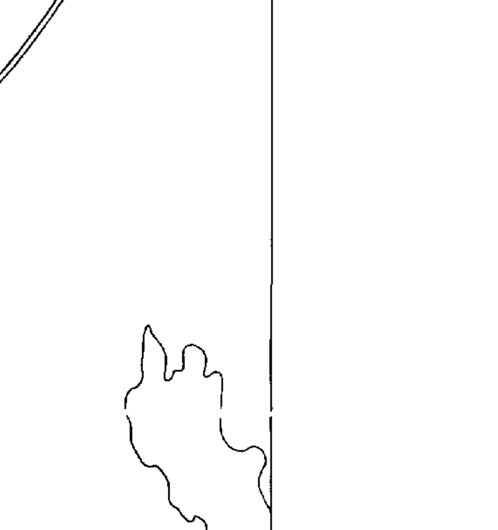


CONTOUR INTERVAL — 20 GAMMA
MEAN FLIGHT LINE SPACING — 330 FEET
MEAN TERRAIN CLEARANCE — 200 FEET
500 GAMMA CONTOUR
100 GAMMA CONTOUR
20 GAMMA CONTOUR
MAGNETIC LOW
FIDUCIAL POINTS — 3690
FLIGHT LINES

KELVIN TOWNSHIP, ONTARIO
KELVIN GROUP
MAGNETOMETRIC MAP

REGISTERED PROFESSIONAL ENGINEER
R. K. WATSON
PROVINCE OF ONTARIO

SCALE
1000 FEET 0 1000 2000 3000 4000 5000 FEET
1 Inch to 1320 Feet



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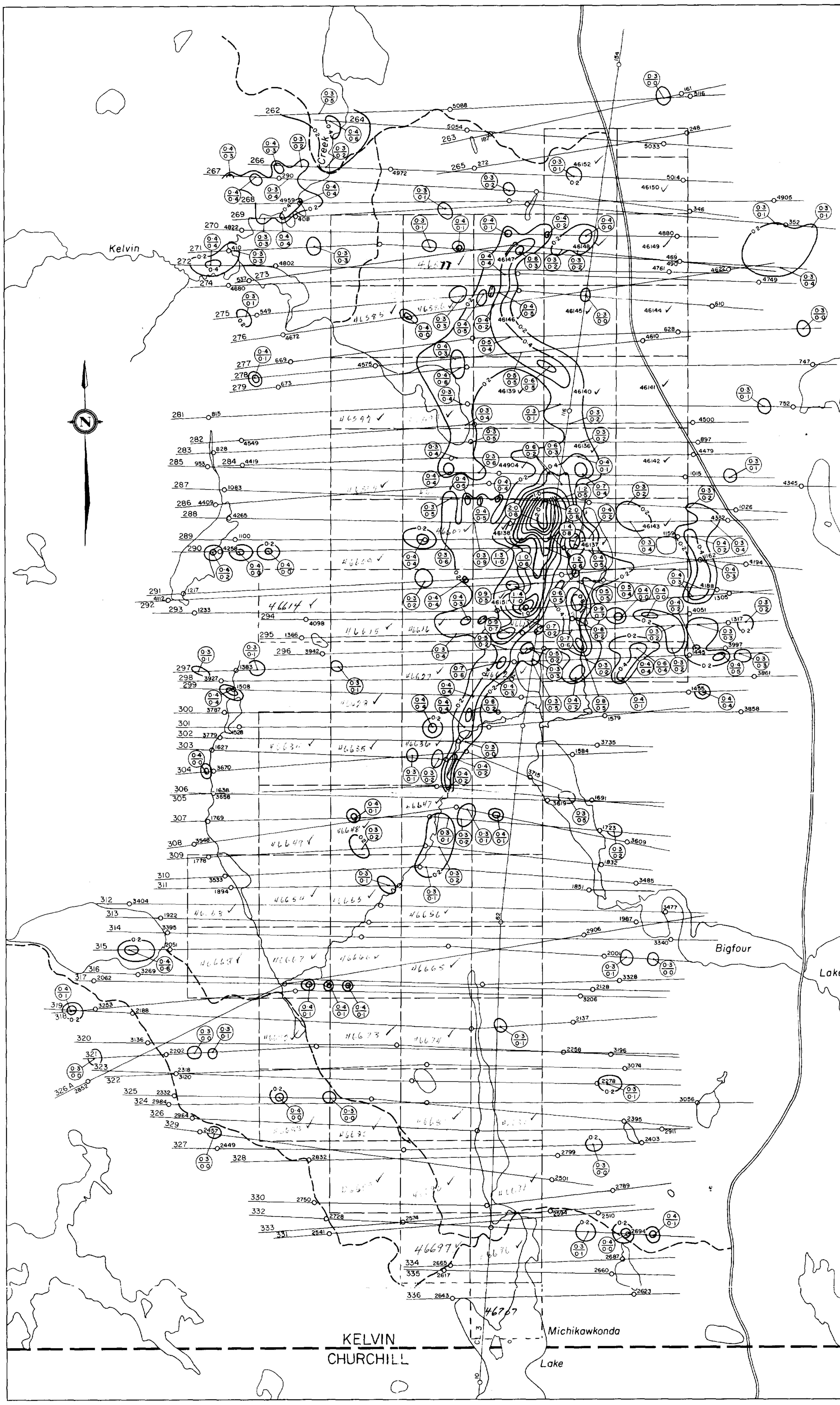
41P14NE0035 63.2397 MIDLOTHIAN

