

42C03NW0545 2.11298 ABBIE LAKE

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REPORT ON THE  
AIRBORNE GEOPHYSICAL SURVEY  
ON THE PROPERTY OF  
RISE RESOURCES LTD.  
ABBIE LAKE AREA, PUKASKWA RIVER AREA,  
KEATING ADDITIONAL AND  
LEGARDE ADDITIONAL TOWNSHIPS, ONTARIO

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MINING LANDS SECTION

H. FERDERBER GEOPHYSICS LTD.

June, 1988  
Val d'Or, Quebec

D.M. Thai  
Geophysicist

REPORT ON THE  
COMBINED AIRBORNE GEOPHYSICAL SURVEY  
ON THE PROPERTY OF  
RISE RESOURCES LTD.  
ABBIE LAKE AREA, PUKASKWA RIVER AREA,  
KEATING ADDITIONAL AND  
LEGARDE ADDITIONAL TOWNSHIPS, ONTARIO

INTRODUCTION

In March 1988, a combined airborne geophysical survey was carried out on the Rise Resources property in the areas of Abbie Lake and Pukaskwa River and the Townships of Keating Additional and Legarde Additional, Sault Ste. Marie Mining Division, Ontario. Magnetic and VLF-electromagnetic data were collected by the airborne division of H. Ferderber Geophysics Ltd. The survey was flown in a north-south direction for a total of 449.71 miles from a base out of Wawa, Ontario.

The magnetic survey provides information which help define underlying geological structures and identifies potential economic mineralized concentrations which may contain variations in accessory magnetic minerals. The VLF-electromagnetic survey outlines conductive zones which may represent metallic sulphide deposits and/or shear zones containing economic mineralization.

PROPERTY DESCRIPTION, LOCATION AND ACCESS

The Rise Resources property is comprised of 416 claims in the Abbie Lake and Pukaskwa River Area and the Townships of Keating Additional and Legarde Additional, Sault Ste. Marie Mining Division, Ontario. The claims cover approximately 6,656 hectares with 4 claims in Legarde Additional Township, 15 claims in Keating Additional Township, 52 claims in the Pukaskwa River Area and 345 claims in the Abbie Lake Area. The claims are registered with the Ontario Mining Recorder's Office in Sault Ste. Marie and listed in Appendix I.

The property is located about 30 miles west-northwest of the town of Wawa, 28 miles south-southwest of the town of White River and 46 miles southeast of Marathon. Access is best obtained by helicopter based in one of the above mentioned towns. There is also a dry weather road off Highway 17 through Kabenung Lake leading to the property.

University River Area Map 2333 from the Ontario Division of Mines indicates outcrop density to be approximately 30% on the claim group. The property sports several small lakes and swamps which cover about 7% of the area, the remainder being forested. Topographic relief is moderate to high with the presence of some hilly terrains in the south and southwestern portions of the claim group. The East Pukaskwa River trends southwest and channels through most areas of the claim group.

A northwest trending electric power transmission line passes through the northeastern section of the property. Highway 17 westward is about 33 km east of the transmission lines.

Supplies, services and qualified manpower are available in the Wawa-White River-Marathon area.

#### GEOLOGY

The property is situated in the western end of the Kabenung Lake Greenstone Belt of the Superior Province of the Canadian Shield. The Kabenung Lake Greenstone Belt extends from Kabenung Lake in a west-southwest direction for a distance of about 30 miles (Goodwin 1962).

The Ontario Department of Mines Geological Compilation Map 2220, the Manitouwadge-Wawa sheet, the Department of Mines Geoscience Report 153 and accompanying maps 2332 and 2333, and a report, Mineralization of the Mishibishu Lake Greenstone Belt, by K.B. Heather of the Ontario Geological Survey describe the geology of the area. These maps and reports indicate that the claim block is underlain about 65% by mafic to intermediate metavolcanic, 10% by granitic and about 25% by metasedimentary rocks.

The sedimentary rocks which are composed mainly of greywacke, arkose, polymictic conglomerate, slate and argillite, extend from the southeastern corner to the southwestern corner of the claim group as a wide distinctive band. The band enlarges eastward and exhibits synclinal symmetry about its axis. The underlying rocks are foliated and dip about  $80^{\circ}$  symmetrically across the synclinal axis. Separation between the conglomerate and other types of metasediments are clearly identified by surface geology. Another band of sedimentary rocks of similar composition is present in the far southwestern corner.

Several discontinuous narrow bands of iron formation are embodied in the metasediments with one exception where the iron formation is present in the metavolcanics along the boundary.

Mafic metavolcanics lie to the north, south and adjacent to the metasedimentary rocks throughout the property. These are comprised of massive, pillowed to foliated andesites and basalts. Some of these units have probably undergone metamorphism to amphibolitic facies. Several small foliated lenses of felsic metavolcanics are also mapped in the northeastern part of the claim group dipping northerly about  $85^{\circ}$ .

Batholithic intrusion is abundant in the region. Areas north and south of the property are underlain by the Kabenung Lake stock which are comprised of unsubdivided batholithic granitic rocks to small units quartz monzonite, hybrid granite, porphyritic granite to migmatite. Further south of the property is the Mishibishu Lake stock which is of similar composition as the Kabenung Lake stock. Gabbroic intrusion is present to the southwestern corner just off the property. Also several northeast and northwest trending diabase dykes crosscut the metavolcanic and batholithic granitic rocks in the northern and southern portions of the claim group. These dykes are relatively short and discontinuous.

The rugged terrain and swift treacherous rivers made the area one of the most inaccessible in Ontario; yet before the turn of the century the iron deposits at Iron Lake were being assessed. The early prospectors were seeking high grade hematite-geothite ores of the Wawa type, but their search was largely unsuccessful.

There is little record of exploration in the area from the early 1900's to the middle 1930's when prospectors obtained high gold assays from quartz veins north of Mishibishu Lake. After two summers of systematic prospecting for gold with discouraging results, the project was abandoned.

In the last decade base metals have become the prime target for exploration. Several base-metal showings were encountered in the southwestern corner of the claim group.

The International Bibis prospect is located just south of the southwest corner of the claim block. Seven holes totalling 2,238 feet were drilled. Six holes intersected a mineral zone. The best result was 1.47% copper over 17 feet. The mineralized zone is 10 to 15 feet wide, at least 400 feet long, and strikes about N60W with a steep dip to the north. The mineralization consists of seams and disseminated grains of pyrite, chalcopyrite, and possibly bornite and sphalerite distributed irregularly in highly sheared, silicified, and carbonatized mafic metavolcanics. Felsic metavolcanics lie a few feet to the north of the mineralized zone and may in part be a fault contact with the mafic metavolcanics. Dykes, sills and veins of granitic rocks have intruded the adjacent rocks.

Six grab samples were taken from the showing and were analysed by the Mineral Research Branch, Ontario Division of Mines. The results range from trace to 0.59 percent copper with one selected specimen yielding 5.58 percent copper and 0.66 ounces of silver per ton. Lead, zinc, and gold were detected in trace amounts only.

The Burrex pyrrhotite and chalcopyrite occurrence is situated about 1.25 km east of the southeastern corner of the claim group. Overburden stripping and trenching of one of seven previously defined geophysical anomalies disclosed the presence of pyrite and graphite. Analyses of grab samples of the pyrite mineralization gave only minor amounts of precious metals and no copper. The only other Burrex anomaly shown is due to the presence of sulphide mineralization. Trenching exposed what is described in Burr's report as "heavy to massive pyrrhotite up to 23 feet in width". The best analysis of a grab sample is reported to be 0.18% copper and 0.03 ounce of silver.

Gold occurrences were reported mainly in the Mishibishu Lake area. In 1949 Amichi Gold Mines Limited discovered gold-bearing quartz veins about 300 m (1,000 feet) north of the north shore of Mishibishu Lake, approximately 10 km south of the property. Considerable trenching, stripping and assaying were carried out in 1950. There is no report of diamond drilling. The gold occurs in a pyrite and ankerite-quartz vein 25 to 91 cm (10 to 36 inches) wide and in 0.3 to 1.5 m (1 to 5 feet) wide shear zones on either side of the vein. The mineralized zone strikes about N50W for a distance of as much as 300 m (1,000 feet) in metamorphosed greywacke, slate, and arkose. A company report (Resident Geologist's Files, Ontario Ministry of Natural Resources, Sault Ste. Marie) gives the following assay results:



Pukaskawa River-University River Area

Width		Gold	Width		Gold
cm	inches	ounces/ton	cm	inches	ounces/ton
45	18	0.23	97	38	1.48
86	34	1.92	76	30	0.26
114	45	1.07	107	42	0.19
76	30	1.39	107	42	0.27

Average width 86 cm (34 inches)

Average grade 0.87 ounces per ton

The above assay results are reported to have been obtained from 75 m (240 feet) long section of the vein bounded by east-striking faults. Although extensions of the vein system were located, the only assays of commercial grade are those quoted above.

The Hollinger (Mishibishu Lake) gold occurrence, 1937, lies approximately 11 km south of the property. The gold occurs in 10 to 12 east-striking quartz veins and lenses 0.6 to 1.2 m (2 to 4 feet) wide and 18 to 24 m (60 to 80 feet) long, which lie within a zone of highly sheared mafic to intermediate metavolcanics and quartz porphyry about 90 m (300 feet) wide

and 600 m (2,000 feet) long. This zone also strikes east, and dips steeply to the north. Disseminated pyrite is common within the shear zone and veins, and minor chalcopyrite, galena, and sphalerite are reported. Five selected samples were collected from old trenches on the deposit in 1968, and were assayed by the Mineral Research Branch, Ontario Division of Mines. Two samples were found to contain 0.82 and 0.40 ounce of gold per ton and trace silver. The remaining samples contained only trace amounts of precious metals.

The Erie Canadian gold occurrence, 1937, is situated about 1 km east of and adjacent to the Hollinger occurrence. The gold-bearing quartz veins and shear zone of Hollinger occurrence were found to continue for about 240 m (800 feet) eastward on to the Erie Canadian Mines Limited ground. Extensive stripping, trenching, and blasting were done on the extension by Erie Canadian Mines Limited, but the only significant assay obtained was 0.8 ounce of gold per ton over 1 m (3 feet) (Resident Geologist's Files, Ontario Ministry of Natural Resources, Sault Ste. Marie).

