



41104NW0009 2.10724 MCKINNON

010

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MINING LANDS SECTION

REPORT ON THE MAGNETIC SURVEY

ESPANOLA PROPERTY

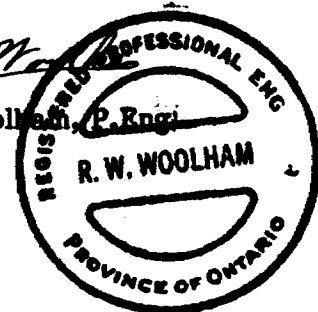
MONGOWIN AND McKINNON TOWNSHIPS, ONTARIO

N.T.S. 41 1/4

PREPARED FOR HARDIMAN BAY RESOURCES INC.

DERRY, MICHENER, BOOTH & WAHL

R.W. Woolham
R. W. Woolham, P. Eng.



Toronto, Ontario
December 30, 1987

Ref.: 87-115

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41104NW0009 2.10724 MCKINNON

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SUMMARY

A magnetic survey was completed on the Espanola property of Hardiman Bay Resources Inc. Based on geology, magnetic units on the property consist of cross-cutting olivine diabase dyke structures as well as mafic sills, generally conformable with stratigraphy. These structures were mapped by the magnetic survey and additional mafic dykes and sills not exposed in outcrop were delineated. The main dyke structures strike west-northwest while a magnetically weaker set form an orthogonal set with the first. The location of a major east-west fault, interpreted from geology, was also identified from the magnetic anomaly patterns.

The target of exploration is auriferous quartz vein mineralization suitable for silica-flux material. Present geological information indicates that many of the known quartz vein areas are associated with fault and/or fold structures. On the property, mafic sill intrusives, interpreted from the magnetic survey results, have a spatial relationship to contact zones. Their zonal concentration along the contact horizon between the Serpent and Espanola formations would suggest a structurally weak area which might also be a host environment for silica-rich fluids. Therefore, it is recommended that further exploration of the property, planned for the next field season, be concentrated along these horizons especially where they are intersected by cross-cutting structures.

INTRODUCTION

A geophysical survey, utilizing the magnetic method, was completed on the Espanola silica-gold property of Hardiman Bay Resources Inc. The survey was performed by the staff of Derry, Michener, Booth & Wahl (DMBW) under the direct supervision of the author. This survey was recommended by DMBW in a report on the property of June 1, 1987 (DMBW Ref. No. 87-54). The survey was conducted during the period November 1 to November 10, 1987. Survey line coverage with respect to the claims is shown on Map 87-115-03 in a pocket at the back of this report.

PROPERTY, LOCATION, DESCRIPTION AND ACCESS

The Espanola property is located in Mongowin and McKinnon townships, approximately 70 km southwest of Sudbury and 11 km south of the town of Espanola, Ontario, as shown in Figure 1. The property consists of the following 25 contiguous unpatented mining claims, covering about 400 hectares (Figure 2):

Mongowin Township

S791240 - S791244 inclusive
S827042 - S827044 inclusive
S895268 - S895271 inclusive
S983605 - S983608 inclusive

McKinnon Township

S787614
S895204-S895207 inclusive
S895307
S895309-S895311 inclusive

Access to the property is excellent. From Trans-Canada Highway No. 17, drive south on Highway 68 through Espanola for a distance of about 16 km to the all-weather gravel Fox Lake Road, then drive west along the road a distance of about 2.5 km. The Fox Lake Road bisects the entire property.

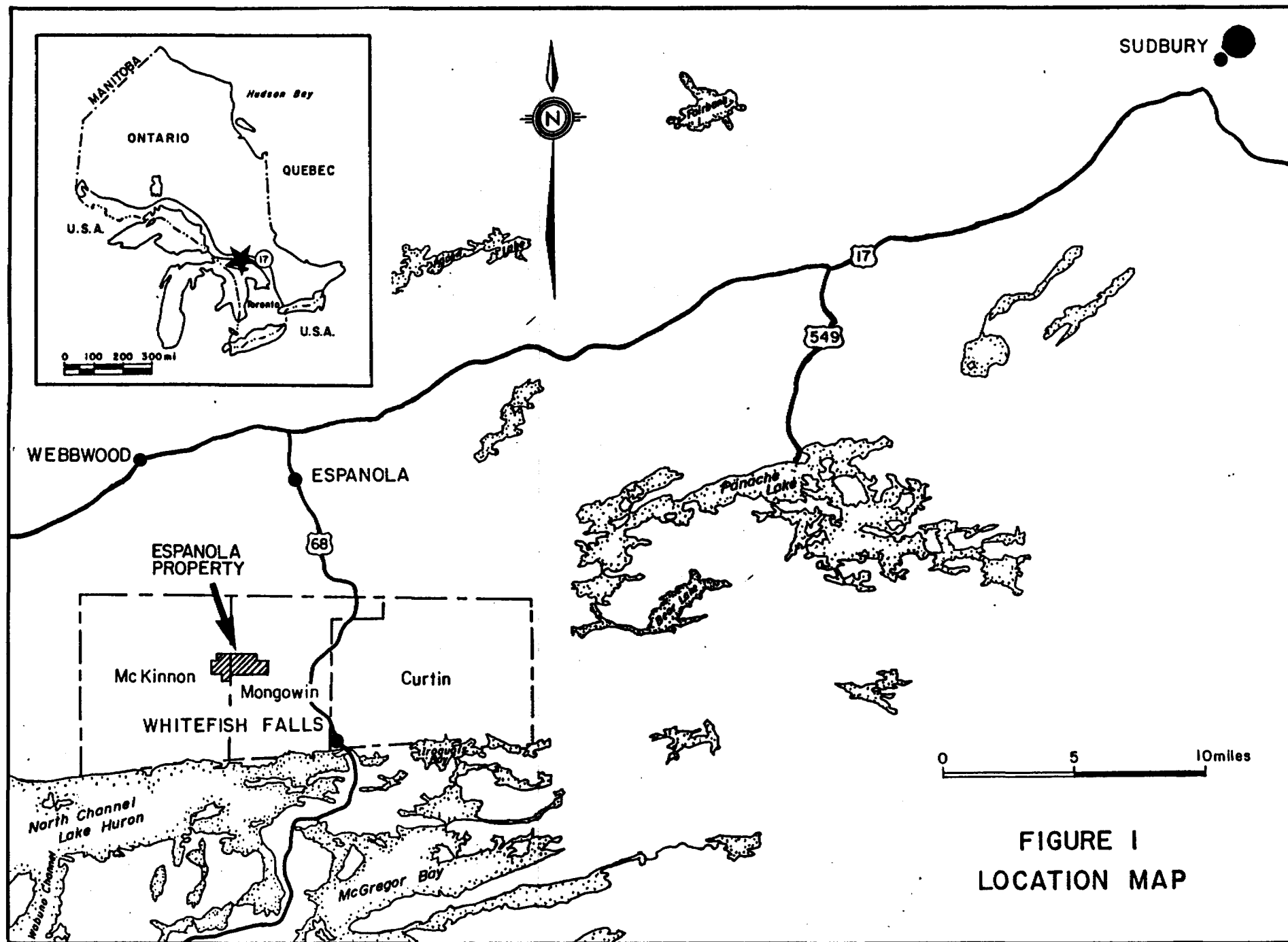
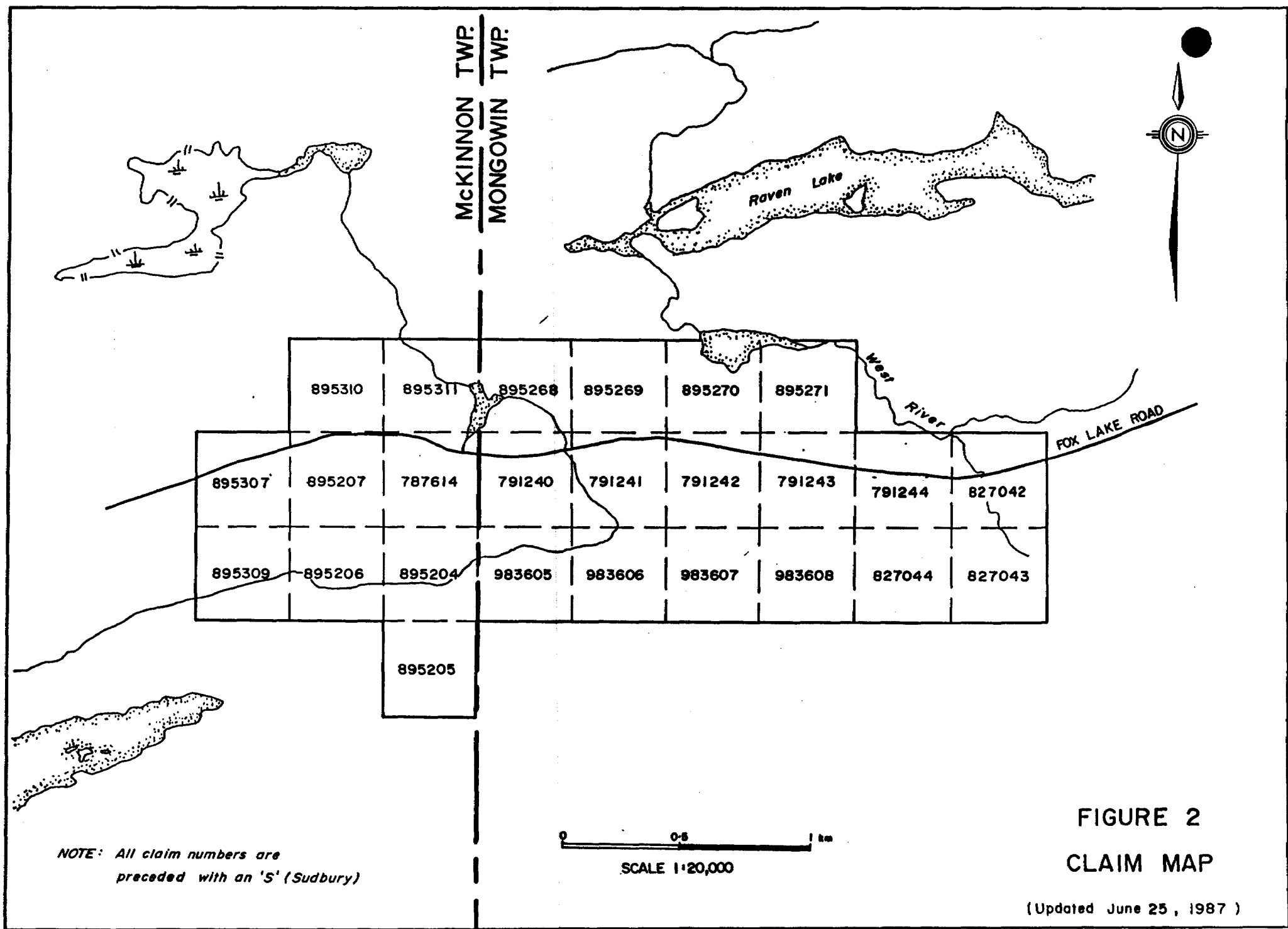


