



S2C13SW0002 2.11962 MATHER

010

**FINLAND**

**MAGNETOMETER PROFILE, SELF POTENTIAL LINES  
AND BIOGEOCHEMICAL CHECK  
OF AN OLD INCO AERO-ELECTROMAGNETIC ANOMALY  
IN MATHER AND POTTS TOWNSHIPS, ONTARIO**

for

Walter M. Cummings  
240 Markland Drive  
Etobicoke, Ontario

M9C 1R3

RECEIVED

DEC 28 1988

MINING LANDS SECTION

by

Michael Ogden, B.A.Sc., P.Eng.  
Toronto, Ontario.

December 1988

Dual  
63A.383



52C13SW0002 2.11962 MATHER

010C

## TABLE OF CONTENTS

	Page
INTRODUCTION AND REFERENCES . . . . .	1
PROPERTY, LOCATION AND ACCESS . . . . .	1
THE FLAGGED STATIONS . . . . .	2
MAGNETOMETER PROFILE . . . . .	2
TWO LINES OF SELF POTENTIAL SURVEY . . . . .	3
ROCK SAMPLE ANALYSIS . . . . .	3
BIOGEOCHEMISTRY . . . . .	4
CONCLUSIONS . . . . .	4
RECOMMENDATIONS . . . . .	5

## **INTRODUCTION AND REFERENCES**

This investigation is a direct follow-up of the "Geological Survey" as reported by Michael Ogden for Walter Cummings in November 1988 and filed for assessment credits under Reference No.2-11817. The reader is referred to that report for background information, history and geology of the claim group.

This report covers a detailed investigation of one small portion of the property, i.e. claim 1020559 and adjacent areas, otherwise known as the N.E. portion of the N1/2 of Lot 2, Concession VI of Mather Township.

The purpose of this study was to see if the sulphide mineralization found in the Canadian Nickel Company drilling of 1972 and 1973 revealed itself at surface by an increased mineral content of any of the overlying rock or soils, or if a magnetometer or self potential unit might detect it.

## **PROPERTY, LOCATION AND ACCESS**

The property consists of 20 claims, all of which are portions of certain lots, in Mather and Potts Townships. It lies one lot west of the road from Emo to Clearwater Lake some 21 kilometers north of Emo and 5 kilometres south of Clearwater. Emo is a little town on the Rainy River, 33 kilometres west of Forth Francis on Highway No.11.

The claims are numbered and described as follows:

1020555	=	NE portion S1/2 Lot 4, Conc.I, Potts Twp., recorded	Dec.22/87
1020556	=	NW      "      "      "	Dec.22/87
1020557	=	SW      "      "      "	Dec.22/87
1020558	=	SE      "      "      "	Dec.22/87
1020559	=	NE portion N1/2 Lot 2, Conc.VI, Mather Twp.,	"      Dec.22/87
1020560	=	NW      "      "      "	Dec.22/87
1020957	=	SW      "      "      "	Dec.22/87
1020958	=	SE      "      "      "	Dec.22/87
1020959	=	NE      S1/2      "	"      Dec.22/87
1020960	=	NW      "      "      "	Dec.22/87
1063158	=	NE      "      N1/2 Lot 3,	"      Jul.12/88
1063159	=	SE      "      "      "	Jul.12/88

#### **THE FLAGGED STATIONS**

A line of stations marked by orange flagging tape on the trees and numbered 1 to 30 was established at 50 foot intervals, starting 130 feet south of the No.1 post of 1020559 and extending toward the southwest to an area of outcrop. The apparent collar of the 1972 hole by Canico (Inco No.48577) is at Station No.3. It was drilled along the line to the southwest at a dip of 45° for 226 feet.

#### **MAGNETOMETER PROFILE**

A crude profile was run earlier in the summer with a Conimag but it was replaced by that of a MP-2 Proton Precession Magnetometer built by Scintrex. The latter is shown at 200 and also at 40 feet to the inch on the accompanying sketches.

The profiles indicate the dip of magnetic strata to be steeply to the southwest. Such is corroborated by a stereo net analysis of the three Canico holes which shows the dip of the formations to be about 75° to the southwest. The almost flat profile after the last outcrop area

("B" on Plan) suggests a more acid rock under "C" and "D". The rocks at "B" had become much more acidic.