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The Amichi Gold Mines Limited gold discovery, Hollinger gold occurrence, and the Erie Canadian gold occurrence all lie in the Mishibishu Lake Greenstone belt about 2 kilometers south of the Kabenung Lake Greenstone belt.

The No Name Lake gold showing was discovered in 1984 on the Central Crude-Noranda property also in the Mishibishu lake Greenstone Belt approximately 10 km southeast of the property. Grab samples containing gold values of up to 0.744 oz/ton, were collected in quartz veins within a shear zone between mafic volcanic rocks and an intermediate volcanic flow and pyroclastic rocks. Recent sampling during the summer of 1987 identified a structure 200 to 700 meters wide and 4 km long, containing seven anomalous gold zones, ranging in widths from 0.5 m to 11 m. Grab and chip samples assayed from 0.01 oz/ton to 28 oz/ton. The gold was found in intermediate to felsic metavolcanic rocks located on the Central Crude-Noranda Property.

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The Mishibishu Lake Deformation Zone, associated with several of the gold occurrences in the Mishibishu Greenstone Belt, is comprised of several shear zones totaling up to 500 meters and also is host to the Magacon (Muscocho Exploration Ltd.), the Granges-MacMillan (Granges Exploration Ltd.), the Scuzzy little lake (Dominion Explorers Ltd.) and the Discovery (Westfield Minerals Ltd.) gold showings. They are situated near volcanic-sediment contacts along the deformation zone. The geology of the Rise Resources Ltd. property in the Kabenung Lake Greenstone Belt is similar to that of the Mishibishu Greenstone Belt and has similar potential discovery of gold mineralization.

#### INSTRUMENTATION AND SURVEY METHODS

The survey was completed using a 1972 Cessna 172, fixed-wing aircraft, Registration CF-EWK, owned and operated by H. Ferderber Geophysics Ltd. The pilot and navigator/operator were Y. Saucier and D. Thai, respectively, of Val d'Or. Geophysical sensors were mounted in modified wing tips. The geophysical, navigation and data acquisition systems are described below.

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Magnetometer

The magnetometer used was a GEM Systems GSM-11, high sensitivity airborne proton (Overhauser) magnetometer. The instrument continuously measures the Earth's magnetic field at a 0.01 gamma sensitivity for 1 reading per second to 10 readings per second. For the survey 4 readings per second at an accuracy of 0.04 gammas were read. The analog output is on 2 channels for coarse and fine displays.

VLF-EM System

A Herz Totem 2A VLF-EM system was used to measure the changes in the total field and in the vertical quadrature field on two frequencies simultaneously, with an accuracy of 1%. The primary transmitting stations were Cutler Maine, (NAA) frequency 24.0 KHz and Seattle Washington, (NLK) frequency 24.8 KHz.

Radar Altimeter

The ground clearance was measured with a King 10/10 A radar altimeter. The survey was flown at a mean clearance of 300 feet with the altimeter producing an accuracy of 5% (15 feet) at this altitude.

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Tracking Camera and Video Centre

A RCA TC-200 colour video camera and Galaxy 200 video centre was used to record the flight path on standard VHS type video tapes. Manual fiducials were indicated on the picture frames for reference with the digital printout. Flight path recovery was aided using a Panasonic Colour Video Monitor-S1300 and Video Cassette Recorder AG-2500.

Data Aquisition System

A Picodas Group Inc. PDAS 1100 data aquisition system featuring seven analog inputs with two frequency inputs and external interfacing was used. A Termiflex Corp. ST/32 Keyboard control unit and Sharp Corp. LCD display unit are connected to the data aquisition system. At present this system stores the altimeter readings, VLF-1 inphase, VLF-1 quadrature, VLF-2 inphase, VLF-2 quadrature, magnetic field (coarse), magnetic field (fine), and the fourth difference (noise), and fiducials on 3.5 inch floppy diskette. The data is then printed out in digital and profile forms.

The survey was conducted on north-south lines at an aircraft altitude of 300 feet. The lines were flown at spacings of 400 feet at a speed of approximately 90 miles per hour. Navigation was visual using airphoto mosaics, at a scale of one inch to 1320 feet, manual fiducials and the flight path recovery system as references.

### DATA PRESENTATION

Flight lines, fiducial points and geophysical responses were reproduced from the airphoto mosaics and video tapes on maps at a scale of one inch to 1320 feet (1:15,840). Outline of the claim group and claim map are shown on each map sheet.

The aeromagnetic data was corrected for diurnal variations by using a base lines as references. The data was then reduced to a base level of 59,000 gammas and contoured at 25, 100 and 1000 gamma intervals and presented on maps MG-1 and MG-2.

A base value was determined for the VLF-EM data and the change in the total field strength as a percentage of the base value was calculated. The values were plotted on maps EM-1 and EM-2. The positive values were contoured at intervals of 2%. The conductor axes were determined and numbered 1, 2, 3, etc. No priority was attached to the numbering system.

### SURVEY RESULTS AND INTERPRETATION

#### Magnetic Survey

Maps MG-1 and MG-2 present magnetic data collected on the western half and eastern half of the property respectively.

The airborne magnetic survey outlines two extremely high distinctive magnetic series against background of about 59,000 gammas; one located to the southwestern corner and the other to the eastern central of the claim group. The extremely high magnetic readings (up to 63,000 gammas) are commonly encountered in areas of iron formation containing magnetic ferric minerals. The first series is about 3 miles long, narrow in width and east-west trending. It enlarges westerly and appears to continue further off the property. The second series is about 4 miles long, northeast-southwest trending and also narrow in width. The series appears continuing off the property on both ends.

The contoured lines are distorted and broken up at several locations indicating possible faulting or fracturing of the underlying rocks. Several finger-like features on both sides of the series indicate possible impingements of the iron formation into the neighbouring rocks.

Areas of generally low to moderate magnetic relief take up the rest of the claim group. Northern portions are probably underlain by felsic to mafic metavolcanics corresponding well to surface geology. South of the iron formations are probably underlain by intermediate to mafic metavolcanics and/or felsic intrusive rocks. The boundaries among these units are not clearly defined by the magnetic contrast indicating the relative equality in magnetic susceptibility among the three main underlying rock types. A few isolated magnetic highs within the relative magnetic low probably represent localized units of ultramafics within the metavolcanics and/or isolated lenses of gabbroic sills or amphibolite within the intrusive rocks.



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Several narrow and longated bodies of magnetic highs crosscut the claim group. These are interpreted as discontinous late diabase dykes and being labelled on maps MG-1 and MG-2 along with possible faults and iron formations.

Zone of extremely magnetic lows within magnetic highs are probably caused by dipolor effect of magnetism due to abrupt changes of poles.

#### VLF Electromagnetic

Map EM-1 and EM-2 present VLF-electromagnetic data collected on the claim group. The survey outlines 10 conductive zones on the property and they are discribed below in numerical order from west to east.

Conductive zone 1, located to the central far west of Map EM-1, is a long, continous conductor with moderate amplitude response. The zone axis overlies along the presumed band of iron formation and is probably caused by conductive minerals associated with the iron formation.

Conductive zone 2, located to the southwest of Map EM-1, is a short zone with weak amplitude response and partly overlies a creek. It could represent surface conductive overburden.

Conductive zone 3, located to the northwestern corner of Map EM-1, is a short, distinctive zone with moderately high amplitude response. It appears to overlie a geological contact between intrusive and mafic metavolcanic rocks representing possible alteration/shear zone along a geological contact.

Conductive zone 4, located just south of zone 3 on Map EM-1, is a localized zone exhibiting moderately high amplitude in an area of low magnetics. The zone probably represents thick conductive overburden.

Conductive zone 5, located in the southeast corner of Map EM-1, is a discontinuous and distinctive zone exhibiting high amplitude response. Part of the zone overlies the shoulder of a moderately magnetic high and possesses no definite trend. The zone may represent a shear zone along geological contacts among units of metavolcanic and intrusive rocks.

Conductive zone 6, located just left of zone 3, is a short discontinuous zone overlying an area of extremely low magnetics. It may be just an easterly continuation of zone 3 representing possible alteration/shear zone along the geological contact between intrusive and mafic metavolcanic rocks.

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Conductive 7, located to the northwestern corner of Map EM-2, is a short, localized zone with moderately high amplitude response. The zone overlies an area of very low magnetic and also along a creek. The zone could be caused by surface conductivity.

Conductive zone 8, located to the south central of Map EM-2, is a long, wide, continuous and north-northeast trending zone. Although the zone has relative weak amplitude response, its shape and direction are very distinctive. The zone also overlies a series of magnetic highs of the presumed underlying iron formation and a small lake, and may represent conductive minerals associated with the iron formation within the metasediments.

Conductive zone 9, cutting across north central portion of Map EM-2, is a long continuous and distinctive zone with extremely high amplitude response. The zone lies along a road with power lines which cause the distinctive high amplitude response.

Conductive zone 10, located to the south central part of Map EM-2, is a long, continuous and north-northeast trending zone with moderately high amplitude response. The zone overlies an area of magnetic low just off the shoulder of the iron formation and also along a creek. This zone could represent shear/fracture along possible geological contact between the metasediments and mafic metavolcanics or surface conductivity along the creek.

There exist several isolated zones of high conductivity throughout the claim group. These are often associated with topographic features such as lakes, creeks etc. which are believed to have caused the anomalies.

#### CONCLUSION AND RECOMMENTATION

The combined airborne magnetic and VLF-electromagnetic survey were successful in helping outline the underlying geology and delineating conductive zones representing possible shear/fault zones on the Rise Resources Property, Sault Ste Marie Mining Division, Ontario.

The results of the magnetic survey in combination with surface geology where applicable indicate that the claim group is underlain by Archean metasediments, mafic metavolcanics and felsic intrusive rocks. The northern portions of the claim group exhibit low to moderate magnetic susceptibility which are typical of felsic metamorphic and intermediate-mafic metavolcanic rocks. These units are overlain by thin units of metasediments cutting south-southwest across claim group and being characterized by the embedment of bands of iron formation.