FIGURE I
LOCATION MAP



NOTE: All claim numbers are preceded with an 'S' (Sudbury)

FIGURE 2
CLAIM MAP

(Updated June 25, 1987)

GEOLOGY

The bedrock geology in the Espanola property area comprises two major groups: Huronian Supergroup stratigraphy consisting of slightly metamorphosed quartzites, argillites, greywackes, conglomerates and carbonates and Middle to Late Precambrian mafic intrusives, generally in the form of crosscutting dykes and structurally conformable sills. All rocks are part of the Southern Province of the Canadian Shield.

The oldest rocks in the area belong to the Espanola Formation consisting of interbedded calcareous and magnesium-rich carbonates and very fine to fine-grained clastic sediments. The Formation is exposed along the hinge of the Fox Lake Antiform and underlies about 800 m of the property from east to west.

Conformably overlying the Espanola lies the Serpent Formation, a sequence consisting dominantly of feldspathic quartzites and polymictic conglomerates. These rocks occur to the north and south of the antiform axis and both limbs are present on the property.

In conformable to disconformable contact with the Serpent Formation lies the Gowganda Formation, a mixed succession of polymictic conglomerates, with a matrix of argillite or greywacke, interbedded with siltstones and feldspathic quartzites. Magnetite-bearing argillites which give rise to distinct magnetic anomalies occur near the base and top of the Formation. The southeastern part of the property is underlain by these conglomerates. Intruding all of the above are late mafic intrusive dykes and/or conformable sills of olivine diabase, amphibolite and/or gabbro.

Structural geology in the area is dominated by three major east-west trending folds, a syncline in the north and south and an anticline in the middle. The Fox Lake antiform axis crosscuts the central part of the property from east to west and it is this structure that has caused the oldest rocks in the area to outcrop on the Espanola property. The axis is near vertical and the fold limbs are steeply dipping to vertical.

MAGNETIC SURVEY PARAMETERS AND PRESENTATION

An EDA OMNI IV Magnetometer was used for the survey. This instrument is microprocessor-controlled and can be programmed to automatically record the station location, time and magnetic value. Magnetic diurnal variations were monitored by an EDA OMNIMAG PPM-375 base station magnetometer. Instrument specifications are contained in Appendix I. Readings were taken along grid lines spaced 100 m apart at 25 m station intervals. In all, 35 line kilometers of data were recorded and stored automatically for a total of 1,400 readings.

Diurnal corrections to the magnetic field values recorded were automatically calculated by the microprocessor controlled base station recorder after the field data were "dumped" into the data storage device at the end of each day's data collection.

A regional value of 56,000 nanotesla (nT) was subtracted from all the corrected magnetic values. Subsequently, office compilation by DMBW consisted of editing of the data and automatic entry of the data values into a computer controlled plotting system. Using modified software by Dataplotting, survey maps of magnetic values and a contour map, at an interval of 10 nT, were generated at a scale of 1:2,500 with appropriate title and legend (see maps 87-115-01 and -02).

Note that the extreme western survey line results are severely affected by a powerline which is subparallel to the grid line and data in this area is not valid.

RESULTS

The total field regional background value is about 56,800 nT. Local values and zones of from 50 nT to as high as 1,600 nT below background are present. Significant positive magnetic features having amplitudes from 100 nT to as high as 1,500 nT occur as narrow linear zones having two main directions. The most dominant are three west-northwest striking linear horizons which generally

crosscut, displace and/or interrupt the second set of lower amplitude east-west trending narrow linears. This latter set forms two zones of intermittent parallel horizons which trend right across the property; one at about 300 south and the other at about 150 north. One other very high amplitude broad zone of magnetic activity is present in the extreme southeast corner of the property. It trends west onto the grid, then bends south past line 700 west. Numerous other subtle magnetic features having amplitudes of 20 to 70 nT above background occur throughout the area. Most parallel the east-west linears described previously, however, there are two north-south striking subtle zones that are indicated in the vicinity of lines 1000 west and 2400 west. A third feature strikes north-northeast in the western end of the grid.

CONCLUSIONS

In order to illustrate the magnetic structures mapped by the survey, an interpretive compilation map has been constructed which is based on the known geology as well as the interpreted magnetic features. This map is in the map pocket at the back of the report and is designated as Map No. 87-115-03. The following discussion relates to this map.

Based on the geology of the area, it is concluded that the west-northwest trending magnetic structures are olivine diabase dykes while the east-west magnetic linears are either related to magnetic sedimentary units within the Serpent and Espanola Formations or mafic intrusive sills conformable with the sediments. The latter suggestion is the more probable as magnetite-bearing argillites were only recognized in the Gowganda Formation which overlies the Serpent Formation. Based on the geological information, there is some indication that the two magnetic horizons in the central part of the property have a spatial relationship to the contact of the central antiform Espanola Formation structure with the Serpent Formation to the north and south. The south contact is marked by a fault which appears to be partly reflected in dyke trend displacements as well as a distinctive below background magnetic horizon. The postulated location

of the fault is shown on the interpretive map. The tentative location of a northeast trending fault based on geology is also shown in the east part of the property.

