42A10NW0528 63.2612 CLERGUE

INTRODUCTION

An electromagnetic survey has been completed on the property of Amax Exploration Inc. in Dundonald and Clergue Townships.

The survey work was completed during the month of September, 1969, while the linecutting was carried out in August.

PROPERTY LOCATION AND ACCESS

The property consists of 12 unpatented contiguous mining claims numbered 217028 to 217035, inclusive, in Dundonald Township, and 216978 to 216981, inclusive, in Clergue Township.

Those eight claims in Dundonald Township of the Larder Lake Mining Division are located in Concession 1, Lot 1. The adjacent four claims in Clergue Township also in the Larder Lake Mining Division are located in the north half of Lot 12, Concession 1.

From Timmins, approximately 25 miles southwest, the property is easily accessible by highways 101 and 610 to within a few miles of the property.

PREVIOUS WORK

The writer is not aware of any previous work which has been carried out on the property.

GEOLOGY

The general geology of the area is shown on Map 2046 by the Ontario Department of Mines.

The Townships of Dundonald and Clergue are characterized by a number of intrusions of basic and ultrabasic rocks. The small, high grade, Alexo nickel deposit, now mined out, a few miles north

of the Amax property, was located at the contact of a peroditite intrusive.

These intrusive rocks are generally conformable to a series of volcanic rocks, mafic to felsic in composition, striking about east-west.

No rock exposures are known to be present on the Amax property.

ELECTROMAGNETIC SURVEY RESULTS AND INTERPRETATION

A Ronka EM 16 unit was used for the electromagnetic survey. The survey data is plotted on a map at a scale of one inch to two hundred feet accompanying this report. Survey procedure and instrument specifications are described in the Appendix to this report.

A large number of apparent conductive zones are located primarily in the north three quarters of Lot 1, Concession 1, Dundonald Township. The conductors strike generally east-west and vary from a few hundred feet to 2000 feet in length.

Most of the conductors appear to be caused by conductive overburden or the wet sloping bedrock - overburden interface. Some conductors may be caused by conductive bedrock mineralization; however, there is insufficient data to discriminate between important and unimportant conductive zones.

CONCLUSIONS AND RECOMMENDATIONS

A large number of apparent conductive zones are present on the north three quarters of Lot 1, Concession 1, Dundonald Township. To effectively discriminate the important from the unimportant

conductive zones additional geophysical survey work is required.

It is, therefore, recommended that a magnetometer survey and a more sophisticated electromagnetic method, employing a large vertical loop, be carried out on the north three quarters of Lot 1, Concession 1, Dundonald Township.

Cost of the electromagnetic survey is estimated at $1375. and the magnetometer survey $550.

Respectfully submitted,

SHIELD GEOPHYSICS LIMITED,

R. J. Bradshaw, F.G.A.C.,
Consulting Geologist.

Timmins, Ontario,
October 7, 1969.

C E R T I F I C A T E

I, Ronald J. Bradshaw, residing at 480 Howard Street, Timmins, Ontario, a consulting geologist with office at 26 Pine Street South, Timmins, Ontario, do hereby certify that:

I attended Queen's University, Kingston, Ontario, and graduated with an Honours B.A. degree in Geological Sciences in 1958.

I am a Fellow of the Geological Association of Canada, a Member of the Canadian Institute of Mining and Metallurgy and qualified for membership in the Association of Professional Engineers of the Province of Manitoba in 1959.

I have no interest either directly or indirectly in the shares or securities of Amax Exploration Inc.

Timmins, Ontario,
October 7, 1969.

R. J. Bradshaw, F.G.A.C.,
Consulting Geologist.

APPENDIX

Survey Method and Instrument Data

ELECTROMAGNETIC SURVEY

A Ronka EM 16, number 35, was used for the survey.