The southwestern portion of the claim group is underlain by the interbedment of mafic metavolcanic and metasedimentary rocks. Magnetic depressions along the southern boundary may represent major geological contacts among these units.

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The southeastern portions are probably underlain by metasediments/metavolcanics along the magnetic depression and isolated units of intrusive rocks which have been metamorphosed to amphibolitic facies.

Faulting, folding, batholithic intrusion, late diabase intrusion etc. have caused some major structural and lithological changes among these units resulting in the complexity of magnetic patterns. In some cases the distinction among the units are not apparent from the magnetic maps. Several geological and structural features are interpreted and marked on maps.

The VLF-electromagnetic survey delineated conductive zones of various physical properties and underlying geology. Conductive zones 2, 4, 7 and 9 are believed to be caused by surface effects such as conductive overburden, lakes, swamps, topographic relief, etc. Others are thought to represent bedrocks conductivity which may be associated with sulphide and/or gold bearing structures and formations.

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Structural and lithological diversity and complexity of the property, as indicated by the magnetic, VLF-electromagnetic and geological maps, suggest that the claims are located in favourable geologic environments for economic gold and/or base metals mineralization. Areas of similar geologic environments in the Kabenung Lake and Mishibishu Lake Greenstone Belts host several past Au. and base metals occurrences. Several newly developed Au. mines are on the way along with valuable information coming out of the region everyday due to intense exploration efforts.

Further work is warranted on the property. Line cutting along with group geophysics and detailed geological mapping should be carried out. A preliminary diamond drilling program is to be drawn upon results the previous phases may warrant.

Respectfully submitted,

H. FERDERBER GEOPHYSICS LTD.



D.M. Thai, B.Sc.  
Geophysicist

APPENDIX 1 CLAIM LIST

SSM	957803	SSM	957864	SSM	957914	SSM	957968
	957804		957865		957915		957969
	957805		957866		957916		957970
	957806		957867		957917		957971
	957807		957868		957918		957972
	957808		957869		957919		957973
	957809		957870		957920		957974
	957810		957871		957921		957975
	957813		957872		957922		957976
	957814		957873		957923		957977
	957815		957874		957924		957978
	957816		957875		957925		957979
	957817		957876		957926		957980
	957818		957877		957927		969522
	957819		957878		957928		969523
	957820		957879		957929		969524
	957821		957880		957930		969525
	957822		957881		957931		969526
	957823		957882		957932		969527
	957824		957883		957933		969528
	957825		957884		957934		979141
	957826		957885		957935		979142
	957827		957886		957936		979143
	957828		957887		957937		979144
	957829		957888		957938		979145
	957830		957889		957939		979146
	957831		957890		957940		979147
	957832		957891		957941		979148
	957833		957892		957942		979149
	957834		957893		957943		979150
	957835		957894		957944		979151
	957836		957895		957945		979152
	957837		957896		957946		979153
	957838		957897		957947		979154
	957839		957898		957948		979155
	957840		957899		957949		979156
	957843		957900		957950		979157
	957844		957901		957951		979158
	957845		957902		957952		979159
	957846		957903		957955		979160
	957847		957904		957956		979161
	957848		957905		957957		979162
	957849		957906		957958		979163
	957850		957907		957959		979164
	957858		957908		957960		979165
	957859		957909		957961		979166
	957860		957910		957962		979167
	957861		957911		957963		979168
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	957863		957913		957965		979170
					957966		
					957967		

SSM	979171	SSM	979221	SSM	979271	SSM	983583
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	979180		979230		979280		983592
	979181		979231		979281		986133
	979182		979232		979282		986134
	979183		979233		979283		991706
	979184		979234		979284		991707
	979185		979235		979285		991708
	979186		979236		979286		991709
	979187		979237		979287		991710
	979188		979238		979288		991711
	979189		979239		979289		991712
	979190		979240		979290		991713
	979191		979241		979291		991714
	979192		979242		979292		991715
	979193		979243		979293		991728
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	979195		979245		979295		991730
	979196		979246		979296		991731
	979197		979247		979297		991732
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	979201		979251		979301		991736
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	979204		979254		979304		991739
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	979206		979256		979306		991741
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	979211		979261		979311		991746
	979212		979262		979312		991747
	979213		979263		979313		991748
	979214		979264		979314		991749
	979215		979265		979315		991750
	979216		979266		979316		991751
	979217		979267		979317		991752
	979218		979268		979318		991753
	979219		979269		979319		991754
	979220		979270		979320		991755



SSM 991756  
991757  
991758  
991759  
991760  
991761  
991762  
991763  
991764  
991765  
991766  
991767  
957953  
957954



Ministry of Northern Development and Mines

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

2.11298



42C03NW0545 2.11298 ABBIE LAKE

900

Type of Survey(s) **Airborne Magnetic and VLF-Electromagnetic** Additional, Pukaskwa River Keating Additional (Wawa)

Claim Holder(s) **See attached list W 88 05 53** Prospector's Licence No.

Address **c/o Durham Geological Services Inc. P.O. Box 734 Timmins, Ontario. P4N 7G2**

Survey Company **H. Ferderber Geophysics Ltd.** Date of Survey (from & to) **19 03 88** to **22 03 88** Total Miles of line **500**

Name and Address of Author (of Geo-Technical report) **R.A. Campbell - G. N. Henriksen, 169 Perreault Ave., Val d'Or, Que. J9P 2H1**

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Man Days	Geophysical	Days per Claim
Complete review and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	Geological	
	Geochemical	

Airborne Credits	Electromagnetic	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.		40
	Magnetometer	40
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures \$  ÷ 15 =  Total Days Credits

Instructions  
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date **March 23, 1988** Recorded Holder or Agent (Signature) *[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  
**Harry Ferderber, 169 Perreault Ave, Val d'Or, Quebec J9P 2H1**

Date Certified **March 23, 1988** Certified by (Signature) *[Signature]*

Mining Claims Traversed (List in numerical sequence)

Prefix	Mining Claim Number	Expend. Days Cr.	Prefix	Mining Claim Number	Expend. Days Cr.
SSM	957803 et. al.				
(see attached Appendix)					

ONTARIO GEOLOGICAL SURVEY ASSESSMENT FILES OFFICE  
MARCH 12 1988  
RECEIVED

RECORDED  
MAR 29 1988  
Receipt No.

SAULT STE. MARIE  
RECORDED  
MAR 29 1988  
A.M.  
7:18 7:15 11:12 11:22 11:32

Total number of mining claims covered by this report of work. **414**

For Office Use Only

Total Days Cr. Recorded **33,120** Date Recorded **March 29/88** Mining Recorder *[Signature]*

Date Approved as Recorded **11 July 88** Branch Director *[Signature]*





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) Airborne Magnetic and VLF-Electromagnetic
Township or Area Legarde Additional, Keating Additional,
Abbie Lake, Pukaskwa River
Claim Holder(s) G. Carnovale, P. Atkinson, L. Roberts
and H and L Mineral Holdings
Survey Company H. Ferderber Geophysics Ltd.
Author of Report D. Thai
Address of Author 169 Perreault Ave, Val d'Or, Quebec
Covering Dates of Survey March 19 to 22, 1988
(linecutting to office)
Total Miles of Line Cut flown 449.71

MINING CLAIMS TRAVERSED
List numerically

SSM 957803 et. al.
(prefix) (number)
See attached appendix

Table with 2 columns: SPECIAL PROVISIONS CREDITS REQUESTED, DAYS per claim. Rows include Geophysical (Electromagnetic, Magnetometer, Radiometric, Other) and Geological/Geochemical.

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

Magnetometer 31 Electromagnetic 31 Radiometric
(enter days per claim)

DATE: June 10 / 88 SIGNATURE: [Signature]
Author of Report or Agent

Res. Geol. \_\_\_\_\_ Qualifications \_\_\_\_\_

Previous Surveys

Table with 4 columns: File No., Type, Date, Claim Holder. Multiple empty rows for data entry.

TOTAL CLAIMS 416

OFFICE USE ONLY

If space insufficient, attach list

SELF POTENTIAL

Instrument \_\_\_\_\_ Range \_\_\_\_\_

Survey Method \_\_\_\_\_

Corrections made \_\_\_\_\_

RADIOMETRIC

Instrument \_\_\_\_\_

Values measured \_\_\_\_\_

Energy windows (levels) \_\_\_\_\_

Height of instrument \_\_\_\_\_ Background Count \_\_\_\_\_

Size of detector \_\_\_\_\_

Overburden \_\_\_\_\_

(type, depth -- include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey \_\_\_\_\_

Instrument \_\_\_\_\_

Accuracy \_\_\_\_\_

Parameters measured \_\_\_\_\_

Additional information (for understanding results) \_\_\_\_\_

AIRBORNE SURVEYS

Type of survey(s) Airborne Magnetic and VLF Electromagnetic

Instrument(s) GEM GSM-11 Herz Totem 2A  
(specify for each type of survey)

Accuracy 0.04 gammas and 1%  
(specify for each type of survey)

Aircraft used Cessna 172

Sensor altitude 300 feet

Navigation and flight path recovery method Navigation was visual on airphoto mosaics. Flight path recovery was obtained with a RCA colour video camera Panasonic