The Gowganda Formation is present in the extreme southeast corner of the property. This area contains a high amplitude wide magnetic linear zone and, no doubt, reflects the magnetite-bearing argillites which occur at the base of the Gowganda Formation as mentioned in the Geology section of this report. The magnetic argillites have a higher magnetic amplitude than the magnetic units within the underlying formations.

The secondary set of north to north-northeast trending low amplitude linears have been interpreted as mafic dykes which form an orthogonal set with the major west to west-northwest dykes as shown on Map 87-115-03.

RECOMMENDATIONS

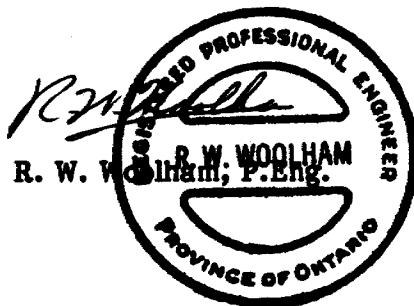
The target of exploration is auriferous quartz vein mineralization suitable for silica-flux material. Present geological information indicates that many of the known quartz vein areas are associated with fault and/or fold structures. On the property, mafic sill intrusives, interpreted from the magnetic survey results, have a spatial relationship to contact zones. Their zonal concentration along the contact horizon between the Serpent and Espanola formations would suggest a structurally weak area which might also be a host environment for silica-rich fluids. Therefore, it is recommended that further exploration of the property, planned for the next field season, be concentrated along these horizons especially where they are intersected by cross-cutting structures.

CERTIFICATE OF QUALIFICATION

I, Roderick W. Woolham of the town of Pickering, Province of Ontario, do hereby certify that:-

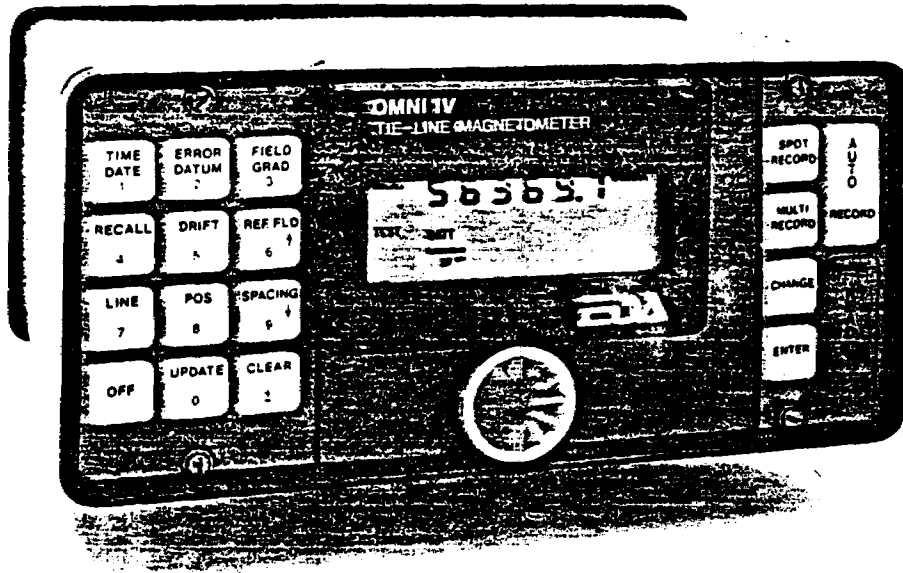
1. I am a geophysicist and reside at 1463 Fieldlight Blvd., Pickering, Ontario, L1V 2S3.
2. I graduated from the University of Toronto in 1961 with a degree of Bachelor of Applied Science, Engineering Physics, Geophysics Option.
3. I am a member in good standing of the following organizations: The Association of Professional Engineers of the Province of Ontario (Mining Branch); Society of Exploration Geophysicists; South African Geophysical Association.
4. I have been practising my profession for a period of more than 25 years.
5. I am an Associate with Derry, Michener, Booth & Wahl, Consulting Geologists and Engineers.
6. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the properties or securities of Hardiman Bay Resources Inc. or any affiliate.
7. I personally was involved with the technical supervision of the survey and wrote the report.
8. I consent to the use of this report in submissions for assessment credits and for similar regulatory requirements.

Toronto, Ontario
December 30, 1987



APPENDIX 1
INSTRUMENT SPECIFICATIONS

OMNI IV "Tie-Line" Magnetometer



Major Benefits

- Four Magnetometers in One
- Self Correcting for Diurnal Variations
- Reduced Instrumentation Requirements
- 25% Weight Reduction
- User Friendly Keypad Operation
- Universal Computer Interface
- Comprehensive Software Packages



Specifications

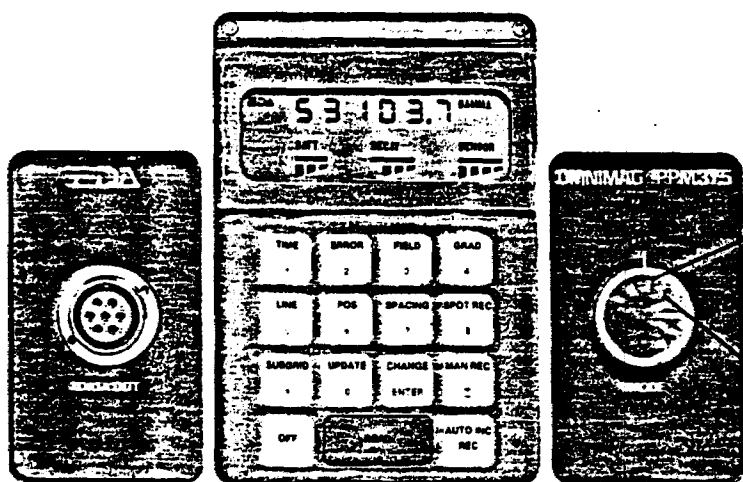
Dynamic Range	18,000 to 110,000 gammas. Roll-over display feature suppresses first significant digit upon exceeding 100,000 gammas.
Tuning Method	Tuning value is calculated accurately utilizing a specially developed tuning algorithm
Automatic Fine Tuning	$\pm 15\%$ relative to ambient field strength of last stored value
Display Resolution	0.1 gamma
Processing Sensitivity	± 0.02 gamma
Statistical Error Resolution	0.01 gamma
Absolute Accuracy	± 1 gamma at 50,000 gammas at 23°C ± 2 gamma over total temperature range
Standard Memory Capacity	
Total Field or Gradient	1,300 data blocks or sets of readings
Tie-Line Points	100 data blocks or sets of readings
Base Station	5,500 data blocks or sets of readings
Display	Custom-designed, ruggedized liquid crystal display with an operating temperature range from -40°C to $+55^{\circ}\text{C}$. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors.
RS 232 Serial I/O Interface	2400 baud, 8 data bits, 2 stop bits, no parity
Gradient Tolerance	6,000 gammas per meter (field proven)
Test Mode	A. Diagnostic testing (data and programmable memory) B. Self Test (hardware)
Sensor	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.
Gradient Sensors	0.5 meter sensor separation (standard), normalized to gammas/meter. Optional 1.0 meter sensor separation available. Horizontal sensors optional.
Sensor Cable	Remains flexible in temperature range specified, includes strain-relief connector
Cycling Time (Base Station Mode)	Programmable from 5 seconds up to 60 minutes in 1 second increments
Operating Environmental Range	-40°C to $+55^{\circ}\text{C}$; 0-100% relative humidity; weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid battery cartridge or belt; disposable alkaline battery belt; or 12V DC power source option for base station operation.
Battery Cartridge/Belt Life	2,000 to 5,000 readings, for sealed lead acid power supply, depending upon ambient temperature and rate of readings
Weights and Dimensions	
Instrument Console Only	2.8 kg, 238 x 150 x 250mm
Alkaline Battery Belt	1.2 kg, 540 x 100 x 40mm
Lead-Acid Battery Cartridge	1.8 kg, 235 x 105 x 90mm
Lead-Acid Battery Belt	1.8 kg, 540 x 100 x 40mm
Sensor	1.2 kg, 56mm diameter x 200mm
Gradient Sensor (0.5 m separation - standard)	2.1 kg, 56mm diameter x 790mm
Gradient Sensor (1.0 m separation - optional)	2.2 kg, 56mm diameter x 1300mm
Standard System Complement	Instrument console; sensor; 3-meter cable, aluminum sectional sensor staff, power supply, harness assembly, operations manual.