This instrument is simply a sensitive receiver covering the frequency of the new VLF-transmitting stations with means of measuring the vertical field components. The VLF-transmitting stations operate for communications with submarines at frequencies between 17.8 and 24.0 Khz. The vertical antenna current of these transmitting stations creates a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. This equipment measures the vertical components of these secondary fields.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has a normally vertical axis and the other is horizontal.

The signal from the coil with vertical axis is first minimized by tilting the instrument. The tilt angle is calibrated in percentages. The remaining signal in this coil is finally balanced out by a measured percentage of signal from the other coil.

After a suitable station is selected, at right angles to the direction of the survey lines, readings are made of the in-phase and quadrature components where the signal has been minimized to its greatest degree. The VLF-transmitting stations at Cutler, Maine and Seattle, Washington, have been used for this survey.

The lower end of the handle will, as a rule, point towards the conductor and the instrument is so calibrated that when approaching a conductor, the angles are positive in the in-phase component.

As with any electromagnetic unit, the largest and best conductors give the highest ratio of the in-phase and quadrature components.

42A10NW0528 63.2612 CLERGUE

INTRODUCTION

In July 1969, a Magnetometer Survey was carried out on the 12 claim block of ground held by Amax Exploration Inc. in the first Lot of Concession 1, Dundonald township and the twelfth Lot of Concession 1, Clergue township. The property consists of unpatented mining claims 217028 - 217035 inclusive and 216978 - 216981 inclusive. The location of these claims is shown on the accompanying key map.

LOCATION AND ACCESS

The property is located along the Clergue - Dundonald township line in Concession 1 of these two townships approximately three miles south of Alexo Station on Highway 67, from which is may be reached by a bush road.

PREVIOUS WORK

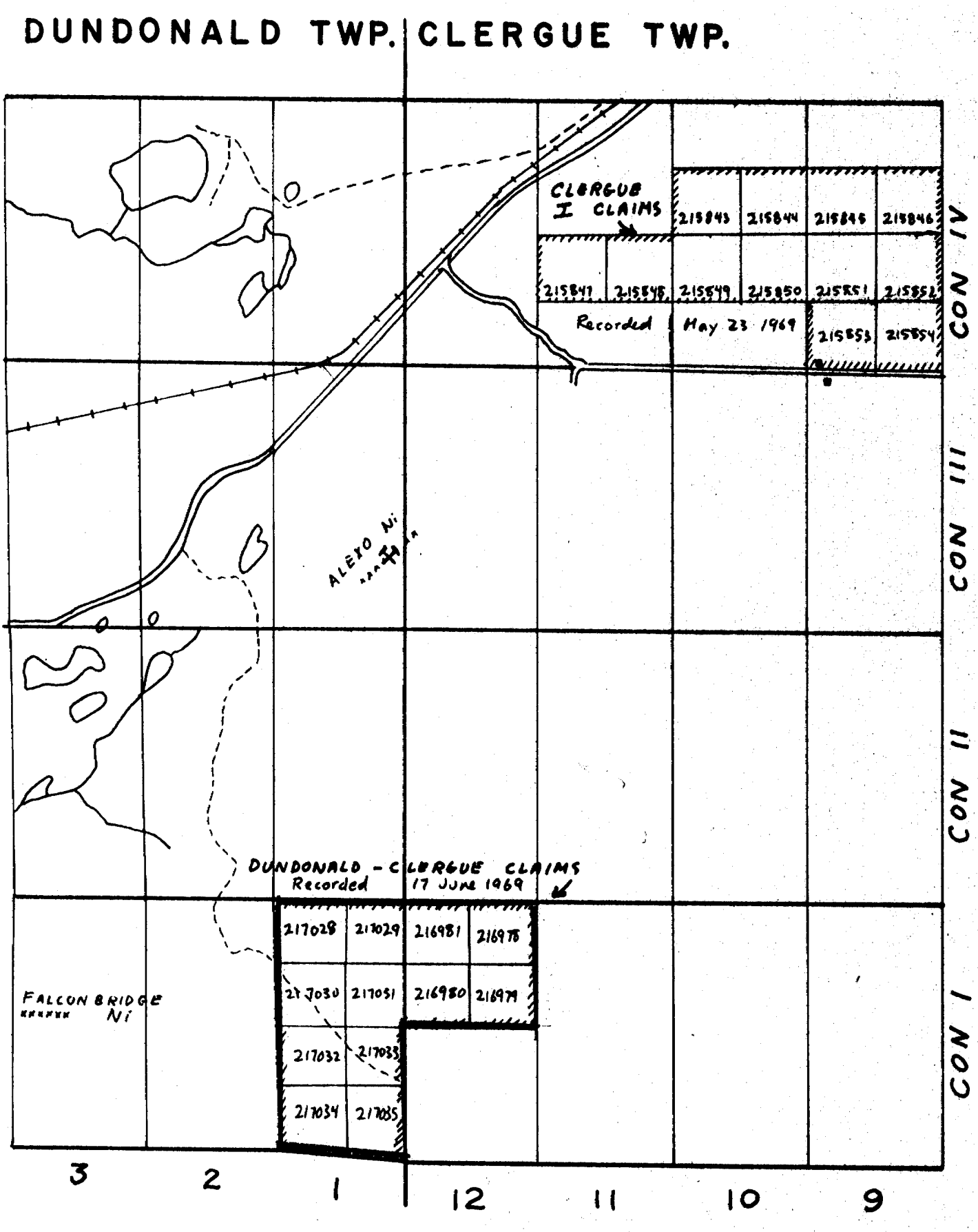
Parts of these claims were covered by a Magnetometer Survey conducted by the Dominion Gulf Company in 1956 and by an Electromagnetic Survey conducted for Hollinger Consolidated Gold Mines in 1958. No available previously conducted survey has covered all of the present claims.