#### **TWO LINES OF SELF POTENTIAL SURVEY**

These were run at 50 feet intervals over the flagged line and also along a parallel line 300 feet southeast of the first line.

A fixed back pot was used with just the two base stations "00" for the first line and station number "3" for the cross line and the other parallel line. As can be seen the results are all within normal range. Unless one takes the average of the common numbers, i.e. 39 and consider it to be really zero then the values at stations 1, 2, 3, 4 and 5 become -39, -36, -31, -23, -19, -20 which might be construed as a very weak anomaly.

We also ran the flagged stations from 0 to 27 using the less accurate leap-frog method of Self Potential. The results which varied from -13 to -80 were again inconclusive although the area around station 16 might be worth further investigation by some other method.

#### **ROCK SAMPLE ANALYSIS**

The accompanying map on a scale of 1 inch to 40 feet shows the rock outcrop in the vicinity of the old Canico anomaly. There is a rather vague indication of a trend of higher metal values from the small trench at Station No.7 toward the northwest through samples 81, 82 and 16971, with unusually high gold or copper values. The small pit or trench near Station No.7 is a bit of an enigma in itself, for about half of the five rock samples that have been taken from here are anomalously high in gold, copper, or zinc. The odd high gold is found elsewhere (e.g. No.80 to the northeast) but the expected northwest trend seems to be real.

## BIOGEOCHEMISTRY

In the past, spruce cutting or spruce bark, or tag alder leaves and twigs, or maple leaves and twigs have faithfully reflected the underlying mineralization. Here, the only common shrub or tree was poplar, so we cut samples of poplar bark at chest height at 50 foot intervals (i.e. Stations 0 to 24).

The results as shown on the accompanying plan "Geochemistry" at a scale of 1 inch to 40 feet are not exactly "definitive". The slight increase in gold content at Stations 7, 9 and 14 plus molybdenum at 4 and 10, with iron at 4, 7 and 14 and zinc at 16, all hint or suggest that there is an increase in the metal content of the rocks underlying Stations 4 to 16, a distance of 600 feet.

It is worth noting that the series of 30 samples taken from Stations 0 to 29 in early August returned a bizarre amount of gold from X-Ray Assay Laboratories, e.g. up to 1200 parts per billion, whereas people in the Geological Survey of Canada tell me that 200 ppb is the highest that can be expected from bark samples. Hence we resampled the line in September giving the very low value of 0.1 gold as a high.

## CONCLUSIONS

1. The northwest trend of unusual metal content (gold, copper, zinc, and perhaps molybdenum) is reasonably well established and indicates a broad zone of underlying metallic mineralization.
2. The magnetics suggest a series of southwest dipping ( $75^{\circ}$  from the stereo net) zones of pyrrhotite + magnetite in gabbros starting at about Station 13 and continuing toward the northeast to Station No.3 and perhaps even beyond the zero. They are overlain by acidic rocks toward the southwest.

3. Poplar bark may be a poor choice for geobiochemical prospecting.

**RECOMMENDATIONS**

1. Find the old aero-electromagnetic anomaly on the ground by vertical loop E.M.
2. Detail its length, width, multiple parallel structures and apparent dip if possible.
3. Run 2 or 3 gravity survey lines over it and out into the country rock to ascertain if a body of substantial gravity, e.g. a copper, zinc orebody is indicated somewhere between surface and 3000 feet in depth.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael Ogden". It is written in a cursive, flowing style with some loops and variations in thickness.

Michael Ogden, B.A.Sc., P.Eng.