EDA Instruments Inc.
4 Thornccliffe Park Drive
Toronto, Ontario
Canada M4H 1H1
Telex: 06 23222 EDA TOR
Cable: EDAINSTRMITS TORONTO
Telephone: (416) 425 7800
Fax: (416) 425 8135

In USA,
EDA Instruments Inc.
5151 Ward Road
Wheat Ridge, Colorado
U.S.A. 80033
Telephone: (303) 422 9112

OMNIMAG[®] PPM-375

Portable/Base Station Magnetometer



As a portable field unit . . .

- Faster Surveys
- Simplified Fieldwork
- Highly Repeatable Data
- Easier Data Interpretation
- Computer Compatible



As a base station . . .

- Automatic Diurnal Corrections
- Programmable Base Field
- Automatic Base Field Calculations
- Calculates Differential Field Variations
- Programmable Cycling Interval
- Computer Compatible

The PPM-375 is the most recent addition to EDA's OMNIMAG series of magnetometers and gradiometers. It combines features of EDA's PPM-350 Total Field Magnetometer and PPM-400 Base Station Magnetometer in one dual-purpose unit. This user oriented approach exemplifies EDA's pioneering efforts in the development of advanced geophysical systems.

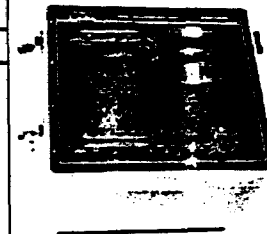
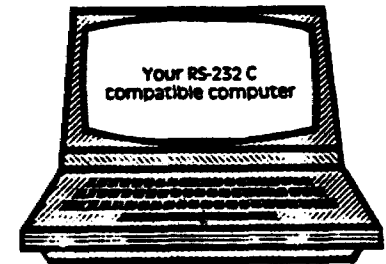
This approach is another reason why EDA has shipped more microprocessor-based proton precession ground magnetometers in the highly competitive Canadian market than any other company in recent years.



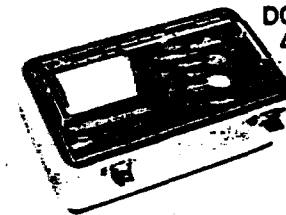
Specifications

Dynamic Range	18,000 to 103,000 gammas
Capture Range	± 25% relative to ambient field strength of last stored value
Tuning Method	Tuning value is calculated accurately utilizing a specially developed tuning algorithm.
Display Resolution	0.1 gamma.
Processing Sensitivity	± 0.02 gamma.
Mathematical Truncation Error	± 0.02 gamma.
Statistical Error Resolution	0.01 gamma.
Absolute Accuracy	± 15 ppm at 23°C, 50 ppm over the operating temperature range.
Standard Memory Capacity	2550 data blocks or readings
Display	Custom-designed, ruggedized liquid crystal display with an operating temperature range from -40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and function descriptors.
Gradient Tolerance	5,000 gammas per meter (typical).
Test Mode	A) Diagnostic testing (data and program- mable memory) B) Self Test (hardware)
Sensor	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.
Sensor Cable	Remains flexible in temperature range specified; includes strain-relief connector.
Cycling Time (Base Station Mode)	Programmable from 5 seconds up to 60 minutes in 1 second increments
Operating Environmental Range	-40°C to +55°C; 0-100% relative humidity; weatherproof.
Power Supply	Non-magnetic rechargeable sealed lead-acid battery cartridge or belt; or Disposable "C" cell battery cartridge or belt; or 12V DC power source option for base station operation.
Battery Cartridge / Belt Life	2,000 to 5,000 readings, depending upon ambient temperature and rate of readings.
Weight and Dimensions	
Instrument Console only	3.4kg, 238 × 150 × 250mm
Lead-Acid Battery Cartridge	1.9kg, 235 × 105 × 90mm
Sensor	1.2kg, 56mm diameter × 200mm
System Complement	Instrument console; sensor; 3-meter cable, 30-meter cable for base station (for sales only), aluminum sectional sensor staff, power supply, harness assembly, operations manual.

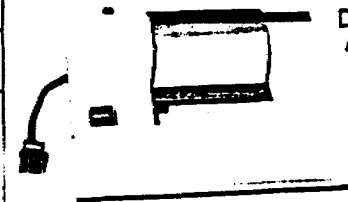
The OMNIMAG PPM-375 interfaces with a variety of data collection units, including . . .



DCU-200 Digital Magnetic Recorder AC and internal DC operation.



DCU-400 40-Character Thermal Printer, AC and Internal / external DC operation.



DCU-040 40-Character Thermal Printer AC operation only.

EDA Instruments Inc.
4 Thorncliffe Park Drive,
Toronto, Canada M4H 1H1

Telephone: (416) 425 7800
Telex: 06 23222 EDA TOP
Cables: INSTRUMENTS TORONTO

In U.S.A.
EDA Instruments Inc.
5151 Ward Road
Wheat Ridge, Colorado
U.S.A. 80033
Telex: 00 450681 DVR
(303) 422-9112

OMNIMAG is a registered trademark of EDA Instruments Inc.

APPENDIX 2
TECHNICAL DATA STATEMENT



GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL
TECHNICAL DATA STATEMENT

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

Type of Survey(s) Magnetic
Township or Area Mongowin and McKinnon Twp.
Claim Holder(s) Hardiman Bay Resources Inc.
Suite 500, 67 Richmond St. W. Toronto
Survey Company Derry Michener Booth & Wahl
Author of Report R. W. Woolham
Address of Author Suite 410, 20 Richmond St. E. Toronto
Covering Dates of Survey Oct. 1 to Nov. 30 1987
(linecutting to office)
Total Miles of Line Cut 40 km.

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
S	787614
	791240
	241
	242
	243
	244
	827042
	043
	044
895	204
	206
	207
895	268
	269
	270
	271
895	307
895	309
	310
	311
983	605
	606
	607
983	608

If space insufficient, attach list

SPECIAL PROVISIONS CREDITS REQUESTED	Geophysical	DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	-Electromagnetic	_____
ENTER 20 days for each additional survey using same grid.	-Magnetometer	<u>40</u>
	-Radiometric	_____
	-Other	_____
	Geological	_____
	Geochemical	_____

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

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

DATE: Dec. 30/87 SIGNATURE: R. W. Woolham
Author of Report or Agent

Res. Geol. _____ Qualifications 63.1718

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 24

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 1400 Number of Readings 1400

Station interval 25 m Line spacing 100 m

Profile scale _____

Contour interval 10 nT

MAGNETIC

Instrument See instrument specifications Appendix 1

Accuracy - Scale constant of this report.