GENERAL GEOLOGY

Available geological information is shown on the preliminary maps numbered P307 (Dundonald township) and P308 (Clergue township) of the Ontario Department of Mines. From these maps it would appear that the claims are underlain by SW trending Precambrian sediments, lavas and peridotite intrusives.

AMAX CLAIMS

Dundonald - Clergue Twps.
June 1969



METHOD OF SURVEY

An EW base line was established through the middle of the claim group and picket lines were cut from this at 200' intervals. The picket lines were chained, with pickets erected every 100' with reference to the base line. For the Magnetometer Survey the main station was established with a value of 1869 gammas at 0 + 00 on cross line 0E and a series of base stations were established at 200' intervals along the length of the base line. An Askania Vertical Force Magnetometer (numbered 500457) which has a scale constant of 1.80/100 gammas, was used in the survey and readings were taken at 50' intervals along the picket lines. A total of 2074 readings were taken.

The Askania Magnetometer is described in standard geophysical textbooks, (e.g. Nettleton, Geophysical Prospecting for Oil, pg. 176). It consists of a magnetic balance which tilts at varying angles, depending on the magnetic susceptibility of the ground beneath the magnetometer. The amount of deflection of this balance is read by means of a fine scale and the results converted to gammas of vertical magnetic force using the scale constant for the particular instrument.

RESULTS OF THE SURVEY

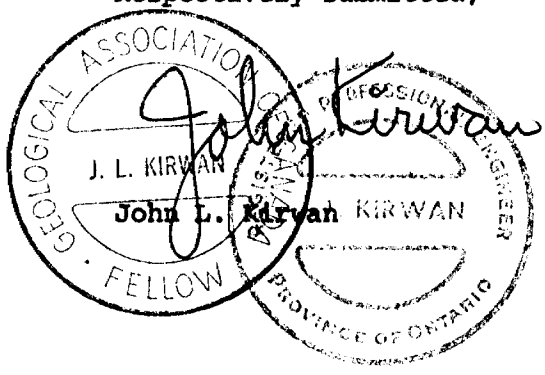
The accompanying magnetic map shows the value in gammas at each station read and the isomagnetic contours produced from these values. In general, the magnetic strike of the rocks is in an ENE direction with several prominent magnetic ridges apparent. These magnetic ridges, where geological information is available, are seen to be caused by sills of basic and ultrabasic

rocks. Several discrete magnetic highs, such as that which occurs at 2N on cross line 20E, may be due to segregation of magnetite and/or magnetic sulphides within the mafic rocks.