SAMPLE	AU PPM	CR PPM	FE %	CO PPM	ZN PPM	AS PPM	
50	<0.1	<0.3	0.007	0.5	140	0.03	
57	<0.1	<0.3	0.007	0.5	130	0.03	
58	<0.1	<0.3	<0.005	0.4	78	0.02	
59	0.1	<0.3	<0.005	0.4	130	0.02	
60	<0.1	<0.3	<0.005	<0.3	150	0.01	
61	<0.1	<0.3	<0.005	0.3	79	0.01	
62 A3	<0.1	0.3	0.009	0.6	140	0.05	
63 BR AS CO Fe	<0.1	<0.3	0.011	0.8	130	0.07	
64	<0.1	<0.3	0.006	<0.3	82	0.02	
65	<0.1	<0.3	0.007	<0.3	63	0.03	
66	<0.1	<0.3	0.008	<0.3	94	0.04	
67 BR AS	0.1	<0.3	0.007	0.3	88	0.06	
68 BA BR	<0.1	<0.3	0.008	0.3	87	0.04	
69	0.1	<0.3	<0.005	<0.3	46	0.02	
70 Co	<0.1	<0.3	<0.005	1.0	98	0.03	
71 Mo	<0.1	<0.3	0.006	0.3	26	0.02	
72 BA	<0.1	<0.3	<0.005	0.3	120	0.02	
73	<0.1	<0.3	<0.005	<0.3	100	0.02	
74	<0.1	<0.3	<0.005	<0.3	110	0.01	
75 BA	<0.1	<0.3	<0.005	<0.3	92	0.01	
76 BA	0.3	<0.3	0.005	0.4	90	0.02	
86 Co	<0.1	<0.3	0.007	1.0	110	0.03	
87	<0.1	<0.3	0.007	0.6	110	0.04	
88	<0.1	<0.3	<0.005	0.4	130	0.01	
89	<0.1	<0.3	<0.005	0.6	160	<0.01	
STA. NO	90 Mo FINER AND 3 MILLS	<0.1	<0.3	<0.005	0.7	140	<0.01
1	91	<0.1	<0.3	<0.005	0.6	110	0.02
2	92	<0.1	<0.3	<0.005	0.6	100	0.01
3	93	<0.1	<0.3	<0.005	0.4	92	0.01
4	94 Mo Fe	<0.1	0.3	0.010	0.3	120	0.04
5	95	<0.1	<0.3	0.005	<0.3	130	0.04
6	96	<0.1	<0.3	<0.005	0.4	99	0.02
7	97 Co Fe	- 0.1	<0.3	0.010	0.8	140	0.04
8	98 Fe	<0.1	0.3	0.013	0.5	110	0.04
9	99	- 0.1	<0.3	0.008	0.3	140	0.02
10	100 Mo	<0.1	0.3	0.009	0.3	100	0.04
11	101	<0.1	<0.3	<0.005	<0.3	83	0.01
12	102	<0.1	0.3	0.005	<0.3	100	0.01
14	103 Fe	- 0.1	0.3	0.014	0.3	160	0.04
16	104 ZN	<0.1	<0.3	0.008	<0.3	240	0.03
18	105	<0.1	<0.3	<0.005	0.3	110	0.01
20	106	<0.1	0.3	0.006	<0.3	110	0.01
22	107	<0.1	0.3	0.007	<0.3	120	0.03
24	108	<0.1	<0.3	<0.005	0.4	140	0.01
	109 = BA 93	0.1	<0.3	<0.005	0.4	120	0.01