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: Fixed transmitter Shoot back In line Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

Base station value and location _____

Elevation accuracy _____

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 _____



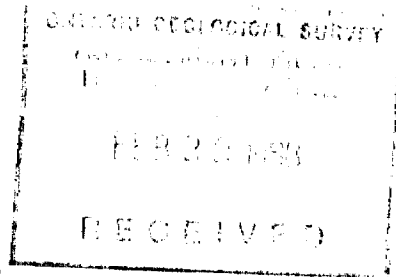
41104NW0009 2.10724 MCKINNON

900

February 15, 1988

Your File: 87-112
Our file: 2.10724

Mining Recorder
Ministry of Northern Development and Mines
199 Larch Street
Sudbury, Ontario
P3E 5P9



Dear Sir:

RE: Notice of Intent dated January 29, 1988
Geophysical (Magnetometer) Survey
submitted on Mining Claims S 787614 et al
in the Townships of McKinnon and Mongowin

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

W.R. Cowan, Manager
Mining Lands Section
Mines and Minerals Division

Whitney Block, Room 6610
Queen's Park
Toronto, Ontario
M7A 1W3

Telephone: (416) 965-4888

SH:pl

Enclosure: Technical Assessment Work Credits

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

Resident Geologist
Sudbury, Ontario

Hardiman Bay Resources Inc.
Suite 500
67 Richmond Street West
Toronto, Ontario
M5H 1Z5



Recorded Holder
Hardiman Bay Resources Inc.

Township ~~XXXXXX~~
McKinnon and Mongowin

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical Electromagnetic _____ days Magnetometer <u>40</u> _____ days Radiometric _____ days Induced polarization _____ days Other _____ days Section 77 (19) See "Mining Claims Assessed" column Geological _____ days Geochemical _____ days Men days <input type="checkbox"/> Airborne <input type="checkbox"/> Special provision <input checked="" type="checkbox"/> Ground <input checked="" type="checkbox"/> <input type="checkbox"/> Credits have been reduced because of partial coverage of claims. <input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	S 787614 791240 to 244 inclusive 827042 to 044 inclusive 895207 895268 to 271 inclusive 895307-10-11 983605 to 608 inclusive

Special credits under section 77 (16) for the following mining claims

<u>20 Days</u>	<u>10 Days</u>
S 895204-06	S 895309

No credits have been allowed for the following mining claims

not sufficiently covered by the survey insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geological - 40; Geochemical - 40; Section 77(19) - 80.

#87-112 (Sudbury)

Report of Work
(Geophysical, Geological,
Geochemical and Expenditures)

McKinnon/Mongowin
M.1014 G.2899

File No. S.787614

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

2.10/24

The Mining Act

Type of Survey(s) Magnetometer	Township or Area McKinnon/Mongowin
Claim Holder(s) HARDIMAN BAY RESOURCES INC.	Prospector's Licence No. T 4938
Address SUITE 500, 67 RICHMOND ST. WEST, TORONTO, M5H 1Z5	
Survey Company Derry, Michener, Booth & Wahl	Date of Survey (from & to) 01 11 87 10 11 87 Day Mo. Yr. Day Mo. Yr.
Name and Address of Author (of Geo-Technical report) R.W. Woolham 20 Richmond St. E. Toronto MSC 2R9	
Total Miles of line Cut 40 Km.	

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	40
	- Radiometric	
For each additional survey: using the same grid: Enter 20 days (for each)	- Other	
	Geological	
	Geochemical	
Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	Geological	
	Geochemical	
Airborne Credits	Geophysical	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	- Electromagnetic	
	- Magnetometer	
	- Radiometric	

RECEIVED

JAN 18 1988

MINING

LANDS SECTION

Expenditures (excludes power stripping)

Type of Work Performed
Performed on Claim(s)
Calculation of Expenditure Days Credits
Total Expenditures \$ <input type="text"/> + 15 = <input type="text"/> 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.

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
S	787614	.	S	983608	.
	791290	.			
	241	.			
	242	.			
	243	.			
	244	.			
	827042	.			
	043	.			
	044	.			
	895209	.			
	206	.			
	207	.			
	895268	.			
	269	.			
	270	.			
	271	.			
	895306	.			
	895307	.			
	310	.			
	311	.			
	983605	.			
	606	.			
	607	.			

Total number of mining claims covered by this report of work. **24**

For Office Use Only	
Total Days Cr. Recorded 960	Date Recorded 1987 12 10
Date Approved as Recorded Dec. Revised Statement	Branch Director M. C. M. J. O.

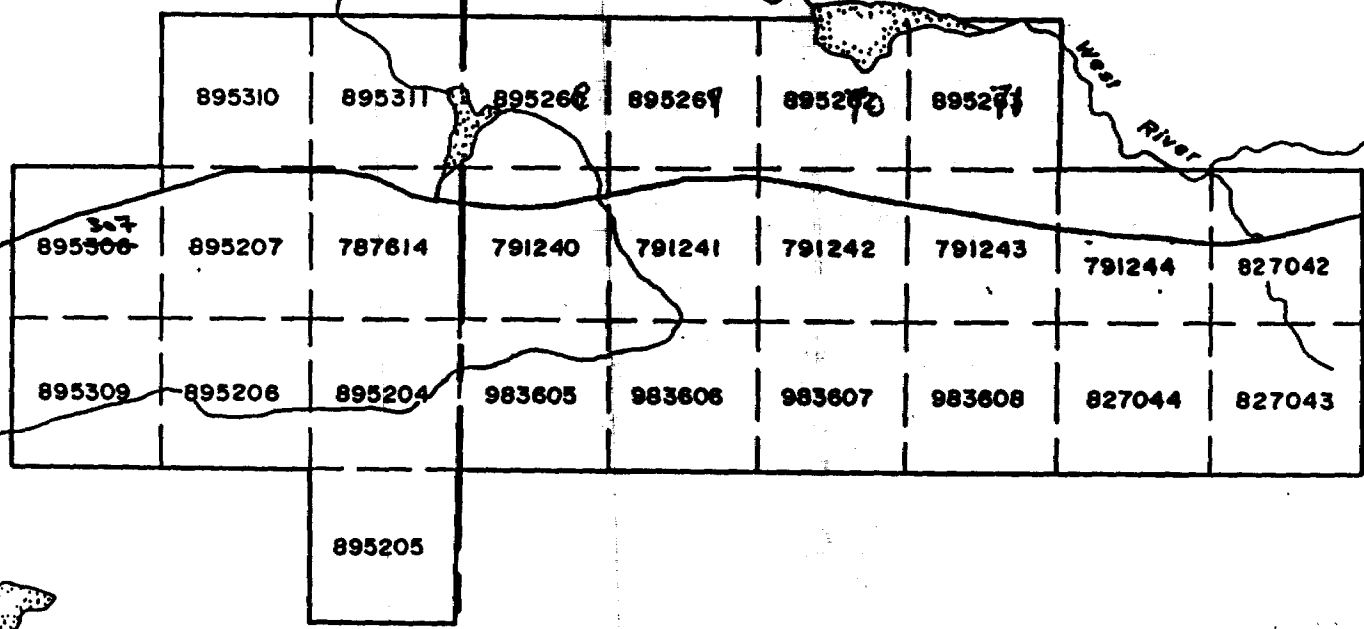
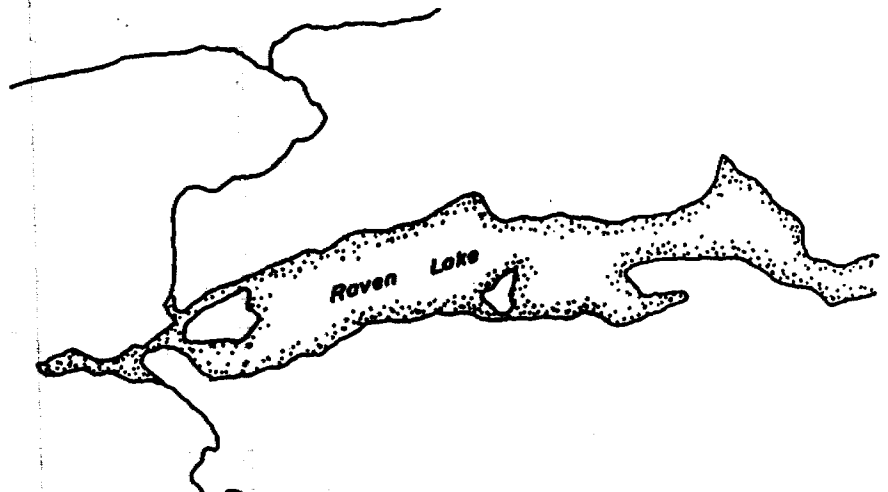
Date Dec. 4/87	Recorded Holder or Agent (Signature) R.W. Woolham
-------------------	--

Certification Verifying Report of Work

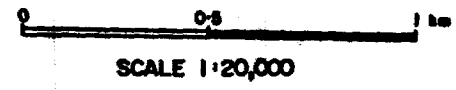
I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying R. W. Woolham 20 Richmond St. E Toronto MSC 2R9
Date Certified Dec 4/87
Certified by (Signature) R.W. Woolham

McKINNON TWP.
MONGOWIN TWP.