RECOMMENDATIONS

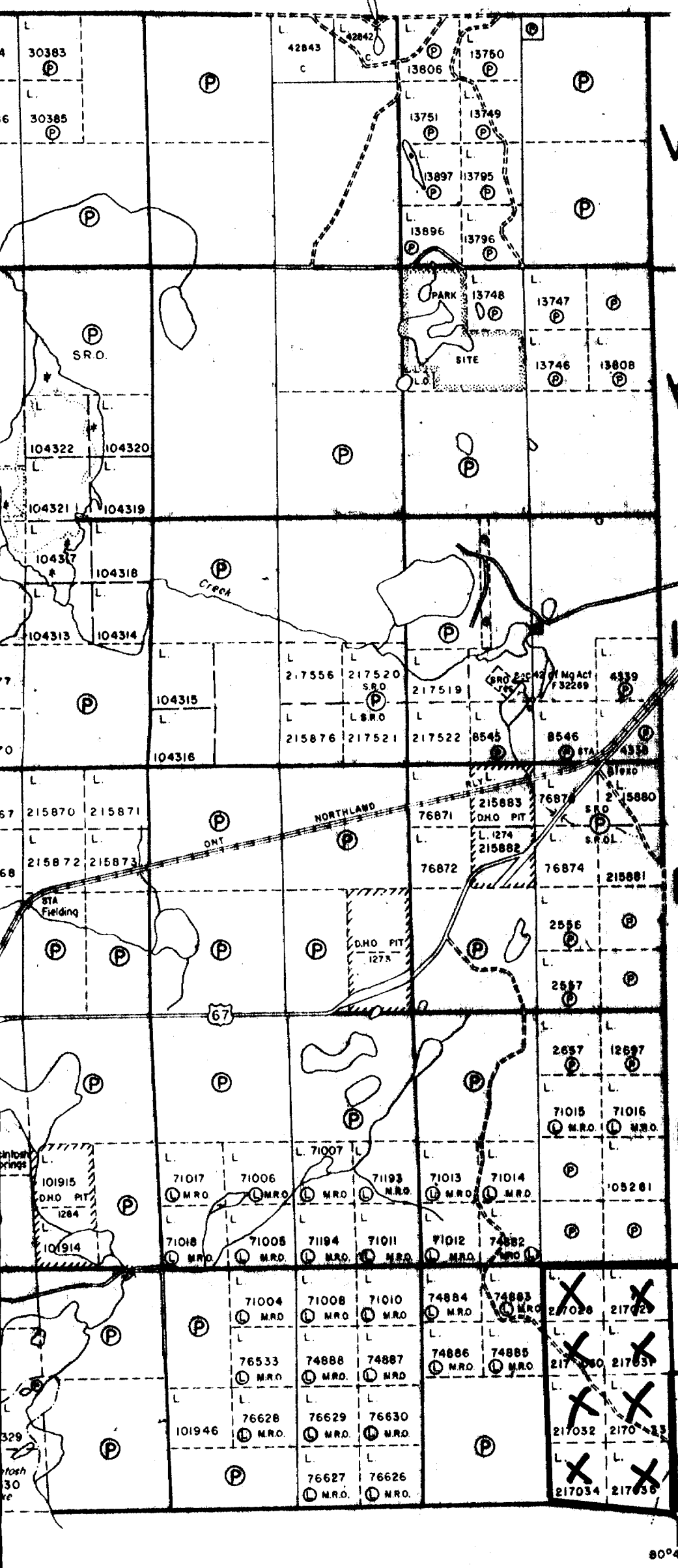
Other geophysical surveys are now in progress on these claims and it is suggested that no further work be considered until the results of the surveys are available.