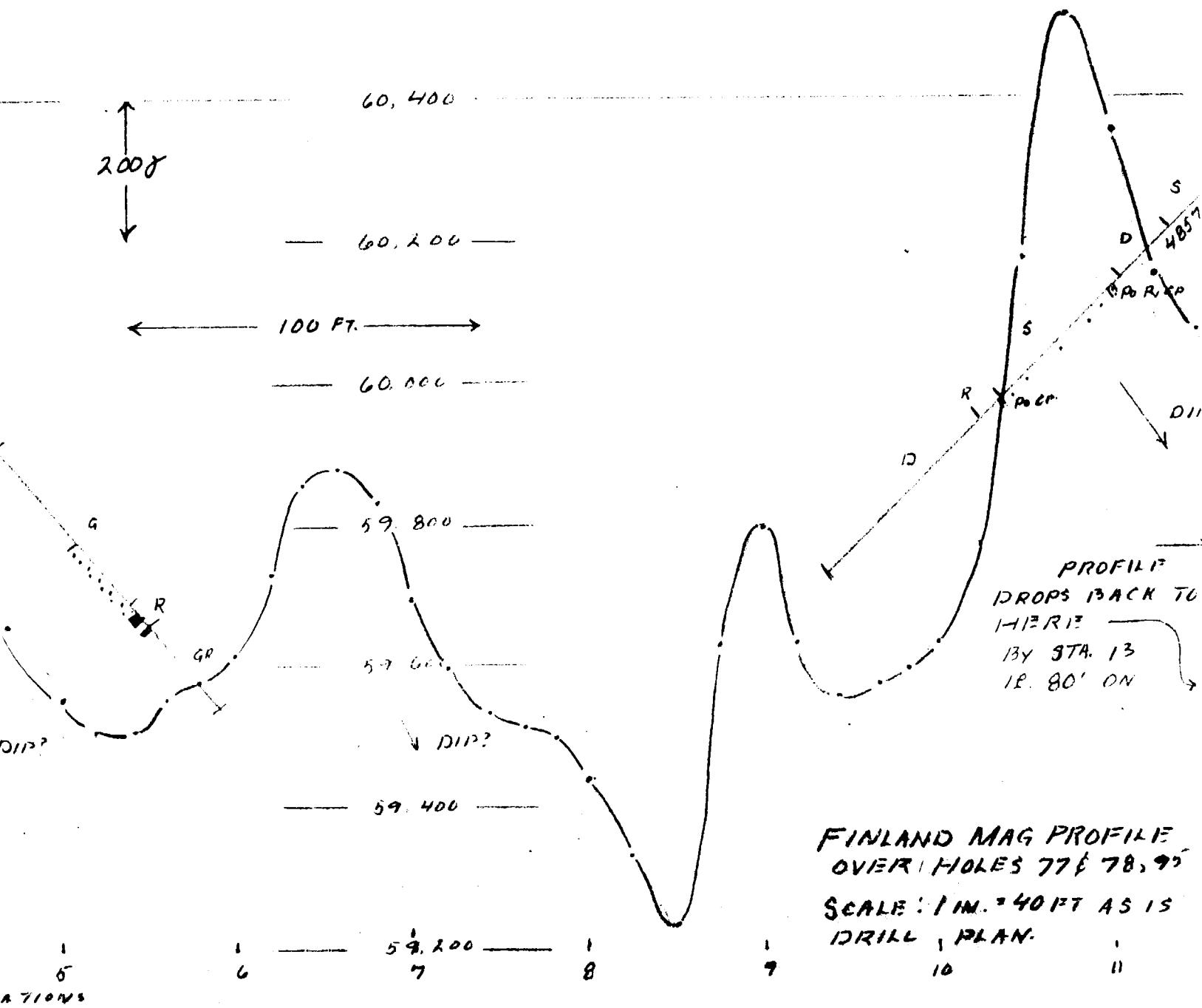
SAMPLE	SE PPM	BR PPM	MO PPM	AG PPM	SB PPM	
1	<0.5	0.52	<0.07	<0.3	0.01	
57	<0.5	1.20	<0.07	<0.3	0.01	
58	<0.5	0.37	<0.05	<0.3	<0.01	
59	<0.5	0.27	<0.07	<0.3	0.01	
60	<0.5	0.24	<0.07	<0.3	<0.01	
61	<0.5	0.21	<0.07	<0.3	<0.01	
62	<0.5	0.55	<0.07	<0.3	0.01	
63	<0.5	1.20	<0.07	<0.3	0.01	
64	<0.5	0.40	0.07	<0.3	0.01	
65	<0.5	0.69	<0.05	<0.3	0.01	
66	<0.5	0.58	<0.06	<0.3	0.01	
67	<0.5	1.10	<0.07	<0.3	0.01	
68	<0.5	1.30	<0.07	<0.3	0.01	
69	<0.5	0.61	0.08	<0.3	0.01	
70	<0.5	0.69	<0.05	<0.3	0.01	
71	<0.5	0.82	0.09	<0.3	0.01	
72	<0.5	0.52	<0.07	<0.3	0.01	
73	<0.5	0.71	0.08	<0.3	<0.01	
74	<0.5	0.40	<0.07	<0.3	<0.01	
75	<0.5	0.44	<0.07	<0.3	<0.01	
76	<0.5	0.90	0.07	<0.3	0.01	
86	<0.5	0.75	<0.07	<0.3	0.01	
87	<0.5	0.77	0.08	<0.3	0.02	
88	<0.5	0.51	<0.08	<0.3	0.01	
89	<0.5	0.35	<0.08	<0.3	0.01	
90	FINAL AND SPKS.	<0.5	0.35	0.12	<0.3	0.01
91	- 1	<0.5	0.38	<0.05	<0.3	<0.01
92	2	<0.5	0.33	<0.07	<0.3	<0.01
93	3	<0.5	0.21	<0.05	<0.3	<0.01
94	4	<0.5	0.76	0.14	<0.3	0.01
95	5	<0.5	0.39	<0.05	<0.3	0.01
96	6	<0.5	0.44	<0.07	<0.3	0.01
97	7	<0.5	0.73	<0.08	<0.3	0.01
98	8	<0.5	0.80	<0.08	<0.3	0.02
99	9	<0.5	0.60	<0.07	<0.3	0.01
100	10	<0.5	0.63	0.14	<0.3	0.01
101	11	<0.5	0.40	<0.07	<0.3	0.01
102	12	<0.5	0.45	<0.07	<0.3	0.01
103	14	<0.5	0.69	<0.08	<0.3	0.01
104	16	<0.5	0.62	<0.08	<0.3	0.01
105	18	<0.5	0.39	<0.07	<0.3	<0.01
106	20	<0.5	0.38	<0.07	<0.3	0.01
107	21	<0.5	0.57	<0.07	<0.3	0.01
108	24	<0.5	0.37	<0.07	<0.3	<0.01
109	= 13 AGS	<0.5	0.52	<0.07	<0.3	<0.01