Aircraft altitude Video Monitor 300 feet Line Spacing 400 feet

Miles flown over total area 449.71 Over claims only 332.46

## APPENDIX 1 CLAIM LIST

SSM	957803	SSM	957864	SSM	957914	SSM	957968
	957804		957865		957915		957969
	957805		957866		957916		957970
	957806		957867		957917		957971
	957807		957868		957918		957972
	957808		957869		957919		957973
	957809		957870		957920		957974
	957810		957871		957921		957975
	957813		957872		957922		957976
	957814		957873		957923		957977
	957815		957874		957924		957978
	957816		957875		957925		957979
	957817		957876		957926		957980
	957818		957877		957927		969522
	957819		957878		957928		969523
	957820		957879		957929		969524
	957821		957880		957930		969525
	957822		957881		957931		969526
	957823		957882		957932		969527
	957824		957883		957933		969528
	957825		957884		957934		979141
	957826		957885		957935		979142
	957827		957886		957936		979143
	957828		957887		957937		979144
	957829		957888		957938		979145
	957830		957889		957939		979146
	957831		957890		957940		979147
	957832		957891		957941		979148
	957833		957892		957942		979149
	957834		957893		957943		979150
	957835		957894		957944		979151
	957836		957895		957945		979152
	957837		957896		957946		979153
	957838		957897		957947		979154
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	957840		957899		957949		979156
	957843		957900		957950		979157
	957844		957901		957951		979158
	957845		957902		957952		979159
	957846		957903		957955		979160
	957847		957904		957956		979161
	957848		957905		957957		979162
	957849		957906		957958		979163
	957850		957907		957959		979164
	957858		957908		957960		979165
	957859		957909		957961		979166
	957860		957910		957962		979167
	957861		957911		957963		979168
	957862		957912		957964		979169
	957863		957913		957965		979170
					957966		
					957967		

SSM 979171	SSM 979221	SSM 979271	SSM 983583
979172	979222	979272	983584
979173	979223	979273	983585
979174	979224	979274	983586
979175	979225	979275	983587
979176	979226	979276	983588
979177	979227	979277	983589
979178	979228	979278	983590
979179	979229	979279	983591
979180	979230	979280	983592
979181	979231	979281	986133
979182	979232	979282	986134
979183	979233	979283	991706
979184	979234	979284	991707
979185	979235	979285	991708
979186	979236	979286	991709
979187	979237	979287	991710
979188	979238	979288	991711
979189	979239	979289	991712
979190	979240	979290	991713
979191	979241	979291	991714
979192	979242	979292	991715
979193	979243	979293	991728
979194	979244	979294	991729
979195	979245	979295	991730
979196	979246	979296	991731
979197	979247	979297	991732
979198	979248	979298	991733
979199	979249	979299	991734
979200	979250	979300	991735
979201	979251	979301	991736
979202	979252	979302	991737
979203	979253	979303	991738
979204	979254	979304	991739
979205	979255	979305	991740
979206	979256	979306	991741
979207	979257	979307	991742
979208	979258	979308	991743
979209	979259	979309	991744
979210	979260	979310	991745
979211	979261	979311	991746
979212	979262	979312	991747
979213	979263	979313	991748
979214	979264	979314	991749
979215	979265	979315	991750
979216	979266	979316	991751
979217	979267	979317	991752
979218	979268	979318	991753
979219	979269	979319	991754
979220	979270	979320	991755

SSM 991756  
991757  
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991761  
991762  
991763  
991764  
991765  
991766  
991767  
957953  
957954



CLAIM HOLDERS AND LICENCE NUMBERS

Gary Carnovale	M 21859
Paul Atkinson	M 21397
Lloyd Roberts	M 20892
H- L Mineral Holdings	T - 4645

## APPENDIX 1 CLAIM LIST

SSM	957803	SSM	957864	SSM	957914	SSM	957968
	957804		957865		957915		957969
	957805		957866		957916		957970
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	957807		957868		957918		957972
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	957809		957870		957920		957974
	957810✓		957871		957921		957975
	957813		957872		957922		957976
	957814		957873		957923		957977
	957815		957874		957924		957978
	957816		957875		957925		957979
	957817		957876		957926		957980✓
	957818		957877		957927		969522
	957819		957878		957928		969523
	957820		957879		957929		969524
	957821		957880		957930		969525
	957822		957881		957931		969526
	957823		957882		957932		969527
	957824		957883		957933		969528✓
	957825		957884		957934		979141
	957826		957885		957935		979142
	957827		957886		957936		979143
	957828		957887		957937		979144
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	957834		957893		957943		979150
	957835		957894		957944		979151
	957836		957895		957945		979152
	957837		957896		957946		979153
	957838		957897		957947		979154
	957839		957898		957948		979155
	957840✓		957899		957949		979156
	957843		957900		957950		979157
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	957845		957902		957952✓		979159
	957846		957903		957955		979160
	957847		957904		957956		979161
	957848		957905		957957		979162
	957849		957906		957958		979163
	957850✓		957907		957959		979164
	957858		957908		957960		979165
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	957860		957910		957962		979167
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	957862		957912		957964		979169
	957863		957913		957965		979170✓
					957966		
					957967		

SM	979171	SSM	979221	SSM	979271	SSM	983583
	979172		979222		979272		983584
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	979178		979228		979278		983590
	979179		979229		979279		983591
	979180		979230		979280		983592 ✓
	979181		979231		979281		986133 ✓
	979182		979232		979282		986134 ✓
	979183		979233		979283		991706
	979184		979234		979284		991707
	979185		979235		979285		991708
	979186		979236		979286		991709
	979187		979237		979287		991710
	979188		979238		979288		991711
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	979190		979240		979290		991713
	979191		979241		979291		991714
	979192		979242		979292		991715 ✓
	979193		979243		979293		991728
	979194		979244		979294		991729
	979195		979245		979295		991730
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	979213		979263		979313		991748
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	979216		979266		979316		991751
	979217		979267		979317		991752
	979218		979268		979318		991753
	979219		979269		979319		991754
	979220		979270		979320 ✓		991755

SSM 991756  
991757  
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991764  
991765  
991766  
991767 ✓

AREA OF

# ABBIE LAKE

DISTRICT OF  
THUNDER BAY - ALGOMA

SAULT STE. MARIE  
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 —

### NOTES

For status of Twp 33 R 25 & 26 please confer  
the AC 5 B B Ry Sault Ste Marie Ont.

400' Surface Rights Reservation around all lakes  
& rivers.

FOR STATUS OF KEATING ADD'L  
LEGARD ADD'L TWP. 33 R. 25  
S.A.M.C.

### DATE OF ISSUE

MAY 13 1983

SAULT STE. MARIE  
MINING RECORDER'S OFFICE

RECEIVED

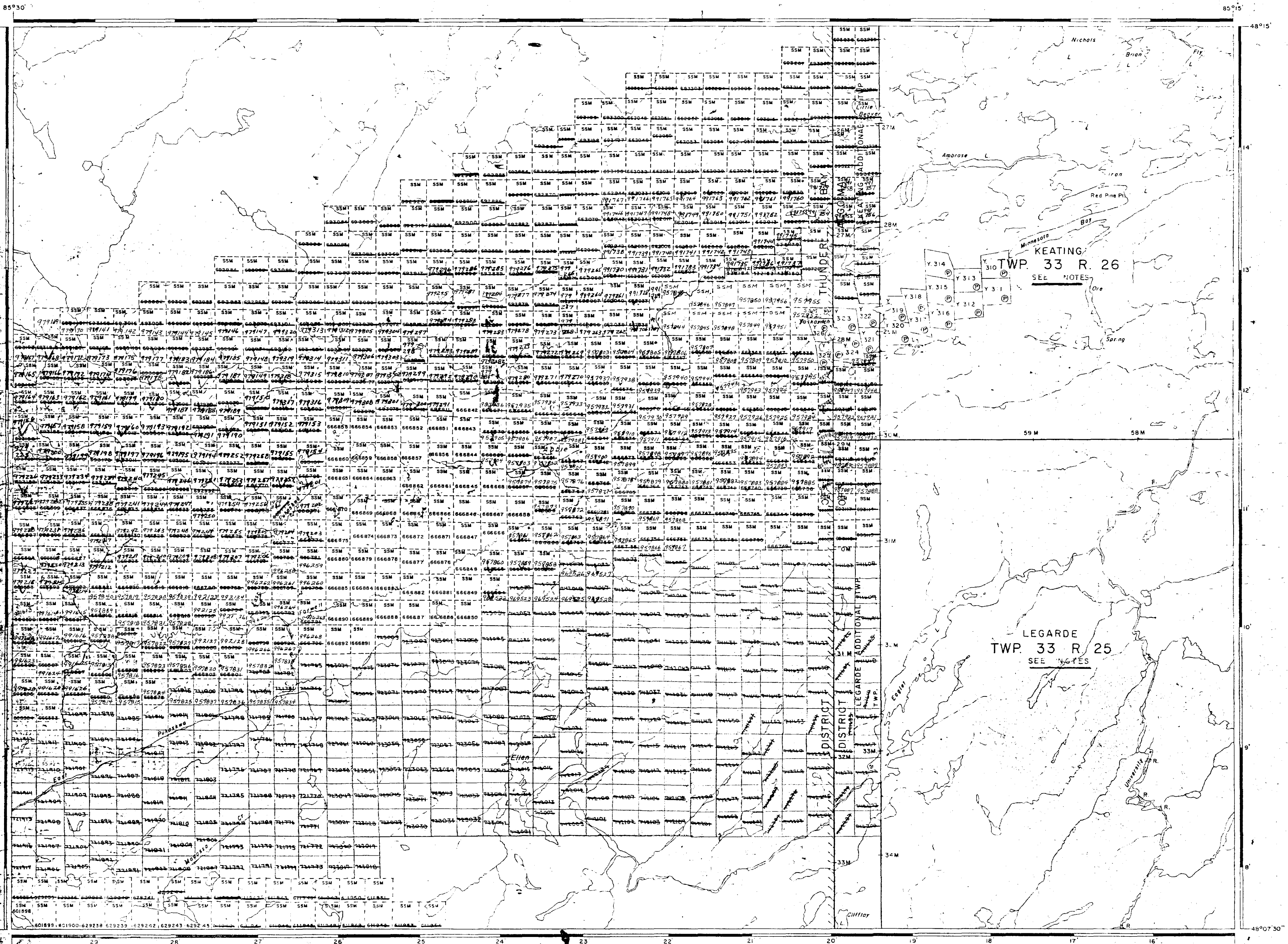
MAY 20 1983

2:30 P.M.