Respectively submitted,



John L. Kirwan

.545



TWP. M.337

CLERGUE

M.283

DUPL

THE TOWNSHIP OF

CLAIM MAP

DUNDONALD

DISTRICT OF
COCHRANE

PORCUPINE
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.
PATENTED S.R.O.	

NOTES

WITNESS POSTS FOR CLAIMS STAKED OUT COVERING LANDS UNDER WATERS OF FREDERICK HOUSE LAKE IN DUNDONALD TWP. SHOULD NOT BE ERECTED OR PLANTED IN EVELYN TWP.

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

L.O.7128 - Flooding rights on Frederick House Lake reserved to H.E.P.C to contour elev. 903'
File 64518, vol.2

Area marked thus [ ] S.R.O. reserved for Park Site. Files. 39684, 51994

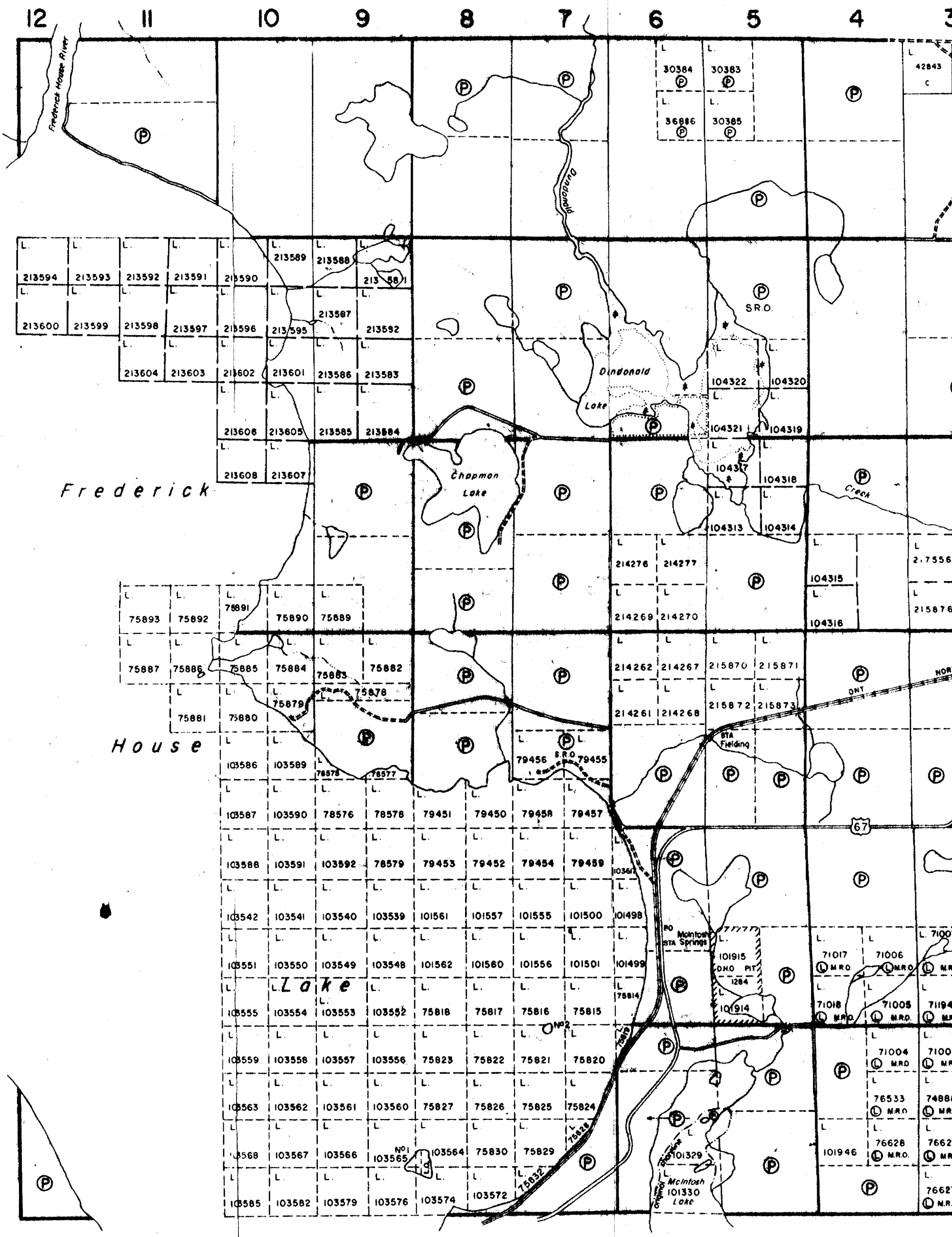
PLAN NO. M.343

DEPARTMENT OF MINES

— ONTARIO —

McCART TWP. - M.545

EVELYN TWP. - M.277



GERMAN TWP. - M.283

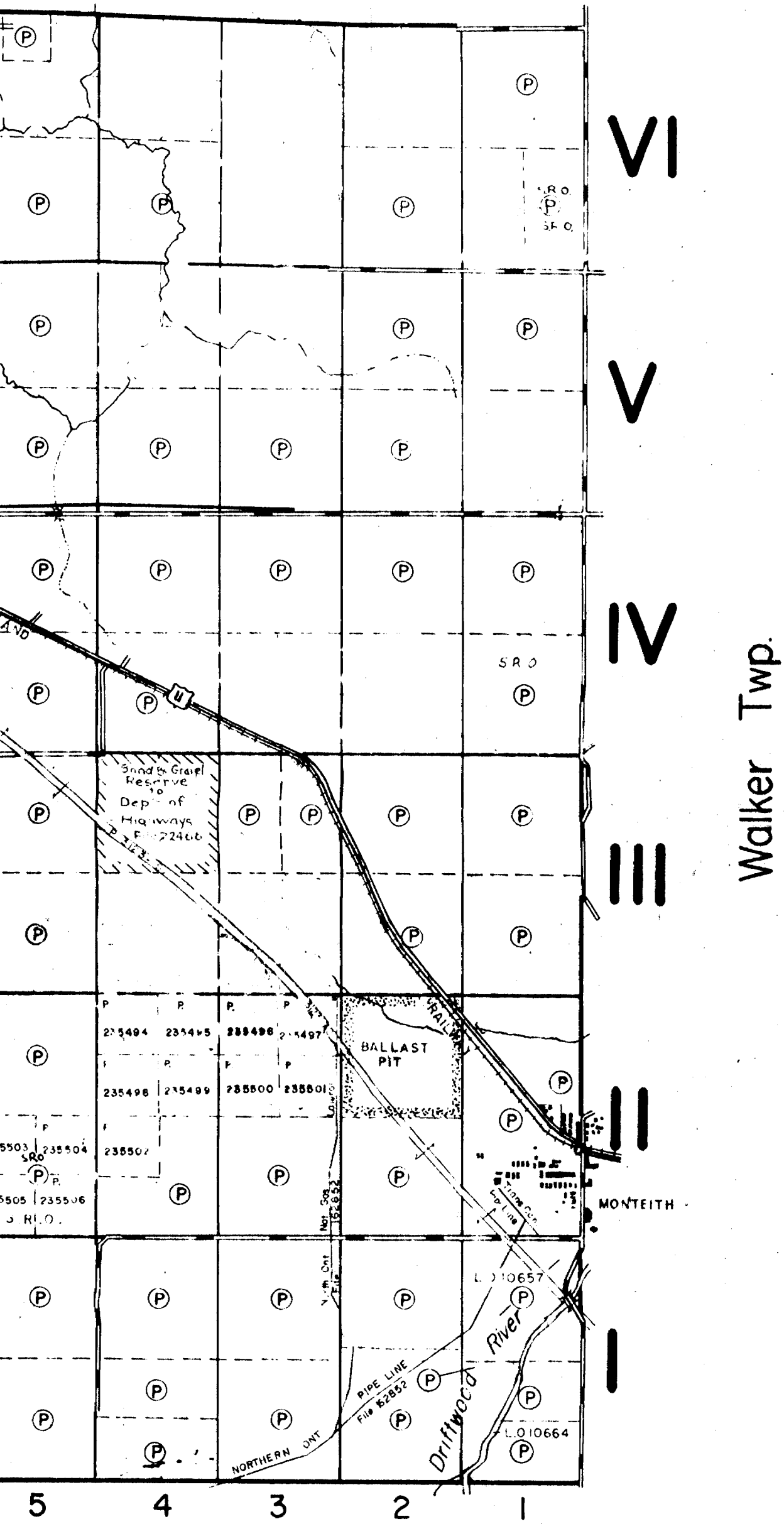
DUPL

THE TOWNSHIP OF CLERGUE

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH= 40 CHAINS



LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	(S) or 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	