SAMPLE	BA PPM	TA PPM	W PPM	TH PPM	U PPM
5	80	<0.2	<0.05	<0.1	<0.02
57	90	<0.2	<0.05	<0.1	<0.02
58	60	<0.2	<0.05	<0.1	<0.02
59	130	<0.2	<0.05	<0.1	<0.02
60	70	<0.2	<0.05	<0.1	<0.02
61	60	<0.2	<0.05	<0.1	<0.02
62	60	<0.2	<0.05	<0.1	<0.02
63	30	<0.2	<0.05	<0.1	<0.02
64	30	<0.2	<0.05	<0.1	<0.02
65	60	<0.2	<0.05	<0.1	<0.02
66	120	<0.2	<0.05	<0.1	<0.02
67	150	<0.2	<0.05	<0.1	<0.02
68	210	<0.2	<0.05	<0.1	<0.02
69	<20	<0.2	<0.05	<0.1	<0.02
70	260	<0.2	<0.05	<0.1	<0.02
71	<20	<0.2	<0.05	<0.1	<0.02
72	200	<0.2	<0.05	<0.1	<0.02
73	150	<0.2	<0.05	<0.1	<0.02
74	130	<0.2	<0.05	<0.1	<0.02
75	200	<0.2	<0.05	<0.1	<0.02
76	240	<0.2	<0.05	<0.1	<0.02
86	120	<0.2	<0.05	<0.1	<0.02
87	140	<0.2	<0.05	<0.1	0.02
88	130	<0.2	<0.05	<0.1	<0.02
89	130	<0.2	<0.05	<0.1	<0.02
90	80	<0.2	<0.05	<0.1	<0.02
91	70	<0.2	<0.05	<0.1	<0.02
92	70	<0.2	<0.05	<0.1	<0.02
93	40	<0.2	<0.05	<0.1	<0.02
94	40	<0.2	<0.05	<0.1	<0.02
95	30	<0.2	<0.05	<0.1	<0.02
96	30	<0.2	<0.05	<0.1	<0.02
97	100	<0.2	<0.05	<0.1	<0.02
98	50	<0.2	<0.05	<0.1	<0.02
99	50	<0.2	<0.05	<0.1	<0.02
100	30	<0.2	<0.05	<0.1	0.02
101	30	<0.2	<0.05	<0.1	<0.02
102	40	<0.2	<0.05	<0.1	<0.02
103	60	<0.2	<0.05	<0.1	<0.02
104	30	<0.2	<0.05	<0.1	<0.02
105	30	<0.2	<0.05	<0.1	<0.02
106	30	<0.2	<0.05	<0.1	<0.02
107	80	<0.2	<0.05	<0.1	0.02
108	120	<0.2	<0.05	<0.1	<0.02
109	140	<0.2	<0.05	<0.1	<0.02



NI WITH A PROTON MAGNETOMETER  
INTRIX WITH REPEATABILITY OF

60 600 ft



**H. B. & O. ENGINEERING LIMITED**

MICHAEL OGDEN, B.A.Sc., P.ENG. PRESIDENT  
R.R. 4, STOUFFVILLE, ONT. L4A 7X5 416-888-1106

R.A. HALET, PH.D., P.ENG.