NOTE: ^S claim numbers are preceded with an 'S' (Sudbury)

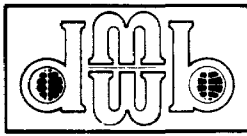


RECEIVED

JUN 7 1987

A.P.
7/10/87

FIGURE 2
CLAIM MAP



SUITE 410 - CONFEDERATION SQUARE
20 RICHMOND STREET EAST
TORONTO, CANADA M5C 2R9
TELEPHONE: (416) 368-4636
TELEX: 06-23686
TELECOPIER: (416) 367-3347

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

January 12, 1988

VIA DOWNTOWN COURIER

Ministry of Natural Resources
Mining Land Section
Room 6610 - Whitney Block
99 Wellesley Street West
Toronto, Ontario
M7A 1W3

RECEIVED

JAN 12 1988

MINING LANDS SECTION

Dear Sir/Madam:

Re: Report of Work, File No. S787614
Hardiman Bay Resources Inc., McKinnon and Mongowin Twp. Claims

Enclosed please find our report, in duplicate, submitted for assessment credits and entitled "Report on the Magnetic Survey, Espanola Property, Mongowin and McKinnon Townships, Ontario, Prepared for Hardiman Bay Resources Inc." dated December 30, 1987.

The technical data statement forms Appendix 2 of the report. The grid survey coverage, with respect to the claims, is shown on Map 87-115-03 of the report.

Yours very truly,

DERRY, MICHENER, BOOTH & WAHL

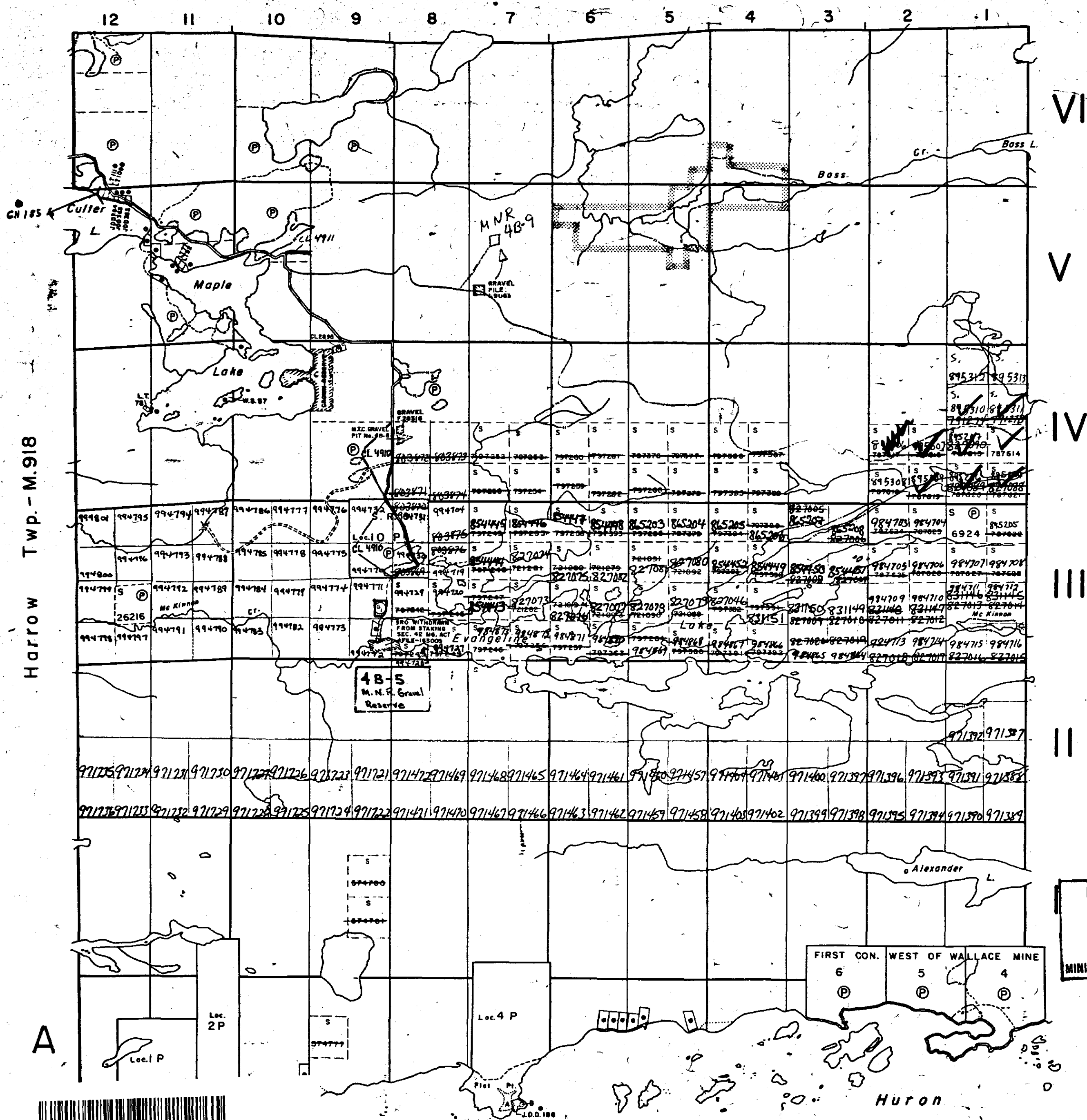
R. W. Woolham, P.Eng.

Enclosures

RWW:S

cc: Mr. A. Ringler

Hallam Twp. - M.909



THE TOWNSHIP
OF
McKINNON
DISTRICT OF
SUDBURY
SUDBURY
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 ————
- PATENTED S.R.O. ————

NOTES

Land under Lake Huron withdrawn from staking by Order in Council dated Apr.12,1930

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

S.R.O. withdrawn from staking under Sec 39(d) Mg. Act on reservation in part lot 98-10, Con. IV. File 107393 shown thus |||||

Islands in Lake Huron are Withdrawn from Staking. File: 58528

- SAND and GRAVEL**
- Ⓞ MNR GRAVEL RESERVE 4B-3 (1983 01 11)
 - MTC GRAVEL PIT No 4B-8 (1977 01 17)
 - MNR GRAVEL RESERVE 4B-5 (1985 12 03)
- A - FOX LAKE RD.
- APPLICATION UNDER SECTION 31(6) OF MINING ACT - DUCKS UNLIMITED AGREEMENT