NOTES

400' Surface rights [illegible]

all lakes and [illegible]

DATE OF ISSUE

JUN 1 1970

ONTARIO DEPT. OF MINES

PLAN NO M 337

DEPARTMENT OF

—ONTARIO—

Calvert Twp.

PORQUIS JUNCTION

ONTARIO RAILWAY

NORTHLAND

67

ONTARIO

KELSO

NORTHLAND

HWY. 11 DIVERSION

11

S R.O.

Sand & Gravel Reserve to Dept. of Highways File 22466

NORTHERN ONT

215843	215844	215845	215846			
215847	215848	215849	215850	215851	215852	
1C 1916	1C 1917	4362		215853	215854	
4337	MRC 584.14	MRO 1C 1918				
3744	2554	1C 1920				
10554	2555	236689	236690			
10555	4796	236691	236692			
236818		236694	236695	236696	105423	
4795	236819	236693				
236820	236821	236778	236779	236780	105424	
12390						
12386	12384	236781	236782	236783	105425	
105264	108263	236784	236785	105427	109426	
216981	216978	236786	236787			
216980	216979					
217981	217978					
217980	217979					
235494	235495	235496	235497			
235498	235499	235800	235801			
235502						
235503	235504					
235505	235506					

S R.O.

12 11 10 9 8 7 6 5 4 3

Stock Twp.

B.D.