R.R. 1, CAMPBELLVILLE, ONT. L0L 1B0 416-884-9861

P.S. BROADHURST, B.Sc., P.ENG.  
4000 YONGE ST., APT. 411, TORONTO, ONT. M4N 2W8 416-482-2368

December 15, 1988.

Mr. Walter M. Cummings,  
Condo "C",  
2929 Lichen Lane,  
CLEARWATER,  
Florida, U.S.A.  
33520

IN ACCOUNT WITH:

H. B. & O. Engineering Limited

**Re Finland, A Special Report**

Re: Field work last summer; Self Potential and  
Magnetometer as deducted from the last Invoice  
Nov. 11 for 3 days

\$1,810.14

Professional Services October, November and  
December re maps and report preparation

1,750.00

Expenses:

Car Rental, Oct.	\$102.00
Air Travel, Oct.	100.00
Motel, meals, etc.	55.75
X-Ray Assay rock analyses, Oct.	164.50
X-Ray Assay rock analyses, Nov.	103.50
X-Ray Assay 23 Poplar Bark, Dec.	<u>368.00</u>
	<u>893.75</u>
	<u><u>\$4,453.89</u></u>

# H. B. & O. ENGINEERING LIMITED

MICHAEL OGDEN, B.A.Sc., P.ENG. PRESIDENT

R.R. 4, STOUFFVILLE, ONT. L4A 7X5 416-888-1106

R.A. HALET, PH.D., P.ENG.

R.R. 1, CAMPBELLVILLE, ONT. L0P 1B0 416-884-9881

P.S. BROADHURST, B.Sc., P.ENG.

4000 YONGE ST., APT. 411, TORONTO, ONT. M4N 2N8 416-432-2388

November 11, 1988.

Mr. Walter Cummings,  
204 Markland Drive,  
ETOBICOKE, Ontario.  
M9C 1R3

IN ACCOUNT WITH

H. B. & O. Engineering Limited

## Re: Finland Geological Survey

TO: Professional Services of Michael Ogden  
from May to August, 1988.

Field assistant

1,050.00
----------

Jul.14	Trails End meals, lodging	1,146.60
Aug. 6	Trails End meals, Lodging	411.50
Sep.13	Bell Telephone	70.14
Aug.17	Summer out-of-pocket expenses	350.00
Sept.	Visa charges - meals, etc., en route	186.48
"	Car mileage - 2,350 x \$0.25	<u>587.50</u>
	Total	9,052.22

Nov.11 This total involves 15 days field work, therefore 1 day averages \$603.48. But 3 days were involved in S.P., mag. and sampling. Then less 3 days