240

63.2397

TIMISKAMING NICKEL LIMITED
AIRBORNE GEOPHYSICAL SURVEY



MEAN FLIGHT LINE SPACING .... 330 FEET
MEAN GROUND CLEARANCE .... 200 FEET
FLIGHT LINES ....
FIDUCIAL POINTS 3690
ELECTROMAGNETIC CONTOURS 1·0°-2·0°-3·0° ETC. ....
0·2°-0·4°-0·6° ETC. ....
THE CONTOURS REPRESENT THE ELECTROMAGNETIC RESPONSE OF THE IN PHASE COMPONENT OF THE SECONDARY FIELD IN UNITS OF 100 PARTS PER MILLION.

(0·2 / 0·4) REPRESENTS IN PHASE COMPONENT / OUT OF PHASE COMPONENT OF SECONDARY FIELD

KELVIN TOWNSHIP, ONTARIO
KELVIN GROUP
ELECTROMAGNETIC MAP

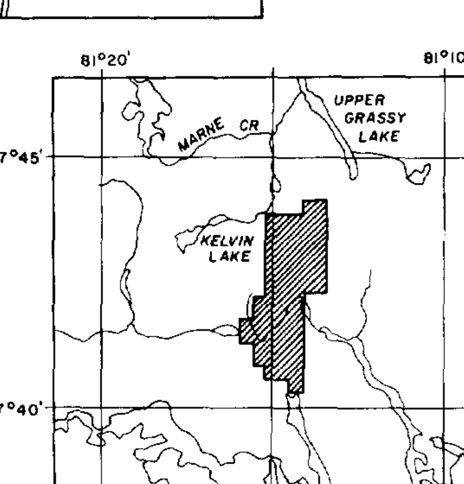
SCALE

1000 0 1000 2000 3000 4000 5000
FEET FEET

1 Inch to 1320 Feet

REGISTERED PROFESSIONAL ENGINEER
R. K. WATSON
PROVINCE OF ONTARIO

Roger K. Watson P. Eng.



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20.5 mi over
CLAIM GROUP

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250

65b
MOND
RAYMOND
Lehmann Lake
Melia Lake
Cyril Lake
Duncan Lake
KNIGHT
NATAL
PIGEON
H.E.P.C.
Tyranite
Houston Lake
Jess Lake
MACMURCHY
TYRRELL
TIMISKAMING NICKEL LIMITED
AIRBORNE GEOPHYSICAL SURVEY
KNIGHT GROUP
TOWNSHIPS of KNIGHT, TYRRELL and NATAL, ONTARIO
MAGNETOMETRIC MAP
SCALE
1000 FEET 0 1000 2000 3000 4000 5000 FEET
1 Inch to 1320 Feet
REGISTERED PROFESSIONAL ENGINEER
R. K. WATSON
PROVINCE OF ONTARIO
Roger K. Watson P. Eng
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by
LOCKWOOD SURVEY CORPORATION LIMITED
Toronto, Canada
1968
63.2397.
CONTOUR INTERVAL 20 GAMMA
MEAN FLIGHT LINE SPACING 330 FEET
MEAN TERRAIN CLEARANCE 200 FEET
500 GAMMA CONTOUR
100 GAMMA CONTOUR
20 GAMMA CONTOUR
MAGNETIC LOW
FIDUCIAL POINTS 3690
FLIGHT LINES
41P14NE0035 63.2397 MIDLOTHIAN
260
81°20' 81°00' 80°45' 47°50' 47°30'
GRASSY LAKE
OKAWAKENDA LAKE
RIVER
PIGEON
DUNCAN
LAKE
MONTREAL R.
WEST
TYRANITE
GOWGANDA LAKE
MONTREAL
SHINING TREE LAKE
W.
CR.
WAPUS

lsh

63.2397

41P14NE0035 63.2397 MIDLOTHIAN

270