NATIONAL TOPOGRAPHIC SERIES 42C3

PLAN NO. G-3762

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEY AND MAPPING BRANCH



ABBIE LAKE

ABBIE LAKE





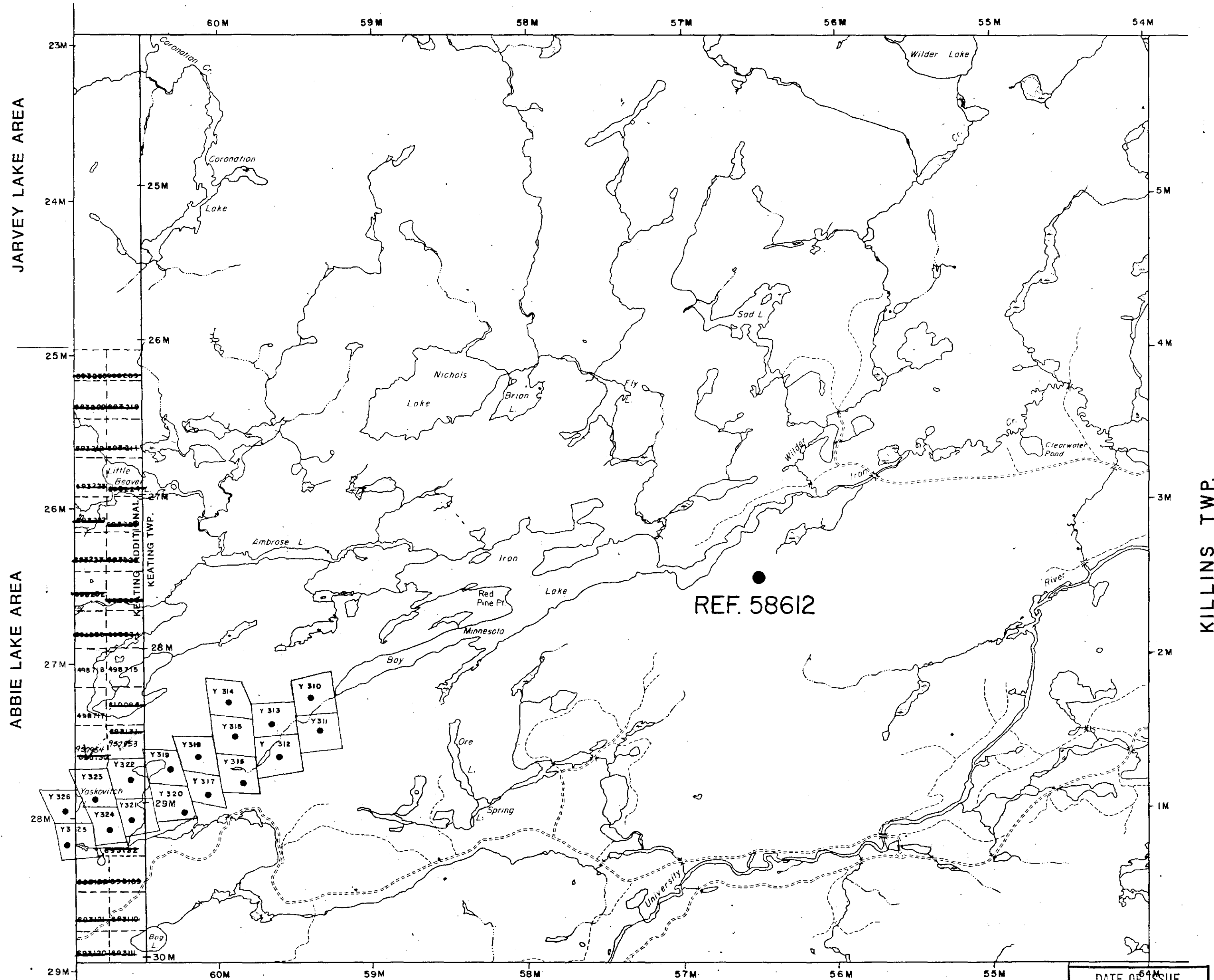
**REFERENCES**

**AREAS WITHDRAWN FROM DISPOSITION**

- M.R.O. - MINING RIGHTS ONLY
- S.R.O. - SURFACE RIGHTS ONLY
- M.+S. - MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File

**CHARBONNEAU TWP.**



JARVEY LAKE AREA

ABBIE LAKE AREA

KILLINS TWP.

**LEGARDE & LEGARDE ADD'L TWP.**

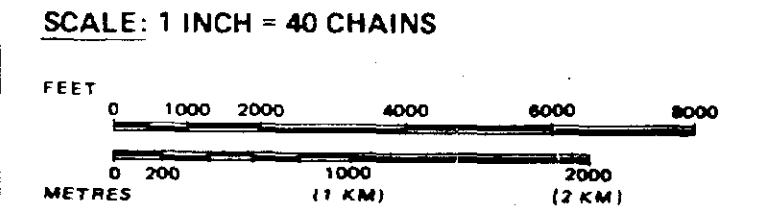
**LEGEND**

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

**DISPOSITION OF CROWN LANDS**

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	
ORDER-IN-COUNCIL	
RESERVATION	
CANCELLED	
SAND & GRAVEL	

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC 1.

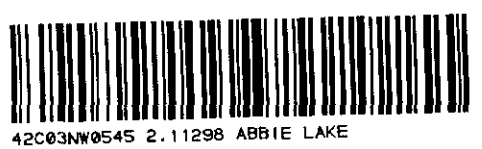
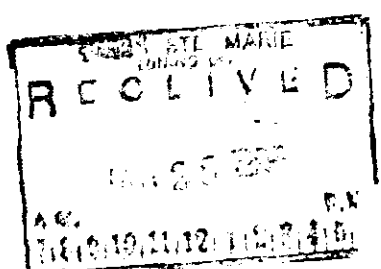


**NOTES**

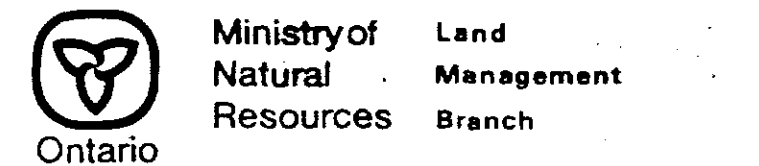
KEATING TWP. OWNED BY A.C.R.Y. NOT OPEN FOR STAKING UNDER ONT. MINING ACT. ENQUIRE AT A.C.R.Y. OFFICES AT S.S.TE. MARIE REGARDING STAKINGS ETC.

KEATING ADDITIONAL IS OPEN FOR STAKING UNDER THE ONTARIO MINING ACT

TOWNSHIP  
**KEATING & KEATING ADD'L**  
 M.N.R. ADMINISTRATIVE DISTRICT  
**WAWA**  
 MINING DIVISION  
**SAULT STE. MARIE**  
 LAND TITLES / REGISTRY DIVISION  
**ALGOMA**



DATE OF ISSUE  
 1987 - 3  
 SAULT STE. MARIE  
 MINING RECORDER'S OFFICE



Date - MARCH, 1987  
 Number  
**G-2386**

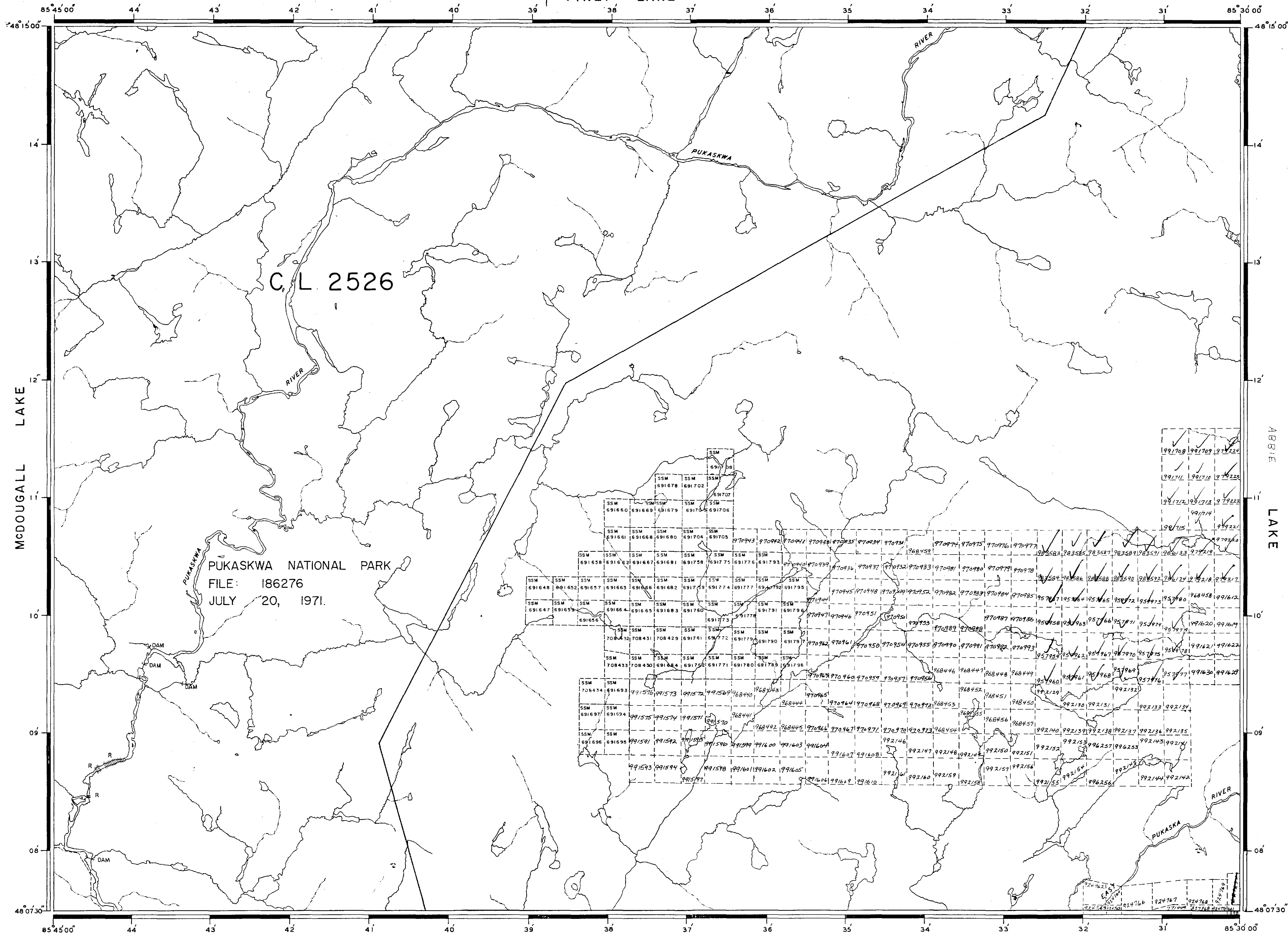
REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