<u>1,810.44</u>
7,241.78



## NOTES

400 surface rights reservation along the shores  
of all lakes and rivers

This Township lies within the  
Corporation of the Township of Chapple

## SAND &amp; GRAVEL

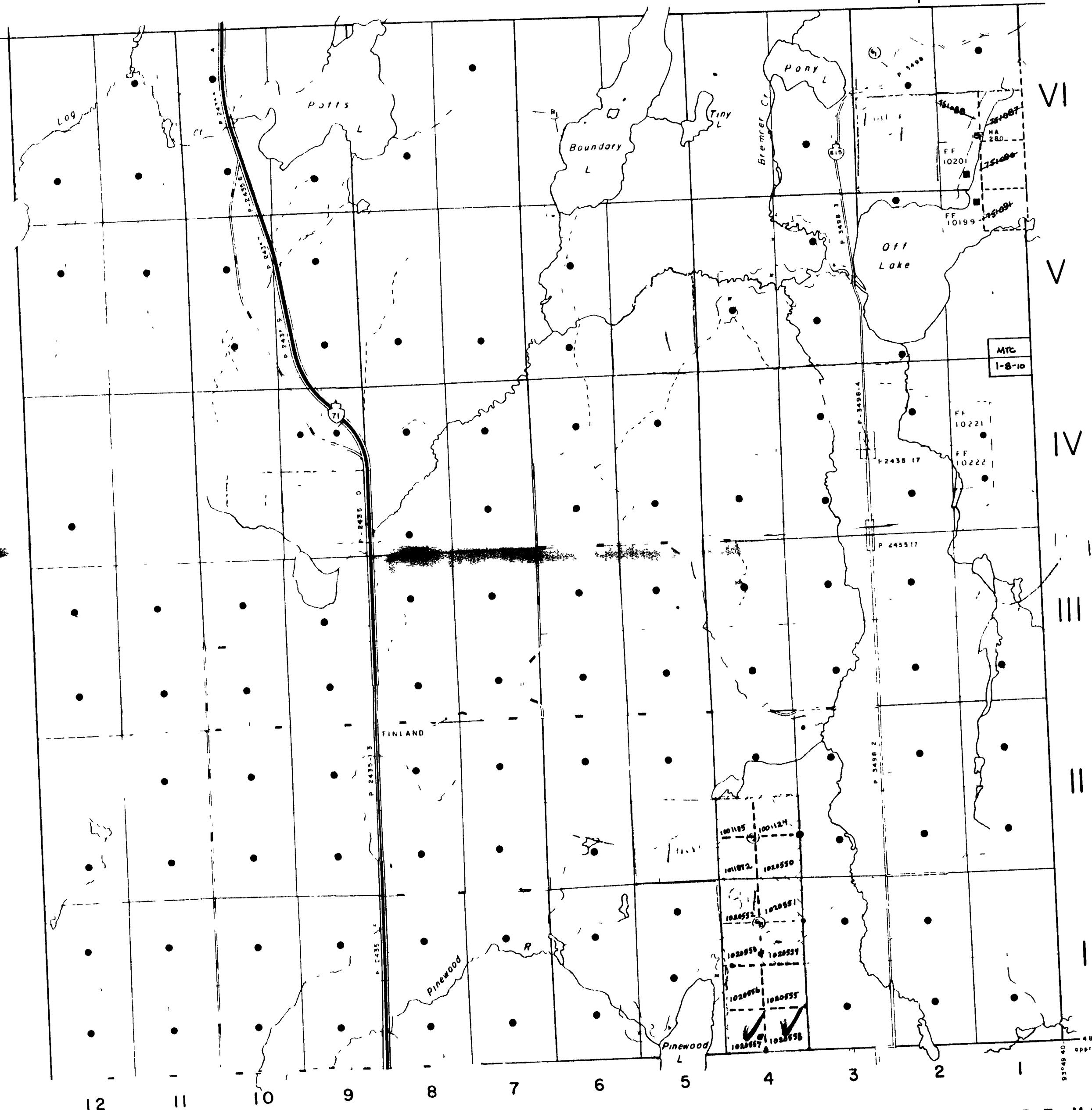
- (1) MTC Gravel Pit File 8132
- (2) MTC Pit 417
- (3) " Pit 416

## RESERVES

- (1) MNR Reserve File 88158

Areas withdrawn from staking under Section  
43 of the Mining Act (R.S.O. 1970)  
file [REDACTED]

RICHARDSON Tp M 2115



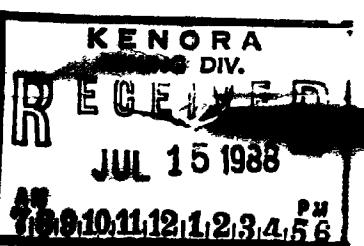
## NOTES

-20 surface rights reservation along the shores  
of all lakes and rivers

This Township lies within the Corporation  
of the Township of Chapple

Areas withdrawn from staking under Section  
43 of the Mining Act (R.S.O 1970)