Calvert Twp.

Walker Twp.

Stock Twp.

VI

V

IV

III

II

12 11 10 9 8 7 6 5 4 3 2 1

PORQUIS JUNCTION

ONTARIO NORTHLAND RAILWAY

KELSO

MONTEITH

BALLAST PIT

Sand & Gravel Reserve to Dept. of Highways File 22466

DIVERSION MAY II

PIPE LINE File 52852

NORTHERN UNIT

Driftwood River

THE TOWNS OF CLERGU

CLAIM MAP

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHA

LEGEND

- PATENTED LAND
- CROWN LAND SALE
- LEASES
- LOCATED LAND
- LICENSE OF OCCUPATION
- MINING RIGHTS ONLY
- SURFACE RIGHTS ONLY
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKEG
- MINES

NOTES

100' Surface rights reservation around all lakes and rivers

DATE OF ISSUE

JAN 22 1970

ONTARIO DEPT. OF MINES

PLAN NO. - M.337

DEPARTMENT OF MINES

—ONTARIO—

42A10NW0528 63.2612 CLERGUE

McCART TWP. - M.545

EVELYN TWP. - M.277

CLERGUE TWP. - M.337

GERMAN TWP. - M.283

12 11 10 9 8 7 6 5 4 3 2 1

VI V IV III II I

Frederick House River

Frederick House Lake

Dundonald Lake

Chapman Lake

Dundonald Creek

D.H.O. RESERVE

PARK SITE

NORTHLAND

ONT.