DATE OF ISSUE
JAN 27 1983
SUDBURY
MINING RECORDER'S OFFICE

PLAN NO. - **M.1014**

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

Harrow Twp. - M.918

Mongowin Twp. - M.871

A



MAP SYMBOLOLOGY

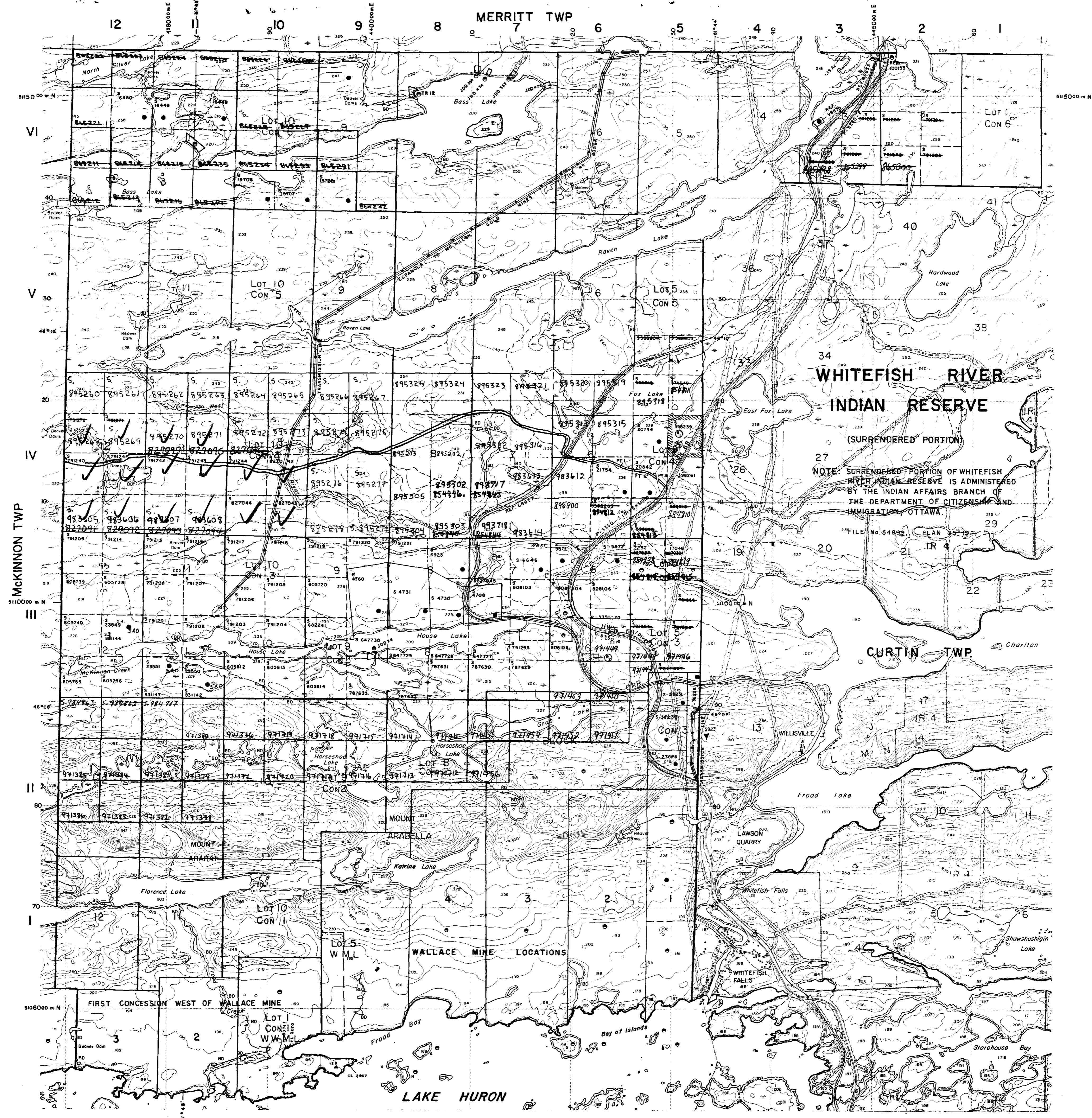
AREAS WITHDRAWN FROM DISPOSITION

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

Description	Order No.	Date	Disposition	File
W 1/82	15/4/82	S.R.O.	148266	

SAND AND GRAVEL

M.T.C.	PT. No. 48-17
File	57694



LEGEND

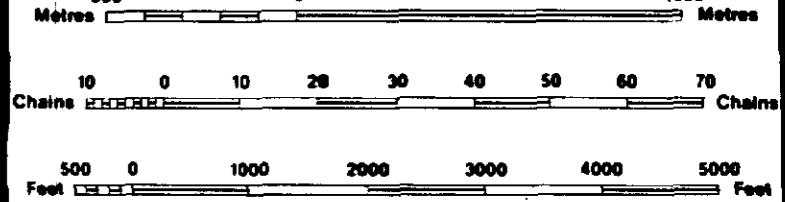
HIGHWAY AND ROUTE No.	
OTHER ROADS	
TRAILS	
SURVEYED LINES:	
TOWNSHIPS, BASE LINES, ETC.	
LOTS, MINING CLAIMS, PARCELS, ETC.	
UNSURVEYED LINES:	
LOT LINES	
PARCEL BOUNDARY	
MINING CLAIMS ETC.	
RAILWAY AND RIGHT OF WAY	
UTILITY LINES	
NON-PERENNIAL STREAM	
FLOODING OR FLOODING RIGHTS	
SUBDIVISION OR COMPOSITE PLAN	
RESERVATIONS	
ORIGINAL SHORELINE	
MARSH OR MUSKIEG	
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 8, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 390, SEC. 43, SUBSEC. 1.

GRID ZONE : 17

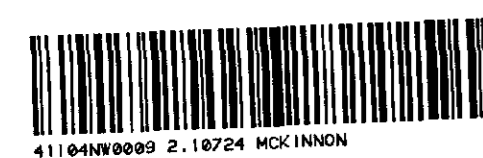


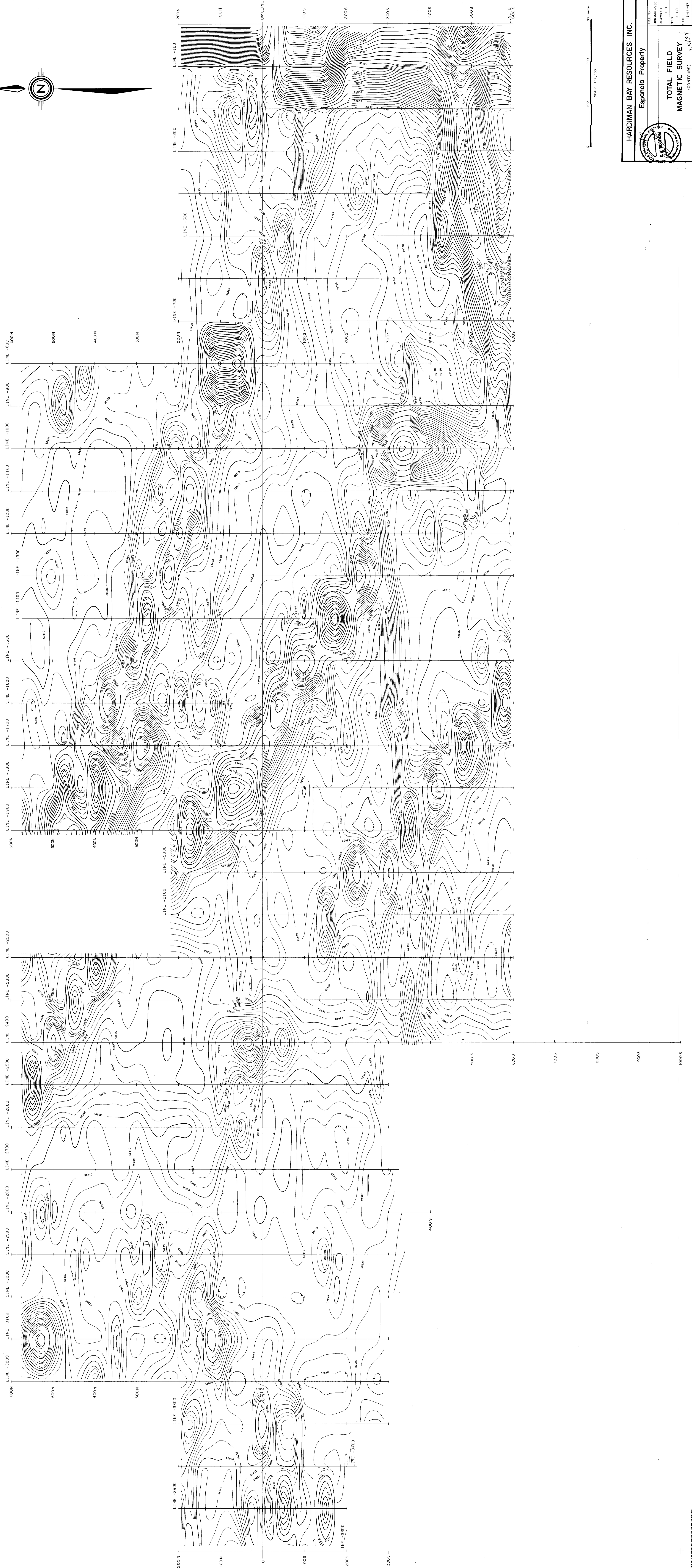
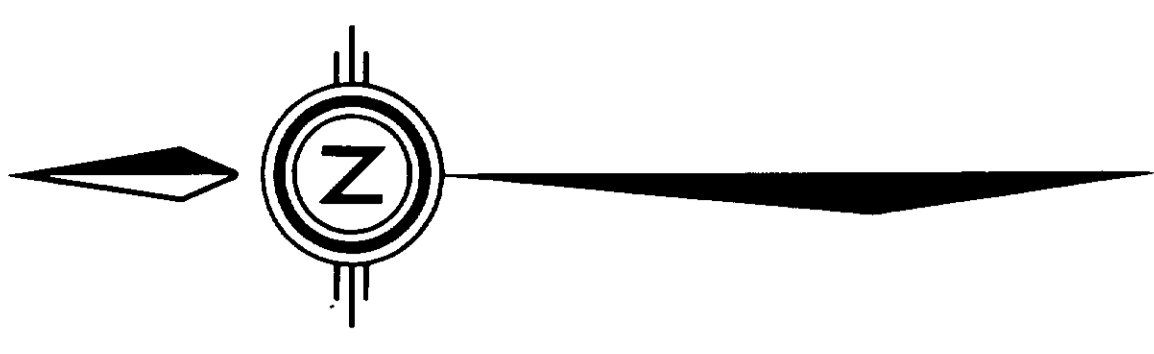
SCALE 1:20 000