Order No. File Date Disposition

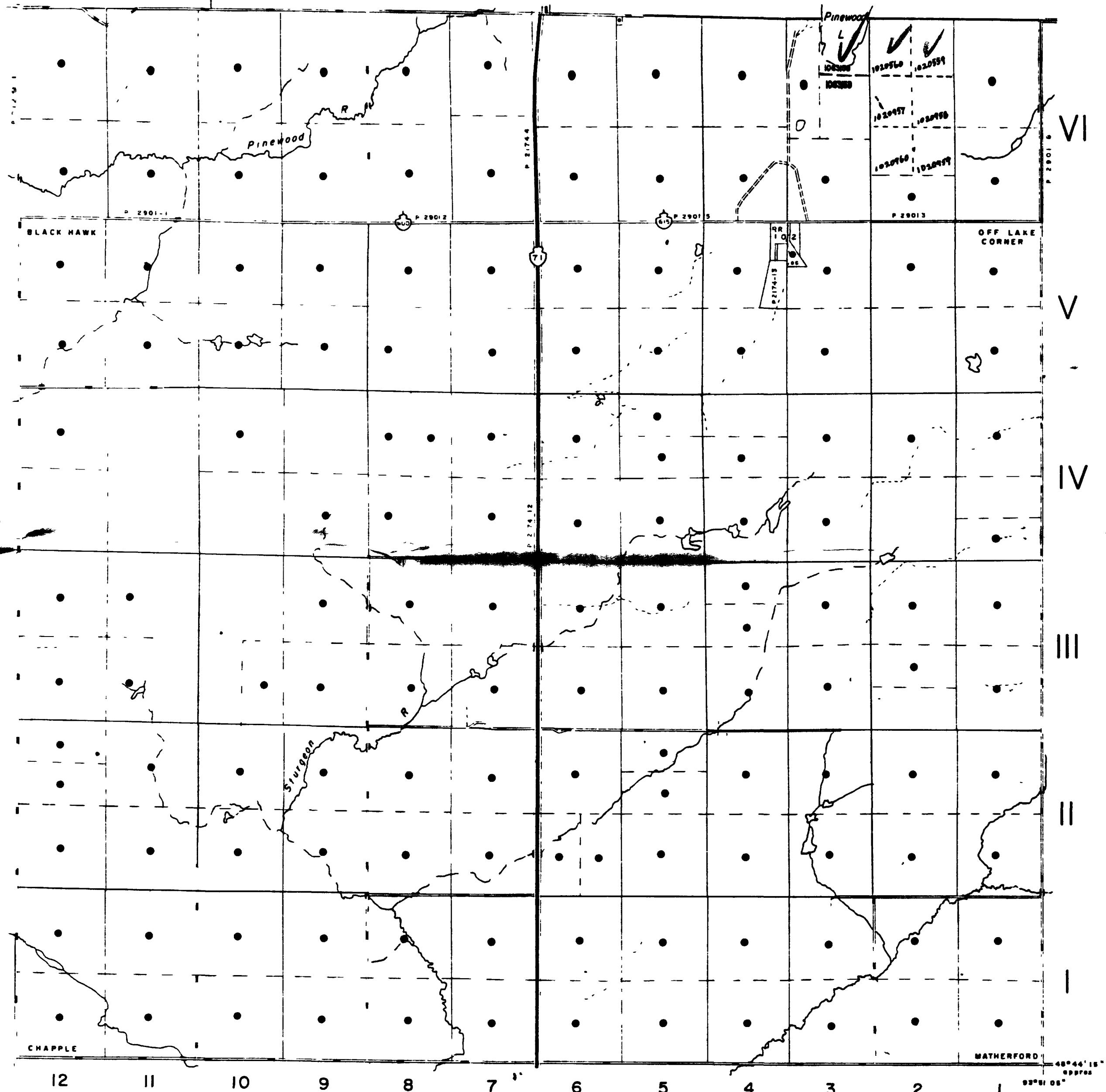


RICHARDSON Tp M 2115

POTTS Tp. M. 2109

TAIT Tp. M 2124

DOBIE Tp. M 2079



Ministry of Natural  
Resources

Ontario Surveys and Mapping Branch

Date Plan No.

Whitney Block Queen's Park, Toronto

M.209

## 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

ORIGINAL SHORELINE

MARSH OR MUSKEG

MINES

## DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT

PATENT SURFACE & MINING RIGHTS

SURFACE RIGHTS ONLY

MINING RIGHTS ONLY

LEASE SURFACE & MINING RIGHTS

SURFACE RIGHTS ONLY

MINING RIGHTS ONLY

LICENCE OF OCCUPATION

CROWN LAND SALE

ORDER-IN-COUNCIL

RESERVATION

CANCELLED

SOIL & GRAVEL

SYMBOL

SCALE 1 INCH = 40 CHAINS

FEET METRES

ACRES HECTARES

40 16

TOWNSHIP DISTRICT RAINY RIVER MINING DIVISION KENORA

**MATHER**

DISTRICT  
RAINY RIVER  
MINING DIVISION

KENORA

Ministry of Natural  
Resources

Ontario Surveys and Mapping Branch

Date Plan No.

Whitney Block Queen's Park, Toronto

M.209