STA Fielding

STA McIntosh Springs

McIntosh Lake

Original Shoreline

No 1

No 2

67

48°37'30"

80°48'40"

THE TOWNSHIP
OF
CLAIM MAP
~~DUNDONALD~~

DISTRICT OF
COCHRANE

PORCUPINE
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
PATENTED S.R.O.	

NOTES

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L.O.7128 - Flooding rights on Frederick House Lake reserved to H.E.P.C. to contour elev. 903'
File 64518, vol.2

Area marked thus [ ] S.R.O. reserved for Park Site. Files: 39684, 51994

DATE OF ISSUE
JAN 22 1970
ONTARIO DEPT. OF MINES

PLAN NO. M.343

DEPARTMENT OF MINES
— ONTARIO —

42A10NW0528 63.2612 CLERGUE

210

b.k.

DUNDONALD TWP.

CLERGUE TWP.

CON 2

CON 1

217028

217029

216981

216978

217030

217031

216980

216979

BL-0

BL-0

217032

217033

217034

217035

28E 30E 32E 34E 36E 38E 40E 42E 44E 46E 48E 50E 52E

AMAX EXPLORATION INC.

DUNDONALD - CLERGUE CLAIMS

N

SCALE:

0 200 400 600 800

FEET

LEGEND

- Measurement station along picket line
- In phase readings (%) plotted to right
- Quadrature readings (%) plotted to left
- Profile scale: 1" = 50%
- Conductor axis
- Claim post

INSTRUMENT: Ronka EM 16, No. 36; Transmitting station Cutler, Maine

ELECTROMAGNETIC SURVEY

by

SHIELD GEOPHYSICS LIMITED

LOT 2

LOT 1

LOT 1

LOT 12

LOT 12

LOT 11

CON 1

0E 2E 4E 6E 8E 10E 12E 14E 16E 18E 20E 22E 24E 26E

GERMAN TWP.

STOCK TWP.

42A10NW0528 63.2612 CLERGUE

220

Oct. 7, 1969

63-2612

DUNDONALD TWP.

CLERGUE TWP.

CON 2

CON 1

217028

217029

216981

216978

217030

217031

216980

216979

217032

217033

217034

217035

BL-0

MAIN BASE STATION
1869 Y

BL-0

28E 30E 32E 34E 36E 38E 40E 42E 44E 46E 48E 50E 52E

AMAX EXPLORATION INC.

DUNDONALD - CLERGUE CLAIMS

N

SCALE:

0 200 400 600 800

FEET

MAGNETOMETER SURVEY

INSTRUMENT: ASKANIA MAGNETOMETER
NO. 500457
SCALE CONSTANT: 1.80/100 Gammas

20 Gammas
100 "
1000 "
10,000 "

Above 10,000 Gammas
5,000 - 10,000 "
3,000 - 5,000 "
2,000 - 3,000 "
1,000 - 2,000 "
Below 1,000 "

OPERATORS: Len Britt and Alex Mathias, July, 1969

GEOLOGICAL ASSOCIATION · J. J. KIRWIN · FELLOW · REGISTERED PROFESSIONAL ENGINEER · PROVINCE OF ONTARIO

J. J. KIRWAN

LOT 2

LOT 1

LOT 1

LOT 12

LOT 12

LOT 11

CON 1

0E 2E 4E 6E 8E 10E 12E 14E 16E 18E 20E 22E 24E 26E

GERMAN TWP.

STOCK TWP.

42A10NW0528 63.2612 CLERGUE

230

63-2612