- M.R.O. - MINING RIGHTS ONLY
- S.R.O. - SURFACE RIGHTS ONLY
- M.+S. - MINING AND SURFACE RIGHTS

Description Order No. Date Disposition File

PINEI LAKE



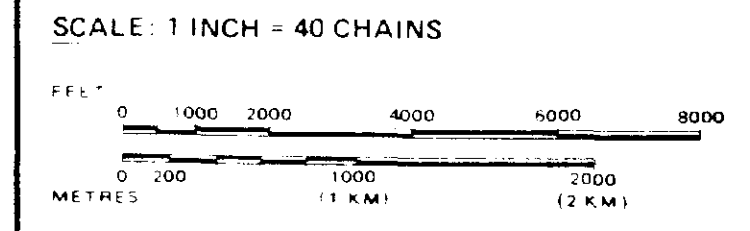
LEGEND

- HIGHWAY AND ROUTE NO
- OTHER ROADS
- TRAILS
- SURVEYED LINES
- TOWNSHIPS, BASE LINES, ETC
- LOTS, MINING CLAIMS, PARCELS, ETC
- UNSURVEYED LINES
- LOT LINES
- PARCEL BOUNDARY
- MINING CLAIMS ETC
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

- | TYPE OF DOCUMENT                | SYMBOL |
|---------------------------------|--------|
| PATENT, SURFACE & MINING RIGHTS | ●      |
| " SURFACE RIGHTS ONLY           | ○      |
| " MINING RIGHTS ONLY            | ◐      |
| LEASE, SURFACE & MINING RIGHTS  | ■      |
| " SURFACE RIGHTS ONLY           | □      |
| " MINING RIGHTS ONLY            | ◻      |
| LICENCE OF OCCUPATION           | ▼      |
| ORDER IN COUNCIL                | OC     |
| RESERVATION                     | ○      |
| CANCELLED                       | ○      |
| SAND & GRAVEL                   | ⊙      |

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEES BY THE PUBLIC LANDS ACT R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1.

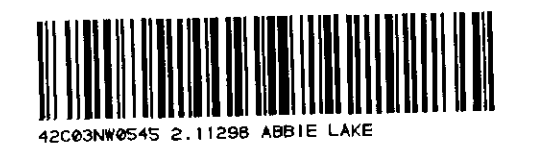


DATE OF ISSUE  
 MAY 13, 1986  
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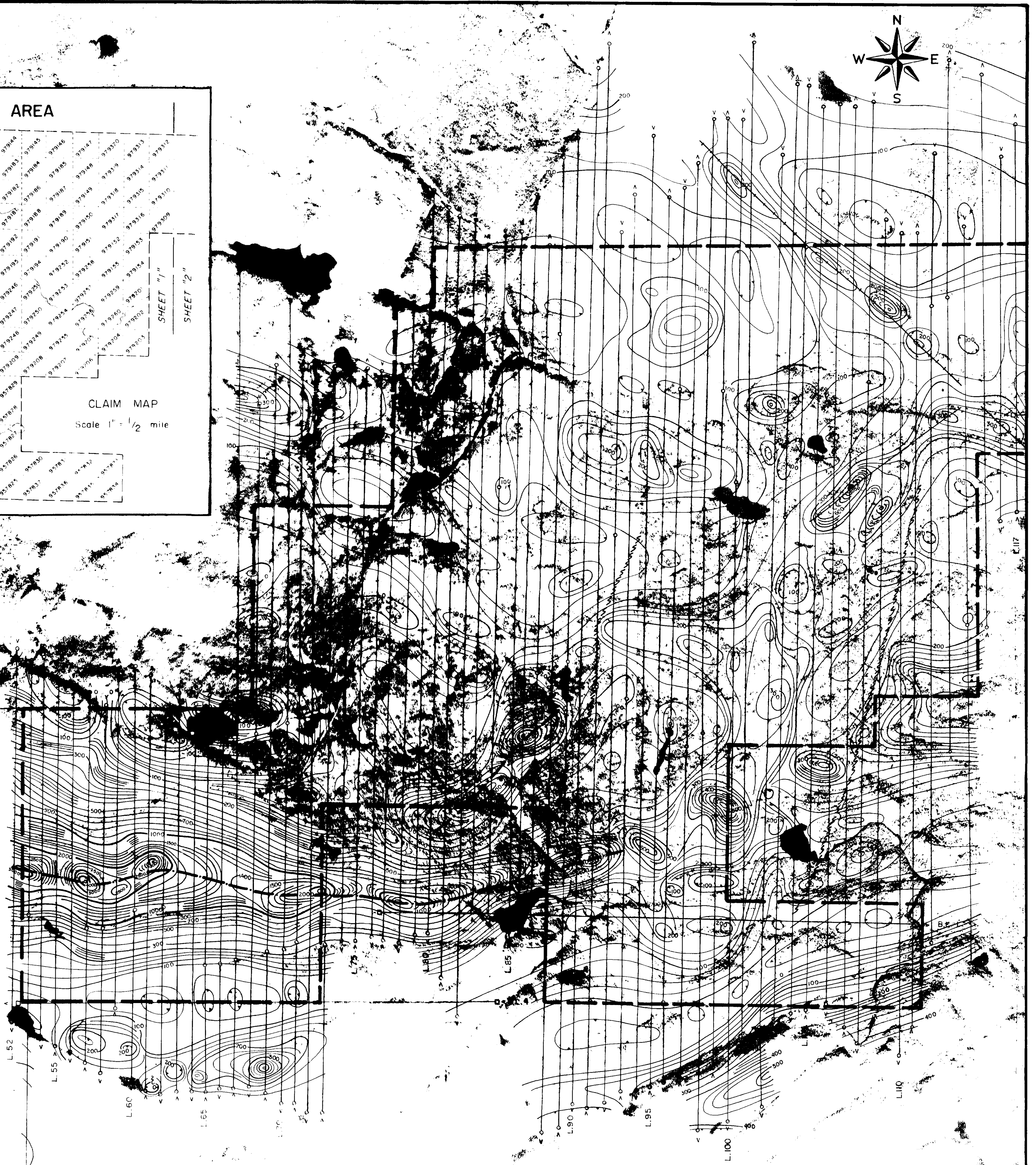
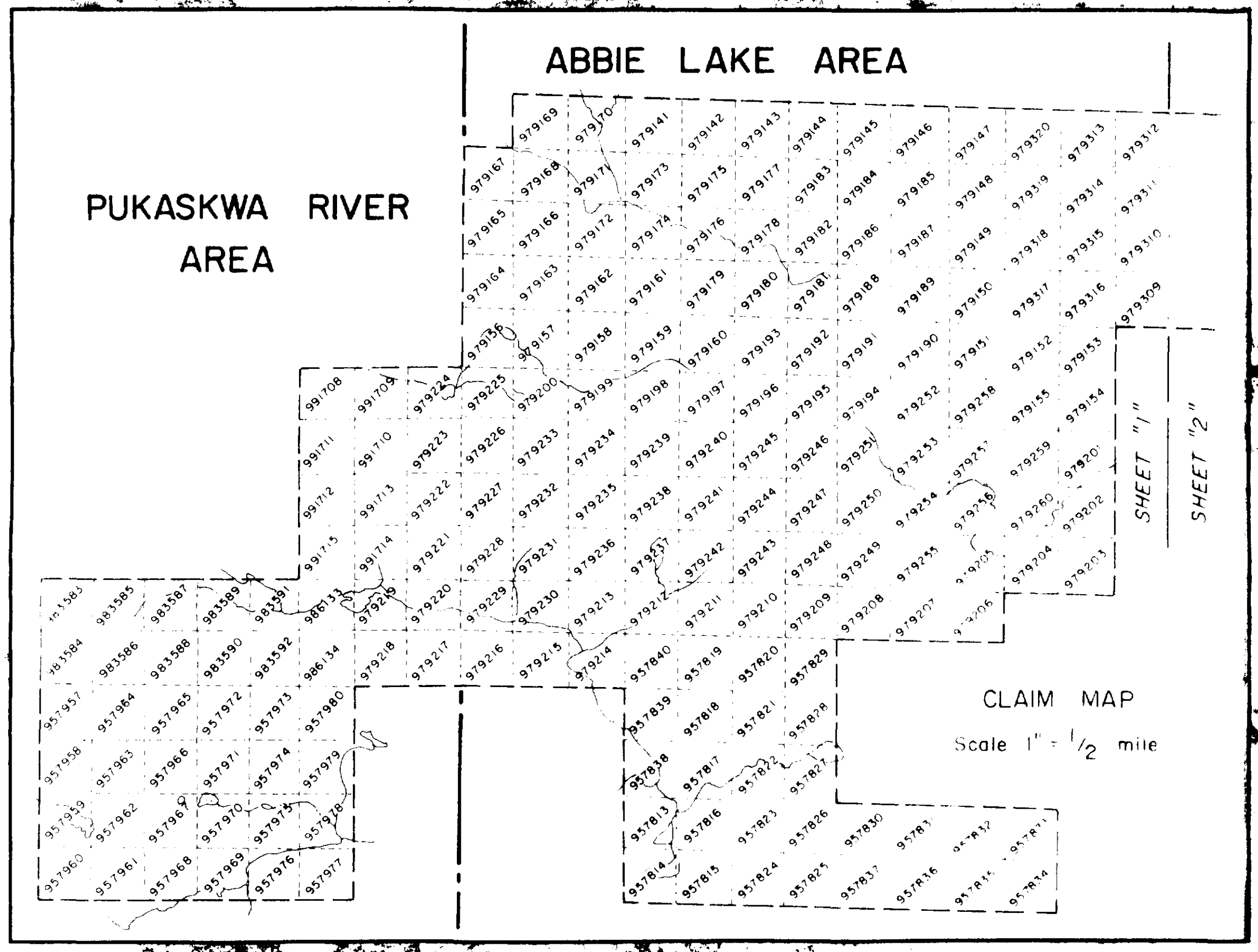
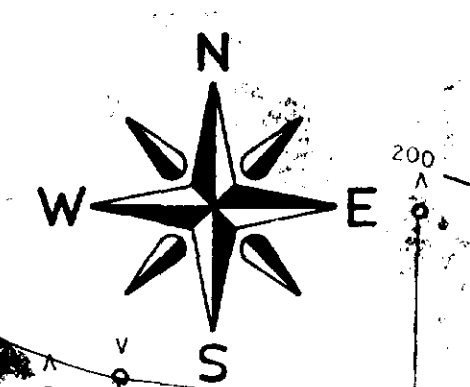
AREA  
**PUKASKWA RIVER**  
 M.N.R. ADMINISTRATIVE DISTRICT  
 WAWA  
 MINING DIVISION  
 SAULT STE. MARIE  
 LAND TITLES / REGISTRY DIVISION  
 ALGOMA