TOWNSHIP
MONGOWIN
M.N.R. ADMINISTRATIVE DISTRICT
ESPANOLA
MINING DIVISION
SUBDIVISION
LAND TITLES / REGISTRY DIVISION
SUBBURY

Ontario Ministry of Natural Resources Land Management Branch

Original Compilation: NOVEMBER, 1984
Number: **G-2899**
Revised:





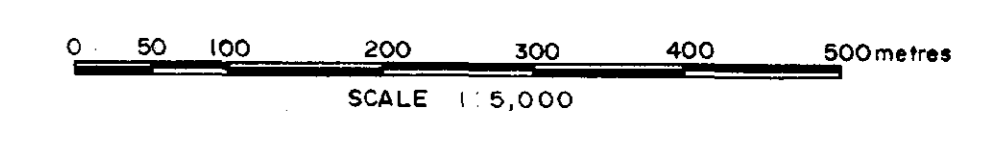
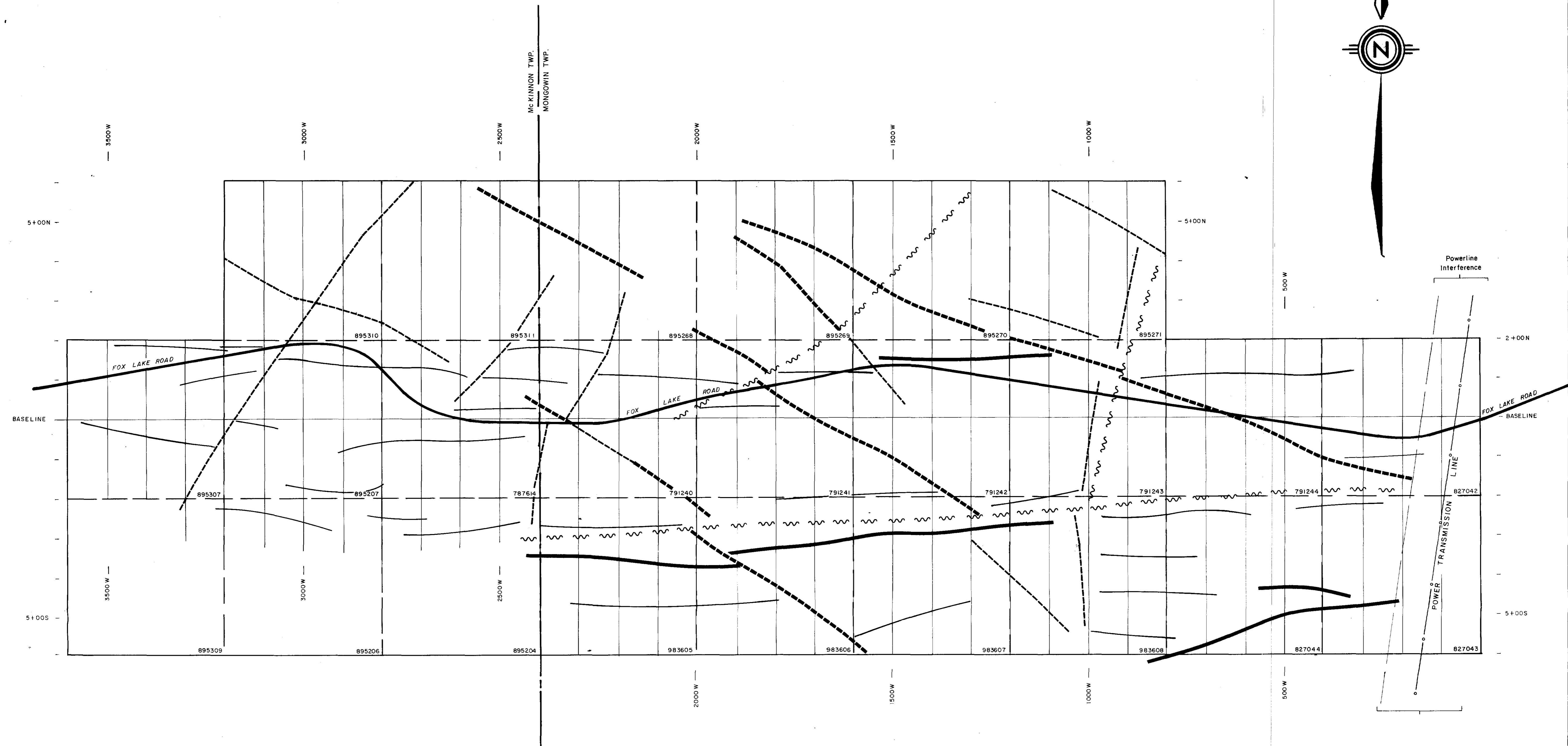
HARDIMAN BAY RESOURCES INC.
Espanola Property

**TOTAL FIELD
MAGNETIC SURVEY**
(CONTOURS) 2/10/21

DERRY, MICHENER, BOOTH & WAHL

PROJECT NO.	187-115-02
DATE	12-11-97
NTS	1/4"
S.L.B.	
BY	HARDIMAN-02
DRAWN BY	DAVID BY





LEGEND

INTERPRETED FEATURES

- Mafic Sills or Magnetic-Bearing Argillite
 - a) High Amplitude Magnetic Response
 - b) Low Amplitude Magnetic Response
- Olivine Diabase Dykes
 - a) High Amplitude Magnetic Response
 - b) Low Amplitude Magnetic Response
- Possible Fault

HARDIMAN BAY RESOURCES INC.	
Espanola Property	
	MAGNETIC SURVEY INTERPRETIVE COMPILATION 2.10.124
	<small>DRAWN BY: PR.H.</small> <small>DATE: DEC./87</small> <small>DWG. NO.: 87-115-03</small>
	<small>NTS: 1/1/4</small>
	<small>DERRY, MICHENER, BOOTH & WAHL</small>