Ministry of Natural Resources Ontario  
 Ministry of Northern Development and Mines

Date FEBRUARY, 1987  
 Number G-3779

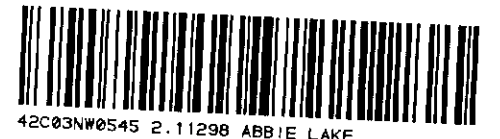




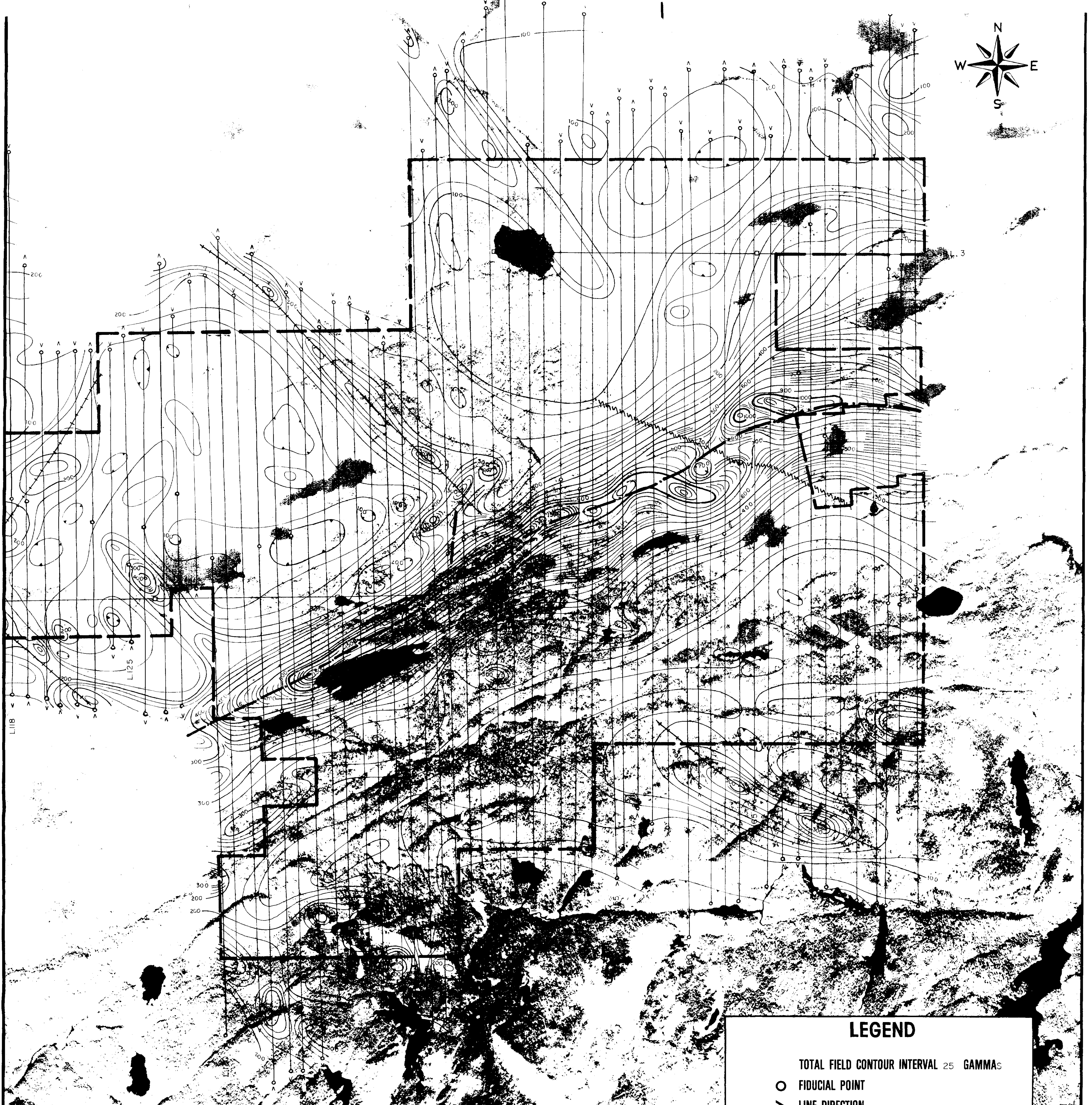
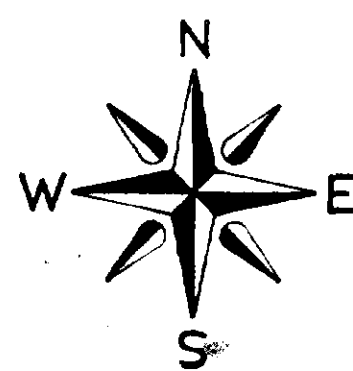


LEGEND	
TOTAL FIELD CONTOUR INTERVAL 25 GAMMAS	
○	FIDUCIAL POINT
>	LINE DIRECTION
BASE VALUE 59000 GAMMAS	
⊖	MAGNETIC LOW
1000 GAMMAS	POSSIBLE FAULTS
100 GAMMAS	POSSIBLE DYKES
25 GAMMAS	
0 GAMMAS	
—	PRESUMED IRON FORMATION

TYPE OF WORK	AIRBORNE MAGNETIC SURVEY		
CLIENT	RISE RESOURCES LTD. 11298		
AREA	PUKASKWA RIVER & ABBIE LAKE AREAS, KEATING & LEGARDE ADDITIONAL TWPS, ONT.		
SCALE	1" = 1/4 mile	DATE	MAY 1988
DRAWN BY	W.M.	MAP OR SHEET NO.	MG-1







**LEGEND**

TOTAL FIELD CONTOUR INTERVAL 25 GAMMAS

○ FIDUCIAL POINT

∨ LINE DIRECTION

BASE VALUE 59000 GAMMAS

⊖ MAGNETIC LOW

⊖ 1000 GAMMAS

⊖ 100 GAMMAS

⊖ 25 GAMMAS

○ 0 GAMMAS

--- POSSIBLE DYKES

~~~~~ POSSIBLE FAULTS

--- PRESUMED IRON FORMATION

**ABBIE LAKE AREA**

CLAIM MAP

Scale 1" = 1/2 mile

SHEET "1"

SHEET "2"

978105 978106 978107 978108 978109 978110 978111 978112 978113 978114 978115 978116 978117 978118 978119 978120 978121 978122 978123 978124 978125 978126 978127 978128 978129 978130 978131 978132 978133 978134 978135 978136 978137 978138 978139 978140 978141 978142 978143 978144 978145 978146 978147 978148 978149 978150 978151 978152 978153 978154 978155 978156 978157 978158 978159 978160 978161 978162 978163 978164 978165 978166 978167 978168 978169 978170 978171 978172 978173 978174 978175 978176 978177 978178 978179 978180 978181 978182 978183 978184 978185 978186 978187 978188 978189 978190 978191 978192 978193 978194 978195 978196 978197 978198 978199 978200 978201 978202 978203 978204 978205 978206 978207 978208 978209 978210 978211 978212 978213 978214 978215 978216 978217 978218 978219 978220 978221 978222 978223 978224 978225 978226 978227 978228 978229 978230 978231 978232 978233 978234 978235 978236 978237 978238 978239 978240 978241 978242 978243 978244 978245 978246 978247 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LEGARDE ADDITIONAL TWP

KEATING ADD. TWP

TWP. 33 R. 25

TWP. 33 R. 26

TYPE OF WORK

**AIRBORNE MAGNETIC SURVEY**

CLIENT

**RISE RESOURCES LTD. 11298**

AREA

PUKASKWA RIVER & ABBIE LAKE AREAS,  
KEATING & LEGARDE ADDITIONAL TWPS, ONT.

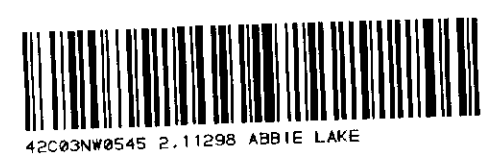
SCALE 1" = 1/4 mile

DATE MAY 1988

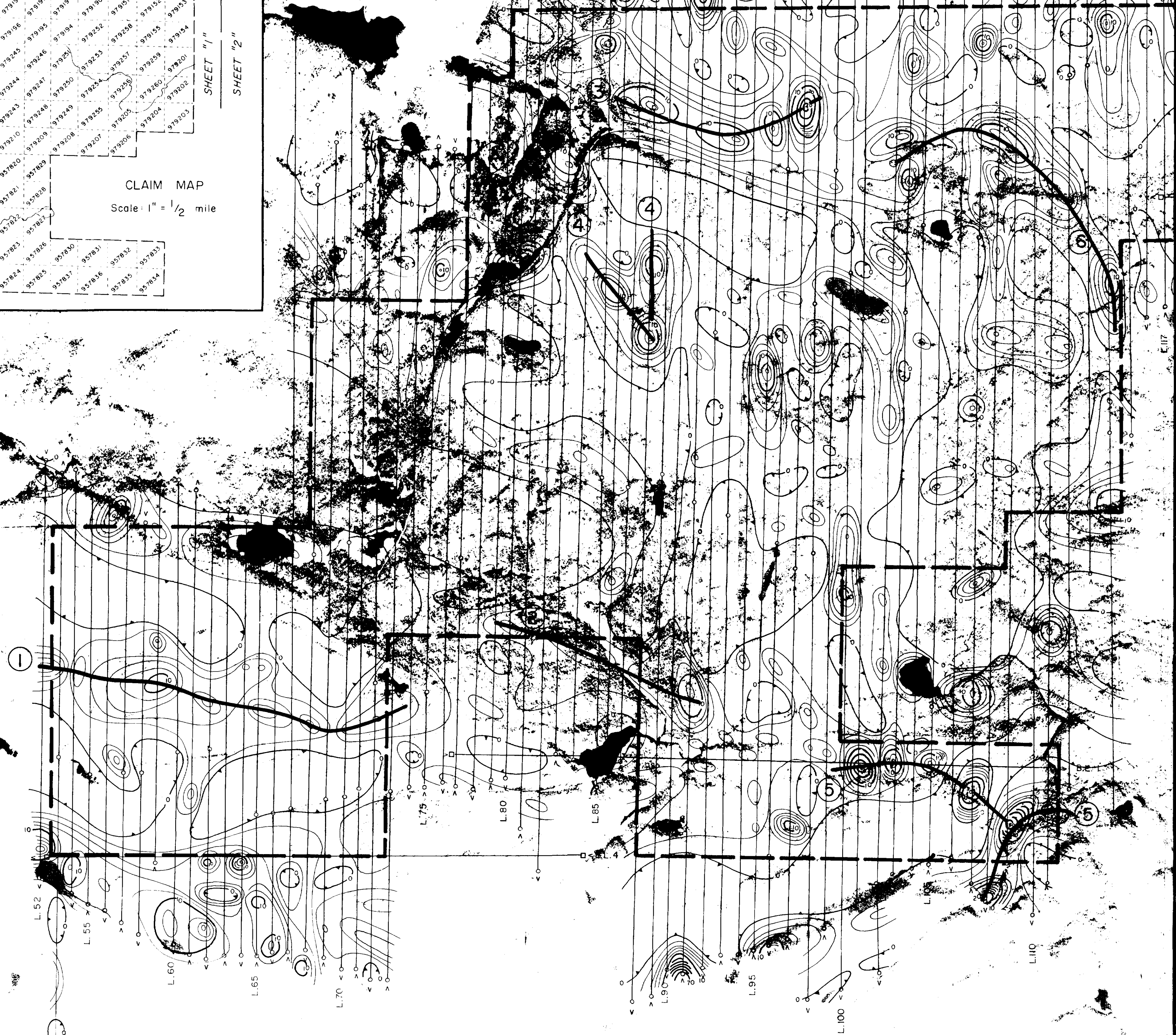
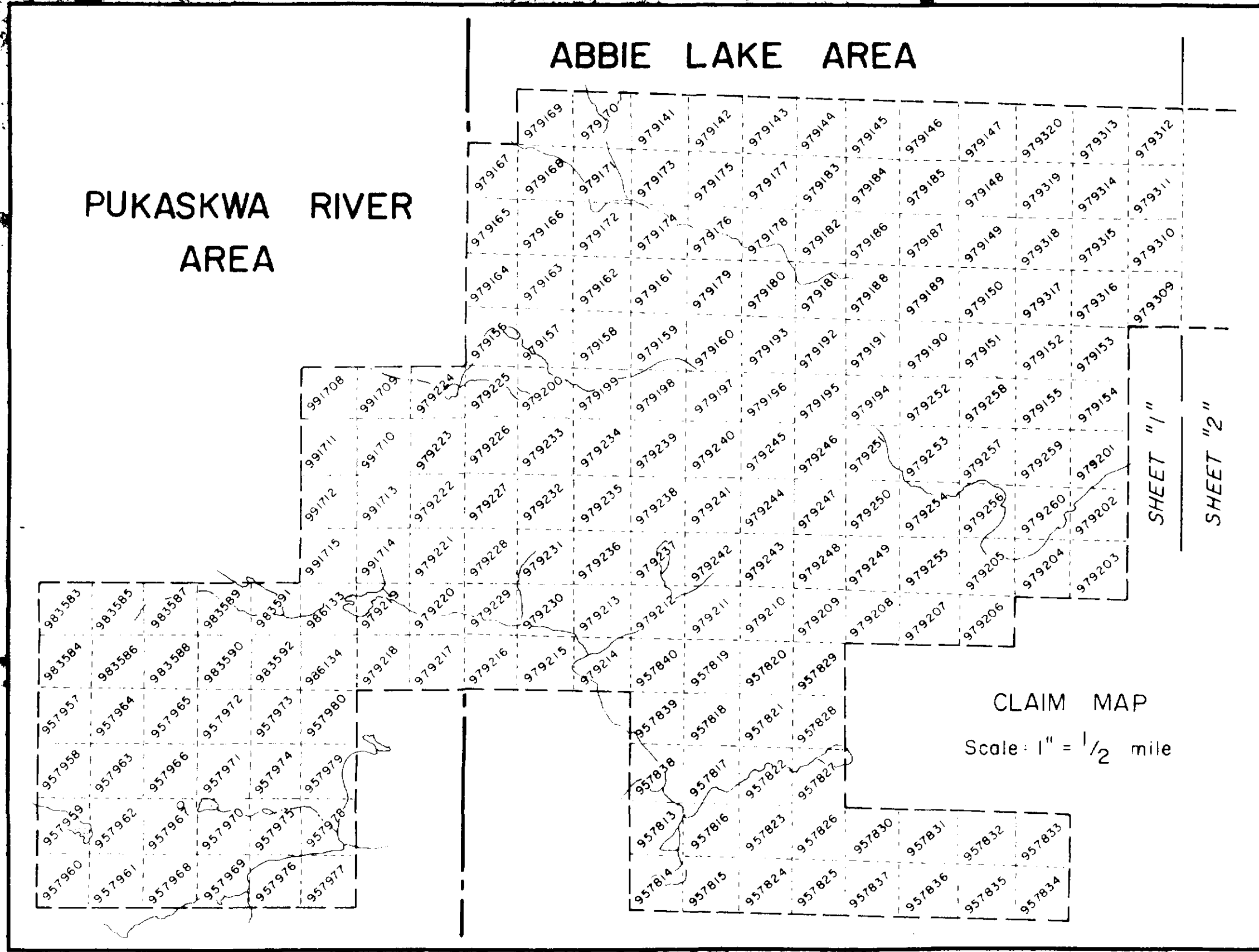
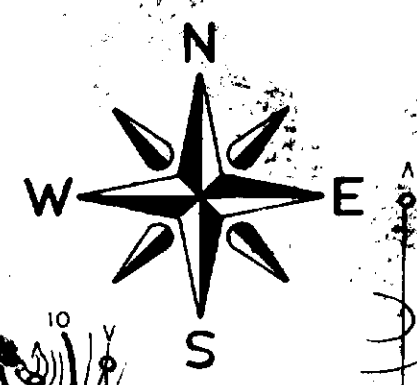
H. Ferderber Geophysics Ltd.

DRAWN BY *W.M.*

MAP OR SHEET NO. MG-2







**LEGEND**

|  |                                                        |
|--|--------------------------------------------------------|
|  | TOTAL FIELD CONTOUR INTERVAL 2 %                       |
|  | CONDUCTOR AXIS                                         |
|  | FIDUCIAL POINT                                         |
|  | LINE DIRECTION                                         |
|  | STATION USED: for LINES 52 to 115, CUTLER (240kHz.)    |
|  | LESS THAN ZERO for LINES 116 to 176, SEATTLE (248kHz.) |
|  | 10%                                                    |
|  | 2%                                                     |
|  | 0%                                                     |

|              |                     |                                                                               |          |
|--------------|---------------------|-------------------------------------------------------------------------------|----------|
| TYPE OF WORK |                     | AIRBORNE V.L.F.-EM SURVEY                                                     |          |
| CLIENT       |                     | RISE RESOURCES LTD. 2.11298                                                   |          |
| AREA         |                     | PUKASKWA RIVER & ABBIE LAKE AREAS,<br>KEATING & LEGARDE ADDITIONAL TWPS, ONT. |          |
|              | SCALE 1" = 1/4 mile | DATE                                                                          | MAY 1988 |
|              | DRAWN BY <i>DM</i>  | MAP OR SHEET NO.                                                              | EM-1     |







**LEGEND**

TOTAL FIELD CONTOUR INTERVAL 2 %

— CONDUCTOR AXIS

○ FIDUCIAL POINT

→ LINE DIRECTION

STATION USED: for LINES 52 to 115, CUTLER (24.0 kHz.)  
for LINES 116 to 176, SEATTLE (24.8 kHz.)

LESS THAN ZERO

⊖ 10%

⊖ 2%

⊖ 0%

**ABBIE LAKE AREA**

CLAIM MAP  
Scale: 1" = 1/2 mile

SHEET "1"  
SHEET "2"

LEGARDE  
ADDITIONAL  
TWP.

KEATING  
ADD.  
TWP.

TWP. 33 R. 25

TWP. 33 R. 26

Grid of station numbers (e.g., 91701, 91702, 91703, etc.)

**AIRBORNE V.L.F.-EM SURVEY**

CLIENT: RISE RESOURCES LTD. 2.11298

AREA: PUKASKWA RIVER & ABBIE LAKE AREAS, KEATING & LEGARDE ADDITIONAL TWPS, ONT.

TYPE OF WORK: AIRBORNE V.L.F.-EM SURVEY

SCALE: 1" = 1/4 mile

DATE: MAY 1988

DRAWN BY: W.H.

MAP OR SHEET NO.: EM-2

H. Ferderber Geophysics Ltd.

